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APP II SWMUs: 1, 7, 8, 9, 11, 32a, 33b, 38, 39 CAFB 98-008
APP III SWMUs: 46, 47, 51, 57, 61, 62, 63, 70, 92, 94

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CORRECTIVE MEASURE COMPLETION REPORT

APPENDICES II AND III
SOLID WASTE MANAGEMENT UNITS

CANNON AIR FORCE BASE
CLOVIS, NEW MEXICO

VOLUME 1

Prepared for:

CANNON AIR FORCE BASE
27 CES/CEVR
Environmental Flight

July 1999

July 1, 1999

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
ALBUQUERQUE DISTRICT

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January 14, 2000

Loyd S. Utterback, Colonel, USAF
Commander
100 S DL Ingram Blvd., Suite 100
Cannon Air Force Base, NM 88103-5214

RE: CANNON AIR FORCE BASE
CONSTRUCTION MEASURE COMPLETION REPORT
APPENDICES II AND III SOLID WASTE MANAGEMENT UNITS (OWS)
SWMU NOS. 1,7,8,9,11,32A,32B,38,39,46,47,51,57,61,62,63,70,92,94
EPA ID NO. NM7572124454

Dear Colonel Utterback:

The Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department has reviewed for technical adequacy the above-referenced Report, as required under the New Mexico Hazardous Waste Management Regulations. The Report is dated July 1999, and was received by HRMB on December 15, 1999.

After reviewing the Report, HRMB has found the Report to be technically adequate and approves the Report. The sites included in the Report may be removed from the listing of SWMU's in the HSWA module of your RCRA Permit if you submit a Class 3 permit modification request for removal of the SWMU's and that request is approved by HRMB.

If you have any questions please contact me at 505-827-1561, ex. 1031.

Sincerely,

Carl Will

Carl Will
Environmental Scientist

cc: James Bearzi, HRMB
John Kieling, HRMB
Stu Dinwiddie, HRMB
Bob Sturdivant, EPA
Danny Barnett, CAFB

file: HSWA/CAFB/OWS
track: CAFB/Utterback/Will/1-14-00/approval OWS Construction Completion Report

CAFB 99-008

DEPARTMENT OF THE AIR FORCE
27TH CIVIL ENGINEER SQUADRON (ACC)
CANNON AIR FORCE BASE NEW MEXICO

Lt Colonel Eric J. Wilbur
Commander
506 N DL Ingram Blvd
Cannon AFB NM 88103-5136

28 JAN 2000

Mr. James Bearzi, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department (NMED)
2044 Galisteo Street
P O Box 26110
Santa Fe NM 87502

Dear Mr. Bearzi

Enclosed for your records is the final Corrective Measures Completion Report and the Revised Response to NMED comments for the removal of 19 oil/water separators in the Appendix II and III of our RCRA Part B permit. These oil/water separators were removed in 1996 and 1997.

If you have any questions, please contact Mr. John Pike at (505) 784-1092 or Mr. Sanford Hutsell at (505) 784-6378.

Sincerely

ERIC J. WILBUR, Lt Col, USAF

Attachments:
1. Completion Report
2. Revised Comments

cc:
NMED w/o atch (C. Will)
NMED GW Bureau (J. Jacobs)
EPA Region VI (B. Sturdivant)
HQ ACC CEVR (R. Kemmether)

REVISED RESPONSE TO NMED COMMENTS
CAFB CORRECTIVE MEASURES COMPLETION REPORT
APPENDIX II AND III SWMU'S – OIL/WATER SEPARATORS

GENERAL COMMENTS

Page V, Executive Summary: Include a statement describing the Gandy Marley disposal method for soils contaminated with greater than 100 mg/kg TPH.

> **Response:** Cannon AFB will comply with request and enter the following statement into the revised report: *Gandy Marley remediates soil by landfarming techniques. Remediation is accomplished by spreading out the soil in six-inch lifts in a five-acre area or less and disking it every two weeks until soil samples prove the soil is below State of NM regulatory limits. Gandy Marley is a NMED permitted landfarm facility.*

Page V, Executive Summary: Include a statement describing the sampling technique that was used for the concrete prior to disposal.

> **Response:** Cannon AFB will comply with the request and enter the following statement into the revised report: *Prior to disposal, composite samples of concrete chips from the interior floor of the OWS were analyzed by ASTM methods 8260, 8270, and TCLP for metals.*

Page 4-2, Unit Contents, and throughout: Include a description of the sample analysis that was performed to determine whether or not sludge and liquids from the SWMU's was hazardous waste prior to disposal. The Workplan at page 47, section 4.7, states that fluids and sludges from the units would be sampled according to DCQM for Petroleum Storage Tank Remediation Projects in Appendix E. Appendix E contents were not included in HRMB's copy of the Workplan.

> **Response:** Cannon AFB will comply with the request and enter the following information into the revised report: *Unit contents were analyzed for SW-846 methods 8260 Volatiles, 8270 Semi-Volatiles, TCLP extracted 8 RCRA metals, pH, Ignitability, and Reactivity-Cyanide, TPH and Sulfide. Results from analysis will be placed in Appendix I.*

Page 4-2, Unit Contents, and throughout: The report states that sample analysis results for the sludge and liquids removed from each OWS and sandtrap are included in Appendix I. Appendix I sampling data are for soils and solids only, and appear to be duplicaes of soil sampling results in Appendix IV, Laboratory Analysis Results for Soils. Explain the discrepancy. Include sampling results for the SWMU Contents in the Report.

> **Response:** Laboratory analysis for sludge and liquids will be included in Appendix I of the revised report. Clerical error resulted in the discrepancy.

Page 4-4, Table 4.1-1, page 4-7, Table 4.1-3 and throughout: The Workplan, Appendix II and III Solid Waste Management Unit, dated April, 1996, at sections 3.11.1.4 and 4.3.1.9, states that analysis for total RCRA metals would be performed at the bottom of each

excavation. The Summary Soil Sample results tables indicate that only TCLP metals were sampled. Include total metals results in all summary Soil Sample Results tables.

Response: Total Metals were also analyzed for at the bottom of each excavation. The results are available in Appendix IV, however, the Total Metals Soil Sample Results will be placed in the Summary Soil Sample Tables as requested.

Page 4-7, Table 4.1-3, and throughout: The Work plan approval issued by HRMB on April 22,1997, stipulated that analysis for chromium would be valence specific for chromium VI. The Report does not indicate that this was done. Explain the discrepancy.

Response: Total Chromium was analyzed at each location. Analysis of total chromium at the SWMUs revealed levels were below the established background level for Cannon AFB with the exception of SWMU 51. Because only the analysis for total chromium was performed, a conservative assumption was made to assume all chromium detected was chromium VI. According to 1998 EPA Region IX PRG's, the chromium VI screening level for protection of groundwater, with a DAF of 20, is 38 mg/kg. According to EPA Guidance, these sites meet the criteria for use of the DAF of 20, based on their area and soil type. None of the sites exceeded the 38 mg/kg screening level requiring further action.

Appendices: Include laboratory analysis results for each duplicate of samples submitted for laboratory analysis to correlate field findings.

Response: Results for duplicates will be included in Appendix IV.

Appendices: Laboratory analysis results for soil in Appendix IV appears to not include SWMU's 1, 7, 11, 38, and 63. Include those results if missing.

Response: Missing results will be included into Appendix IV of the revised report.

4.1 Appendix II SWMU's

4.1.1 SWMU 1

Soil Sampling, Page 4-3: Sample locations 2 and 4 were collected from the east and west walls two feet below the top of the unit, which is described as an inch below the soil level. Sample information in Volume 2 lists these samples as taken from a depth of 11 feet bgs. Explain the discrepancy.

Response: Samples 2 and 4 were both taken 11 feet bgs, which is 2 feet below the floor of the OWS slab that was left in place. Clarification will be made to the revised report.

Risk Evaluation, Page 4-7, Table 4.1-3: The Region 6 Residential RBSL values in the table for barium, nickel, and lead are an order of magnitude lower than what they should be. For example, the RBSL for lead is 400 mg/kg, not 40 mg/kg.

Response: Cannon AFB concurs. Table will be changed to meet EPA Region VI specifications in the revised report.

4.1.2 SWMU 7

Soil Sampling, Page 4-10: Provide further explanation of why sample #8 was considered not representative of the excavated material. Provide an explanation if the analytical results were believed to be in error. Identify whether or not samples #8 and #10 were composite samples. If known, provide information on the location of sample #8 relative to sample #10 and to the location of soil prior to removal.

Response: Sample number 8 was taken from a single hot location in the stockpile and was not a composite sample. Confirmatory samples from the sides and bottom of the excavation showed no detectable contamination. Sample number 10 was a composite sample of the excavated soil. Information will be added to the revised report for clarification.

4.1.4 SWMU 9

Soil Sampling, Page 4-26: Identify in the report, on a map and in a narrative discussion, the verification sample taken at the leaking joint.

Response: Cannon AFB will concur and information will be inserted into the revised report.

Page 4-27: Include an explanation of why sample #11 was not analyzed.

Response: Sample #11 was a split sample for the government QA, but not analyzed due to funding constraints. A QA sample was taken at a later date. Information detailing the action will be included into the revised report.

4.1.6 SWMU 32A

Soil Sampling, Page 4-42: Submit to HRMB a SWMU Assessment Report and investigation of the newly-discovered release in accordance with Module IV, Section E and F, of CAFB's RCRA Permit, for the soil contamination under the adjacent concrete washrack and resulting from runoff from the clogged drain and surface contour.

Response: The adjacent washrack is identified in the Cannon AFB RCRA Permit as SWMU 31. No SWMU assessment is necessary as the site was previously identified and assessed in the base-wide RCRA Facility Assessment. The site will undergo further evaluation to determine the nature and extent of contamination, however, the location is currently industrially active. Previous RCRA Facility Investigations have shown limited contamination which will need to be addressed in the future. Cannon AFB will program further investigation for SWMU 31. SWMU 32A, while adjacent to SWMU 31, is a separate site.

4.1.7 SWMU 33b

The divider for this section is labeled "32B." Submit a divider with the correct tab label.

Response: Cannon AFB will concur.

Unit Contents, Page 4-48: As stated in the general comments, include the sample results indicating the possibility of high lead.

Response: Concur-Sample results for the OWS contents will be included in Appendix I of revised report.

4.2 Appendix III SWMU's

4.2.3 SWMU 51

Soil Sampling, Page 4-88: Sample 5 field sampling analysis should have led to additional sampling or soil removal. The Work Plan, at sections 3.5.3, 3.6.2.8, and 4/3/1/5, states that vertical and lateral extents of contamination would be determined by completing borings to detection levels less than Primary Remediation Goals of 100 ppm TPH and 50 ppm BTEX, and that soil with field detection levels greater than 100 ppm TPH would be excavated. The levels of TPH detected are not addressed in the risk analysis.

Response: Further excavation of soil from the site was not performed because of the location of the OWS with respect to the structural support of the building. Engineers feared that further soil removal could place the support foundation of building 375 in jeopardy leading to structural failure. A decision was made to leave the soil in place based on the detected level of contamination not exceeding 400 ppm TPH and to justify by risk evaluation. The risk analysis will be added to the text to justify the action.

4.2.5 SWMU 61

Soil Sampling, Page 4-106: Explain why field-sampling analysis did not include BTEX.

Response: The BTEX field-sampling at this location was overlooked by the contractor. The Quality Assurance personnel were absent due to a family emergency and failed to correct the mistake prior to the area being backfilled and covered by an asphalt parking lot. The location is identified by a permanent survey marker and could be further investigated, however, due to the absence of Total Petroleum Hydrocarbons at the site, Cannon Environmental personnel are confident that no significant BTEX contamination exists.

4.2.5 SWMU 62

Soil Sampling, Page 4-113: Explain why field-sampling analysis did not include BTEX.

Response: See response for Soil Sampling, Page 4-106 above.

4.2.7 SWMU 63

Unit Removal, Page 4-119: The report does not state that the concrete was analyzed prior to disposal.

Response: The concrete sampling at this location was overlooked by the contractor. The Quality Assurance personnel were absent due to a family emergency and failed to

correct the mistake prior to disposal. The concrete vault was thoroughly cleaned with a high pressure washer with the wash water tested prior to disposal.

Soil Sampling, Page 4-127: Explain why field-sampling analysis did not include BTEX.
Response: See response for Soil Sampling, Page 4-106 above.

4.2.8 SWMU 70

Soil Sampling, Page 4-129. Table 4.2-15 shows that field analysis results detected BTEX greater than 300mg/kg. Explain why these sample results did not result in further sampling analysis or soil removal. These detections are not discussed in the text.
Response: No additional soil was removed at the time of the OWS removal as a system for soil remediation, a bioventing system, is already in place. This system is addressing the petroleum contamination at the site. Removal of the OWS was a protective measure to ensure the source of contamination was eliminated leaving no chance for further soil pollution.

4.2.9 SWMU 92

Unit Description, Page 4-136: Include an explanation of what was the source of discharge into this OWS, for example by explaining what is a Power Check Pad.
Response: A Power Check Pad is an area where aircraft engine testing is performed. Jet fuel, petroleum, oils and lubricants that drip from the engine as it is tested are washed into a drain on the pad and into an OWS before the wastewater is released to the sanitary sewer. This explanation will be entered into the text of the revised report.

APP II: 1, 7, 8, 9, 11, 32a, 33b, 38, 39 • CAFB 99-008
APP III: 46, 47, 51, 57, 61, 62, 63, 70, 92, 94

CORRECTIVE MEASURE COMPLETION REPORT

APPENDICES II AND III
SOLID WASTE MANAGEMENT UNITS

CANNON AIR FORCE BASE
CLOVIS, NEW MEXICO

VOLUME 1

Prepared for:

CANNON AIR FORCE BASE
27 CES/CEVR
Environmental Flight

July 1999

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
ALBUQUERQUE DISTRICT

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EXECUTIVE SUMMARY

This Corrective Measure Completion Report (CMCR) has been prepared to attain closure of nine Appendix II and ten Appendix III Solid Waste Management Units (SWMUs) located at Cannon Air Force Base (CAFB) in Clovis, New Mexico. CAFB currently operates in compliance with the terms of a Resource Conservation and Recovery Act (RCRA) permit issued by the U.S. Environmental Protection Agency (EPA) and enforced by the State of New Mexico. This permit includes the investigation and implementation of corrective measures used to remediate environmental impacts associated with the release(s) of petroleum hydrocarbon-containing products and other chemicals from SWMU's.

This report summarizes and provides documentation for the corrective measures performed during the period July 24, 1996 through June 8, 1997, by the U.S. Army Corps of Engineers and its contractor. The corrective measures consisted of the removal, disposal and replacement of 4 oil/water separators (OWSs), the removal and disposal of 10 OWSs, the closure-in-place of 2 OWSs, the removal and disposal of two 250-gallon underground storage tanks (USTs), the removal, disposal and replacement of 1 sandtrap, the removal and disposal of 5 sandtraps, and the closure-in-place of one oil-containment vault. All units were evacuated and cleaned with a high pressure wash. Prior to disposal, composite samples of concrete chips from the interior floor of the OWS were analyzed by ASTM methods 8260, 8270, and TCLP for metals. Approximately 1,179 gallons of semi-solid materials (sludge), 14,286 gallons of water and 429 gallons of waste oils were disposed of in the cleaning operations.

Soils adjacent to and within a 2-foot distance of the units were visually checked, and chemically analyzed in an approved laboratory for organic and heavy metal contamination. All soils excavated from around the units were removed and replaced with clean backfill. New Mexico Environment Department UST standards for soil clean-up were chosen as the Corrective Measure Completion (CMC) criteria for this project. These criteria are total petroleum hydrocarbon (TPH) levels less than 100 ppm, and BTEX levels less than 50 ppm, and heavy metals contamination less than the toxicity characteristic (TCLP), per RCRA standards.

Laboratory analysis results indicate that none of the excavated soils were at or above BTEX or TCLP criteria. Approximately 65 cubic yards of excavated soils with TPH levels above 100 ppm were delivered to Gandy Marley, Inc. in Tatum, New Mexico. Gandy Marley remediates soil by landfarming techniques. Remediation is accomplished by spreading out the soil in six-inch lifts in a five-acre area or less and disking it every two weeds until soil samples prove the soil is below State of NM regulatory limits. Gandy Marley is a NMED permitted landfarm facility. Approximately 75 cubic yards of excavated soils which met the clean criteria were disposed of in the City of Clovis Public Landfill and another 134 cubic yards which also met the clean criteria were placed in the CAFB construction debris landfill. Concrete from the units was sampled by compiling a composite sample of chips taken from the interior surface of the unit and subjecting it to testing with EPA methods for Volatiles, Semi-Volatiles, and metals. All concrete was disposed of in the City of Clovis Public Landfill. All steel units and USTs were disposed of at Anderson Recycling Center, in Clovis, New Mexico.

A risk assessment of the sites, based on a comparison of the maximum concentration levels to risk-based screening levels developed by U.S. EPA, Region 6, supports the recommendation that additional investigation or corrective measures of these SWMUs are not warranted.

1.0 PURPOSE

This Corrective Measure Completion Report (CMCR) has been prepared to attain closure of nine Appendix II and ten Appendix III Solid Waste Management Units (SWMUs) located at Cannon Air Force Base (CAFB) in Clovis, New Mexico. CAFB, currently operates in compliance with the terms of a Resource Conservation and Recovery Act (RCRA) permit issued by the U.S. Environmental Protection Agency (EPA) and enforced by the State of New Mexico. This permit includes the investigation and implementation of corrective measures used to remediate environmental impacts associated with the release(s) of petroleum hydrocarbon-containing products and other chemicals from SWMUs.

The purpose of this CMC report is to fully document corrective measure completion (CMC) criteria satisfied by the remedial activities completed by the U.S. Army Corps of Engineers, Albuquerque District, during the period July 24, 1996 through June 8, 1997. The corrective measure consisted of removing oil/water separators (OWSs), underground storage tanks (USTs), and associated piping integral to the nineteen SWMUs. The soils analysis for each of the SWMU excavations, except SWMU 70 where remedial bio-venting was underway prior to the removal and currently continues, demonstrate that the sites are clean according to the CMC criteria and that further investigation or corrective measures are not warranted.

A risk assessment was performed for each site. The maximum contaminant concentrations at each site were compared to the Environmental Protection Agency, Region 6, risk-based screening levels (RBSLs). With the exception of arsenic that is present at high levels in most of the alkaline soils of the southwest, the soils at the sites are at or below the RBSLs or regional background levels. The RBSLs are very conservative concentrations, therefore, contaminants which are at or below these levels pose no significant risk to human health or the environment and closure of these sites is warranted.

2.0 SYNOPSIS OF CORRECTIVE MEASURE

The construction contractor, Cheyenne Building Contractors, Inc. (Cheyenne) of Ruidoso, New Mexico was responsible for completion of all activities outlined in the Construction Work Plan (CWP), specifications and drawings. Cheyenne performed the work according to these documents and utilized experience, technical knowledge, and professional judgement in performance of the work. The following is a summary of the work activities performed by Cheyenne that are detailed in this report, on a site by site basis:

- Reviewed all project documents and met with USACE for a Pre-Construction Conference on July 24, 1996 at CAFB;

- Verified existing site conditions and the location of utilities prior to commencement of field activities at each SWMU site;

- Prepared submittals for USACE;

- Observed all referenced procedures, practices and specifications, including the CWP, the Sampling and Analysis Plan (SAP), the Quality Assurance/Quality Control Plan (QA/QC), and the Health and Safety Plan (HASP), throughout the project's duration;

- Evacuated, cleaned, and purged when necessary, all units of contents, and disposed of units and contents of units according to all applicable federal, state and local regulations;

- Excavated and transported soils with TPH levels at or greater than 100 ppm, and/or BTEX levels at or greater than 10 ppm to a facility permitted to treat such soils;

- Replaced certain oil/water separators (OWS) and/or drains, reconnected piping, or plugged piping and/or drains with grout, or removed piping, and completed site restoration to the satisfaction of CAFB.

3.0 CORRECTIVE MEASURE COMPLETION CRITERIA

Corrective Measure Completion criteria were based on sampling and analysis data, and field inspection documentation (i.e., passing compaction tests, construction completed in accordance with specifications and drawings, etc.).

Soils from the SVVMU excavations were analyzed for the following:

- Volatile Organics (VOA) by EPA method 8260;
- Base/neutral/acid extractable organics (BNA) by EPA method 8270;
- TCLP Metals by EPA methods: 7470 for mercury; and 6010 for arsenic, barium, cadmium, chromium, lead, selenium, and silver; all by TCLP extraction method 1311;
- Diesel and Gasoline Range Organics by EPA method 8015 modified.

The following sample testing criteria, and earthwork testing requirements were attained:

- All excavated soils exhibiting a total petroleum hydrocarbon (TPH) level at or greater than 100 pprn and/or a BTEX level at or greater than 10 ppm, were transported off CAFB for treatment and disposal at the Gandy Marley facility in Tatum, New Mexico;

- All excavated soils exhibiting a total petroleum hydrocarbon (TPH) level less than 100 pprn and a BTEX level less than 10, were placed in the CAFB construction debris landfill or were used as backfill at the SWMU 112 excavation;

- All recovered surface water had concentrations below contaminant levels as outlined by NMED, prior to discharge;

- All soil testing results (i.e., compaction, moisture content, etc.) passed applicable construction specification requirements;

- All construction was completed according to applicable construction specifications and the CWP;

- All wastes were disposed of in accordance with the CWP, and all local, state and federal regulations;

- All work was completed with the approval of the U.S. Army Corps of Engineers, Albuquerque District.

4.0 COMPLETION CRITERIA DOCUMENTATION

This section shall provide the completion criteria documentation for each site, on a site by site basis. Each unit removal, and replacement, as appropriate, shall be described, including a discussion of the soil and unit contents sampling and a summary of sampling results and ambient air monitoring results. Included is a risk analysis for each site, using maximum contaminant concentrations in comparison with the risk based screening levels developed by EPA Region VI and recommendations for any further action.

It was the intention of this corrective measure to remove each unit in its entirety, however, specific site conditions at SWMUs 1, 8, 51, 70, 46 and 92, required portions of the units to remain in place. These site conditions shall be explained in the unit removal summary. In every case, soil sampling results indicated that the portions of the units remaining in the ground would not impact the surrounding soils or groundwater in a negative manner.

All work performed and described in this section followed the procedures in the CWP.

4.1 APPENDIX II SWMUs

4.1.1 SWMU 1

UNIT DESCRIPTION

This OWS unit was located on the southwest comer of building 119 adjacent to the aircraft parking ramp. The unit was an underground three-compartment concrete box measuring 11-feet-10-inches in length, 6-feet-4-inches in width and 9-feet-3-inches in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit functioned as an oil/water separator which received effluent from drains in hangar building 119 and discharged wastewater to the Stormwater Collection Point, SWMU 85. SWMU I had been in use since 1963.

A brass cap was placed at the northern comer of where the unit was located as shown in Figure 4.1 -1. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1233458.15 and East 803470.50.

UNIT REMOVAL

On November 5, 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. Due to the location of a very old high pressure water line adjacent to the unit, the unit was not removed in its entirety. The asphalt around the unit was removed, exposing the soil around the top of the unit. The top of the unit was removed down to an inch below the soil level with a jackhammer (approximately 2 feet). Then four holes were drilled in the bottom of the unit, three in the main compartment and one in the oil storage compartment, so that soil samples could be gathered from beneath the unit. The inlet and discharge pipes were disconnected and capped. Soils beneath the asphalt and surrounding the unit were observed to contain no petroleum odors and no visual staining. The breathing zone was monitored at a peak level of 0. 0 units with the PID, <2% LEL and oxygen at 21 % with the CGI.

The excavation and remaining portion of the OWS was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analyses indicated only a low level of barium (1.3 mg/L). The cleaning and removal of the unit was routine and without incident.

UNIT CONTENTS

The unit contained approximately 1665 gallons of liquids and 44 gallons of sludge. Unit contents were analyzed for SW-846 methods 8260 Volatiles, 8270 Semi-Volatiles, TCLP extracted 8 RCRA metals, pH, Ignitability, and Reactivity-Cyanide, TPH and Sulfide. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained high levels of TPH, 4310 mg/Kg in the sludge. This material was disposed of as New Mexico Special Waste. It did not meet the definition of a RCRA hazardous waste nor a DOT hazardous material. This material was placed in clean 55gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 1 and 3 as shown in Fig. 4.1-1) were taken two feet below the inlet and discharge pipes, and samples (Nos. 2 and 4) were collected from the east and west wall, respectively, two feet below the floor slab. Soil sample No. 6 was taken from below the main compartment and soil sample No. 5 was taken from below the oil storage compartment, both at a depth of 11-feet bgs (two-feet below the unit). Sample Nos. 1 through 6 were taken for field screening analysis, using immunoassay method 4030. Field analysis results are reported in Appendix III.

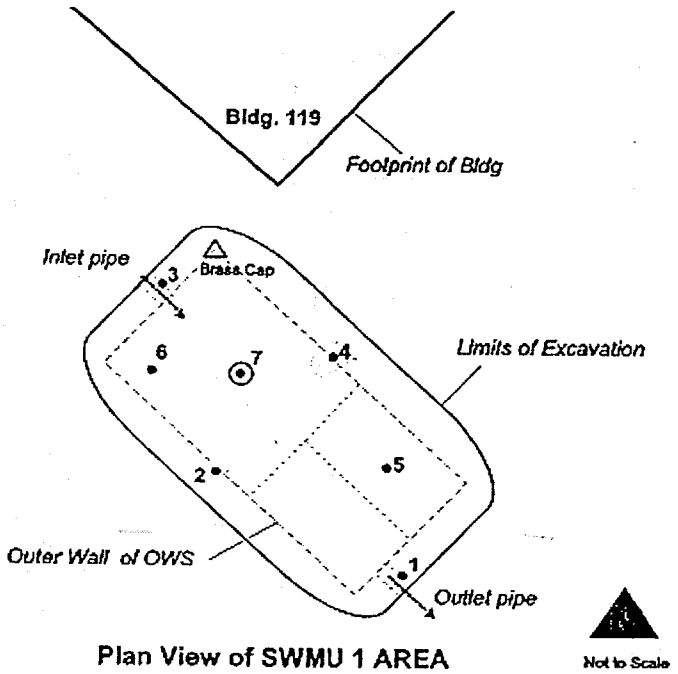


Figure 4.1-1. SWMU 1 Sample Locations

Field analysis of these samples indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 100 ppm and BTEX content was below 50 ppm. A confirmatory sample (No. 7) was taken from the center of the excavation, at a depth of 11 feet bgs (two feet below the OWS), and sent for laboratory analysis.

Duplicates of samples 1 and 2 were submitted for laboratory analysis to correlate field findings with laboratory findings. Results for these samples both showed confirmation of the absence of BTEX or TPH found with the field sampling methods.

Laboratory results for Sample No. 7 indicated no significant organic or metals contamination. The only analyte reported was barium at 1.2 mg/L.

There was no excavated soil to test and dispose. A summary of soil sample results is shown in Table 4.1-1. Copies of laboratory analysis of soils results are provided in Appendix IV. All samples for SWMU 1 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)YY-MMDD-(24-hr time). For example, the SWMU 1 sample No. 7 in this text is identified by the laboratory as CAO1/7-97-0314-1136.

Table 4.1-1

SUMMARY OF SWMU 1 SOIL SAMPLE RESULTS										
No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals >bkgd* mg/Kg
1	5	OWS	0.02	<100	10	ND	ND	NT	NT	NT
2	11	OWS	ND	<20	<10	ND	ND	NT	NT	NT
3	4	OWS	ND	<20	<10	NT	NT	NT	NT	NT
4	11	OWS	ND	<20	<10	NT	NT	NT	NT	NT
5	11	OWS	ND	<20	<10	NT	NT	NT	NT	NT
6	11	OWS	ND	<20	<10	ND	NT	NT	NT	NT
7	11	OWS	NT	NT	NT	NT	ND	ND	ND	Ba

ND indicates non-detect
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the inside wall of the cap. This sample was mixed with nine other SWMU unit concrete samples to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. Only low levels of barium (1.2 mg/L) and benzene (0.002 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on November 25, 1996.

PROJECT COSTS

The total cost for SWMU 1 removal and restoration were $25,205.90 and are summarized in Table 4.1-2.

Table 4.1-2

SWMU 1 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/Ml	0	$0
2	Travel Cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	4.09	$970.88
17	Concrete Replacement	154.82/CY	0	$0
18	Sawcut Asphalt	1.5/LF	61	$91.50
19	Asphalt removal and disposal	28.88/T	4.55	$131.40
20	Asphalt replacement	34.96/SY	25	$874.00
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	1,665.81	$4,347.76
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal, and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	3	$567.90

SWMU 1 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Complete	539.20/EA	1	$539.20
40	Remove OWS's, UST's, and associated piping. Install new OWS's, all per drawings 0 and C1 Through C12	LS	1	$8,678.00
41	Removal and Disposal of Sludge from OWS	113.76/ GAL	44	$5,005.44
42	Soil Sampling & Analysis, Total BTEX Rapid Assay or Equivalent (Immunoassay-BTEX), Complete	158.01/EA	6	$948.06
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	6	$948.06
44	Soil Sampling & Analysis, Method 8260 (VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	2	$310.56
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	1	$798.69
49	Remove & dispose of non-hazardous sludge from OWS (Partial drums that cannot be filled from Another unit shall be paid as full drum.)	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum.)	474.90/ 55-gal DRUM	0	$0
Misc	New Fencing installed at SWMU 94	LS	0	$0
TOTAL				**$25,205.90**

SWMU 1 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 1: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 1 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The EPA Region 6 Human Health Media-Specific Screening Levels, dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 1. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1.1 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 1. Table 4.1-3 delineates the maximum concentrations of metals detected at SWMU 1.

No organic compounds were detected.

Table 4.1-3

SWMU 1 Maximum Soil Sample Concentrations						
Sample No.	Total Metals mg/Kg		TCLP Metals mg/L	Background Conc. Region V1/ Cannon AFB' mg/Kg		Region VI Residential RBSL mg/Kg
7	Arsenic	< 3.0	< 0.40	1.1-16.7	3.6	0. 32 C
	Barium	1390	1.2	430	805	5300.0 N
	Chromium	9.9	<0.02	38	13.3	31 C
	Nickel	9.1	NT	16	11.4	1500.0N
	Lead	7.6	< 0.05	10-18	7.1	400.0 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

'CAFB Background Investigation, 1997

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of ~3.0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico***, dated September 1997, value for arsenic in subsurface soils of 3.6 mg/kg.

Among the metal analytes tested, no other exceeds the respective Region VI RBSL. In addition, this site is paved with asphalt and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals, other than arsenic, were detected at concentrations which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 1.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 1 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.1.2 SWMU 7

UNIT DESCRIPTION

SWMU 7 was an oil/water separator (OWS) which was located adjacent to the northwest side of building 129, approximately 33 feet east of the northwest comer of the building and just south of Building 116, a high-voltage electrical facility for airfield lighting. The OWS was a 3-compartment, underground, cast-in-place concrete box measuring 5-feet in length, 7-feet in width and 5-feet in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit functioned as an oil/water separator which received effluent from drains in hangar building 129 and drained to the sanitary sewer line (SWMU 98). The unit was active from 1943 until November 1, 1996, receiving washwater generated from aircraft washing and aircraft maintenance operations. The unit was surrounded on all sides by asphalt.

A brass cap was placed at the easternmost comer of where the unit was located as shown in Figure 4.1-2. The point was surveyed by Lydeck Engineering at New Mexico State Plane Coordinates: North 1234490.46 and East 804308.30.

UNIT REMOVAL

On November 4, 1996, the asphalt around the OWS was sawcut to allow access to the unit. On November 5, 1996, the contents of the unit were removed by a vacuum pump truck. The inside of the unit was cleaned with a high pressure washer. The interior walls were checked with the PID and no residual contamination was indicated by this instrument. On November 6, 1996 the excavation of two feet of soil surrounding the unit was begun. Due to the proximity of the high voltage facility, all soil removal was done manually with shovels. The soil surrounding the unit was not stained and no fuel odors were observed. Excavated soils were stockpiled on a designated part of the abandoned runway. The inlet and outlet pipes were disconnected and temporarily capped. The OWS was removed from the excavation on November 7, 1996 and hauled to the storage area on the abandoned runway. The exterior surface walls of the unit showed no signs of dark staining which would indicate that the unit had leaked. The breathing zone was monitored at a peak level of 0.0 units with the PID, <2% LEL and oxygen at 21 % with the CGI. The removal was routine and without incident.

The inlet and outlet pipes were reconnected using 6-inch Schedule 40 PVC pipe. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analyses indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

Approximately 629 gallons of liquid/sludge were removed from the unit. Contents were analyzed for SW-846 methods 8260 Volatiles, 8270 Semi-Volatiles, TCLP extracted 8 RCRA metals, pH, Ignitability, and Reactivity-Cyanide, TPH and Sulfide.. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained constituents commonly found in JP-fuels and solvents. This material was not a RCRA hazardous waste nor a

DOT hazardous material. The sludge was placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

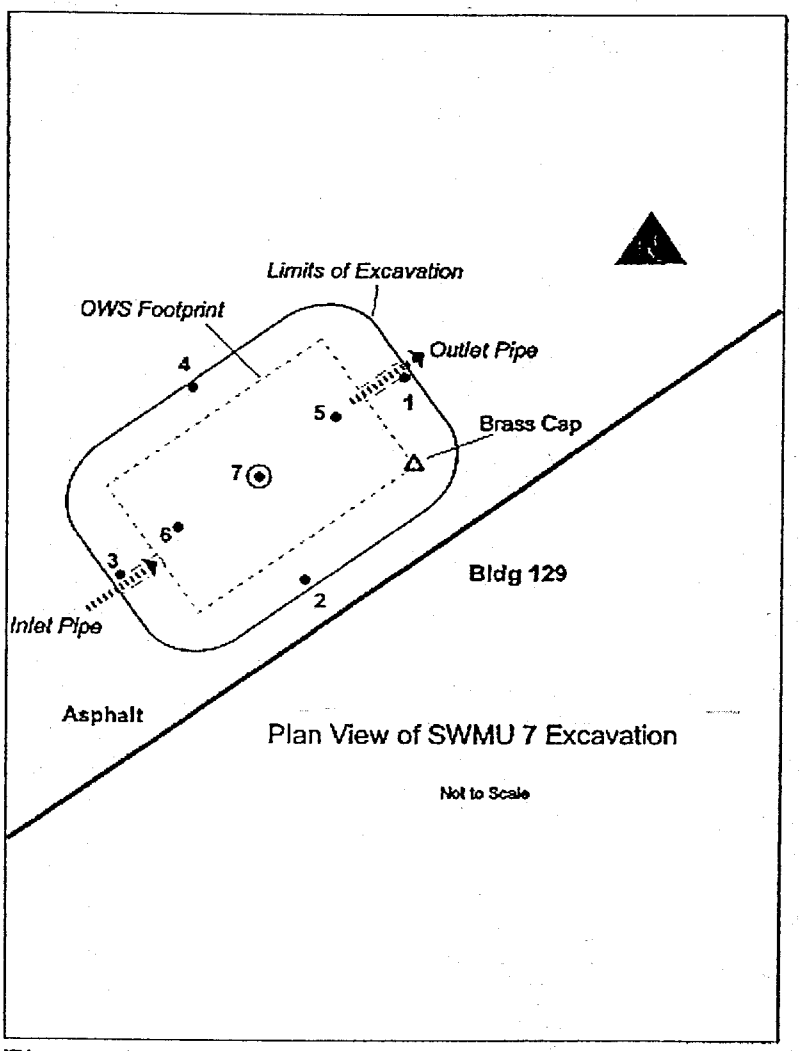


Figure. 4.1-2 SWMU 7 Sample Locations

Wooden shoring was used to protect field workers gathering the bottom samples. Soil samples (Nos. I through 4 as shown in Fig. 4.1-2) were taken from the bottom of each of the four vertical sidewalls of the excavation at a depth of 8-feet below ground surface (bgs), and two samples (sample Nos. 5 and 6) were collected from the bottom of the excavation at a depth of 8 feet bgs, for on-site field analysis. Field analysis results is found in Appendix III.

After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 pprn and BTEX content was 10 ppm or less, a confirmatory sample (No. 7) was taken from the center of the bottom of the excavation at a depth of 8 feet bgs, and sent for laboratory analysis. A duplicate of sample Nos. 4 and 6 were submitted for laboratory analysis to correlate field results with laboratory results. Stockpiled soils were field screened and samples were also submitted for laboratory analysis.

Laboratory results for Sample No. 7 indicate no significant levels of organics or TCLP metals. Semivolatile contaminant di-n-butylphthalate at 10.0 mg/Kg, and the metals, barium and chromium at 0.7 mg/L and 0.04 mg/L, respectively, were found in this sample. The metals levels are below the maximum concentration limit for toxicity characteristic.

Sample No. 8 was taken from the excavated soils and submitted for TCLP RCRA 8 metals analysis. Sample No. 8 results indicated a cadmium level of 1.78 mg/L, and a lead level of 24.5 mg/L, both of which levels exceed the maximum concentration limits of toxicity characteristic. On-site personnel felt that Sample No. 8 was not representative of the excavated material because of the failure to follow proper sample collection procedures for composite sampling. Sample 8 was a grab sample from one location only. Results from the bottom of the excavation indicated no heavy metals contamination. Sample No. 10 (the No. 9, inadvertently, was not used) was then taken from the stockpiled soils from this unit. Results for sample No. 10 also indicated that no metals contamination was present. Excavated soils were subsequently removed from the staging area and placed in the Base landfill.

A summary of soil sample results is shown in Table 4.1-4. Copies of laboratory analysis of soils results are provided in Appendix IV. All samples for SWMU 7 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 7 sample No. 7 in this text is identified by the laboratory as CA07/7-97-0314-1136.

Table 4.1-4

SUMMARY OF SWMU 7 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals >bkgd* mg/Kg
1	8	OWS	ND	<20	10	NT	NT	NT	NT	NT
2	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
3	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
4	8	OWS	ND	<20	<50	ND	ND	NT	NT	NT
5	8	OWS	ND	<20	<50	NT	NT	NT	NT	NT
6	8	OWS	ND	<20	<50	ND	ND	NT	NT	NT
7	8	OWS	NT	NT	NT	NT	ND	ND	ND[1]	< bkgd
8	n/a	excavated material	NT	NT	NT	ND	ND	NT	NT	NT
9	NOT	USED	NT	NT	NT	NT	NT	NT	NT	NT
10	n/a	excavated material	NT	NT	NT	NT	NT	NT	NT	NT

[1] Di-n-butylphthalate at 10 mg/Kg
ND indicates non-detect
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with nine other SWMU unit concrete samples to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. Only low levels of barium (1.2 mg/L) and benzene (0.002 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on November 25, 1996.

PROJECT COSTS

The total cost for SWMU 7 removal and restoration were $38,890.64 and are summarized in Table 4.1-5.

SWMU 7 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/Ml	0	$0
2	Travel Cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	1.15	$272.98
17	Concrete Replacement	154.82/CY	0	$0
18	Sawcut Asphalt	1.5/LF	63	$94.50
19	Asphalt removal and disposal	28.88/T	4.55	$131.40
20	Asphalt replacement	34.96/SY	12.66	$442.60
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	585	$1,526.85
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0

SWMU 7 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	**Description**	**$/Unit**	**Quantity**	**Cost ($)**
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal, and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	4	$757.20
42	Soil Sampling & Analysis, Total BTEX Rapid Assay or Equivalent (Immunoassay-BTEX), Complete	158.0l/EA	6	$948.06
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.0l/EA	6	$948.06
44	Soil Sampling & Analysis, Method 8260 (VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	3	$465.84
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	3	$2,396.07
49	Remove & dispose of non-hazardous sludge from OWS (Partial drums that cannot be filled from Another unit shall be paid as full drum.)	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum.)	474.90/ 55-gal DRUM	0	$0
Misc	New Fencing installed at SWMU 94	LS	0	$0
TOTAL				**$38,890.64**

SWMU 7 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 7: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 7 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 7. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1-4 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 7. Table 4.1-6 delineates the maximum concentrations of metals detected at SWMU 7.

Di-n-butylphthalate was detected in Sample No. 7, collected at a depth of 8 feet, at a concentration of 10 mg/Kg. Dibutylphthalate has a Region VI listing of 6500 mg/kg for residential soils and is considered non-carcinogenic. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that the di-n-butylphthalate in this sample is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.1-6

SWMU 7 Maximum Soil Sample Concentrations						
Sample No.	Total Metals mg/Kg		TCLP Metals mg/L	Background Conc. Region V1/ Cannon AFB' mg/Kg		Region VI Residential RBSL mg/Kg
7	Arsenic	< 3.0	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	215	0.7	430	805	5300 N
	Chromium	6.8	0.04	38	13.3	31 C
	Nickel	8.4	NT	16	11.4	1500 N
	Lead	6.7	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C – carcinogenic
'CAFB Background Investigation, 1997
NT – not tested

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of < 3. 0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value of arsenic in subsurface soils of 3.6 mg/kg.

Among the metal analytes tested, none other exceeds the respective Region VI RBSL. In addition, the site is paved and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no metals, other than arsenic, were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 7.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 7 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.1.3 SWMU 8

UNIT DESCRIPTION

This unit was located on the south end of the aircraft washrack adjacent to the east side of building 165. The unit was a three-compartment underground concrete box measuring 21-feet in length, 12-feet in width and 10-feet in depth. The OWS was surrounded on all sides by a grassy area, and was adjacent to a concrete-covered washrack area, SWMU 9. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit functioned as an oil/water separator which received effluent from the adjacent aircraft washrack. The unit was active from 1963 to the present.

A brass cap was placed at the northwest comer of where the unit was located as shown in Figure 4.1 -3. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1235092.31 and East 805004.16.

UNIT REMOVAL

On December 31, 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. The adjacent two feet of soil that surrounded the unit on three sides were removed and stockpiled on a designated part of the abandoned runway. When the sidewall adjacent to the concrete washrack was removed the soil beneath the edge of the washrack subsided into the excavation, thus undermining the edge of the washrack slab. At that point, a decision was made to leave the bottom slab of the unit in place to preclude further undermining of the adjacent washrack slab. Holes were punched in the bottom slab to allow sampling of the soils beneath the slab. The exterior walls of the unit had no dark staining which would have indicated that the unit had leaked. The soils from the excavation were not discolored nor were any fuel or other odors observed. The inlet and outlet pipes were disconnected and capped. Wooden shoring was used in the excavation to protect field workers. The remaining removal was routine and without incident. The breathing zone was monitored at a peak level of 0.3 units with the PID, <2% LEL and oxygen at 21% with the CGI.

The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of these analyses indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

The unit contained approximately 6009 gallons of liquids and 495 gallons of sludge. Unit contents were analyzed for SW-846 methods 8260 Volatiles, 8270 Semi-Volatiles, TCLP extracted 8 RCRA metals, pH, Ignitability, and Reactivity-Cyanide, TPH and Sulfide. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material was not a New Mexico Special Waste Material, nor a RCRA hazardous waste, nor a DOT hazardous material. The liquid was disposed of in the base sanitary sewer system. The sludge material was placed in clean 55gallon drums and disposed of off-base by Envirosolve Southwest, Inc. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 2 and 3 as shown in Fig. 4.1-3) were taken from the bottom of the two 21-foot-long vertical sidewalls of the excavation at a depth of 12-feet below ground surface (bgs), for on-site field analysis. Three samples (Nos. 1, 4 and 5) were collected from beneath the bottom slab at a depth of 12 feet bgs, for on-site field analysis. Sample Nos. 6 and 7 were collected from below the outlet and inlet pipes, respectively, for on-site field analysis. After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 ppm and BTEX content was 10 ppm or below, one composite sample and its QA and QC duplicates (Nos. 8 and 9) were taken from the bottom of the excavation at a depth of 12 feet bgs, and sent for laboratory analysis. Duplicates of samples Nos. 1 and 6 were submitted for laboratory analysis to correlate field findings with laboratory results. Soils removed from the excavation were observed to contain no petroleum odors and no visual staining. Stockpiled soils were submitted for laboratory analysis. Field analysis results are found in Appendix III.

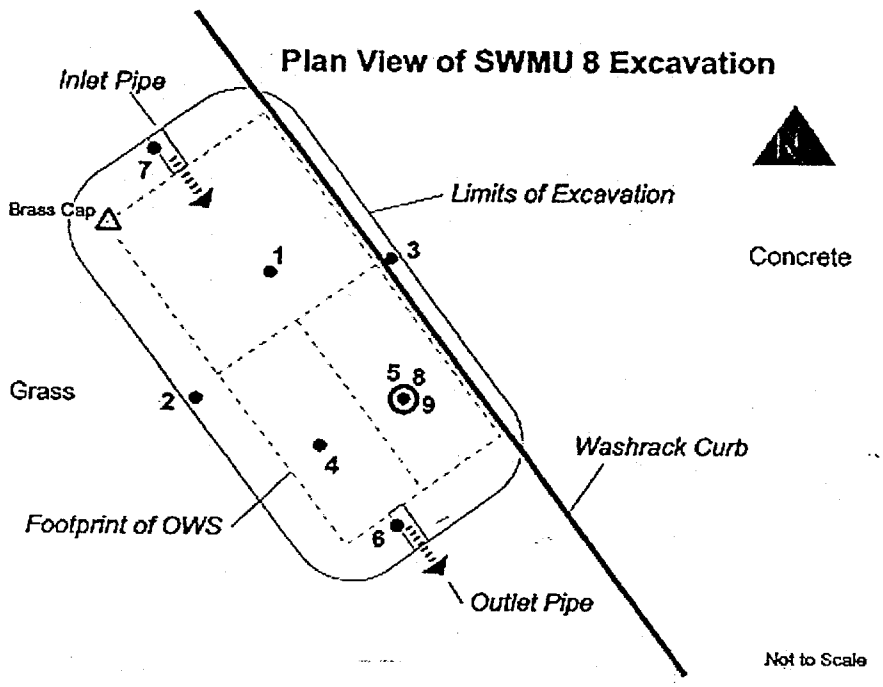


Figure 4.1-3. SWMU 8 Sample Locations

The results for Sample No. 7-QA indicated no organics or metals contamination at or above statutory limits. Barium at a level of 0.84 mg/L and Cadmium at a level of 0.0046 mg/L were found in the QA sample.

Field-screening samples were tested on-site using headspace analysis with a PID and immunoassay method 4030s for TPH and BTEX. Laboratory analysis results for sample Nos. 8 and 9, taken from the bottom of the excavation, indicated no significant levels of organics or heavy metals.

Laboratory analysis results for duplicates of samples nos. 1 and 6 did not detect BTEX or TPH in either sample.

Excavated soils from SWMU 8 were combined with excavated soils from SWMU 9. Results from total metals testing of these combined soils indicated low levels of cadmium, chromium, nickel and lead. TCLP results indicate only a trace amount of Barium (1.2mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. Excavated soils were subsequently removed from the staging area and placed in the Base landfill.

A summary of soil sample results is shown in Table 4.1-7. Copies of laboratory analysis results for soils are provided in Appendix IV. All samples for SWMU 8 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 8 sample No. 7 in this text is identified by the laboratory as CA08/7-97-0314-1136.

Table 4.1-7

SUMMARY OF SWMU 8 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals >bkgd* mg/Kg
1	12	OWS	ND	<20	<10	ND	ND	NT	NT	NT
2	12	OWS	ND	ND	<10	NT	NT	NT	NT	NT
3	12	OWS	ND	ND	<10	NT	NT	NT	NT	NT
4	12	OWS	ND	<20	<10	NT	NT	NT	NT	NT
5	12	OWS	ND	<20	ND	NT	NT	NT	NT	NT
6	7	OWS	ND	<20	ND	ND	ND	NT	NT	NT
7	7	OWS	ND	<20	<10	NT	NT	NT	NT	NT
7QA	7	OWS	NT	NT	NT	NT	NT	ND	ND	As[4], Se[5]
8	12	OWS	NT	NT	NT	NT	ND	ND	ND[1]	Cr[3]
9	12	OWS	NT	NT	NT	NT	ND	ND	ND[2]	< bkgd
10	n/a	SWMU 8 & 9	NT	NT	NT	NT	ND	ND	ND	NT

[1] Di-n-butylphthalate at 17 mg/Kg found in sample and laboratory method blank
[2] Di-n-butylphthalate at 9.1 mg/Kg found in sample and laboratory method blank
[3] Chromium at 10.7 mg/Kg.
[4] Arsenic at 3.6 mg/Kg.
[5] Selenium at 0.6 mg/Kg.
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

ND indicates non-detect
NT indicates not tested

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with nine other SWMU unit concrete samples to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. Low levels of barium (0.5 mg/L), 2-Methylphenol (0.0068 mg/L) and 3,4-Methylphenol (0.0023 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on April 16, 1997.

PROJECT COSTS

The total cost for SWMU 8 removal and restoration were $80,136.58 and are summarized in Table 4.1-8.

Table 4.1-8

SWMU 8 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/Ml	0	$0
2	Travel Cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	0	$0
17	Concrete Replacement	154.82/CY	1	$154.82
18	Sawcut Asphalt	1.5/LF	0	$0
19	Asphalt removal and disposal	28.88/T	0	$0
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	0	$0
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	6,008.23	$5,167.08

SWMU 8 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	**Description**	**$/Unit**	**Quantity**	**Cost(s)**
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal, and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	4	$757.20
42	Soil Sampling & Analysis, Total BTEX Rapid Assay or Equivalent (Immunoassay-BTEX), Complete	158.0l/EA	7	$1,106.07
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.0l/EA	7	$1,106.07
44	Soil Sampling & Analysis, Method 8260 (VOAs), Complete	375.08/EA	2	$750.16
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	2	$1,238.78
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	2	$310.56
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	2	$1,597.38
49	Remove & dispose of non-hazardous sludge from OWS (Partial drums that cannot be filled from Another unit shall be paid as full drum.)	203.53/ 55-GAL DRUM	7 55-GAL DRUMS	$1,424.71
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum.)	474.90/ 55-gal DRUM	1 55-GAL DRUM	$479.90
Misc	New Fencing installed at SWMU 94	LS	0	$0
TOTAL				**$80,136.58**

SWMU 8 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 8: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 8 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a "look-up" table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 8. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1-7 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 8. Table 4.1-9 delineates the maximum concentrations of metals detected at SWMU 8.

The SVOC, di-n-butylphthalate was detected in Sample No. 8 at a depth of 12 feet at a concentration of 17 mg/kg. Dibutylphthalate has a Region VI RBSL listing of 6500 mg/kg for residential soils and is considered non-carcinogenic. The RBSL is well above the levels detected in the soils at SWMU 8. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that the di-n-butylphthalate in this sample is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.1-9

SWMU 8 Maximum Soil Sample Concentrations						
Sample No.	Total Metals mg/Kg		TCLP Metals mg/L	Background Conc. Region V1/ Cannon AFB' mg/Kg		Region VI Residential RBSL mg/Kg
7QA	Arsenic	3.61	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	202	0.84	430	805	5300 N
8	Chromium	10.7	<0.020	38	13.3	31 C
7QA	Lead	8.04	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

'CAFB Background Investigation, 1997

Arsenic was detected in Sample No. 7QA at a depth of 7 feet and at a concentration of 3.61 mg/kg. This concentration lies well within the Region VI background range, however, it exceeds the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for noncarcinogenic arsenic. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value for arsenic in sub-surface soils of 3.6 mg/kg.

Among the metals analyzed, no other exceeds the respective Region VI background level or RBSL. In addition, this site is paved with asphalt and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 8.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase transport mechanisms. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a valid or complete exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 8 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.1.4 SWMU 9

UNIT DESCRIPTION

SWMU 9 is a drain in the center of a concrete washrack pad used for cleaning aircraft. The washrack pad slopes to this drain which discharges to an oil/water separator (OWS), SWMU 8. The washrack pad is adjacent to SWMU 8. The drain/sandtrap was an underground, cast-in-place concrete box measuring 5-feet in length, 4-feet in width and 5-feet in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The sandtrap was connected to SWMU 8 by about 45 feet of 8-inch vitrified clay pipe. The unit was active from 1966, receiving washwater generated from aircraft frame washing. At least six months prior to this removal, a new OWS was installed about fifty feet northwest of and connected to the SWMU 9 sandtrap. It is assumed that, at the same time, the drain line to the OWS at SWMU 8 was plugged at the SWMU 9 sandtrap. The unit was surrounded on all sides by concrete.

A brass cap was placed along the northwest side of where the unit was located as shown in Figure 4.1-4. The point was surveyed by Lydeck Engineering at New Mexico State Plane Coordinates: North 1234490.46 and East 804308.30.

UNIT REMOVAL

On December 23, 1996, the concrete around the sandtrap was sawcut to allow access to the unit. On December 24, 1996, the contents of the unit were removed by a vacuum pump truck. The inside of the unit was cleaned with a high pressure washer. The interior walls were checked with the PID and no residual contamination was indicated by this instrument. On December 30, 1996 the excavation of two feet of soil surrounding the unit was begun. Excavated soils were stockpiled on a designated part of the abandoned runway. The outlet pipes were disconnected and temporarily capped. The sandtrap was broken up in the excavation, removed from the excavation and hauled to the storage area on the abandoned runway on January 2, 1997.

The soils around the joint at the sandtrap connecting it to the 8-inch line to SWMU 8 OWS were stained and fuel/solvent odors were observed. All of the stained soil was removed from the excavation. The soils around the joint connecting the sandtrap to the new OWS line were not stained. The breathing zone was monitored during all this work and did not exceed 1.3 photoionization detector (PID) units and the combustible gas indicator had readings <2% LEL and 02at 2 1 %. The removal was routine and without incident.

The removal of this unit included the removal of the 8-inch vitrified clay pipe between the sandtrap, and the OWS at SWMU 8. Between January 2nd and 9th, 1997, a 24-inch wide trench was opened between the units and the line was removed. The soils below the first joint in the concrete west of the sandtrap were observed to be stained and to emit fuel/solvent odors. The staining was gray-black in color and extended laterally about a foot on either side of the concrete joint, however the staining did not extend 6-inches vertically beyond the joint. Although, the remaining soils in the trench, above and below the 8-inch line were not stained or odiferous, all the soils from the trench were removed and the trench was backfilled with clean soils. The

backfill soils were obtained off-baseand were analyzed in the laboratory for TCLP metals. Results of this analyses indicated only a low level of barium (1.3 mg/L).

On January 17, 1997, a new pre-cast sandtrap was placed in the SWMU 9 excavation. The outlet pipe to the remaining OWS northwest of the sandtrap, was reconnected using 8-inch Schedule 40 PVC pipe. The excavation was filled with clean backfill and compacted to grade.

UNIT CONTENTS

Approximately 110 gallons of sludge were removed from the unit. Contents were analyzed for SW-846 methods 8260 Volatiles, 8270 Semi-Volatiles, TCLP extracted 8 RCRA metals, pH, Ignitability, and Reactivity-Cyanide, TPH and Sulfide. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained constituents commonly found in JP-fuels and solvents. This material was not a RCRA hazardous waste nor a DOT hazardous material. The sludge was placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

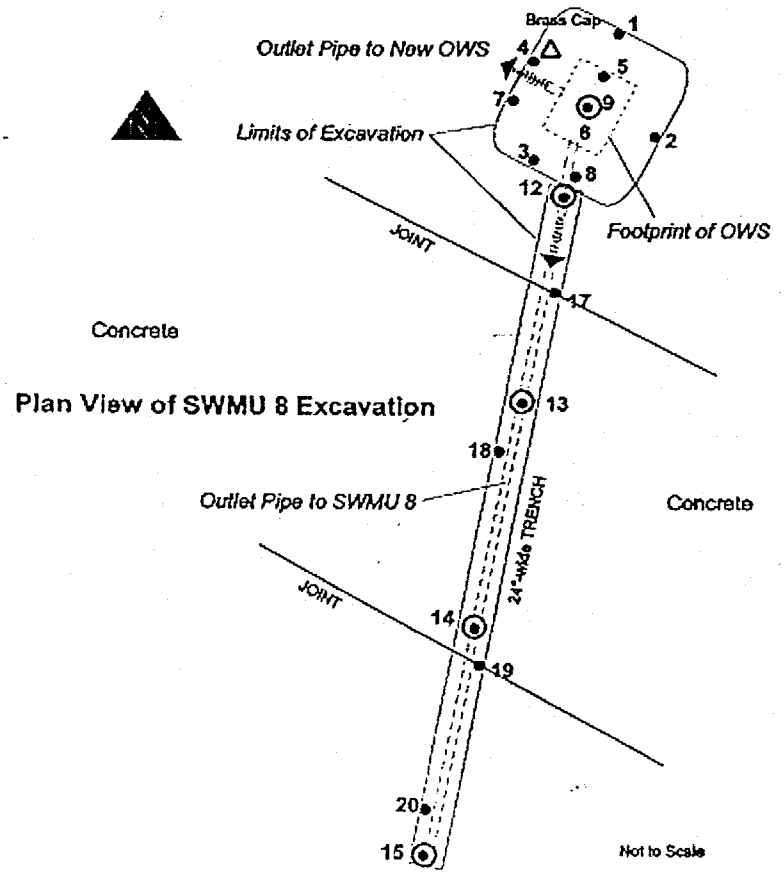


Figure 4.1-4. SWMU 9 Sample Locations

SOIL SAMPLING

Soil samples (Nos. 1 through 4 as shown in Fig. 4.1-4) were taken from the bottom of each of the four vertical sidewalls of the excavation at a depth of 9-feet below ground surface (bgs), and two samples (sample Nos. 5 and 6) were collected from the bottom of the excavation within the footprint of the unit, at a depth of 8 feet bgs, for on-site field analysis. Soil sample Nos. 7 and 8 were taken for field screening, from the sandtrap outlet areas, at a depth of 4 feet bgs. Field screening results are reported in Appendix III.

After field analysis of these

samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 ppm and BTEX content was 10 ppm or less, a confirmatory sample (No. 9) was taken from the center of the bottom of the excavation at a depth of 8 feet bgs, and sent for laboratory analysis. A duplicate of sample Nos. 3 and 7 were submitted for laboratory analysis to correlate field results with laboratory results. Results for these duplicates indicate no BTEX or TPH (DRO) contamination.

Laboratory results for Sample No. 9 indicate no significant levels of organics or TCLP metals. Semivolatile contaminant di-n-butylphthalate at 15.0 mg/Kg, and the metal, barium at 1.2 mg/L were found in No. 9. Di-n-butylphthalate has repeatedly been found in samples and method blanks analyzed by the laboratory used for this corrective measure which may indicate that it is a laboratory contaminant problem and not actually present in the soil samples.

Sample No. 10 was taken as a composite from the excavated soils and submitted for TCLP RCRA 8 metals analysis. Sample No. 10 results indicated a barium level of 1.3 mg/L. Excavated soils were subsequently removed from the staging area and placed in the Base landfill.

Sample Nos. 11 through 20 were taken from the trench. Sample No. 11 was not analyzed due to the exceeded holding time for the sample. Sample Nos. 12 through 15 were taken from the floor of the trench and field screened using the PID and the Immunoassay Methods 4030s for TPH and BTEX. Sample 12 was taken below the location of the leaking pipe joint discussed in the Unit Removal section. Stained soils were removed from the location of the pipe joint and Sample 12 was then taken and analyzed using both PID and laboratory SW846 methods for BTEX and DRO. Results of Sample 12 indicated levels of contaminants below the required cleanup levels. Sample No. 16 was taken as a composite from excavated trench soils and submitted for laboratory analysis. Results from No. 16 indicate no BTEX or TPH(DRO) contamination, and a metals level of barium at 1.2 mg/L. Sample Nos. 17 through 20 were taken from the sidewalls of the trench and field screened using the aforementioned methods.

A summary of soil sample results is shown in Table 4.1 -10. Copies of laboratory analysis results for soils are provided in Appendix IV. All samples for SWMU 9 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 9 sample No. 7 in this text is identified by the laboratory as CA09/07-97-0109-1009.

Table 4. 1 - 10

SUMMARY OF SWMU 9 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals >bkgd* mg/Kg
1	8	Sandtrap	ND	<20	<10	NT	NT	NT	NT	NT

SUMMARY OF SWMU 9 SOIL SAMPLE RESULTS										
No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals >bkgd* mg/Kg
2	8	Sandtrap	ND	<20	<10	NT	NT	NT	NT	NT
3	8	Sandtrap	0.8	<100	<10	ND	ND	NT	NT	NT
4	8	Sandtrap	ND	20	<10	NT	NT	NT	NT	NT
5	8	Sandtrap	ND	<100	<10	NT	NT	NT	NT	NT
6	8	Sandtrap	0.4	<20	<10	NT	NT	NT	NT	NT
7	4	Sandtrap	1.3	<100	<50	ND	ND	NT	NT	NT
8	4	Sandtrap	1.7	<100	<50	NT	NT	NT	NT	NT
9	8	Sandtrap	NT	NT	NT	NT	ND	ND	ND[1]	< bkgd
10	n/a	excavated soil	NT	NT	NT	ND	ND	NT	NT	NT
11	6	trench floor	NT	NT	NT	NT	NT	NT	NT	NT
12	6	trench floor	0.3	<100	<50	ND	ND	NT	NT	NT
13	6	trench floor	0.2	<100	<10	NT	NT	NT	NT	NT
14	6	trench floor	1.4	<100	<10	NT	NT	NT	NT	NT
15	6	trench floor	2.1	<100	<10	NT	NT	NT	NT	NT
16	n/a	excavated soil	NT	NT	NT	ND	ND	NT	NT	NT
17	3	trench sidewall	22.3	<100	<300	ND	ND	NT	NT	NT
18	3	trench sidewall	0.3	<100	<10	NT	NT	NT	NT	NT
19	3	trench sidewall	ND	<100	<50	NT	NT	NT	NT	NT
20	3	trench sidewall	ND	<100	<10	NT	NT	NT	NT	NT

[1] Only contaminant identified: Di-n-butylphalate at 15 mg/Kg. ND indicates non-detect
ND indicates non-detect
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with five other SWMU unit concrete samples (SWMU 57, 51, 94, 32a, and 8) to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. Only low levels of barium (0.5 mg/L), 2-methylphenol/o-cresol (0.0068 mg/L) and 3/4-methylphenol/m/p-cresol (0.0023 mg/L) were found in this sample. The concrete from

this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on April 16, 1997.

PROJECT COSTS

The total cost for SWMU 9 removal and restoration were $24,542.45 and are summarized in Table 4.1-11.

Table 4.1-11

SWMU 9 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	**Description**	**$/Unit**	**Quantity**	**Cost(s)**
1	Mobilization/Demobilization	16.257/Ml	0	$0
2	Travel Cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	215	$2,779.95
16	Concrete removal and disposal	237.38/T	25.27	$5,998.59
17	Concrete Replacement	154.82/CY	20	$3,096.40
18	Sawcut Asphalt	1.5/LF	0	$0
19	Asphalt removal and disposal	28.88/T	0	$0
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	0	$0
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal, and Required Backfill Material, Complete	90.75/T	0	$0

SWMU 9 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	7	$1,325.10
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Complete	539.20/EA	1	$539.20
40	Remove OWS's, UST's, and associated piping. Install new OWS's, all per drawings 0 and C1 Through C12	LS	0 (included in SWMU 8)	$0
41	Removal and Disposal of Sludge from OWS	113.76/ GAL	0	$0
42	Soil Sampling & Analysis, Total BTEX Rapid Assay or Equivalent (Immunoassay-BTEX), Complete	158.0l/EA	16	$2,528.16
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.0l/EA	16	$2,528.16
44	Soil Sampling & Analysis, Method 8260 (VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	6	$931.68
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	3	$2,396.07
49	Remove & dispose of non-hazardous sludge from OWS (Partial drums that cannot be filled from Another unit shall be paid as full drum.)	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum.)	474.90/ 55-gal DRUM	3	$1,424.70
Misc.	New Fencing installed at SWMU 94	LS	0	$0
TOTAL				**$24,542.45**

SWMU 9 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 9: direct contact with

soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 9 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 9. EPA Region VI RBSIs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4. 1-10 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 9. Table 4.1-12 delineates the maximum concentrations of metals detected at SWMU 9.

The SVOC, di-n-butylphthalate was detected in Sample No. 9 at a depth of 8 feet at a concentration of 15 mg/kg. Dibutylphthalate has a Region VI listing of 6500 mg/kg for residential soils and is considered non-carcinogenic. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that the di-n-butylphthalate in this sample is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.1-12

SWMU 9 Maximum Soil Sample Concentrations						
Sample No.	Total Metals mg/Kg		TCLP Metals mg/L	Background Conc. Region V1/ Cannon AFB' mg/Kg		Region VI Residential RBSL mg/Kg
9	Arsenic	< 3.0	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	155	1.2	430	805	5300 N
	Chromium	4.4	< 0.02	38	13.3	31 C
	Nickel	4.5	NT	16	11.4	1500 N
	Selenium	2.5	< 0.05	10-18	1.1	380 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

'CAFB Background Investigation, 1997

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit exceeds the Region VI RBSL of 0.32 mg/kg for carcinogenic

arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of < 3.0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico***, dated September 1997, value for arsenic in subsurface soils of 3.6 mg/kg.

Among the metal analytes, tested, none exceeds the respective Region VI RBSL. In addition, this site is paved with asphalt and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals, other than arsenic, were detected at concentrations which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 9.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase transport mechanisms. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a valid or complete exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 9 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.1.5 SWMU 11

UNIT DESCRIPTION

This OWS was located adjacent to the northwest side of building 170 and below an air-conditioning, unit and pad. The OWS was a 3-compartment underground concrete box measuring 5-feet in length, 7-feet in width and 5-feet in depth. The walls of the unit were 6-incbes thick and contained steel reinforcement. The unit functioned as an oil/water separator which received effluent from drains in hangar building 170 and drained to the sanitary sewer line (SWMU 98). The unit was active from 1963 to 1989. The unit was surrounded on all sides by asphalt.

A brass cap was placed at the easternmost comer of where the unit was located as shown in Figure 4.1-5. The point was surveyed by Lydeck Engineering at New Mexico State Plane Coordinates: North 1235370.90 and East 805171.53.

UNIT REMOVAL

On November 5, 1996, the contents of the unit were removed by a vacuum pump truck. The inside of the unit was cleaned with a high pressure washer. The exterior surface walls of the unit showed no signs of dark staining which would indicate that the unit leaked. The outer surface was checked with the PID and no residual contamination was indicated by this instrument. Two feet of soil surrounding the unit were excavated and stockpiled on a designated part of the abandoned runway. The soil surrounding the unit was not stained and had no odor. The inlet and outlet pipes were disconnected and temporarily capped. The breathing zone was monitored at a peak level of 0.0 units with the PID, <2% LEL and oxygen at 21% with the CGI. The removal was routine and without incident.

The excavation was shored with plywood to provide a safe working environment for field personnel working in the excavation. The inlet and outlet pipes were reconnected using 6-inch Schedule 40 PVC pipe. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analysis indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

Approximately 531 gallons of liquid and 51.3 gallons of sludge were removed from the unit. Contents were analyzed for SW-846 methods 8260 Volatiles, 8270 Semi-Volatiles, TCLP extracted 8 RCRA metals, pH, Ignitability, and Reactivity-Cyanide, TPH and Sulfide. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained low levels of barium, 0.22 mg/L in the liquids. This material was not a RCRA hazardous waste nor a DOT hazardous material. The sludge was placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 1 through 4 as shown in Fig. 4.1-5) were taken from the bottom of each of the four vertical sidewalls of the excavation at a depth of 8-feet below ground surface (bgs), and two samples (sample Nos. 5 and 6) were collected from the bottom of the excavation at a depth of 9 feet bgs, for on-site field analysis using immunoassay method 4030. Field analysis results are reported in Appendix III.

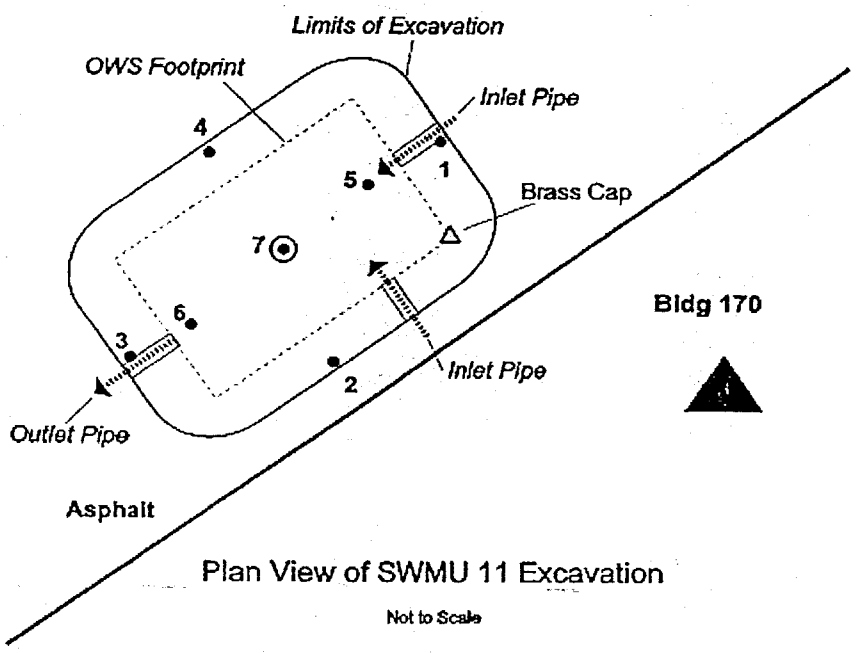


Figure. 4.1-5. SWMU 11 Sample Locations

After field analysis of these samples indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 ppm and BTEX content was 50 ppm. or less, a confirmatory sample (No. 7) was taken from the center of the bottom of the excavation at a depth of 9 feet bgs, and sent for laboratory analysis. A duplicate of sample No. 5 was submitted for laboratory analysis to correlate field results with laboratory results. Soils removed from the excavation were observed to contain no petroleum odors and no visual staining. Stockpiled soils were field screened and samples were also submitted for laboratory analysis.

Sample No. 7 was taken from the bottom of the excavation and sent for laboratory analysis. Laboratory results for Sample No. 7 indicate no significant levels of organics or TCLP metals. The metal barium was found at a level of 1.8 mg/L.

TCLP results for the excavated soils indicate only a trace amount of barium (0.9 mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. Excavated soils were subsequently removed from the staging area and placed in the Base landfill.

A summary of soil sample results is shown in Table 4.1-13. Copies of laboratory analysis results for soils are provided in Appendix IV. All samples for SWMU 11 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 11 sample No. 7 in this text is identified by the laboratory as CAO 11/7-97-0314-1136.

Table 4.1-13

SUMMARY OF SWMU 11 SOIL SAMPLE RESULTS

No.	Depth	Location	PID units	4030 TPH ppm	4030 BTEX ppm	SWA846 8020A BTEX mg/Kg	SWA846 8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
2	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
3	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
4	8	OWS	ND	<20	10	ND	ND	NT	NT	NT
5	9	OWS	ND	<20	<50	ND	ND	NT	NT	NT
6	9	OWS	ND	ND	<50	ND	NT	NT	NT	NT
7	9	OWS	NT	NT	NT	NT	ND	ND	ND	< bkgd
8	N/A	excavated material	NT	NT	NT	ND	ND	NT	NT	NT

ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with nine other SWNW unit concrete samples to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and sernivolatiles. Only low levels of barium (1.2 mg/L) and benzene (0.002 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on December 13, 1996.

PROJECT COSTS

The total cost for SWMU 11 removal and restoration were $31,940.56 and are summarized in Table 4.1-14.

Table 4.1-14

SWMU 11 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	6.15	$1,459.89
17	Concrete replacement	154.82/CY	1.25	$193.52
18	Sawcut asphalt	1.5/LF	49	$131.40
19	Asphalt removal and disposal	28.88/T	4.55	$131.40
20	Asphalt replacement	34.96/SY	17.33	$605.86
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	531	$1,385.91
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	4	$757.20
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	1	$539.20
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$16,001.00
41	Removal and Disposal of Sludge from OWS	113.76/GAL	51.33	$5.839.30
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	6	$948.06
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	6	$948.06

SWMU 11 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	2	$1,597.38
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial Drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				$31,940.56

SWMU 11 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 11: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 11 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents, and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 11. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1-13 shows a summary of VOCs,

SVOCs and metals detected in soil samples collected at SWMU 11. Table 4.1-15 delineates the maximum concentrations of metals detected at SWMU 11.

Table 4.1-15

SWMU 11 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Barium	456	1.8	430	805	5300 N
	Chromium	5.4	<0.02	38	13.3	31 C
	Nickel	6.6	NT	16	11.4	1500 N
	Lead	7.6	<0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Barium was the only chemical detected at a concentration which exceeded the Region VI background soil concentration of 430 mg/Kg. The listed residential RBSL of 5300 mg/kg is well above the maximum detected concentration of 456 mg/kg, therefore, the barium concentrations in the soil at SWMU 11 should pose no significant human health risk.

Among the metal analytes tested, no other exceeds the respective Region VI RBSL. In addition, this site is paved with asphalt and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 11.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 11 indicate that no chemical release that poses an unacceptable human health risk for any

potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.1.6 SWMU 32a

UNIT DESCRIPTION

This unit was located adjacent to the south side of building 186, on the flightline side and adjacent to a washrack. The unit was an underground concrete box measuring 6-feet in length, 6-feet in width and 7-feet in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit was surrounded on all sides by asphalt paving. The unit functioned from 1971 until its removal as an oil/water separator which received effluent from wash racks for aircraft ground-support equipment. Recovered oils were directed from the main compartment to the 300-gallon oil-holding compartment and wastewater was discharged to the sanitary sewer line (SWMU 98).

A brass cap was placed at the western comer of where the unit was located as shown in Figure 4.1-6. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1235922.85 and East 805634.38.

UNIT REMOVAL

On February 4, 1997, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. The adjacent two feet of soil that surrounded the unit was removed and stockpiled on a designated part of the abandoned runway. Visual staining and petroleum odor was not observed in the excavated material. The exterior walls of the unit had no dark staining which would have indicated that the unit had leaked. The inlet and outlet pipes were disconnected and temporarily capped. The breathing zone was monitored at a peak level of 0. 3 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

On February 5, 1997, the OWS was removed from the excavation. Wooden shoring was used to protect field workers working in the excavation. The removal was routine and without incident. The breathing zone was monitored at a peak level of 0.0 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

A new OWS was placed in the same location as the previous unit. Reconnection from the sewer line to the new OWS was done using double contained inlet and outlet pipe and fittings. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analyses indicated only a low level of barium (1.3 mg/L). The reinstallation of the new OWS was routine and without incident.

UNIT CONTENTS

Approximately 440gallons of liquid and 55 gallons of sludge were removed from the unit. Contents were analyzed for SW-846 methods 8260 Volatiles, 8270 Semi-Volatiles, TCLP extracted 8 RCRA metals, pH, Ignitability, and Reactivity-Cyanide, TPH and Sulfide. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material was a New

Mexico Special Waste Material, due to a TPH/EPA estimated level of 91,500. It was not a RCRA hazardous waste nor a DOT hazardous material. The material was placed in clean 55-gallon drums and manifested of off-base by Envirosolve Southwest, Inc. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 1 through 4 as shown in Fig. 4.1-6) were taken from the bottom of each of the four vertical sidewalls of the excavation at a depth of 9-feet below ground surface (bgs), and two samples (Nos. 5 and 6) were collected from the bottom of the excavation at a depth of 9.5 feet bgs, for on-site field analysis. After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 ppm. and BTEX content was below 10 ppm, a confirmatory sample (no. 7) was taken from the center of the bottom of the excavation at a depth of 10 feet bgs, and sent for laboratory analysis. Duplicates of samples Nos. 2 and 5 were submitted for laboratory analysis to correlate field findings with laboratory results. Laboratory analysis confirmed the field results for BTEX and TPH in both samples. Field sampling results are reported in Appendix III. Results for Sample No. 7 indicate no significant levels of organics or TCLP metals. Barium was found in No. 7 at 1.4 mg/L.

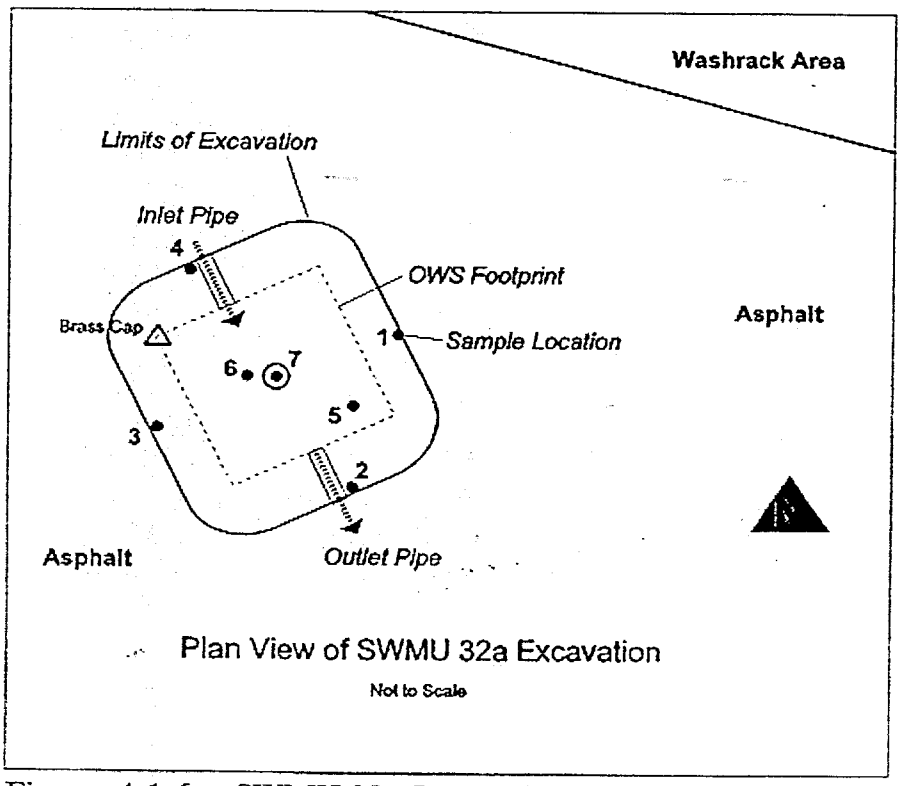


Figure. 4.1-6. SWMU 32a Sample Locations

Soils removed from the excavation were observed to contain no petroleum odors and no visual staining. A sample of the excavated soils was submitted for laboratory analysis. Laboratory TCLP results of these soils indicate only a trace amount of barium (1. 1mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. Excavated soils were subsequently removed from the staging area and placed in the Base landfill.

The area around the OWS was Figure. 4.1-6. SWMU 32a Sample Locations visually and analytically clean, however the adjacent area under the concrete washrack appears to be contaminated. A trench was dug for an electrical line from the OWS to an adjacent unit's alarm system. Soil beneath the concrete slab was green and black in color and emitted a petroleum odor. It appears that drains in the washrack area are clogged and are unable to accept the surface runoff, so that the runoff does not flow into the new OWS. In addition, the paved area adjacent to the west side of Building 186 is not contoured to direct runoff to the drain on the southwest side of the building which would normally send runoff to the new OWS.

A summary of soil sample results is shown in Table 4.1-16. Copies of laboratory analysis results for soils are provided in Appendix IV. All samples for SWMU 32a were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 32a sample No. 7 in this text is identified by the laboratory as CA032a/7-97-0314-1136.

Table 4.1-16.

SUMMARY OF SWMU 32a SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	9	OWS	ND	<20	<10	NT	NT	NT	NT	NT
2	9	OWS	ND	<20	<10	ND	ND	NT	NT	NT
3	9	OWS	ND	<20	<10	NT	NT	NT	NT	NT
4	9	OWS	ND	<20	<10	NT	NT	NT	NT	NT
5	9.5	OWS	ND	<20	<10	ND	ND	NT	NT	NT
6	9.5	OWS	ND	<20	<10	NT	NT	NT	NT	NT
7	10	OWS	NT	NT	NT	NT	ND	ND	ND	< bkgd
8	n/a	excavated material	NT	NT	NT	ND	ND	NT	NT	NT

ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with nine other SWMU unit concrete samples to form a composite sample for laboratory analysis. The *concrete sample was* analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. Only low

levels of barium (1.2 mg/L) and benzene (0.002 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on April 16, 1997.

PROJECT COSTS

The total cost for SWMU 32a removal and restoration were $62,139.72 and are summarized in Table 4.1-17.

Table 4.1-17

SWMU 32a CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	0	$0
17	Concrete replacement	154.82/CY	6.25	$967.62
18	Sawcut asphalt	1.5/LF	0	$0
19	Asphalt removal and disposal	28.88/T	3.53	$101.95
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	0	$0
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	5	$946.50
	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	1	$539.20

SWMU 32a CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
38				
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$47,503.00
41	Removal and Disposal of Sludge from OWS	113.76/GAL	0	$0
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	6	$948.06
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	6	$948.06
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	4	$621.12
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	3	$2,396.07
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	13	$6,173.70
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$62,139.72**

SWMU 32a RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 32a: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 32a are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 32a. EPA Region V1 RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1-16 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 32a. Table 4.1-18 delineates the maximum concentrations of metals detected at SWMU 32a.

Table 4.1-18

SWMU 11 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Arsenic	< 3.0	< 0.4	1.12-16.7	3.6	0.32 C
	Barium	125	1.4	430	805	5300 N
	Chromium	9.3	<0.02	38	13.3	31 C
	Nickel	6.5	NT	16	11.4	1500 N
	Lead	4.8	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of < 3.0 mg/kg ties well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value for arsenic in subsurface soils of 3.6 mg/kg.

Among the metal analytes tested, none other exceeds the respective Region VI RBSL. In addition, this site is paved with asphalt and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals, other than arsenic, were detected at concentrations which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 32a.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 32a indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.1.7 SVVMU 33b

UNIT DESCREPTION

This OWS unit was located adjacent to the southwest side of building 186, at the northwest comer. The unit was a 2-compartment underground concrete box measuring 6-feet in length, 6-feet in width and 7-feet in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit functioned as an oil/water separator which received effluent from drains in hangar building 186 from 1971. The recovered oils were held in the 140-gallon holding compartment and the wastewater was discharged to the sanitary sewer line (SWMU 98).

A brass cap was placed at the western corner of where the unit was located as shown in Figure 4.1-7. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1236063.97 and East 805491.36.

UNIT REMOVAL

On October 23, 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. Four drains supplying wastewater to SWMU 33b were also plugged with cement grout. The breathing zone was monitored at a peak level of 0.2 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

On October 24, 1996, the unit was pulled from the excavation and hauled to the storage area on the abandoned runway. The exterior wall, on the inlet side of the unit, had some dark staining which would indicate that the unit had leaked. The soil adjacent to this area (about 1.5 square feet) was also stained in color. The remaining two feet of soil surrounding the unit was not stained. The excavated soil was stockpiled on a designated part of the abandoned runway. The inlet and outlet pipes were disconnected and capped. The breathing zone was monitored at a peak level of 0. 0 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

Wooden shoring was constructed in the excavation to protect field personnel working in there. The inlet and outlet pipes were reconnected using 6-inch Schedule 40 PVC pipe. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analyses indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

Approximately 523 gallons of liquid and 9.2 gallons of sludge were removed from the unit. The sludge and the liquids were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Total metal analysis indicated the possibility of high lead. The samples were analyzed using TCLP methods for lead and the results indicated no lead. This material was not a RCRA hazardous waste nor a DOT hazardous material. The sludge was placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix III.

SOIL SAMPLING

Soil samples (Nos. 1 through 4 as shown in Fig. 4.1-7) were taken from the bottom of each of the four vertical sidewalls of the excavation at a depth of 8-feet below ground surface (bgs), and two samples (sample Nos. 5 and 6) were collected from the bottom of the excavation at a depth of 9 feet bgs, for on-site field analysis. After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 ppm and BTEX content was below 10 ppm, a confirmatory sample (No. 7) was taken from the center of the bottom of the excavation at a depth of 9 feet bgs, and sent for laboratory analysis. Duplicate of samples Nos. 2 and 6 was submitted for laboratory analysis to correlate field results with laboratory results. Soils removed from the excavation were observed to contain no petroleum odors and no visual staining. Stockpiled soils were field screened and samples were also submitted for laboratory analysis.

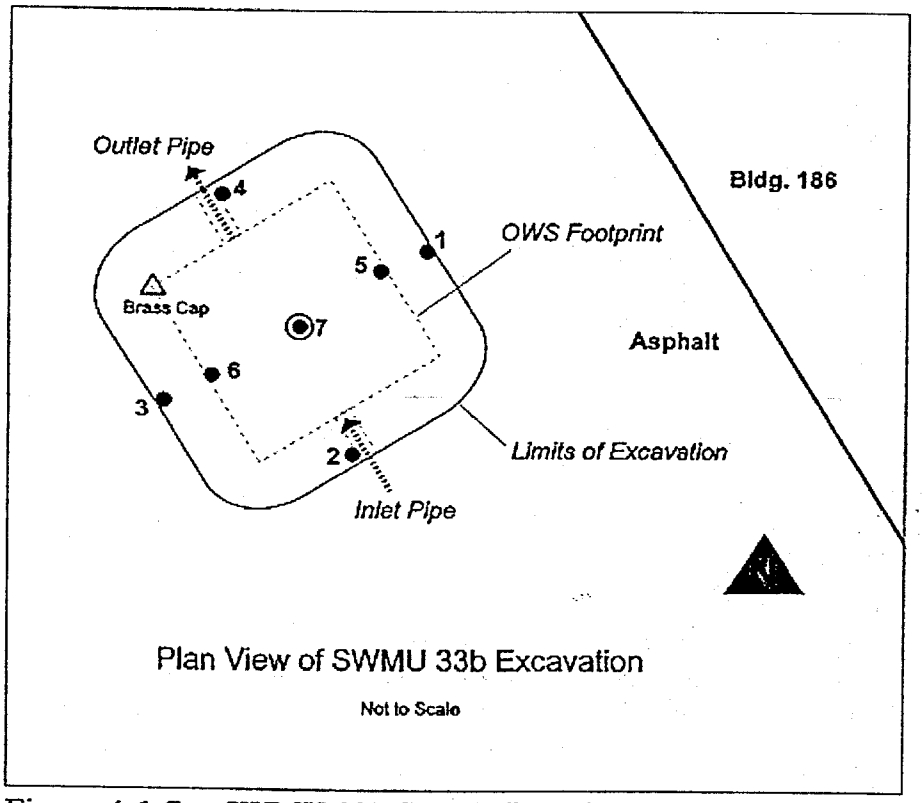


Figure 4.1-7. SWMU 33b Sample Locations

Results for Sample No. 7 indicate no significant levels of organics or TCLP metals. Barium was found in Sample No. 7 at 1.1 mg/L. Laboratory results for sample Nos. 2 and 6 did not detect BTEX or TPH in either sample and field analysis indicated less than 10 ppm BTEX and less than 20 ppm TPH for both samples.

Excavated soil results for total metals testing indicated low levels of cadmium, chromium, nickel and lead. TCLP results indicate only a trace amount of Barium (1.3 mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. Excavated soils were subsequently removed from the staging area and placed in the Base landfill.

A summary of soil sample results is shown in Table 4.1-19. Copies of laboratory analysis results for soils are provided in Appendix IV. All samples for SVRVIU 33b were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 33b sample No. 7 in this text is identified by the laboratory as CA033b/7-97-0314-1136.

Table 4.1-19

SUMMARY OF SWMU 33b SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
2	8	OWS	0.1	<20	<10	ND	ND	NT	NT	NT
3	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
4	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
5	9	OWS	ND	ND	ND	NT	NT	NT	NT	NT
6	9	OWS	0.3	<20	<10	ND	ND	NT	NT	NT
7	9	OWS	NT	NT	NT	NT	ND	ND	ND	< bkgd
8	n/a	excavated material	ND	<20	10	NT	NT	NT	NT	NT

ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with nine other SWMU unit concrete samples to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. Only low levels of barium (1.2 mg/L) and benzene (0.002 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on April 16, 1997.

PROJECT COSTS

The total cost for SWMU 33b removal and restoration were $24,476.76 and are summarized in Table 4.1-20.

Table 4.1-20

SWMU 33b CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	36	$465.48
16	Concrete removal and disposal	237.38/T	2.82	$669.41
17	Concrete replacement	154.82/CY	0	$0
18	Sawcut asphalt	1.5/LF	30	$45
19	Asphalt removal and disposal	28.88/T	7.17	$207.07
20	Asphalt replacement	34.96/SY	16	$559.36
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	523	$1,365.03
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	3	$567.90
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	2	$1,078.40
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$15,358
41	Removal and Disposal of Sludge from OWS	113.76/GAL	9.2	$1,046.59
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	7	$1,106.07
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	7	$1,106.07

SWMU 33b CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	2	$310.56
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	2	$1,597.38
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$26,476.76**

SWMU 33b RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 33b: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 33b are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 33b. EPA Region VI RBSLs were used for the

comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1-19 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 33b. Table 4.1-21 delineates the maximum concentrations of metals detected at SWMU 33b.

Table 4.1-21

SWMU 33b Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Arsenic	< 3.0	< 0.40	1.12-16.7	3.6	0.32 C
	Barium	125	1.1	430	805	5300 N
	Cadmium	0.22	< 0.05	0.01-1.0	1.3	38 N
	Chromium	6.1	< 0.02	38	13.3	31 C
	Nickel	5.8	NT	16	11.4	1500 N
	Lead	4.6	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of < 3. 0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico***, dated September 1997, value of arsenic in subsurface soils of 3.6 mg/kg.

Among the metals analyzed, none other was detected at a concentration which exceeded the Region VI RBSL. In addition, the site is paved and located in an industrial portion of the base. It can be reasonably be asserted, therefore, that no chemicals, other than arsenic, were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 33b.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be

transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 33b indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.1.8 SWMU 38

UNIT DESCRIPTION

This OWS unit was located adjacent to the southeast corner of building 194. The unit was a 3-compartment underground concrete box measuring 9-feet in length, 7-feet in width and 12-feet in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit was surrounded on all sides by asphalt paving. The unit functioned as an oil/water separator which received effluent from drains in hangar building 194.

A brass cap was placed at the northwestern corner of where the unit was located as shown in Figure 4.1-8. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1236539.28 and East 806430.65.

UNIT REMOVAL

On September 3 and 5, 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. Field personnel cleaning the unit were dressed in level C protection. The breathing zone was monitored at a peak level of 0.0 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

Excavation around SWMU 38 began on September 11, 1996. After cleaning, the inside of the unit showed no signs of dark staining from the contents. The inside surface of the unit was checked with the PID and no residual contamination was indicated by this instrument. Surrounding soil was excavated to within 2 feet of the unit and removed to a stockpile area on a designated part of the abandoned runway. The inlet and outlet pipes were disconnected and temporarily capped. The breathing zone was monitored continuously and a peak level of 0. 1 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI, were observed.

The top of the unit was removed and two 4-inch-diamerter holes were drilled in each of two opposite vertical sides of the oil/water separator so that a steel cable could be threaded through each hole and through the top of the unit to create four independent cables to lift the unit from the hole. On September 28, 1996, the unit was lifted intact from the excavation with a crane, and loaded onto a truck. The truck transported the waste concrete to the stockpile area for storage and sampling.

The inlet and outlet pipes were reconnected using 6-inch Schedule 40 PVC pipe. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analysis indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

The unit contained approximately 1,402 gallons of liquids and 104.5 gallons of sludge. The sludge and the liquids were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained low

levels of barium, 2.51 mg/L in the sediments, and 0. 15 mg/L in the liquids, and 0.213 mg/L of 3- and 4 -Methylphenol in the liquids. This material was not a RCRA hazardous waste nor a DOT hazardous material. This material was placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

An 8-foot long by 6-foot diameter corrugated metal pipe section was lowered into the excavation to provide shoring protection to field workers gathering the bottom samples. Soil samples (Nos. 2 through 5 as shown in Fig. 4.1-8) were taken from each of the four vertical sides of the excavation at a depth of 12 feet below ground surface (bgs), and two samples (sample Nos. 6 and 7) were collected from the bottom of the excavation at a depth of 14 feet bgs, for on-site field analysis. After field analysis of these samples, using immunoassay method 4030, indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 100 ppm and BTEX content was below 50 ppm, a confirmatory sample (No. 8) was taken from the center of the bottom of the excavation at a depth of 14 feet bgs, and sent for laboratory analysis. Field screening results are reproduced in Appendix III.

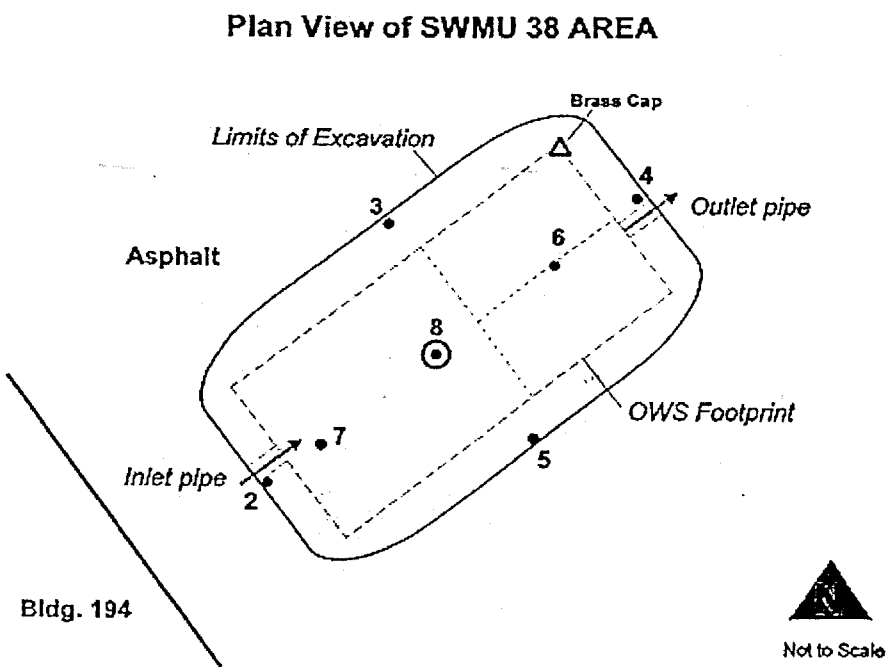


Figure 4.1-8. SWMU 38 Sample Locations

Duplicates of sample Nos. 4 and 5 were submitted for laboratory analysis and their results confirmed the field sampling results. Soils removed from the excavation were observed to contain no petroleum odors and no visual staining.

Sample No. 8 was taken from the bottom of the excavation, and sent for laboratory analysis. Results for Sample No. 8 indicate no significant levels of organics or heavy metals. Semivolatile contaminant di-n-butylphthalate at 13.0 mg/Kg, and barium at 0.8 mg/L were found in No. 8. Di-nbutylphthalate was also found in the laboratory method blank for this group of samples, indicating that it is

probably a lab contaminant. The level of barium is significantly below the maximum concentration for the toxicity characteristic.

Excavated soils were field tested using the immunoassay method 4030 for TPH and BTEX. Results indicated the TPH level was less than 100 ppm and the BTEX level was less than 50 ppm. TCLP results on these metals, excluding nickel, indicated only a trace amount of barium (1.2 mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. These soils were subsequently removed from the staging area and used as backfill at the SWMU 112 leach field excavation.

A summary of soil sample results is shown in Table 4.1-22. Copies of all analysis results are provided in Appendix IV. All samples for SWMU 38 were labeled for identification in the following manner: CA(SWNW #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 38 sample No. 7 in this text is identified by the laboratory as CA038/7-97-0314-1136.

Table 4.1-22

SUMMARY OF SWMU 38 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	n/a	excavated soils	ND	<20	<10	NT	NT	NT	NT	NT
2	12	OWS	ND	ND	<10	NT	NT	NT	NT	NT
3	12	OWS	ND	ND	<10	NT	NT	NT	NT	NT
4	12	OWS	0.1	<20	<10	ND	ND	NT	NT	NT
5	12	OWS	ND	<20	ND	ND	ND	NT	NT	NT
6	14	OWS	ND	<20	ND	NT	NT	NT	NT	NT
7	7	OWS	ND	<20	<10	NT	NT	NT	NT	NT
8	12	OWS	NT	NT	NT	NT	ND	ND	ND[1]	< bkgd

[1] Only contaminant identified: Di-n-butylphthalate at 13.0 mg/Kg, which was also found in the laboratory method blank.
ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with eleven other SWMU

unit concrete samples (Nos. 1, 7, 11, 39, 46, 47, 33b, 70, 92, 62 and 112) to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. The only target analytes found in this sample were low levels of barium (1.2 mg/L) and benzene (0.002 mg/L). The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on December 13, 1996.

PROJECT COSTS

The total cost for SWMU 38 removal and restoration were $41,950.29 and are summarized in Table 4.1-23.

Table 4.1-23

SWMU 38 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	1.15	$272.99
17	Concrete replacement	154.82/CY	0	$0
18	Sawcut asphalt	1.5/LF	70	$105
19	Asphalt removal and disposal	28.88/T	1.38	$39.85
20	Asphalt replacement	34.96/SY	34.03	$1,189.69
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	1,406.67	$3,671.41
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	6	$1,135.80

SWMU 38 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	2	$1,078.40
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$16,340
41	Removal and Disposal of Sludge from OWS	113.76/GAL	104.5	$11,887.92
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	8	$1,264.08
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	8	$1,264.08
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	2	$310.56
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	3	$2,396.07
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$41,950.29**

SWMU 38 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 38: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 38 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base

contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)
The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWM32a. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1-22 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 38. Table 4.1-24 delineates the maximum concentrations of metals detected at SWMU 38.

The SVOC di-n-butylphthalate was detected in Sample No. 8 at a depth of 12 feet bgs, and a concentration of 13 mg/Kg. Dibutylphthalate has a Region VI listing of 6500 mg/kg for residential soils and is considered non-carcinogenic. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that the di-n-butylphthalate in this sample is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.1-24

SWMU 38 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Barium	54.4	1.2	430	642	5300 N
	Chromium	8	< 0.02	38	13.3	31 C
	Nickel	6.5	NT	16	11.4	1500 N
	Lead	4.2	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of < 3.0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations

of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico***, dated September 1997, value for arsenic in subsurface soils of 3.6 mg/kg.

Among the metal analytes tested, none other exceeds the respective Region VI RBSL. In addition, this site is paved with asphalt and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 38.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 38 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.1.9 SWMU 39

UNIT DESCRIPTION

This unit was located adjacent to the northeast comer of building 195. The unit was a 3-compartment underground concrete box measuring 7-feet in length, 9-feet in width and 8-feet in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit functioned as an oil/water separator from 1971 until its removal and received effluent from drains in hangar building 195. Recovered oils were held in the 140-gallon compartment of the unit and the wastewater is discharged to the storm drainage system with flows to SWMU 95. The unit was surrounded on all sides by asphalt paving.

After removal, a brass cap was placed at the southernmost comer to mark its former location as shown in Figure 4.1-9. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1236744.65 and East 806648.87.

UNIT REMOVAL

On September 24, 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. The exterior surface walls of the unit showed no signs of dark staining from the contents leaking out. The surface unit was checked with the PID and no residual contamination was indicated by this instrument. Soil surrounding the inlet pipe appeared to be saturated with water but, was not stained and had no odor. Adjacent two feet of soil surrounding the unit was excavated and stockpiled on a designated part of the abandoned runway. The inlet and outlet pipes were disconnected and temporarily capped. The soil around the inlet pipe was saturated with water. The breathing zone was monitored continuously, and a peak level of 0.0 units with the PID, <2% LEL and oxygen at 2 1 % with the CGI, were observed.

Two 4-inch holes were drilled in each of two opposite vertical sides of the oil/water separator so that a steel cable could be threaded through each hole and through the top of the unit to create four independent cables to lift the unit from the hole. On September 28, 1996, the unit was lifted by a crane, intact from the excavation and loaded onto a truck. The truck transported the waste concrete to the stockpile area for storage and sampling. The removal of the unit was routine and without incident.

Wooden shoring was placed in the excavation for safety. The inlet and outlet pipes were connected to form one line, using 6-inch Schedule 40 PVC pipe. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analysis indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

Approximately 1325.30 gallons of liquid and 71.5 gallons of sludge were removed from the unit. The sludge and the liquids were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material was not a RCRA hazardous waste nor a DOT hazardous material, but was classified as a New Mexico Special Waste. This material was placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 1 through 4 as shown in Fig. 4.1-9) were taken from each of the four vertical sides of the excavation at a depth of 8.5-feet below ground surface (bgs), and two samples (Nos. 5 and 6) were collected from the bottom of the excavation at a depth of 9 feet bgs, for on-site field analysis. After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 100 ppm and BTEX content was below 50 ppm, a confirmatory sample (no. 7) was taken from the center of the bottom of the excavation at a depth of 9 feet bgs, and sent for laboratory analysis. A duplicate of sample No. 5 was submitted for laboratory analysis to correlate with the immunoassay methods. Results for sample No. 5 confirm the field screening results. Field screening results are reproduced in Appendix III.

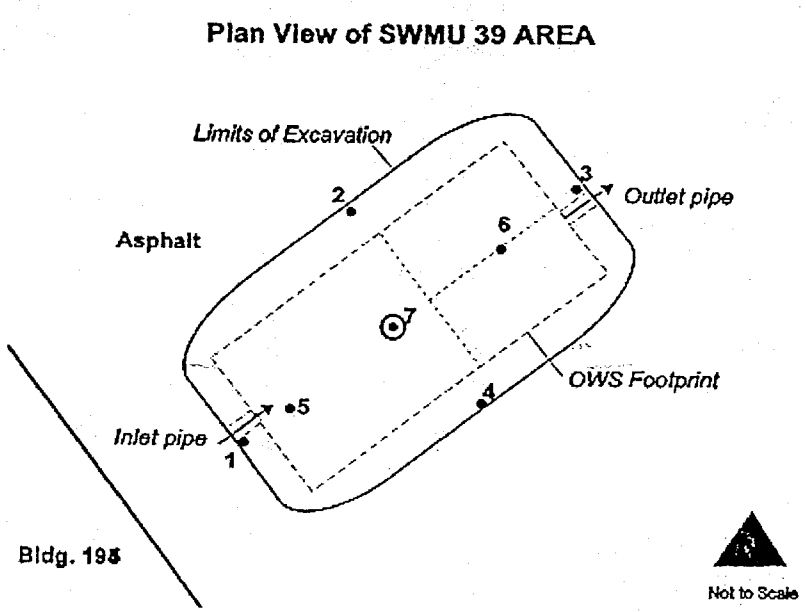


Figure 4.1-9. SWMU 39 Sample Locations

Soils removed from the excavation were observed to contain no petroleum odors and no visual staining. Excavated soils were field screened and samples were also submitted for laboratory analysis.

Results for Sample No. 7 indicate no levels of organics or heavy metals at or above the statutory limits. The only target analytes found in this sample were di-nbutylphthalate at 27 mg/Kg, barium at 1.3 mg/L and lead at 0.06 mg/L Di-n-butylphthalate was also found in the method blank, indicating that it may not be present in the soil sample.

Laboratory results for the excavated soils indicated only a trace amount of Barium (1.2mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. Excavated soils were subsequently removed from the staging area and used as backfill at the SWMU 112 leach field excavation.

A summary of soil sample results is shown in Table 4.1-25. Copies of all analysis results are provided in Appendix IV. All samples for SVVMU 39 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 39 sample No. 7 in this text is identified by the laboratory as CA039/7-97-0314-1136.

Table 4.1-25

SUMMARY OF SWMU 39 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	8.5	OWS	ND	<15	<50	NT	NT	NT	NT	NT
2	8.5	OWS	ND	<15	<10	NT	NT	NT	NT	NT
3	8.5	OWS	ND	<15	<50	NT	NT	NT	NT	NT
4	8.5	OWS	ND	<15	<10	NT	NT	NT	NT	NT
5	9	OWS	0.3	<15	<10	ND	ND	NT	NT	NT
6	9	OWS	0.1	<15	<10	NT	NT	NT	NT	NT
7	9	OWS	NT	NT	NT	NT	ND	ND	ND[1]	Cr, Pb[2]
8	n/a	OWS	ND	<100	<10	NT	NT	NT	NT	NT

[1] Only contaminant identified: Di-n-butylphthalate at 27 mg/Kg, which was also found in the laboratory method blank.
[2] Chromium at 11.2 mg/Kg, Lead at 15.4 mg/Kg.
ND indicates non-detect, or below detection limit
NT indicates not tested

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with ten other SWMU unit concrete samples (Nos. 1, 7, 11, 3 8, 46, 47, 3 3b, 70, 92 and 112) to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles

and semivolatiles. Only low levels of barium (1.2 mg/L) and benzene (0.002 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on December 13, 1996.

PROJECT COSTS

The total cost for SWMU 39 removal and restoration were $34,763.78 and are summarized in Table 4.1-26.

Table 4.1-26

SWMU 39 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	0	$0
17	Concrete replacement	154.82/CY	0	$0
18	Sawcut asphalt	1.5/LF	56	$84
19	Asphalt removal and disposal	28.88/T	1.38	$39.85
20	Asphalt replacement	34.96/SY	32.3	$1,129.21
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	1,325.3	$3,459.03
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	4	$757.20
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	2	$1,078.40

SWMU 39 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$15,123
41	Removal and Disposal of Sludge from OWS	113.76/GAL	71.5 GAL	$8,133.84
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	7	$1,106.07
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	7	$1,106.07
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	1	$155.28
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	2	$1,597.38
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$34,763.78**

SWMU 39 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 39: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 39 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 39. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1-25 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 39. Table 4.1-27 delineates the maximum concentrations of metals detected at SWMU 39.

Di-n-butylphthalate was detected in Sample No. 7 at a depth of 9 feet bgs, and a concentration of 27 mg/Kg. Dibutylphthalate, an identical compound, has a Region VI listing of 6500 mg/kg for residential soils and is considered non-carcinogenic. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that di-n-butylphthalate is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.1-27

SWMU 39 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Barium	99.6	1.2	430	805	5300 N
	Chromium	11.2	< 0.02	38	13.3	31 C
	Nickel	8.9	NT	16	11.4	1500 N
	Lead	15.4	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Among the metals detected, none exceed their respective Region VI RBSLs. The site is paved and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 39.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 39 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2 APPENDIX III SWMUs

4.2.1 SWMU 46

UNIT DESCRIPTION

This OWS was located adjacent to the southwest comer of building 196. The unit was a three-compartment underground concrete box measuring 7-feet in length, 9-feet in width and 8.5-feet in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit functioned as an oil/water separator which received effluent from drains in hangar building 196. The unit was active from 1969 until its partial removal in 1996. The unit was surrounded on all sides by asphalt paving. An 80-foot light pole was located within 15 inches of the northwest wall of the OWS.

After partial removal of the unit, a brass cap was placed at the westernmost comer to mark its former location as shown in Figure 4.2-1. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1236765.61 and East 806669.40.

UNIT REMOVAL

On September 18, 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. Field personnel were dressed in level C protection for the cleaning operation. Due to the 12-foot diameter light pole foundation adjacent to the unit, the design team decided that the OWS would not be removed in its entirety. Instead, two feet of soil were excavated around the side walls of the unit and only the top three feet of the OWS were removed. The breathing zone was monitored at a peak level of 0.7 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

On September 19, 1996, two six-inch-diameter holes were punched through the bottom of the unit to provide access to the soils beneath the unit for sampling. The inlet and outlet pipes were disconnected and temporarily capped. The soil near the inlet pipe was not stained and had no odor. There was no evidence of the unit leaking into the surrounding soil. The soil surrounding the unit was excavated and stockpiled separately, as was the concrete that was removed, on a designated part of the abandoned runway. The breathing zone was monitored at a peak level of 0.0 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

The inlet and outlet pipes were reconnected using 6-inch Schedule 40 PVC pipe. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analysis indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

Approximately 800 gallons of liquid and 75 gallons of sludge were removed from the unit. The sludge and the liquids were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained low

levels of Barium, 2.1 mg/L in the sediments and 0. 3 mg/L in the liquids. and 0. 05 8 mg/L of chromium in the sediments. This material was not a RCRA hazardous waste nor a DOT hazardous material. This material was placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Tulsa, Ok. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 1 through 4 as shown in Fig. 4.2- 1) were taken from each of the four vertical sides of the excavation at a depth of four feet below ground surface (bgs), and two samples (Nos. 5 and 6) were collected from the bottom of the excavation at a depth of 10 feet bgs (two feet below the OWS), for on-site field analysis. After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 100 ppm and BTEX content was below 50 ppm, a confirmatory sample (No. 7) was taken from the bottom of the excavation, below the oil containment, at a depth of 10 feet bgs (two feet below the OWS), and sent for laboratory analysis.

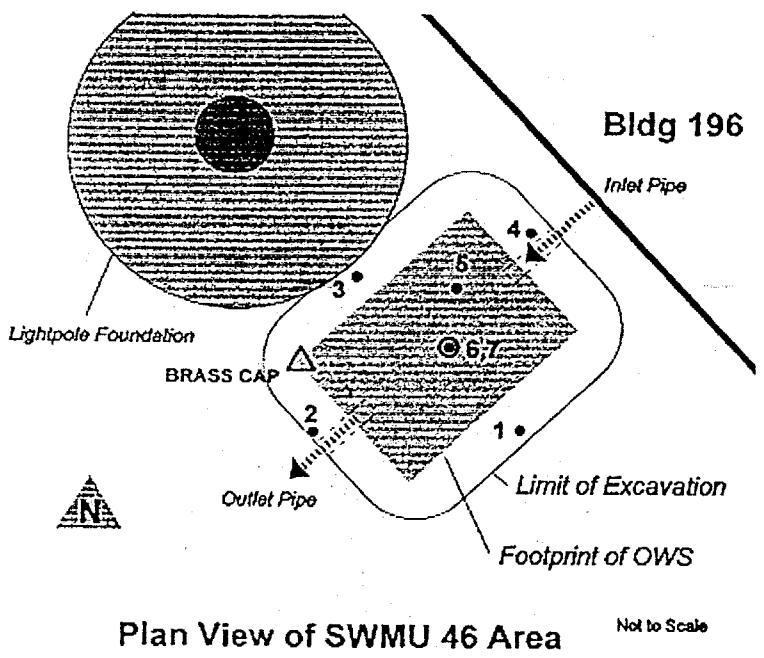


Figure 4.2-1. SWMU 46 Sample Locations

Duplicates of sample Nos. 4 and 6 were submitted for laboratory analysis and confirmed the field analysis of BTEX and TPH. Field screening results are reproduced in Appendix III.

Soils removed from the excavation were observed to contain no petroleum odors and no visual staining. Stockpiled soils were field screened and samples were also submitted for laboratory analysis.

TCLP results for sample No. 7, taken two feet below the oil containment compartment of the OWS, indicated 1.5 mg/L of Barium. TCLP results for excavated soils indicate only a trace amount of Barium (1.4mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. Excavated soils were subsequently removed from the staging area and used as backfill at the SWMU 112 leach field excavation.

A summary of soil sample results is shown in Table 4.2-1. Copies of all analysis results are provided in Appendix IV. All samples for SWW 94 were labeled for identification in the following manner:

CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 46 sample No. 7 in this text is identified by the laboratory as CA046/7-97-0314-1136.

Table 4.2-1.

SUMMARY OF SWMU 46 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	4	OWS	ND	<15	<50	NT	NT	NT	NT	NT
2	4	OWS	ND	<15	<10	NT	NT	NT	NT	NT
3	4	OWS	0.1	<100	<10	NT	NT	NT	NT	NT
4	4	OWS	ND	<100	<50	ND	ND	NT	NT	NT
5	10	OWS	ND	<15	<50	NT	NT	NT	NT	NT
6	10	OWS	ND	<100	<50	ND	NT	NT	NT	NT
7	10	OWS	NT	NT	NT	NT	ND	ND	ND	Pb[1]
8	n/a	OWS	ND	<15	<50	NT	NT	NT	NT	< bkgd

ND indicates non-detect, or below detection limit
NT indicates not tested
[1] Lead at 13.8 mg/Kg.
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete debris from this unit was stockpiled on the abandoned runway site until samples were taken. The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with ten other SWMU unit concrete samples (Nos. 1, 7, 11, 39, 38, 47, 33b, 70, 92 and 112) to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. The only target analytes found in this sample were low levels of barium (1.2 mg/L) and benzene (0.002 mg/Q. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on December 13, 1996.

PROJECT COSTS

The total cost for SWMU 46 removal and restoration were $19,891.40 and are summarized in Table 4.2-2.

Table 4.2-2

SWMU 46 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	0.34	$80.83
17	Concrete replacement	154.82/CY	0	$0
18	Sawcut asphalt	1.5/LF	43	$64.50
19	Asphalt removal and disposal	28.88/T	1.38	$39.85
20	Asphalt replacement	34.96/SY	20.77	$726.12
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	899.5	$2,347.70
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	6	$1,135.80
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	2	$1,078.40
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$8,678
41	Removal and Disposal of Sludge from OWS	113.76/GAL	5.5	$625.68
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	7	$1,106.07
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	7	$1,106.07

SWMU 46 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	2	$310.56
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	2	$1,597.38
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$19,891.40**

SWMU 46 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 46: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 46 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a "look-up" table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU` 46. EPA Region VI RBSLs were used for the

comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.2-1 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 46. Table 4.2-3 delineates the maximum concentrations of metals detected at SWMU 46.

Table 4.2-3

SWMU 46 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Barium	163	1.4	430	805	5300 N
	Chromium	7.2	< 0.02	38	13.3	31 C
	Nickel	7.1	NT	16	11.4	1500 N
	Lead	13.8	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Among the metals analyzed, none exceeded their respective Region VI RBSLs. In addition, the site is paved and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 46.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 46 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2.2 SWMU 47

UNIT DESCRIPTION

SWMU 47 is associated with Building 494, an Auto Hobby Shop/vehicle maintenance facility. SWMU 47 consisted of an oil/water separator (OWS) and a sandtrap. The OWS was located beneath the drive adjacent to the northeast wall of Building 494. The OWS was a steel unit which measured 2 feet by 3 feet in plan and 4 feet in depth. The OWS was located on the northwest side of Building 494 and received fluids and particulates wasted in the auto hobby shop. The sandtrap was located in a grassy area near the east comer of Building 494 and received wastes discharged into the floor drains from a wash and prep stall at the southeast side of the Auto Hobby Shop. The sandtrap was a cast-in-place, reinforced concrete vault measuring 4 feet by 5 feet in plan and 5.5 feet in depth. Both the OWS and the sandtrap discharged wastewater into the sanitary sewer line, SWMU 98 as shown in Figure 4.2-2. The units were active from 1982.

A brass cap was placed at the easternmost comer of where the OWS unit was located as shown in Figure 4.2-2. The point was surveyed by Lydeck Engineering at New Mexico State Plane Coordinates: North 1236765.61 and East 806669.40.

UNIT RFMOVAL

The contents of the sandtrap were pumped and the unit was cleaned on November 22, 1996. On the same day, drains inside Building 494 were plugged with cement grout, soils from around the OWS were excavated to a distance of about 2 feet on all sides, inlet and outlet lines were disconnected, and the unit was removed to the staging area on the abandoned runway. Vapor venting lines which extended from the sandtrap to Building 494 were removed. The excavated material was not stained and did not smell of fuel or solvents. Excavated soils were taken to and stored on the abandoned runway. The excavation was shored for safety. The breathing zone was monitored at a peak level of 0.0 units with the PID, <2% LEL and oxygen at 21% with the CGI.

The contents of the OWS were pumped and the unit was cleaned on November 25, 1996. On December 3, 1996, soils from around the OWS were excavated to a distance of about 2 feet on all sides, inlet and outlet lines were disconnected, and the unit was removed to the staging area on the abandoned runway. The excavated material was not stained or odiferous. The soils were taken to and stored on the abandoned runway. The excavation was shored for safety. The breathing zone was monitored at a peak level of 0. 0 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

The OWS excavation was enlarged and prepared according to the manufacturer's recommendations to accommodate the new OWS. The new unit was placed in the excavation on the northwest side of Building 494 on December 10, 1996, and was reconnected to the existing piping with doublecontained PVC piping. New vent lines were installed from the unit to the side of Building 494. On March 4, 1997, 1 1/2-cubic yards of concrete were placed as a pad over the new OWS.

UNIT CONTENTS

Approximately 79 gallons of waste oils and 110 gallons of water were removed from the OWS. Approximately 24 gallons of waste oils and 165 gallons of water were removed from the sandtrap. The contents were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained constituents commonly found in petroleum-based fuels and solvents. This material was labeled as a New Mexico Special Waste, due to its high TPH content, 430,000 ppm, but was not a RCRA hazardous waste nor a DOT hazardous material. The liquids/sludges were placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

UNIT 47A(sandtrap). Soil samples (Nos. 1 through 4, as shown in Fig. 4.2-2) were taken from each of the vertical sidewalls of the sandtrap excavation at a depth of 7.5-feet below ground surface (bgs). Sample Nos. 5 and 6 were collected from the bottom of the excavation at a depth of 7.5 feet and within the footprint of the unit. Sample Nos. 1 through 6 were taken for the purposes of field sampling analysis using immunoassay method 4030. After field analysis of these samples indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 100 ppm and BTEX content was 50 ppm or less, a confirmatory sample (No. 7) was taken from the center of the bottom of the excavation at a depth of 7.5 feet bgs, and sent for laboratory analysis. Field screening results are reproduced in Appendix III.

A duplicate of sample Nos. 3 and 5 were submitted for laboratory analysis to correlate field results with laboratory results. Laboratory results for these samples confirmed that TPH and BTEX are not contaminants of concern at this SWMU.

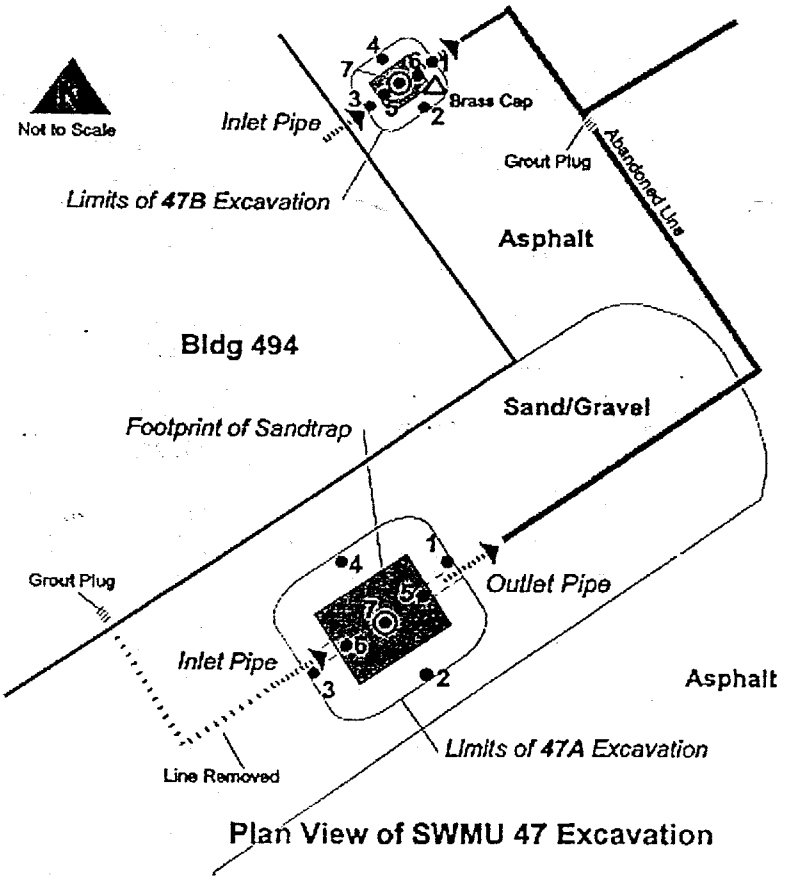


Figure 4.2-2. SWMU 47 Sample Locations

Laboratory results for Sample No. 7, unit 47A, indicate no significant levels of organics or TCLP metals. Semivolatile contaminant di-n-butylphthalate at 22.0 mg/Kg, and metals, barium, cadmium and chromium at 0.6 mg/L, 0.010 mg/L, and 0.02 mg/L, respectively, were found in No. 7. Di-n-butylphthalate was also found in the laboratory method blank for this group of samples, indicating that it is probably a lab contaminant. The levels of metals are all significantly below the maximum concentrations for the toxicity characteristic.

Sample No. 8, unit 47A, was taken as a composite from the excavated soils from around the sandtrap and submitted for BTEX, TPH and TCLP metals analysis. Sample No. 8 results indicated no organics or metals contamination, except barium at 1.0 mg/L and chromium at 0.03 mg/L. The levels of metals are both significantly below the maximum concentrations for the toxicity characteristic. These excavated soils were subsequently removed from the staging area and placed in the Cannon Air Force Base construction debris landfill.

UNIT 47B(OWS). Soil samples (Nos. 1 through 4, as shown in Fig. 4.2-2) were taken from each of the vertical sidewalls of the OWS excavation at a depth of 6-feet below ground surface (bgs). Sample Nos. 5 and 6 were collected from the bottom of the excavation at a depth of 6 feet and within the footprint of the unit. Sample Nos. 1 through 6 were taken for the purposes of field sampling analysis using immunoassay method 4030. After field analysis of these samples indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 100 ppm and BTEX content was 50 ppm or less, a confirmatory sample (No. 7) and a quality control sample (QC) were taken from the center of the bottom of the excavation at a depth of 6 feet bgs, and sent for laboratory analysis.

A duplicate of sample Nos. 1 and 5 were submitted for laboratory analysis to correlate field results with laboratory results. Laboratory results for these samples confirmed field results that TPH and BTEX are not contaminants of concern at this SWMU.

Laboratory results for Sample No. 7, unit 47B indicate no significant levels of organics or TCLP metals. Metals, barium and selenium at 1.6 mg/L, and 0.06 mg/L, respectively, were found in No. 7. The levels of both metals are significantly below the maximum concentrations for the toxicity characteristic.

Laboratory results for Sample No. 7-QC, unit 47B, indicate no significant levels of organics or TCLP metals. Semivolatile contaminant di-n-butylphthalate at 12.0 mg/Kg, and metals, barium and selenium at 1.4 mg/L and 0.05 mg/L, respectively, were found in No. 7-QC. Di-n-butylphthalate was also found in the laboratory method blank for this group of samples, indicating that it is probably a lab contaminant. The levels of both metals are significantly below the maximum concentrations for the toxicity characteristic.

Sample No. 8, unit 47B, was taken as a composite from the excavated soils from around the sandtrap and submitted for BTEX and TCLP metals analysis. Sample No. 8 results indicated no organics or metals contamination, except barium at 1.2 mg/L. These excavated soils were

subsequently removed from the staging area and placed in the Base landfill. A summary of soil sample results is shown in Table 4.2-4. Copies of all analysis results are provided in Appendix IV. All samples for SWMU 47 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 47 sample No. 7 in this text is identified by the laboratory as CA047/7-97-0314-1136.

Table 4.2-4.

SUMMARY OF SWMU 47 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
A/1	7.5	Sandtrap	0.0	<20	<50	NT	NT	NT	NT	NT
A/2	7.5	Sandtrap	0.0	<20	<50	NT	NT	NT	NT	NT
A/3	7.5	Sandtrap	0.2	<20	<50	ND	ND	NT	NT	NT
A/4	7.5	Sandtrap	0.1	<20	<50	NT	NT	NT	NT	NT
A/5	7.5	Sandtrap	0.3	<100	<50	ND	0.0266	NT	NT	NT
A/6	7.5	Sandtrap	0.1	<20	<50	NT	NT	NT	NT	NT
A/7	7.5	Sandtrap	NT	NT	NT	NT	ND	ND	ND[1]	< bkgd
A/8	n/a	excavated material	NT	NT	NT	ND	ND	NT	NT	NT
B/1	6	OWS	0.0	<20	<10	ND	ND	NT	NT	NT
B/2	6	OWS	0.0	<20	<10	NT	NT	NT	NT	NT
B/3	6	OWS	0.0	<20	<10	NT	NT	NT	NT	NT
B/4	6	OWS	0.0	<20	<10	NT	NT	NT	NT	NT
B/5	6	OWS	0.0	<20	<10	ND	ND	NT	NT	NT
B/6	6	OWS	0.0	<20	<10	NT	NT	NT	NT	NT
B/7	6	OWS	NT	NT	NT	NT	ND	ND	ND	Ag[3]
B/7QC	6	OWS	NT	NT	NT	NT	ND	ND	ND[2]	Ag[4]
B/8	n/a	excavated material	NT	NT	NT	ND	NT	NT	NT	NT

[1] Only contaminant identified: Di-n-butylphthalate at 22.0 mg/Kg, which was also found in the method blank.
[2] Only contaminant identified: Di-n-butylphthalate at 12.0 mg/Kg, which was also found in the method blank.
3 Silver at 3.1 mg/Kg.
[4] Silver at 2.9 mg/Kg.
ND indicates non-detect, or below detection limit

NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from the sandtrap was disposed of in the Clovis Municipal Landfill on December 13, 1996. The steel OWS unit was delivered to Anderson Recycling Center, 511 South Prince Street, Clovis, New Mexico, on December 23, 1996.

PROJECT COSTS

The total cost for SWMU 47 removal and restoration were $74,681.62 and are summarized in Table 4.2-5.

Table 4.2-5

SWMU 47 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	18	$232.74
16	Concrete removal and disposal	237.38/T	1.15	$272.99
17	Concrete replacement	154.82/CY	2.25	$348.34
18	Sawcut asphalt	1.5/LF	56	$84
19	Asphalt removal and disposal	28.88/T	3.04	$87.79
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	79	$402.11
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	275	$717.75
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0

SWMU 47 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	9	$1,703.70
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	3	$1,617.60
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$54,803
41	Removal and Disposal of Sludge from OWS	113.76/GAL	23.83	$2,710.90
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	12	$1,896.12
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	12	$1,896.12
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	3	$1,125.24
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	3	$1,858.08
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	6	$931.68
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	5	$3,993.45
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$74,681.62**

SWMU 47 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 47: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the

Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 47 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary down-gradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 47. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.2-3 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 47. Table 4.2-5 delineates the maximum concentrations of metals detected at SWMU 47.

Di-n-butylphthalate was detected in Sample No. A/7 from the sandtrap, at a depth of 7.5 feet bgs, and a concentration of 22 mg/kg. Dibutylphthalate, an identical compound, has a Region VI non-carcinogenic listing of 6500 mg/kg for residential soils. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that di-n-butylphthalate is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.2-6.

SWMU 47 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
B/7QC	Silver	2.9	< 0.04	0.01-5	2.65	380 N
	Arsenic	1.63	< 0.40	1.1-16.7	3.6	0.32 C/2.2 N
	Cadmium	0.31	0.01	0.01-1.0	1.3	38 N
B/7	Barium	367	1.6	430	805	5300 N
	Lead	2.2	< 0.05	10-18	7.1	400 N
	Selenium	< 2.5	0.06	0.2	1.1	380 N

SWMU 47 Maximum Soil Sample Concentration of Metals						
Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
A/7	Chromium	8.8	0.02	38	13.3	31 C
	Nickel	6.3	NT	16	11.4	1500 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Selenium was detected in the TCLP analyses of Sample Nos. B/7 from the OWS site, at a concentration of 0.06 mg/L. The total metals analysis of these samples detected no selenium at or above the detection limit of 2.5 m/Kg. Using the approximation of the 20Xs rule, the total selenium concentration is approximated at 1.2 mg/kg, which is above the Region VI background value, but is well within the Region VI RBSL level of 380 mg/Kg.

Arsenic was detected in Sample No. B/7QC from the OWS site at a depth of 6 feet and at a concentration of 1.63 mg/kg. This concentration lies well within the Region VI background range, however, it exceeds the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value for arsenic in sub-surface soils of 3.6 mg/kg.

Among the metal analytes tested, no other exceeds the respective Region VI RBSL. In addition, this site is paved with asphalt and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 47.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 47a indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2.3 SWMU 51

UNIT DESCRIPTION

SWMU 51 is associated with Building 375, a vehicle maintenance facility. SWMU 51 consisted of an oil/water separator (OWS) and an oil containment vault (OCV). The OCV measured 2 feet in width, 10 feet in length and 7 feet in depth. It is located beneath and integral with the floor of building 375, and a 10-foot portion of the northwest foundation wall of the building served as one wall of the unit. The OWS was a cast-in-place reinforced concrete unit which measured 5 feet square and 5.5 feet in depth. The OWS was located on the northwest side of Building 375 and received fluids and particulates wasted in the Building 375 floor drains. Oils skimmed from the OWS were discharged to the OCV through the building foundation wall, and wastewater was discharged to the sanitary sewer line, SWMU 98. The units were active from 1968 to February 19, 1997.

A brass cap was placed at the northernmost comer of where the OWS unit was located as shown in Figure 4.2-3. The point was surveyed by Lydeck Engineering at New Mexico State Plane Coordinates: North 1237230.30 and East 805811.25.

UNIT REMOVAL

The contents of the OWS were pumped and the units were cleaned on February 18, 1997. Soils from around the OWS were excavated and the unit was removed on February 19, 1997, to the staging area on the abandoned runway. This excavation was larger than the usual 2-feet adjacent to the sides of the unit in order to accommodate the new OWS to be placed in it. Soils adjacent to the outlet pipe to the OCV were observed to be stained, and to be emitting strong fuel odors. The rest of the excavated material was not stained or odiferous. The cleaner soils were segregated from the stained soils and both were taken to and stored on the abandoned runway. The excavation was shored for safety on three sides, the fourth side was the wall of building 375. Vapor venting lines extending from the OWS that to Building 375 were removed. The breathing zone was monitored at a peak level of 0. 9 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

A confined space entry permit was prepared and reviewed by all the contractor's employees before entering the OCV. On February 21, 1997, the OCV was pumped and cleaned. The contents filled one 55-gallon steel drum. The breathing zone was monitored at a peak level of 1.3 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

On February 24, 1997, the contractor began drilling through the concrete sidewalls of the unit in order to expose those soils for sampling. The breathing zone was monitored at a peak level of 2.4 units with the PID, < 2 % LEL and oxygen at 21 % with the CGI.

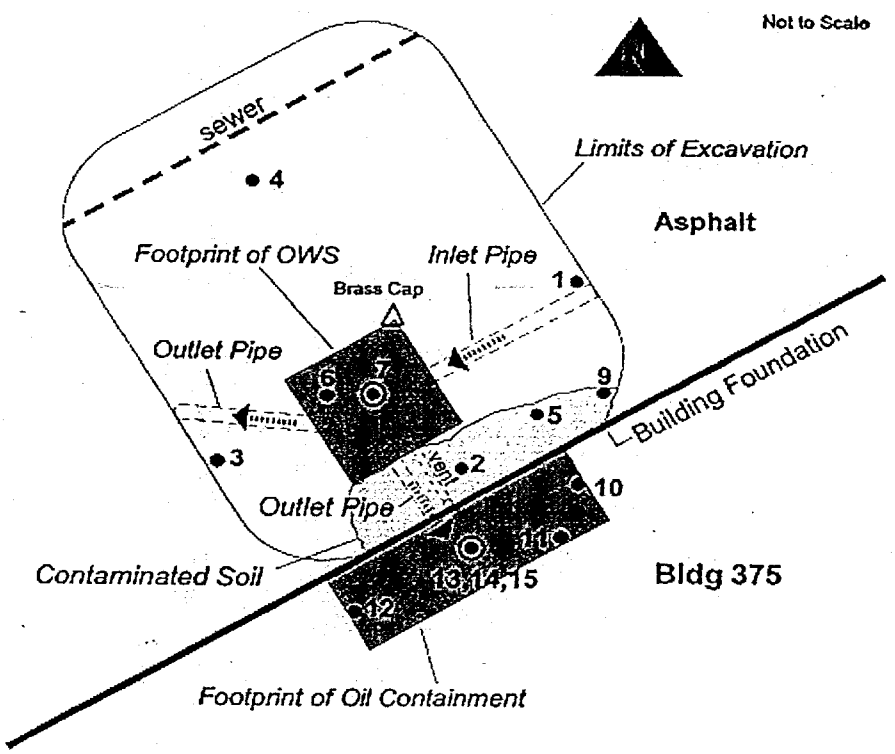
On February 26, 1997, the contractor drilled holes through the bottom of the OCV in order to expose those soils for sampling. The vault was then filled with clean sand and capped with

concrete to replace the floor over the vault. The breathing zone was monitored at a peak level of 1.9 unitswith the PID, <2% LEL and oxygen at 2 1 % with the CGI.

On February 27, 1997, a new McTighe Industries, Inc., model POWS-350-DW-EL Parallel Corrugated Plate Oil-Water Separator of UL-1746 Listed Jacketed Composite Secondary Containment Construction, was placed in the same location as the previous unit. Reconnection from the sewer to the new OWS was done using double contained inlet and outlet pipe and fittings. Once the unit passed a pressure test, the excavation was filled with clean backfill and compacted to grade, according to the manufacturer's recommendations. New vent lines were installed from the unit to the side of Building 375. On March 4, 1997, 1½-cubic yards of concrete were placed as a pad over the new OWS.

UNIT CONTENTS

Approximately 55 gallons of liquids/sludges were removed from the OWS. Approximately 400 gallons of liquids/sludges were removed from the OCV. The contents were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained constituents commonly found in petroleum-based fuels and solvents. This material was not manifested off-base as a RCRA hazardous waste nor as a DOT hazardous material, but was labeled as a New Mexico Special Waste, due to its high TPH content of 218,000 ppm. The liquids/sludges were placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc., in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.



Plan View of SWMU 51 Excavation

Figure 4.2-3. SWMU 51 Sample Locations

SOIL SAMPLING

Soil samples (Nos. 2 and 3 as shown in Fig. 4.2-3) were taken from the bottom of the southeast and southwest vertical sidewalls, respectively, of the OWS excavation at a depth of 9-feet below ground surface (bgs). Sample No. 1 was collected from the bottom of the excavation at a depth of 10 feet, along the northeast side of the excavation. Sample No. 4 was taken at the bottom of the excavation at a depth of 10 feet in an area northwest of the OWS. Sample No. 5 was taken in an area of stained soil along the southeast side of the excavation. Sample No. 6 was taken within the footprint of the unit, at a depth of 10 feet bgs. Sample Nos. 1 through 6 were taken for field sampling analysis. After field analysis using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample, except No. 5, was below 20 ppm and BTEX content was 10 PPM Or less, a confirmatory sample (No. 7) was taken from the center of the bottom of the excavation at a depth of 10 feet bgs, and sent for laboratory analysis.

A duplicate of sample Nos. 1, 2, 5 and 6 were submitted for laboratory analysis to correlate field results with laboratory results. These duplicates confirm the field screening results. Field screening results are reproduced in Appendix III.

Laboratory results for Sample No. 7 indicate no significant levels of organics or TCLP metals. Semivolatile contaminant bis(2-Ethylhexyl)phthalate at 4.0 mg/Kg, and metals, barium and selenium at 2.0 mg/L and 0.06 mg/L, respectively, were found in No. 7.

Sample No. 8 was taken as a composite from the excavated soils from the OWS and submitted for BTEX, TPH and TCLP metals analysis. Sample No. 8 results indicate no organics or metals contamination which exceed statutory limits. Barium at 1.7 mg/L and selenium at 0.07 mg/L were reported for this sample. These excavated soils were subsequently removed from the staging area and placed in the Cannon Air Force Base construction debris landfill.

Stained soils along the southeast wall of the OWS excavation were removed and segregated from non-stained soils. Soil sample No. 9 was taken for field screening analysis, from the OWS excavation after the stained soils were removed. The PID showed some residual organics, but BTEX and TPH were within the acceptable range of <20 ppm. BTEX and <10 TPH.

Soil sample Nos. 10 through 14 were taken from through holes punched into the sides and bottom of the OCV excavation. Sample Nos. 10 through 13 were taken for on-site field analysis. After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 ppm and BTEX content was 10 ppm or less, a confirmatory sample (No. 14) and its QA duplicate (No. 15) were taken through the center of the bottom of the OCV at a depth of 8 feet bgs, and sent for laboratory analysis. A duplicate of sample No. 10 was submitted for laboratory analysis to correlate field results with laboratory results. The laboratory results confirmed the absence of significant levels of BTEX and TRPH as reported by the fieldscreening.

Laboratory results for Sample No. 14 indicate no significant levels of organics or TCLP metals. Results indicated the presence of no contaminants, except barium at 0.8 mg/L. Laboratory results for the QA sample No. 15, also indicated no significant levels of organic compounds or toxic metals. Low levels of naphthalene at 0.0154 mg/Kg and 1,2,4-trimethylbenzene at 0.0033 mg/Kg were reported for No. 15.

Table 4.2-7.

SUMMARY OF SWMU 51 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	10	OWS	0.4	ND	<10	ND	ND	NT	NT	NT
2	9	OWS	0.0	ND	ND	ND	ND	NT	NT	NT
3	9	OWS	0.0	ND	ND	NT	NT	NT	NT	NT
4	9	OWS	0.0	ND	ND	NT	NT	NT	NT	NT
5	5.5	OWS	127	>600	>300	ND	7200	NT	NT	NT
6	10	OWS	ND	<20	<10	ND	ND	NT	NT	NT
7	10	OWS	NT	NT	NT	NT	ND	ND	ND[1]	< bkgd
8	n/a	excavated material	NT	NT	NT	ND	ND	NT	NT	NT
9	5.5	OWS	1	<20	<10	NT	NT	NT	NT	NT
10	6	OCV	0.1	<20	<10	ND	ND	NT	NT	NT
11	8	OCV	ND	<20	<10	NT	NT	NT	NT	NT
12	6	OCV	ND	<20	<10	NT	NT	NT	NT	NT
13	8	OCV	ND	<20	<10	NT	NT	NT	NT	NT
14	8	OCV	NT	NT	NT	NT	ND	ND	ND	Ba, Cr, Ni[3]
15QA	8	OCV	NT	NT	NT	NT	ND	ND[2]	ND	Se[4]

1 Only contaminant identified: bis(2-Ethylhexyl)phthalate at 4.0 mg/Kg.
2 Only contaminant identified: naphthalene at 0.0154 mg/Kg, and 1, 2, 4-trimethlbenzene at 0.0033 mg/Kg.
3 Barium at 1,070 mg/Kg, Chromium at 26.3 mg/Kg, Nickel at 14.4 mg/Kg.
4 Selenium at 0.838 mg/Kg.
ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

A summary of soil sample results is shown in Table 4.2-7. Copies of all analysis results are provided in Appendix IV. All samples for SWMU 51 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 51 sample No. 7 in this text is identified by the laboratory as CA051/7-97-0314-1136.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with five other SWMU unit concrete samples (SWMUs 57, 9, 94, 32a, and 8) to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and semivolatiles. Only low levels of barium (0.5 mg/L), 2-methylphenol/o-cresol (0.0068 mg/L) and 3A -methylphenol/m/p-cresol (0. 0023 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on April 16, 1997.

SOIL DISPOSAL

Stained soils from the OWS excavation were disposed of by Stevens Construction, Inc. to Gandy Marley, Inc. in Tatum, New Mexico, for landfarm treatment. Clean excavated soils were disposed of in the Cannon Air Force Base construction debris landfill.

PROJECT COSTS

The total cost for SWMU 51 removal and restoration were $95,872.20 and are summarized in Table 4.2-8.

Table 4.2-8.

SWMU 51 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	0	$0
17	Concrete replacement	154.82/CY	1.5	$232.23
18	Sawcut asphalt	1.5/LF	38	$57
19	Asphalt removal and disposal	28.88/T	3.53	$101.95

SWMU 51 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	300	$1,527
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	100	$261
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	6	$1,135.80
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	2	$1,078.40
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$82,512
41	Removal and Disposal of Sludge from OWS	113.76/GAL	0	$0
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	11	$1,738.11
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	11	$1,738.11
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	2	$750.16
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	2	$1,238.72
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	4	$621.12
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	2	$281
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	3	$2,396.07
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	1	$203.53

SWMU 51 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$95,872.20**

SWMU 51 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 51: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 51 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 51. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.2-3 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 51. Table 4.2-9 delineates the maximum concentrations of metals detected at SWMU 51.

Sample No. 5, taken along the northeast wall of building 375 at a depth of 5.5 feet, had moderately high levels of DRO, 7200 ppm. Further removal of the soil was not accomplished during the action due to concerns by structural engineers that such excavation could jeopardize the structural integrity of the building foundation. A decision was made to allow the contamination to remain in place based on the unlikely potential for human exposure at the location and the low potential for threat to groundwater due to the asphalt cap and a depth to groundwater of 240 feet.

Sample No. 7, collected at a depth of 10 feet had non-detectable concentrations of organics, other than di-n-butylphthalate at a concentration of 4 mg/kg which was also found in the laboratory method blank and was determined to be a laboratory contaminant.

Naphthalene at a concentration of 0.0154 mg/kg and 1,2,4-trimethylbenzene at a concentration of 0.0033 mg/kg were detected in Sample No. 15, collected at a depth of 8 feet bgs. The Region VI RBSLs for these analytes is 800 mg/kg and 3900 mg/kg, respectively. The relatively low concentrations of naphthalene and 1,2,4-trimethylbenzene in this sample are well within the Region VI RBSLs.

Di-n-butylphthalate was detected in Sample No. 7 at a depth of 10 feet bgs, and a concentration of 4 mg/kg. Dibutylphthalate has a Region VI non-carcinogenic listing of 6500 mg/kg for residential soils. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that di-n-butylphthalate is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.2-9.

SWMU 51 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
15	Arsenic	3.5	< 0.40	1.1-16.7	3.6	0.32 C
	Mercury	0.014	< 0.0010	0.10	0.019	23 N
	Selenium	0.838	< 1.0	0.2	1.1	380 N
14	Barium	1070	0.8	430	805	5300 N
	Chromium	26.3	< 0.02	38	13.3	31 C
	Nickel	14.4	NT	16	11.4	1500 N
7	Lead	7.6	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

'CAFB Background Investigation, 1997

Arsenic was detected in Sample No. at a depth of 7 feet and at a concentration of 3.5 /kg. This concentration lies well within the Region VI background range, however, it exceeds the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. Since naturally occurring concentrations of arsenic in soils in this region

are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value for arsenic in sub-surface soils of 3.6 mg/kg.

Total selenium was detected in Sample No. 15 at a concentration of 0.838 mg/kg, but not in its field duplicate, Sample No. 14. This value exceeds the Region VI background level of 0.2 mg/kg, however, it is well within the Region VI RBSL level of 380 mg/kg, or the more conservative level of 38 mg/kg which is used in the presence of other non-carcinogens.

Barium was detected in Sample No. 14 at depth of 8 feet and a concentration of 1070 mg/kg, a value that exceeds the Region VI background level of 430 mg/kg. Barium was detected at a level of 339 mg/kg in the field duplicate, Sample No. 15, and at a concentration of 295 mg/kg in Sample No. 7. The barium in Sample No. 14 does not exceed the Region VI RBSL of 5300 mg/kg, but does exceed the more conservative value of 530 mg/kg which is used in the presence of other non-carcinogens. Since naturally occurring concentrations of barium in soils in this region are known to be relatively high and the Cannon AFB Background Study found a level of 805 mg/kg, it is impractical to impose the RBSL of 530 mg/kg. Another circumstance mitigating the use of the 530 mg/kg RBSL is that Sample No. 14 may represent an isolated "hot spot" for barium, since its field duplicate and Sample No. 7 both detected barium at levels less than 530 mg/kg.

None of the other metals detected exceed their respective Region VI background levels or RBSLs The site is paved and located in an industrial portion of the base. It can reasonably asserted, therefore, that no chemicals, were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 51.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase transport mechanisms. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a valid or complete exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 51 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2.4 SWMU 57

UNIT DESCRIPTION

This OWS unit was located adjacent to the southwest side of building 379. The top of the unit was surrounded on all sides by asphalt. The unit was a 3-compartment underground concrete box measuring 6.5-feet in length, 5-feet in width and 6-feet in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit functioned as an oil/water separator which received effluent from drains in hangar building 186. Recovered oils were contained in a compartment within the unit and wastewater was discharged to the sanitary sewer, SWMU 98. The unit was beneath asphalt paving.

After removal of the unit, a brass cap was placed at the southernmost corner to mark its former location as shown in Figure 4.2-4. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1237364.18 and East 805786.91.

UNIT REMOVAL

On November 21, 1996, the asphalt was sawcut around the unit and excavation of 2 feet of soil from around the sides of the unit was completed. Excavated soils were taken to the bermed soil storage area on the abandoned runway. The breathing zone was monitored and a peak level of 0. 0 units was observed on the PID, and an LEL of < 2 % and O_2 level of 21 % were observed on the combustible gas meter (CGI).

On November 26, 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. Field personnel were dressed in level C personal protective equipment. Approximately 475gallons of liquid and 68 gallons of sludge were removed from the unit and placed in clean 55-gallon steel drums that were stored at the staging area on the abandoned runway.

On December 2, 1996, the inlet and outlet pipes were disconnected and temporarily capped. Holes were knocked into the sides of the unit so that hooks on chains could be inserted to allow the unit to be pulled from the excavation using a crane. The unit was removed and visually inspected. The exterior walls of the unit had no dark staining which indicated that the unit had not leaked. Excavated soils were not discolored and no fuel odors were observed. Wooden shoring was placed in the excavation.

On December 4, 1996, a new McTighe Industries, Inc., model POWS-350-DW-EL Parallel Corrugated Plate Oil-Water Separator of UL-1746 Listed Jacketed Composite Secondary Containment Construction, was placed in the same location as the previous unit. Reconnection from the sewer to the new OWS was done using double contained inlet and outlet pipe and fittings. Once the unit passed a pressure test, the excavation was filled with clean backfill and compacted to grade, according to the manufacturer's recommendations. The backfill soils were obtained off base and were analyzed in the laboratory for TCLP metals. Results of this analysis indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

The unit contained approximately 475 gallons of liquids and 68 gallons of sludge. The sludge and the liquids were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results indicated that this material, due to its high TRPH concentrations (water: 1900 mg/L, sludge: 43,900), be labeled for shipment as a New Mexico Special Waste Material, but not a RCRA hazardous waste, nor a DOT hazardous material. The material was placed in clean 55-gallon drums and disposed of off-base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

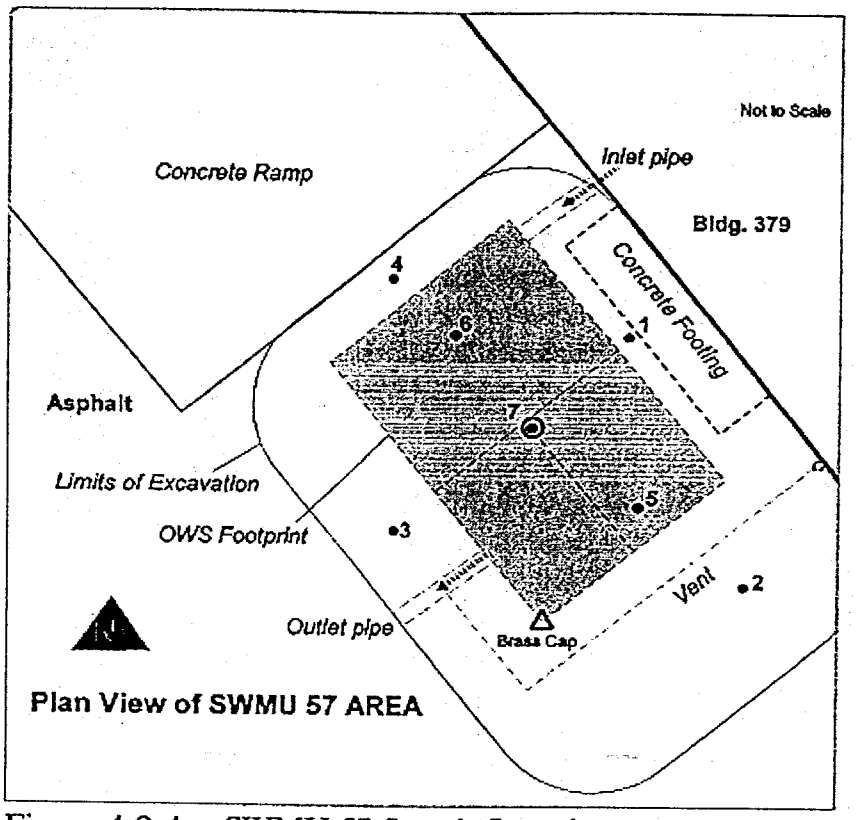


Figure 4.2-4. SWMU 57 Sample Locations

SOIL SAMPLING

Soil samples (Nos. 1 through 4 as shown in Fig. 4.2-4) were taken from the bottom of each of the four vertical sidewalls of the excavation at a depth of 8-feet below ground surface (bgs), and two samples (Nos. S and 6) were collected from the bottom of the excavation at a depth of 8 feet bgs, for on-site field analysis. After field analysis of these samples using headspace analysis with a PID and immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 ppm and BTEX content was 10 ppm or below, a confirmatory sample (No. 7) was taken from the center of the bottom of the excavation at a depth of 8 feet bgs, and sent for laboratory analysis. Duplicates of samples Nos. 1 and 5 were submitted for laboratory analysis to correlate field findings with laboratory results. Field screening results are reproduced in Appendix III.

Results for Sample No. 7 indicate the presence of the semivolatile compound di-n-butylphthalate at 13 mg/Kg and the metals, barium at 0.8 mg/L and chromium at 0.02 mg/L. The di-n-butylphthalate and the chromium were both found in the laboratory method blanks for this

analysis, indicating laboratory contamination of the sample. Laboratory analysis did not detect BTEX or TPH in either sample Nos. 1 or 5, confirming the field analysis.

TCLP results of excavated soils No. 8, indicate only a trace amount of Barium (1.2mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. Excavated soils were subsequently removed from the staging area and placed in the Base landfill. TCLP results also indicated the presence of chromium at 0.03 mg/L. The chromium also was found in the laboratory method blank for this analysis, indicating laboratory contamination of the sample.

A summary of soil sample results is shown in Table 4.2-10. Copies of all analysis results are provided in Appendix IV. All samples for SWMU 57 were labeled for identification in the following manner: CA(SWMU #)/(Sample 4)-YY-MMDD-(24-hr time). For example, the SWMU 57 sample No. 7 in this text is identified by the laboratory as CA057/7-97-0314-1136.

Table 4.2-10.

SUMMARY OF SWMU 57 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	8	OWS	ND	<20	<10	ND	ND	NT	NT	NT
2	8	OWS	ND	<20	ND	NT	NT	NT	NT	NT
3	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
4	8	OWS	ND	<20	<10	NT	NT	NT	NT	NT
5	8	OWS	ND	<20	<10	ND	ND	NT	NT	NT
6	8	OWS	ND	<20	ND	ND	NT	NT	NT	NT
7	8	OWS	NT	NT	NT	NT	ND	ND	ND[1]	Ag[2]
8	N/A	OWS	NT	NT	NT	ND	ND	NT	NT	NT

[1] Only contaminant identified: Di-n-butylphthalate found in sample (13 mg/Kg) and laboratory method blank.
[2] Silver at 1.4 mg/Kg.
ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with five other SWMU unit concrete samples (SWMUs 51, 9, 94, 32a, and 8) to form a composite sample for laboratory

analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and sernivolatiles. Only low levels of barium (0.5 mg/L), 2-methylphenol/o-cresol (0.0068 mg/L) and %-methylphenol/m/p-cresol (0.0023 mg/L) were found in this sample. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on April 16, 1997.

PROJECT COSTS

The total cost for SWMU 57 removal and restoration were $58,058.76 and are summarized in Table 4.2-11.

Table 4.2-11.

SWMU 57 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	0	$0
17	Concrete replacement	154.82/CY	2	$309.64
18	Sawcut asphalt	1.5/LF	23	$34.50
19	Asphalt removal and disposal	28.88/T	3.04	$87.80
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	474.83	$1,239.31
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	4	$757.20

SWMU 57 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	1	$539.20
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$42,421
41	Removal and Disposal of Sludge from OWS	113.76/GAL	67.83	$7.716.34
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	6	$948.06
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	6	$948.06
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	3	$465.84
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	2	$1,597.38
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$58,058.76**

SWMU 57 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 57: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 57 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 57. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.2-10 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 57. Table 4.2-12 delineates the maximum concentrations of metals detected at SWMU 57.

Di-n-butylphthalate was detected in Sample No. 7 at a depth of 8 feet bgs, and at a concentration of 13 mg/kg. Dibutylphthalate has a Region VI non-carcinogenic listing of 6500 mg/kg for residential soils, therefore, the level detected should pose no significant threat to human health. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that di-n-butylphthalate is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.2-12.

SWMU 57 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Silver	1.4	<0 0.04	0.01-5	2.65	380 N
	Arsenic	0.78	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	162.8	0.8	430	805	5300 N
	Cadmium	0.21	< 0.005	0.01-1	1.3	38 N
	Chromium	8.7	0.02	38	13.3	31 C
	Nickel	6.4	NT	16	11.4	1500 N
	Lead	9.3	< 0.05	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Arsenic was detected in Sample No. at a depth of 8 feet and at a concentration of 0.78 /kg. This concentration lies well within the Region VI background range, however, it exceeds the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico***, dated September 1997, value for arsenic in sub-surface soils of 3.6 mg/kg.

Among the metals analyzed, none exceed their respective Region VI background levels or RBSLs In addition, the site is paved and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 57.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 57 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2.5 SWMU 61

UNIT DESCRIPTION

This unit was located in the west side of a concrete washrack, former facility 5077, adjacent to former building 5077. Former facility 5077 included two 380-gallon sand traps within the limits of the washrack and a 1,675-gallon OWS located southeast of the wash rack. The facility was active from 1957 until it was removed in August, 1996. SWMU 61 was a concrete box measuring 6.5-feet in length, 3-feet in width and 30-inches in depth. The walls of the unit were 4-inches thick and contained no reinforcing steel.

After removal of the unit, the washrack area was paved with asphalt as part of a parking lot. A brass cap was placed at the southwestern comer to mark its former location as shown in Figure 4.2-5. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1238136.26 and East 806043.95.

UNIT REMOVAL

On 19 August 1996, the concrete pad surrounding this unit was partially removed and the concrete rubble weighing approximately 67,640 pounds was transported to the City of Clovis Public Landfill (CCPL) for disposal. The concrete rubble from the pad was monitored every 15 minutes by a photo-ionization detector (PID) and no ionizable hydrocarbons were detected near the surface of the concrete nor in the breathing zone. Five truckloads of concrete rubble were removed on 20 August 1996, and approximately 25,040 pounds of concrete rubble were removed on 21 August 1996. All concrete rubble was transported directly from the SWMU 61 site on CAFB to the Clovis Public Landfill in Clovis, New Mexico, for disposal.

On 20 August 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. Field personnel were dressed in level C personal protective equipment during the pumping and cleaning. The interior surface of the unit was checked with the PID and no residual contamination was indicated by this instrument. Surrounding soil was excavated to within 2 feet of the unit and removed to a stockpile area on a designated part of the abandoned runway. The exterior walls of the unit showed no signs of dark staining, indicating that the unit had not leaked. The breathing zone was monitored and a peak level of 0.0 units was observed on the PID, and an LEL of < 2% and021evel of 19.5% were observed on the combustible gas meter (CGI).

On August 21, 1996, a backhoe was used to break the unit into pieces, to remove it from the excavation, and to load it onto a truck. The truck transported the waste concrete directly from the SWMU 61 site to the Clovis Public Landfill in Clovis, New Mexico, for disposal. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off base and were analyzed in the laboratory for TCLP metals. Results of this analysis indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

The unit contained approximately 110 gallons of saturated sediment. The sediments and liquids were allowed to separate and then were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material was neither a RCRA hazardous waste nor a DOT hazardous material. This material was placed in clean 55-gallon drums and disposed of off base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples were taken from each of the four vertical sides of the excavation at a depth of 2 feet below ground surface (bgs), and two samples were collected from the bottom of the excavation at a depth of 54 inches bgs, for on-site field analysis (see fig.4.2-5). After field analysis of these samples using headspace analysis with a PID and immunoassay method 4030 indicated that the Total Petroleum Hydrocarbons (TPH) contents for each sample, except sample No. 6, was below 100 ppm, a confirmatory sample was taken from the center of the bottom of the excavation at a depth of 54 inches bgs, and sent for laboratory analysis. Sample No. 6 indicated a TPH concentration greater than 100 ppm, therefore, additional soil was removed and an additional field screening sample (No. 8) was taken from 2 feet below the bottom of the excavation at a depth of 78 inches bgs. The deeper Sample No. 8 was field tested and found to contain less than 100 ppm TPH. Field screening results are reproduced in Appendix III.

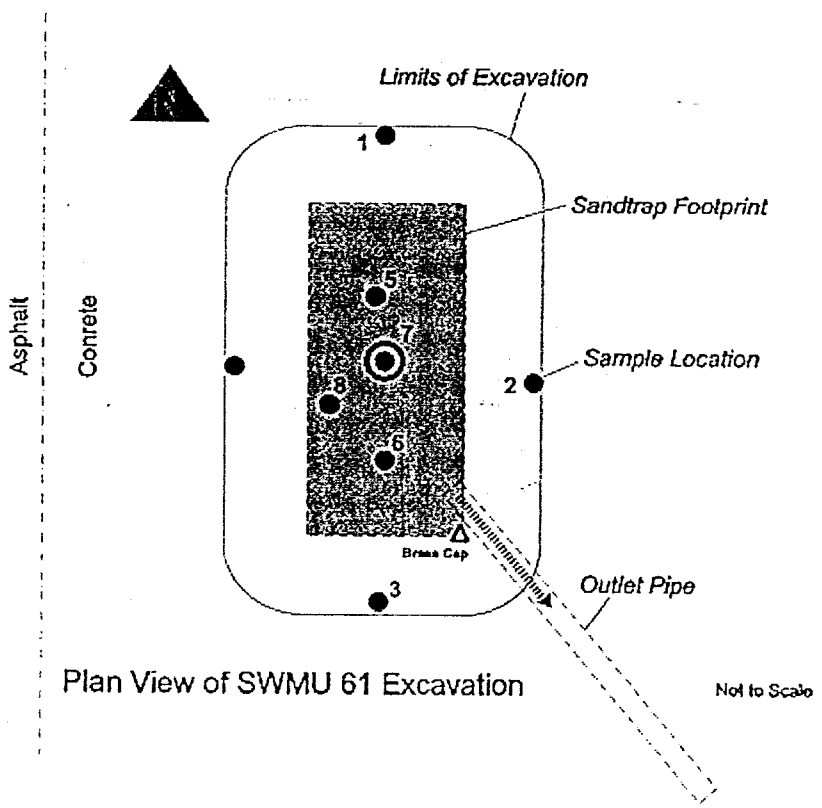


Figure 4.2-5. SWMU 61 Sample Locations

Sample No. 7, taken from the bottom of the excavation, was sent for laboratory analysis. Results for Sample No. 7 indicate no significant levels of organics, confirming the field analysis.

Soils removed from the excavation were observed to contain no petroleum odors and no visual staining. These soils were field-tested using the immunoassay method 4030 for TPH and BTEX and results indicated the TPH level was less than 100 ppm

and the BTEX level was less than 50 ppm. A composite sample of excavated soil was submitted for laboratory analysis. TCLP results on this sample indicated only a trace amount of barium (1.3 mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. These soils were subsequently removed from the staging area and used as backfill at the SWMU 112 leach field excavation.

Specific analysis for BTEX using immunoassay method 4030 was not performed in the field sampling due to an oversight by field personnel. The results of laboratory analysis and the absense of significant levels of other petroleum based contaminants suggests levels well below the maximum allowable of 50 ppm were encountered during removal.

A summary of soil sample results is shown in Table 4.2-13. Copies of laboratory analysis results for soils are provided in Appendix IV. All samples for SWMU 61 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 61 sample No. 7 in this text is identified by the laboratory as CA061/7-97-0314-1136.

Table 4.2-13.

SUMMARY OF SWMU 61 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	2	Sandtrap	ND	<15	NT	NT	NT	NT	NT	NT
2	2	Sandtrap	0.6	<100	NT	NT	NT	NT	NT	NT
3	2	Sandtrap	ND	<100	NT	NT	NT	NT	NT	NT
4	2	Sandtrap	ND	<100	NT	NT	NT	NT	NT	NT
5	4.5	Sandtrap	0.3	<15	NT	NT	NT	NT	NT	NT
6	4.5	Sandtrap	ND	>100	NT	ND	NT	NT	NT	NT
7	4.5	Sandtrap	NT	NT	NT	NT	ND	ND	ND	NT
8	6.5	Sandtrap	ND	<15	NT	NT	NT	NT	NT	NT
9	n/a	excavated material	ND	<15	<50	NT	NT	NT	NT	< bkgd

ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was removed from the excavation on 22 August 1996, and transported directly to the City of Clovis Public Landfill in Clovis, New Mexico.

PROJECT COSTS

The total cost for SWMU 61 removal and restoration were $58,205.50 and are summarized in Table 4.2-14. The contract bid item No. 40, however, includes removal and disposal costs for SWMUs 62 and 63.

Table 4.2-14.

SWMU 61 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	100	$1,626
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	99.5	$23,631.18
17	Concrete replacement	154.82/CY	0	$0
18	Sawcut asphalt	1.5/LF	0	$0
19	Asphalt removal and disposal	28.88/T	0	$0
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	0	$0
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	2	$378.60

SWMU 61 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	2	$1,078.40
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$28,621
41	Removal and Disposal of Sludge from OWS	113.76/GAL	0	$0
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	1	$158.01
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	9	$1,422.09
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	1	$155.28
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	1	$140.50
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	0	$0
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				$58,205.50

SWMU 61 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 61: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 61 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The *EPA Region 6 Human Health Media-Specific Screening Levels,* dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 61. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.2-13 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 61. Table 4.2-15 delineates the maximum concentrations of metals detected at SWMU 61.

Table 4.2-15.

SWMU 61 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
9	Arsenic	3.3	NT	1.1-16.7	3.6	0.32 C
7	Barium	53.3	NT	430	805	5300 N
	Chromium	8.9	NT	38	13.3	31 C
9	Nickel	7.1	NT	16	11.4	1500 N
	Lead	4.7	NT	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Arsenic was detected in Sample No. 9 at a concentration of 3.3/kg. This concentration lies well within the Region VI background range, however, it exceeds the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value for arsenic in sub-surface soils of 3.6 mg/kg.

Among the other metals analyzed, none exceeded the respective Region VI background level or RBSL. In addition, the site is paved and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals, except arsenic, were detected at concentrations

which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 61.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 61 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2.6 SWMU 62

UNIT DESCRIPTION

This sandtrap was located in the east side of a concrete washrack, former facility 5077, adjacent to former building 5077. Former facility 5077 included two 380-gallon sandtraps within the limits of the washrack and a 1,675-gallon OWS located southeast of the wash rack. The facility was active from 1957 until it was removed in August, 1996. SWMU 62 was a concrete box measuring 6.5-feet in length, 3-feet in width and 30-inches in depth. The walls of the unit were 4-inches thick and contained no reinforcing steel.

After removal of the unit, the washrack area was paved with asphalt as part of a parking lot. A brass cap was placed at the southwestern comer to mark its former location as shown in Figure 4.2-6. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1238118.74 and East 806060.67.

UNIT REMOVAL

On 20 August 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. The interior surface of the unit was checked with the PID and no residual contamination was indicated by this instrument. The soil was excavated from the edge of the unit to a distance of 2 feet from the unit on each side and removed to a stockpile area on a designated part of the abandoned runway. The exterior walls showed no signs of dark staining, indicating that the unit did not leak. The inlet pipe appeared to be leaking because the soil adjacent to the inlet was stained and had a fuel/solvent odor. The breathing zone of the excavation was monitored every 15 minutes by a PID. When PID units indicated a level of 2.1 units, the site workers suited into Level C personal protection with full-face respirators.

On August 22, 1996, the exclusion zone was monitored with a PID and no ionizable hydrocarbons were detected in the breathing zone in that area. Using a backhoe, the unit was then broken into pieces, removed from the excavation, and loaded onto a truck. The truck transported the waste concrete to the stockpile area for temporary storage. The breathing zone was monitored and a peak level of 0. 0 units was observed on the PID, and an LEL of < 2 % and 02 level of 21% were observed on the combustible gas meter (CGI).

The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off-base and were analyzed in the laboratory for TCLP metals. Results of this analyses indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

The unit contained approximately 200 gallons of saturated sediments. The contents were pumped into clean 55-gallon drums. The sediments and liquids were allowed to separate in the drums and then were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contains low levels of barium in the

TCLP leachate (2.17 mg/L in the sediments and 0.64 mg/L in the leachate, respectively) and is not a **RCRA** hazardous waste nor a DOT hazardous material. This material was disposed of off-base (Envirosolve Southwest Inc). The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples were taken from each of the four vertical sides of the excavation at a depth of 3 feet bgs, and two samples were collected from the bottom of the excavation at a depth of 55 inches, for on-site field analysis (see fig. 4.2-6). After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbons (TPH) contents for each sample, except Sample No. 2, was below 100 ppm, a confirmatory sample was taken from the center of the bottom of the excavation at a depth of 55 inches and sent for laboratory analysis. Sample No. 2 indicated a TPH concentration of less than 15 ppm and greater than 100 ppm. Due to the ambiguity of these results, the sample was retested and indicated TPH concentrations of less than 15 ppm and less than 100 ppm. Field screening results are reproduced in Appendix III. Visual staining of the soil was observed around the inlet pipe connection near the Sample No. 4 location. The highest readings on the PID for any of the samples were 8.3 and 8.4 ppm VOC at Sample Nos. 4 and 3, respectively. After additional soil was removed, Sample No. 8 was taken for field screening near the inlet pipe connection at a depth of 24 inches. Sample No. 8 results indicated a TPH level of less than 100 ppm.

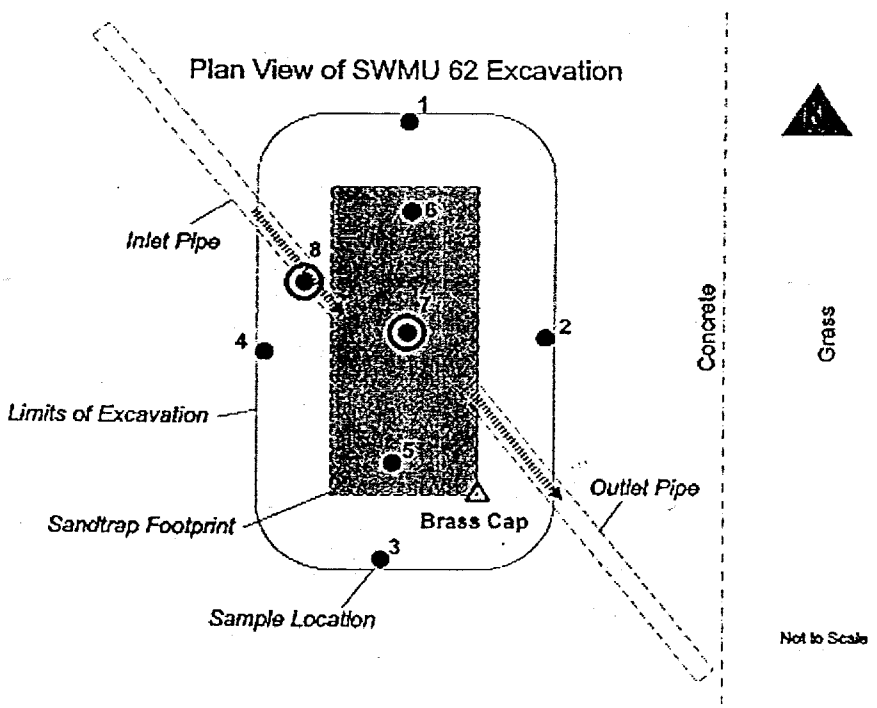


Figure 4.2-6. SWMU 62 Sample Locations

Stockpiled soils were sampled and submitted for laboratory analysis. The stockpile was left uncovered and occasionally mixed. TCLP results of a composite sample indicate a barium level of 1.2 mg/L.

Fieldscreening samples were tested on-site using headspace analysis with a PID and immunoassay method 4030s for TPH. Sample No. 2 showed TPH levels that exceeded 100 pprn but less than 15 ppm. The sample was reanalyzed and the results indicated TPH level less than 15 ppm and less than 100 ppm. This sample and sample No. 4 were sent in for laboratory analysis. The laboratory results indicate less than 100 pprn TPH for sample No. 2 and a non-detect for sample No. 4. Nos. 2 and 4 were also analyzed for BTEX, and both results were negative.

Specific analysis for BTEX using immunoassay method 4030 was not performed in the field sampling due to an oversight by field personnel. The results of laboratory analysis and the absense of significant levels of other petroleum based contaminants suggests levels well below the maximum allowable of 50 ppm were encountered during removal.

Sample No. 7, taken from the bottom of the excavation, was sent for laboratory analysis. Results for Sample No. 7 indicate no significant levels of organics, confirming the immunoassay results. This sample was not analyzed for TCLP metals, however SW846 6010 for total metals was used. Those laboratory results show low levels of barium at 37.7 mg/Kg, chromium at 8.4 mg/Kg, nickel at 6.9 mg/Kg, and lead at 4.8 mg/Kg.

The deeper Sample No. 8 was field tested and found to contain less than 100 ppm TPH.

Sample No. 9 was a composite of excavated soils and was field-tested using the immunoassay method 4030 for TPH and BTEX. Results indicated the TPH level was less than 100 ppm and the BTEX level was less than 50 ppm. Sample No. 9 was analyzed using ICP SWA846 6010 for total metal. Laboratory results from total metals testing indicated low levels of arsenic, barium, chromium, nickel and lead. TCLP results on these metals, excluding nickel, indicated only a trace amount of barium (1. 3 mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. These soils were subsequently removed from the staging area and used as backfill at the SWMU 112 leach field excavation.

A summary of soil sample results is shown in Table 4.2-16. Copies of all analysis results are provided in Appendix IV. All samples for SWMU 62 were labeled for identification in the following manner: CA(SWMU 4)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 62 sample No. 7 in this text is identified by the laboratory as CA062/7-97-0314-1136.

Table 4.2-16.

SUMMARY OF SWMU 62 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	3	Sandtrap	ND	<15	NT	NT	NT	NT	NT	NT

SUMMARY OF SWMU 62 SOIL SAMPLE RESULTS										
No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
2	3	Sandtrap	ND	<15	NT	17[1]	ND	NT	NT	NT
3	3	Sandtrap	8.4	<100	NT	NT	NT	NT	NT	NT
4	3	Sandtrap	8.3	<100	NT	ND	ND	NT	NT	NT
5	4.5	Sandtrap	ND	<100	NT	NT	NT	NT	NT	NT
6	4.5	Sandtrap	ND	<100	NT	NT	NT	NT	NT	NT
7	4	Sandtrap	NT	NT	NT	NT	ND	ND	ND	NT[2]
8	2	Sandtrap	ND	<15	NT	NT	NT	NT	NT	NT
9	n/a	excavated material	0.2	<15	<10	NT	NT	NT	NT	< bkgd

1 This is reported as an estimated amount.
2 TCLP metals was not run for this sample. ICP/SW846 6010 was run (see text).
ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside wall of the unit. This sample was mixed with eleven other SWMU unit concrete samples (Nos. 1, 7, 11, 39,46, 47, 33b, 70,92, 38 and 112) to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and sernivolatiles. The only target analytes found in this sample were low levels of barium (1.2 mg/L) and benzene (0.002 mg/L). The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico on December 13, 1996.

PROJECT COSTS

The peripheral costs for SWMU 62 removal and restoration were $7,503.86 and are summarized in Table 4.2-17. The removal and disposal costs, contract bid item No. 40, have been combined with SWMUs 61 and 63.

Table 4.2-17.

SWMU 62 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	0	$0
17	Concrete replacement	154.82/CY	0	$0
18	Sawcut asphalt	1.5/LF	0	$0
19	Asphalt removal and disposal	28.88/T	0	$0
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	0	$0
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	10	$907.50
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	3	$567.90
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	2	$1,078.40
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	0 (included in SWMU 1)	$0
41	Removal and Disposal of Sludge from OWS	113.76/GAL	12.52	$1,424.28
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	1	$158.01
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	8	$1,264.08
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	1	$375.08

SWMU 62 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	1	$619.36
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	2	$310.56
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	1	$798.69
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$7,503.86**

SWMU 62 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 62: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 62 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 62. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using

accepted risk assessment methodology. As noted, Table 4.2-16 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 62. Table 4.2-18 delineates the maximum concentrations of metals detected at SWMU 62.

Table 4.2-18.

SWMU 62 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
9	Arsenic	< 3.0	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	53	1.3	430	805	5300 N
7	Chromium	8.4	NT	38	13.3	31 C
9	Nickel	7.5	NT	16	11.4	1500 N
	Lead	6.9	NT	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0. 32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of $\leq$3.0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value for arsenic in subsurface soils of 3.6 mg/kg.

Among the other metals analyzed, none exceeded the respective Region VI background level or RBSL. In addition, the site is paved and located in an industrial portion of the base. It can be reasonably be asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 62.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these

considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 62 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2.7 SWMU 63

UNIT DESCRIPTION

This OWS was located in a grassy area adjacent to the concrete washrack near former building 5077. The unit was a concrete box measuring 10-feet in length, 5-feet-l-inch in width and 4-feet-6-inches in depth. The walls of the unit were 6-inches thick and contained steel reinforcement. The unit functioned as oil/water separator that received effluent from SWMUs 61 and 62.

After removal of the unit, the washrack area was paved with asphalt as part of a parking lot. A brass cap was placed at the southwest comer to mark its former location. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1238102.78 and East 806078.60.

UNIT REMOVAL

On 20 August 1996, the contents of the unit were removed by a vacuum pump truck and the inside of the unit was cleaned with a high pressure washer. The interior surface of the unit was checked with the PID and no residual contamination was indicated by this instrument. The breathing zone was monitored every fifteen minutes with a photo-ionization detector (PID) and a combustible gas meter. Peak readings on those instruments were 0.0 units on the PID, LEL at < 2 % and 0_2 at 21%, indicating that level D personal protective equipment was appropriate.

On August 22, 1996, soil was excavated around the unit to a distance of 2 feet and removed to a stockpile area on a designated part of the abandoned runway. Using a backhoe, the unit was removed intact from the excavation, and loaded onto a truck. The truck transported the waste concrete directly from the SWMU 63 site to the Curry County Public Landfill in Clovis, New Mexico, for disposal. The exterior surface of the unit showed no signs of dark staining from the contents leaking. The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off base and were analyzed in the laboratory for TCLP metals. Results of this analyses indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

The unit contained approximately 450 gallons of liquids and sediments. The sediments were allowed to separate and both matrices were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained low levels of barium, 2.51 mg/L in the sediments, 0.15 mg/L in the liquids and 0.213 mg/L of 3 & 4 -Methylphenol in the liquids. This material was not a RCRA hazardous waste or a DOT hazardous material. This material was placed in clean 55-gallon drums and disposed of off base by Envirosolve Southwest, Inc. in Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 1 through 4, see fig. 4.2-7) were taken from each of the four vertical sides of the excavation at a depth of 3 feet below ground surface (bgs), and two samples (Nos. 5 and 6)

were collected from the bottom of the excavation at a depth of 6.5-feet bgs, for on-site field analysis. After field analysis of these samples using immunoassay method 4030 indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 100 ppm, a confirmatory sample (No. 7), a quality assurance (QA) sample and quality control (QQ sample were taken from the center of the bottom of the excavation at a depth of 6.5-feet bgs, and sent for laboratory analysis.

Specific analysis for BTEX using immunoassay method 4030 was not performed in the field sampling due to an oversight by field personnel. The results of laboratory analysis and the absense of significant levels of other petroleum based contaminants suggests levels well below the maximum allowable of 50 ppm were encountered during removal.

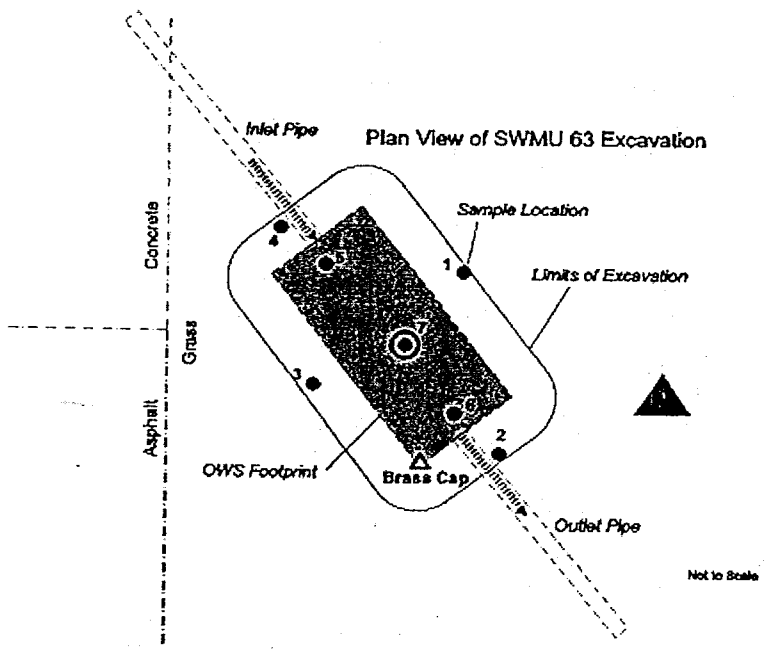


Figure 4.2-7. SWMU 63 Sample Locations

A duplicate of Sample No. 5 was submitted for laboratory analysis of BTEX and TPH. Results indicate agreement with the field screening analysis. Field screening results are reproduced in Appendix III.

Laboratory results for Sample No. 7 indicate no organics contamination of the soil, confirming the field analysis of the other bottom samples. The QC sample of No. 7 reproduced the same results. The QA sample results show no volatile organic contamination, low-level sernivolatile organic contamination (bis(2-ethylhexyl)phthalate at 0.7 mg/Kg) and barium at 2.1 mg/L.

Soils removed from the excavation were observed to contain no petroleum odors and no visual staining. These excavated soils were field tested using the immunoassay method 4030 for TPH and BTEX and results indicated the TPH level was less than 100 ppm and the BTEX level was less than 10 ppm. Laboratory TCLP results indicated only a trace amount of barium (1.2 mg/L), an element which is native in these soils and appears at the same level in the off-base backfill soils used to fill the excavations in this corrective measure. These soils were subsequently removed from the staging area and used as backfill at the SWMU 112 leach field excavation.

A summary of soil sample results is shown in Table 4.2-19. Copies of all analysis results are provided in Appendix IV. All samples for SWW 63 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 63 sample No. 7 in this text is identified by the laboratory as CA063/7-97-0314-1136.

Table 4.2-19.

SUMMARY OF SWMU 63 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	3	OWS	ND	<15	NT	NT	NT	NT	NT	NT
2	3	OWS	ND	<15	NT	NT	NT	NT	NT	NT
3	3	OWS	ND	<15	NT	NT	NT	NT	NT	NT
4	3	OWS	ND	<15	NT	NT	NT	NT	NT	NT
5	6.5	OWS	ND	<100	NT	ND	ND	NT	NT	NT
6	6.5	OWS	ND	<15	NT	NT	NT	NT	NT	NT
7	6.5	OWS	NT	NT	NT	NT	ND	ND	ND	NT
7QA	6.5	OWS	NT	NT	NT	NT	NT	ND	ND[1]	NT
7QC	6.5	OWS	NT	NT	NT	NT	ND	ND	ND	NT
8	n/a	excavated material	ND	<15	<10	NT	NT	NT	NT	< bkgd

ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was removed from the excavation on August 22, 1996, and transported to the Curry County Public Landfill in Clovis, New Mexico. The concrete sampling at this location was overlooked by the contractor. The Quality Assurance personnel was absent due to a familty emergency and was unable to correct to mistake brior to disposal. The concrete vault was thoroughtly cleaned with a high pressure washer with the wash water tested prior to disposal.

PROJECT COSTS

The peripheral costs for SWMU 63 removal and restoration were $10,406.24 and are summarized in Table 4.2-20. The removal and disposal costs, contract bid item No. 40, were combined with SWMUs 61 and 62, and are reported under SWMU 61 costs.

Table 4.2-20.

SWMU 63 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	0	$0
17	Concrete replacement	154.82/CY	0	$0
18	Sawcut asphalt	1.5/LF	0	$0
19	Asphalt removal and disposal	28.88/T	0	$0
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	50	$2,838
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	450.50	$1,175.81
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	3	$567.90
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	3	$1,617.60
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	0 (included in SWMU 61)	$0
41	Removal and Disposal of Sludge from OWS	113.76/GAL	0	$0
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	1	$158.01
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	7	$1,106.07

SWMU 63 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	2	$750.16
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	2	$1,238.72
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	1	$155.28
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	1	$798.69
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$10,406.24**

SWMU 63 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 63: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 63 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 63. EPA Region VI RBSLs were used for the

comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.2-19 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 63. Table 4.2-21 delineates the maximum concentrations of metals detected at SWMU 63.

Bis(2-ethylhexyl)phthalate at a concentration of 0.7 mg/kg was detected in Sample No. 7QA, collected at a depth of 6.5 feet bgs. After further data review, it is believed that di-n-butylphthalate is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis. In any case, the Region VI residential RBSL for this analyte is 32 mg/kg. The relatively low concentration of bis(2-ethylhexyl)phthalate in this sample is well within the Region VI RBSL, and, therefore, protective of human health.

Table 4.2-21.

SWMU 63 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7QC	Arsenic	< 3.0	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	202	NT	430	805	5300 N
8	Chromium	7.8	NT	38	13.3	31 C
	Nickel	6.8	NT	16	11.4	1500 N
	Lead	5.9	NT	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of $\leq$3.0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico***, dated September 1997, value for arsenic in subsurface soils of 3.6 mg/kg.

Among the other metals analyzed, none exceeded the respective Region VI residential RBSL. In addition, the site is paved and located in an industrial portion of the base. It can reasonably be

asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 63.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 63 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2.8 SWMU 70

UNIT DESCRIPTION

SWMU 70 consisted of an oil/water separator (OWS) and a 220-gallon underground storage tank (UST), both located in a grassy area near the northwest comer of Building 326. The OWS was constructed of steel and consisted of a two-compartment underground unit with a 50-gallon oil separator compartment and a detached UST. The OWS measured about 1.5 feet by 2 feet in plan and extended about 6 feet below the ground surface. The UST was strapped to a 4-foot by 7-foot concrete pad that was constructed about 7 feet below the top of the concrete sidewalk. The OWS had been active since 1960. The OWS received wash water generated from JP-4 fuel truck maintenance operations. The recovered petroleum products were directed to the UST and the wastewater was discharged to a leach well. The leach well consisted of a 5-foot-diameter by 5-foot-deep gravel-filled dry well.

At the time of this action, the leach well had been evacuated and a bioventing unit was in place and operating to remediate soils contaminated by the leach well. The contractor exercised due caution to perform the removals of the OWS and the UST so that the bioventing system was left in place to continue remediation.

A brass cap was placed at the southeast comer of where the OWS unit was located as shown in Figure 4.2-8. The point was surveyed by Lydeck Engineering at New Mexico State Plane Coordinates: North 1238856.96 and East 806730.82.

UNIT REMOVAL

The OWS and the UST had been filled with sand prior to this corrective measure. Some of the sand was removed from the OWS before it was pulled out of the excavation, but the narrow cavity of the OWS made full removal by hand impossible. The OWS was pulled from the excavation on September 6, 1996 and placed in the staging area on the abandoned runway. Air monitoring at 15-minute intervals indicated a peak reading of 2.2 ppm on the photo-ionization detector (PID), and strong fuel odors were observed. In response, field personnel dressed in level C personal protective equipment. The sand contents and the excavated soils were segregated at the staging area and sampled separately.

The UST was excavated and removed on September 9, 1996, with field personnel in Level C protection. Air monitoring at 15-minute intervals indicated a peak reading of 0.0 ppm on the PID. The slab beneath the UST was not removed due to concern that its removal would damage the bioventing system. Two four-inch-diameter holes were punched through the slab so that soil samples could be taken beneath the slab. The UST and the excavated soils associated with it were removed to separate areas of the staging area on the old abandoned runway.

The excavation was backfilled and compacted on September 10 and 11, 1996. Air monitoring at 15-minute intervals indicated a peak reading of 0.1 ppm on the PID.

UNIT CONTENTS

Approximately 1 cubic yards of sand were removed from the OWS. Approximately 1 cubic yard of sand was removed from the UST. The sand was sampled and sent for laboratory analysis of TCLP Metals. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained barium at 1.0 mg/L, cadmium at 0. 0 17 mg/L and lead at 0. 15 mg/L. Each of these levels is below the maximum concentration for the toxicity characteristic. This material was not a RCRA hazardous waste nor a DOT hazardous material. The sand was disposed of off-base by Envirosolve Southwest, Inc., Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 1 through 3 as shown in Fig. 4.2-8) were taken from the vertical sidewalls of the OWS excavation at a depth of 3 -feet below ground surface (bgs). Two samples (sample Nos. 5 and 6) were collected from the bottom of the excavation within the footprint of the OWS unit, at a depth of 5.5 feet bgs. Sample Nos. 1-3, 5 and 6 were taken for on-site field analysis using immunoassay method 4030. After field analysis of these samples, a confirmatory sample (No. 7) was taken from the center of the bottom of the OWS excavation at a depth of 5.5 feet bgs, and sent for laboratory analysis. A duplicate of sample No. 3 was submitted for laboratory analysis to correlate field results with laboratory results. Field sampling results are reproduced in Appendix III.

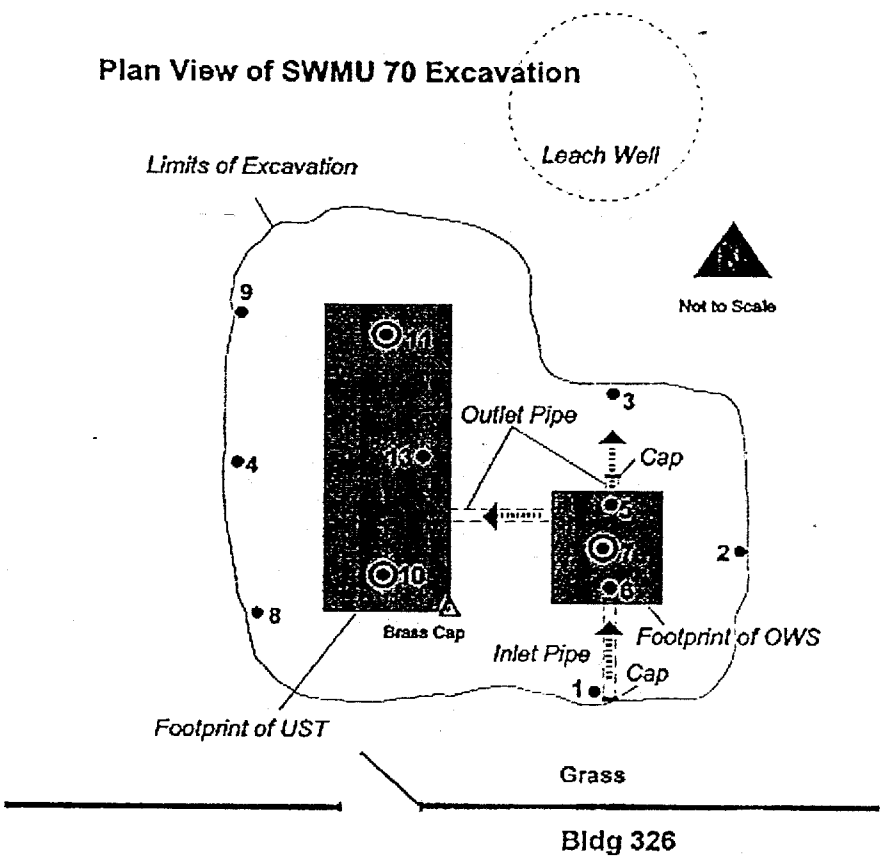


Figure 4.2-8. SWMU 70 Sample Locations

Laboratory results for Sample No. 7 indicate levels of ethylbenzene at 0.067 mg/Kg, para-,metaxylenes at 5.6 mg/Kg, ortho-xylene at 1.4 mg/Kg, naphthalene at 2.0 mg/Kg., 2-methylnaphthalene at 3.2 mg/Kg, 1-methylnaphthalene at 3.2 mg/Kg and barium at 2.7 mg/L.

Laboratory results for Sample No. 3 confirmed significant TPH concentrations found by the field analysis.

The detection of high levels of BTEX in the soil by immunoassay method 4030 would normally have led to further soil removal at the site, however, for reasons explained in the Risk Conclusion at the end of this section, no additional excavation was conducted.

Soil sample No. 4 was taken from the bottom of the west vertical sidewall of the UST excavation at a depth of 3-feet below ground surface (bgs), and two samples (Nos. 8 and 9) were taken from the bottom of the west vertical sidewall of the UST excavation at a depth of 8-feet bgs. Sample No. 13 was collected from the bottom of the excavation within the footprint of the UST, at a depth of 8 feet bgs. After field analysis of these samples using immunoassay method 4030, two confirmatory samples (Nos. 10 and 11) were taken from the each end of the UST footprint at a depth of 10 feet bgs, and sent for laboratory analysis.

Laboratory results for Sample Nos. 10 and 11 indicate no significant levels of organics or TCLP metals. Barium at 1.5 mg/L and 1.6 mg/Kg, respectively, were found in these samples, but are below the maximum concentration for barium for toxicity characteristic. Sample No. 11 was found to contain di-n-butylphthalate at 27 mg/Kg, and bis(2-ethylhexyl)phthalate at 9.6 mg/Kg, however, these may be laboratory contaminants.

Sample No. 12 was taken as a composite from the excavated soils and submitted for TCLP RCRA 8 metals analysis. Laboratory results indicated no metals contamination, except barium at 1.5 mg/L. These excavated soils were subsequently removed from the staging area and disposed of off base by Stephens Construction at the Gandy Marley, Inc. facility in Tatum, New Mexico.

Soil samples Nos. 14 and 15 were taken from the sands that filled the OWS and the UST, respectively, and were submitted for laboratory analysis. Laboratory results indicate a barium level of 1.5 mg/L in No. 14 and barium at 1.0 mg/Kg, cadmium at 0.017 mg/L and lead at 0. 15 mg/L in No. 15. All these metal levels are below the maximum concentration for the toxicity characteristic. The sands from both units were combined with the excavated soils and disposed of together.

A summary of soil sample results is shown in Table 4.2-22. Copies of laboratory analysis results for soils are reproduced in Appendix IV. All samples for SWMU 70 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 70 sample No. 7 in this text is identified by the laboratory as CA070/7-97-0314-1136.

Table 4.2-22

SUMMARY OF SWMU 70 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	3	OWS	25.0	>100	<300	NT	NT	NT	NT	NT
2	3	OWS	0.6	<15	<50	NT	NT	NT	NT	NT
3	3	OWS	68.1	>100	>300	0.351[1]	870	NT	NT	NT
4	3	UST	2.1	>100	<50	NT	NT	NT	NT	NT
5	5.5	OWS	102.1	>100	>300	NT	NT	NT	NT	NT
6	5.5	OWS	86.1	>100	>300	NT	NT	NT	NT	NT
7	5.5	OWS	NT	NT	NT	NT	1500	2	3	Pb[5]
8	8	UST	4.6	<15	<50	NT	NT	NT	NT	NT
9	8	UST	2.9	<15	<50	NT	NT	NT	NT	NT
10	10	UST	NT	NT	NT	NT	ND	ND	ND	Ba[6]
11	10	UST	NT	NT	NT	NT	ND	ND	ND[4]	< bkgd
12	n/a	excavated material	1.7	<15	<10	NT	NT	NT	NT	Pb[7]
13	8	UST	0.3	<15	<10	NT	NT	NT	NT	NT
14	n/a	OWS-sand	NT	<15	NT	NT	NT	NT	NT	NT
15	n/a	UST-sand	NT	>100	NT	NT	NT	NT	NT	NT

[1] Contaminants identified: Toluene at 0.097 mg/Kg, P-&m-Xylene at 0.2 mg/Kg, and O-Xylene at 0.054 mg/Kg.
[2] Contaminants identified: Ethylbenzene at 0.067 mg/Kg, P/M Xylene at 5.6 mg/Kg, and O-Xylene at 1.4 mg/Kg.
[3] Contaminants identified: Naphthalene at 2.0 mg/Kg, 2-Methylnaphthalene at 3.2 mg/Kg, and 1-Methylnaphthalene at 3.2 mg/Kg.
[4] Only contaminants identified: Di-n-butylphthalate at 27 mg/Kg, and bis(2-Ethylhexyl)phthalate at 9.6 mg/Kg.
[5] Lead at 19.6 mg/Kg.
[6] Barium at 716 mg/Kg.
[7] Lead at 19.5 mg/Kg.
ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The UST was cut into four pieces. Both the UST and the OWS steel units were delivered to Anderson Recycling Center, 511 South Prince Street, Clovis, New Mexico, on December 23, 1996.

PROJECT COSTS

The total cost for SWMU 70 removal and restoration were $27,015.14 and are summarized in Table 4.2-23.

SWMU 70 CONTRACT QUANTITIES AND COSTS

Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	8.21	$1,948.89
17	Concrete replacement	154.82/CY	1.75	$270.94
18	Sawcut asphalt	1.5/LF	0	$0
19	Asphalt removal and disposal	28.88/T	0	$0
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	0	$0
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	1.08	$98.01
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	8	$1,514.40
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	6	$3,235.20
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$7,944

SWMU 70 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
41	Removal and Disposal of Sludge from OWS	113.76/GAL	0	$0
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	12	$1,896.12
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	12	$1,896.12
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	3	$1,125.24
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	3	$1,858.08
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	1	$155.28
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	2	$281
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	6	$4,792.14
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$27,015.41**

SWMU 70 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 70: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 70 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for

recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 70. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.2-22 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 70. Table 4.2-24 delineates the maximum concentrations of metals detected at SWMU 70.

The volatile organic compounds (VOCs), ethylbenzene, p-, m- xylene and o-xylene were detected in Sample No. 7 at a depth of 5.5 feet bgs at concentrations of 0.067 mg/Kg, 5.6 mg/Kg and 1.4 mg/Kg, respectively. The Region VI residential RBSLs for these analytes are 2900 mg/Kg, 980 mg/Kg and 980 mg/Kg, respectively. The relatively low concentrations of the VOCs in this sample are well within the Region VI RBSLs, and, therefore, protective of human health.

The semivolatile organic compounds (SVOCs), naphthalene, 2-methylnaphthalene and 1-methylnaphthalene were detected in Sample No. 7 at a depth of 5.5 feet bgs at concentrations of 2.0 mg/Kg, 3.2 mg/Kg and 3.2 mg/Kg, respectively. The Region VI residential RBSL for naphthalene is 800 mg/Kg. The relatively low concentration of this SVOC in this sample is well within the Region VI RBSL, and, therefore, protective of human health. No listing was found in the Region VI Human Health Media-Specific Screening Levels for the methylnaphthalenes. The low concentrations detected and the structural similarity to naphthalene, however, may allow some comparison of these compounds with the RBSL of 800 mg/Kg developed for naphthalene to achieve a similar level of human health protection.

The SVOCs, di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in Sample No. 11 at a depth of 10 feet bgs, at concentrations of 27mg/kg and 9.6 mg/kg, respectively.

Dibutylphthalate has a Region VI non-carcinogenic listing of 6500 mg/kg for residential soils. Di-n-butylphthalate was also found in the laboratory method blank for this sample. After further data review, it is believed that the di-n-butylphthalate found in this sample is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis. The Region VI RBSL for bis(2-ethylhexyl)phthalate, a carcinogen, is 32 mg/Kg. The low concentrations of di-n-butylphthalate and bis(2-ethylhexyl)phthalate in this sample should not violate protective standards for human health at this site.

Table 4.2-24.

SWMU 70 Maximum Soil Sample Concentration of Metals						
Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7QC	Arsenic	< 3.0	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	202	NT	430	805	5300 N
8	Chromium	7.8	NT	38	13.3	31 C
	Nickel	6.8	NT	16	11.4	1500 N
	Lead	5.9	NT	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

'CAFB Background Investigation, 1997

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of $\leq$3.0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value for arsenic in subsurface soils of 3.6 mg/kg.

Among the metal analytes tested, no other exceeds the respective Region VI RBSL. The site is paved and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 70.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 70 indicate that no immeadiate and unacceptable human health risk for any potential exposure pathway exist at SWMU 70. Therefore, a bioventing system which was installed at the site in 1994, and has been operational since that time, will be allowed to continue to operate. Levels of BTEX were detected above 300 ppm using field sampling methods during the excavation, however, additional soil removal was not performed because of the corrective measure which was already in place.

Cannon AFB will continue to operate the bioventing system at the site and perform analysis annually until contaminant levels have reached acceptable standards as identified by NMED regulations.

4.2.9 SWMU 92

UNIT DESCRIPTION

This unit was located in a grassy area east of former Power Check Pad No. 5120. The Power Check Pad was a structure in which jet engine testing and calibration was performed. Water used in the operation for sound dampening, cooling of components, and cleaning of the floor area was captured in floor drains and routed through an oil water seperator before being discharged to a french drain. This check pad was dismantled in 1988. The OWS was a two-compartment unit with a detached 200-gallon oil storage tank and a leach well. The OWS was a concrete box measuring 4-feet in width, 6-feet in length, and 8-feet in depth. The UST lay within two feet of the OWS. A leach well was located about 40 feet to the east of the OWS and the UST. The leach well consisted of a 3-foot long by 4-inch diameter, vertical steel pipe set into a bottomless concrete box measuring 5-feet-4-inches square and 3-feet deep. The 4-inch pipe extended from the ground surface until it entered the concrete box, a distance of about 3 feet. The unit was active from approximately 1957 to 1988.

A brass cap was placed at the southwest comer of where the unit was located as shown in Figure 4.2-9. The point was surveyed by Lydick Engineers at New Mexico State Plane Coordinates: North 1230405.97 and East 808361.66.

UNIT REMOVAL

The contents of the OWS were removed by a vacuum pump truck on October 7, 1996. The unit was cleaned with a high-pressure washer on October 8, 1996. The breathing zone was monitored at a peak level of 0.1 units with the PID, <2% LEL and oxygen at 21% with the CGI. Field personnel were dressed in level C personal protective equipment.

On October 15, 1996, two feet of soil were excavated from the sides and the bottom of the unit and the OWS and UST were removed from the excavation and stored on the abandoned runway. The OWS was visually inspected and was found to have no dark stains on the exterior surface walls that might indicate that the OWS had leaked into the surrounding soil. The UST was also visually inspected and found to be in very good condition with no visual evidence that the UST had ever leaked. The excavation was shored for safety. The breathing zone was monitored at a peak level of 0.0 units with the PID, <2% LEL and oxygen at 21% with the CGI.

On October 16, the leach well box was removed from the leach well. The area below the box contained 3-inch-to4 inch-diameter cobble stones to a depth of about 5 feet. The leach well excavation measured about 10-feet in diameter and 11-feet deep. The cobbles and soil that were removed from the excavation were dry, were not stained, nor were any fuel odors observed. Samples were taken and the area was backfilled with the same material as used for the UST and OWS area. The cobble stone in the leach well extended laterally and vertically beyond the excavation. Only that portion of the cobbles that was exposed in the excavation to a depth of 2 feet below the box were removed and the remainder was left in place.

The excavation was filled with clean backfill and compacted to grade. The backfill soils were obtained off base and were analyzed in the laboratory for TCLP metals. Results of this analysis indicated only a low level of barium (1.3 mg/L).

UNIT CONTENTS

The OWS unit contained approximately 40.3 gallons of liquid and 26 gallons of sludge. The sludge and liquid were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material was neither a RCRA hazardous waste nor a DOT hazardous material. The material was disposed of off base by Envirosolve Southwest, Inc. The disposal documentation for this material is reproduced in Appendix II.

The UST contained about 5 gallons of water that had no visual sheen, nor any odors associated with it. The water was accidentally released on the ground near the excavation during removal.

SOIL SAMPLING

Samples 1 through 6 (see fig. 4.2-9) were taken from the OWS and UST excavation for on-site field analysis using immunoassay method 4030 and headspace analysis using a photo-ionization detector (PID). Samples 1 through 4 were taken nine feet below ground level from the sidewalls. Sample 5 and 6 were taken from the bottom of the excavation at 10 feet bgs. Field sampling results are reproduced in Appendix III.

Duplicates of samples Nos. 2 and sample 6 were sent for laboratory analysis to correlate with field results. Sample 7 was taken from the bottom of the excavation and sent to the laboratory for analysis.

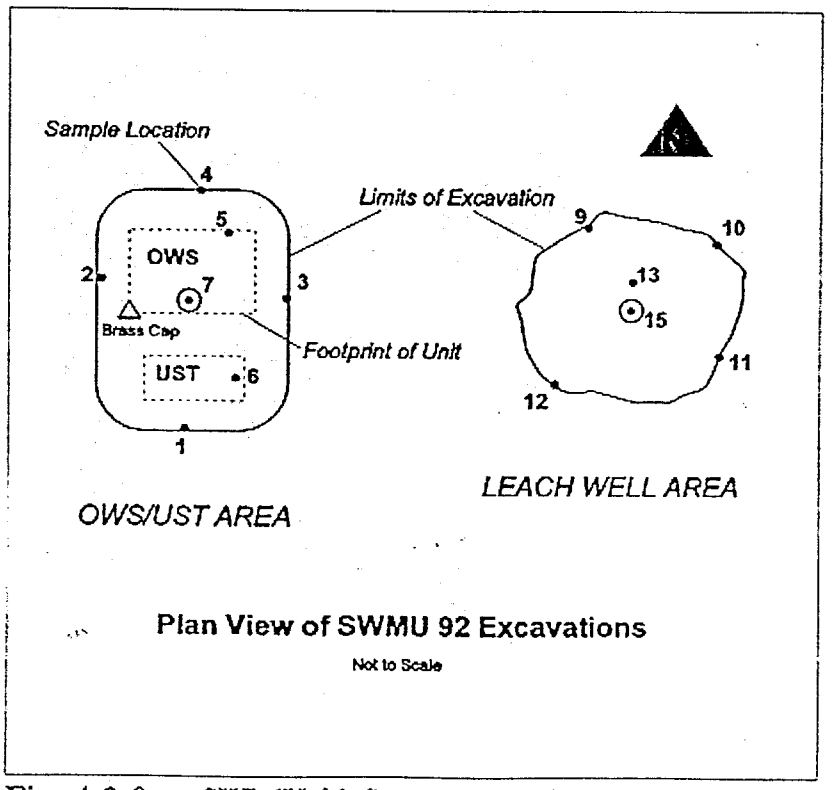


Fig. 4.2-9. SWMU 92 Sample Locations

Laboratory results of sample Nos. 2 and 6 indicated good correlation with field analysis, and that BTEX and diesel range organics are not present in these soils.

Laboratory results for sample No. 7 reported a semi-volatile level for di-n-butylphthalate of 25 mg/Kg and a barium level of 1.6 mg/Kg. The di-n-butylphthalate was also found in the laboratory method blank, indicating that it is a laboratory

contaminant, and may not be present in the soils.

Sample No. 8 was taken from excavated material in the OWS-UST area and was field screened using the immunoassay method 4030. A duplicate of No. 8 was submitted for TCLP metals analysis. Sample No. 8 results show no BTEX, TPH contamination, and a barium level of 1.2 mg/L.

Samples Nos. 9 through 12 were field-screened samples taken from the sidewalls of the leach well excavation at 11 feet bgs, and Sample No. 13 was taken from the sidewalls at 12 feet bgs. Field screening results for all samples indicated TPH levels less than 100 ppm. Sample No. 15 was taken from the center of the excavation and sent in for laboratory analysis. Laboratory results indicated a di-n-butylphthalate level of 30 mg/Kg and a barium level of 1.2 mg/L. The phthalate is a common laboratory contaminant and was also found in the method blank for this sample. Sample No. 15 results show no significant levels of organics or heavy metals.

Sample No. 14 was taken from excavated material in the Leach Well area and was field screened using the immunoassay method 4030. A duplicate of No. 14 was submitted for TCLP metals analysis. Sample No. 14 results show no BTEX, TPH contamination, and a barium level of 1.2 mg/L.

A summary of soil sample results is shown in Table 4.2-25. Copies of laboratory analysis results for soils are provided in Appendix IV. All samples for SWMU 92 were labeled for identification in the following manner: CA(S)WW #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 92 sample No. 7 in this text is identified by the laboratory as CA092/7-97-0314-1136.

Table 4.2-25.

SUMMARY OF SWMU 92 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX ppm	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	9	UST/OWS	ND	<15	<10	NT	NT	NT	NT	NT
2	9	OWS	ND	<15	<50	ND	ND	NT	NT	NT
3	9	OWS	ND	<15	<10	NT	NT	NT	NT	NT
4	9	OWS	ND	<15	<50	NT	NT	NT	NT	NT
5	9	OWS	ND	<15	<50	NT	NT	NT	NT	NT
6	10	UST	ND	<15	<50	ND	ND	NT	NT	NT
7	10	OWS	NT	NT	NT	NT	ND	ND	ND[1]	Ba[3]
8	n/a	excavated soils	ND	<15	<10	NT	NT	NT	NT	NT

SUMMARY OF SWMU 92 SOIL SAMPLE RESULTS										
No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX ppm	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
9	11	leach well	ND	<15	<10	NT	NT	NT	NT	NT
10	11	leach well	ND	<15	<10	NT	NT	NT	NT	NT
11	11	leach well	ND	<15	<10	NT	NT	NT	NT	NT
12	11	leach well	ND	<15	<10	NT	NT	NT	NT	NT
13	12	leach well	ND	<15	<10	NT	NT	NT	NT	NT
14	n/a	excavated soils	ND	<15	<10	NT	NT	NT	NT	NT
15	10	leach well	NT	NT	NT	NT	ND	ND	ND[2]	< bkgd

[1] Contaminants identified: Di-n-butylphthalate at 25 mg/Kg found in sample and laboratory method blank.
[2] Contaminants identified: Di-n-butylphthalate at 30 mg/Kg found in sample and laboratory method blank.
[3] Barium at 680 mg/Kg.
ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from the OWS unit and the leach well cap were stockpiled on the abandoned runway site until samples were taken from the bottom inside walls. These samples were mixed with nine other SWMU unit concrete samples to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP method for metals, pesticides, volatiles and sernivolatiles. Results of this analysis indicated that no significant contamination was present, and the TCLP results were negative. The concrete from this unit was disposed of in the City of Clovis Public Landfill in Clovis, New Mexico, on November 19, 1996.

The UST was cut into four parts and delivered to Anderson Recycling Center, 511 South Prince Street, Clovis, New Mexico, on December 23, 1996.

PROJECT COSTS

The contract costs for this corrective measure were $34,240.72, and are summarized below.

Table 4.2-26.

SWMU 92 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	0	$0
2	Travel Cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	5.68	$1,348.32
17	Concrete replacement	154.82/CY	0	$0
18	Sawcut asphalt	1.5/LF	0	$0
19	Asphalt removal and disposal	28.88/T	0	$0
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	40.3	$105.18
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	0	$0
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	4	$757.20
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	4	$2,156.80
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$16,751
41	Removal and Disposal of Sludge from OWS	113.76/GAL	26	$2,957.76
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	13	$2,054.13
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	13	$2,054.13
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	2	$750.16
	Soil Sampling & Analysis, Method 8270 (Semi-VOAs),			

SWMU 92 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
45	Complete	619.36/EA	2	$1,238.72
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	2	$310.56
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	4	$562
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	4	$3,194.76
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	0	$0
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	0	$0
Total				**$34,240.72**

SWMU 92 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 92: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 92 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 92. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.2-25 shows a summary of VOCs,

SVOCs and metals detected in soil samples collected at SWMU 92. Table 4.2-27 delineates the maximum concentrations of metals detected at SWMU 92.

The SVOC, di-n-butylphthalate was detected in Sample Nos. 7 and 15, at depths of 10 feet bgs, at concentrations of 25mg/kg and 30 mg/kg, respectively. Dibutylphthalate, an identical compound, has a Region VI non-carcinogenic listing of 6500 mg/kg: for residential soils, therefore, the di-n-butlyphthalate levels detected should pose no significant threat to human health. Di-n-butylphthalate was also found in the laboratory method blanks for these samples. After further data review, it is believed that di-n-butylphthalate is a laboratory contaminant associated with plasticizers commonly found in laboratory equipment. Nine of the 19 SWMUs analyzed during this corrective measure showed di-n-butylphthalate contamination in the method 8270 blank analysis.

Table 4.2-27.

SWMU 92 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Arsenic	< 3.0	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	680	1.6	430	805	5300 N
	Chromium	5.9	NT	38	13.3	31 C
	Nickel	6.8	NT	16	11.4	1500 N
	Lead	5	NT	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Barium at a concentration of 680 mg/kg was detected in Sample No. 7 at a depth to 10 feet bgs. This value is well within the Region VI RBSL of 5300 mg/kg.

Arsenic was not detected in any of the samples above the total arsenic detection limit of 3.0 mg/kg, however the detection limit is above the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. The concentration of $\leq$3.0 mg/kg lies well within the Region VI background range. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL at this site. As an alternative, it is proposed to use ***The Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997, value for arsenic in subsurface soils of 3.6 mg/kg.

None of the other metals analyzed exceed the respective Region VI background level or residential RBSL. In addition, the site is paved and located in an industrial portion of the base. It

can be reasonably asserted, therefore, that no chemicals, except arsenic, were detected at concentrations which are likely to pose a potentially significant human health risk based on any future land use scenario for SWMU 92.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore,

the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 92 indicate that no chemical release that poses an unacceptable human health risk for any potential exposure pathway has occurred at this SWMU and, therefore, no further evaluation of this SWMU is warranted.

4.2.10 SWMU 94

UNIT DESCRIPTION

SWMU 94 was associated with former Facility 5144, a two-bay vehicle washrack located east of the intersection of D.L. Ingram Street and Argentia Avenue. SWMU 94 consisted of two sandtraps and an oil/water separator (OWS). Each sandtrap was located in the center of a 30-foot-by-40-foot washrack and the washracks were adjacent to one another. The OWS lay approximately 30 feet northeast of the washracks in a grassy area. The washrack pads sloped to the sandtraps and the sandtraps discharged to the oil/water separator. The unit was active from 1960 to approximately 1988. At the time of this action, the washracks remained in place, but a metal building had been placed over the southernmost washrack and its associated sandtrap had been filled-in with concrete.

A brass cap was placed at the northernmost comer of where the OWS unit was located as shown in Figure 4.2-10. The point was surveyed by Lydeck Engineering at New Mexico State Plane Coordinates: North 1237615.57 and East 805487.39.

UNIT REMOVAL

The OWS and the westernmost sandtrap were evacuated and cleaned on February 18, 1997. The concrete washracks were removed, beginning on March 12, 1997. Soils within a 2-foot distance from around the westernmost sandtrap were sampled, excavated and removed on March 14, 1997. Soils adjacent to the outlet pipe of the sandtrap were observed to be stained a gray/black color. These soils were excavated to a distance of about 12 inches beyond the staining prior to gathering any soil samples. The sandtrap unit and the excavated soils associated with it were removed to separate areas of the staging area on the old abandoned runway. The breathing zone was monitored with the PID at 0.0 units, oxygen at a steady 19.5% and combustible gasses at of the LEL.

The OWS unit was excavated and removed to the staging area on March 25, 1997. The breathing zone was monitored with the PID at 0.0 units, oxygen at a steady 19.5 % and combustible gasses at < 2 % of the LEL.

On April 2, 1997, the eastern sandtrap was excavated and removed. The breathing zone was monitored with the PID at 0.0 units to 0.6 units, oxygen at a steady 19.5 % and combustible gasses at < 2 % of the LEL.

UNIT CONTENTS

Approximately 400 gallons of liquids/sludges were removed from the OWS unit. Approximately 55 gallons liquids/sludges were removed from the sandtrap. The liquids/sludges were sampled and sent for laboratory analysis. Laboratory analysis results for this material is reproduced in Appendix I. Results show that this material contained constituents commonly found in JP-fuels and solvents. This material was neither a RCRA hazardous waste nor a DOT hazardous material. The sludge was placed in clean 55-gallon drums and disposed of off-base by Envirosolve

Southwest, Inc., Albuquerque, New Mexico. The disposal documentation for this material is reproduced in Appendix II.

SOIL SAMPLING

Soil samples (Nos. 1 through 4 as shown in Fig. 4.2-10) were taken from the bottom of each of the four vertical sidewalls of the west sandtrap excavation at a depth of 6-feet below ground surface (bgs). Two samples (sample Nos. 5 and 6) were collected from the bottom of the excavation within the footprint of the unit, at a depth of 6.5 feet bgs. These first six samples were collected for on-site field analysis using immunoassay method 4030. After field analysis of these samples indicated that the Total Petroleum Hydrocarbon (TPH) content for each sample was below 20 ppm and BTEX content was 10 ppm or less, a confirmatory sample (No. 7) was taken from the center of the bottom of the excavation at a depth of 6.5 feet bgs, and sent for laboratory analysis. A duplicate of sample Nos. 1 and 2 were submitted for laboratory analysis to correlate field results with laboratory results.

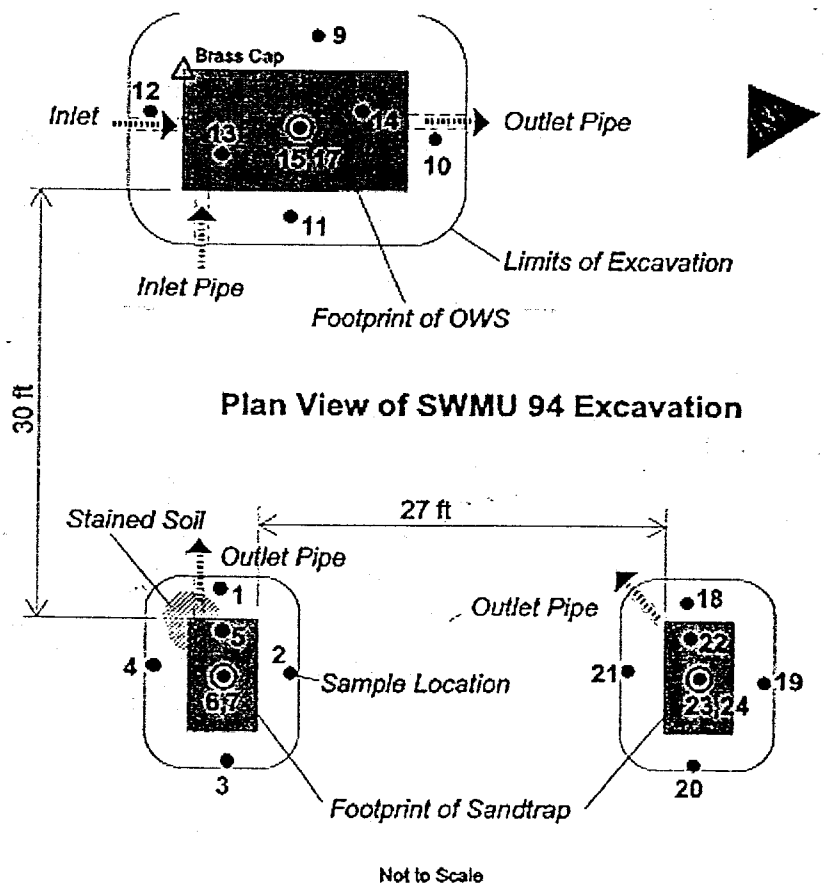


Figure 4.2-10. SWMU 94 Sample Locations

Laboratory results for Sample Nos. 1 and 2 indicate no BTEX or diesel range organic contamination, confirming the field analysis results.

Laboratory results for Sample No. 7 indicate no significant levels of organics or TCLP metals. Methylene chloride at 0.06 mg/kg and barium at 2.7 mg/L, were the only target analytes found.

Sample No. 8 was taken as a composite from the excavated soils of the west sandtrap and submitted for TCLP RCRA 8 metals

analysis. Sample No. 8 results indicated no organics or metals contamination, except barium at 2.0 mg/L. These excavated soils were subsequently removed from the staging area and placed in the Base landfill.

Soil sample Nos. 9 through 12 were taken from the bottom of each of the four vertical sidewalls of the OWS excavation at a depth of 8.5-feet below ground surface (bgs). Two samples (Nos. 13 and 14) were collected from the bottom of the excavation within the footprint of the unit, at a depth of 9 feet bgs. Sample Nos. 11 through 14 were taken for on-site field analysis using immunoassay method 4030. After field analysis of these samples, a confirmatory sample (No. 15) was taken from the center of the bottom of the excavation at a depth of 6.5 feet bgs, and sent for laboratory analysis. A duplicate of sample No. 10 was submitted for laboratory analysis to correlate field results with laboratory results. Sample No. 17 was collected from the same location as No. 15 and analyzed as the site QC sample. Field sampling results are reproduced in Appendix III.

Laboratory results for Sample No. 15 indicate no significant levels of organics or TCLP metals, except barium at 1.3 mg/L.

Laboratory results for Sample No. 10 indicate no BTEX or diesel range organic contamination, confirming the field analysis results.

Sample No. 16 was taken as a composite from the excavated soils of the OWS and submitted for TCLP RCRA 8 metals analysis. Sample No. 16 results indicated no organics or metals contamination, except barium at 1.2 mg/L. These excavated soils were subsequently removed from the staging area and placed in the Base landfill.

Laboratory results for Sample No. 17 indicate no significant levels of organics or TCLP metals, except barium at 1.3 mg/L.

Soil sample Nos. 18 through 21 were taken from the bottom of each of the four vertical sidewalls of the east sandtrap excavation at a depth of 6-feet below ground surface (bgs). Two samples (Nos. 22 and 23) were collected from the bottom of the excavation within the footprint of the unit, at a depth of 6.5 feet bgs. Sample Nos. 18 through 23 were taken for on-site field analysis using immunoassay method 4030. After field analysis of these samples, a confirmatory sample (No. 24) was taken from the center of the bottom of the excavation at a depth of 6.5 feet bgs, and sent for laboratory analysis. A duplicate of sample Nos. 19 and 23 were submitted for laboratory analysis to correlate field results with laboratory results.

Laboratory results for Sample No. 24 indicate no significant levels of organics or TCLP metals, except barium at 1.7 mg/L.

Laboratory results for Sample Nos. 19 and 23 indicate no BTEX or diesel range organic contamination, confirming the field analysis results.

Sample No. 25 was taken as a composite from the excavated soils of the east sandtrap and submitted for TCLP RCRA 8 metals analysis. Sample No. 25 results indicate no organics or metals contamination, except barium at 1.3 mg/L. These excavated soils were subsequently removed from the staging area and placed in the Base landfill.

Sample No. 26 was taken as a composite from the soils excavated beneath the concrete washracks that were removed. This sample was submitted for BTEX, diesel range organics and TCLP RCRA 8 metals analysis. BTEX results indicated ethylbenzene at 0.070 mg/Kg, o-xylene at 0.51 mg/Kg. Diesel range organics results are reported at 2300 mg/Kg. The only TCLP metal is barium at 1.2 mg/L. These excavated soils (47 cubic yards) were removed from the staging area on April 29, 1997, and taken to Gandy Marley, Inc. for treatment and disposal.

A summary of soil sample results is shown in Table 4.2-28. Copies of laboratory analysis results for soils are provided in Appendix IV. All samples for SWMU 94 were labeled for identification in the following manner: CA(SWMU #)/(Sample #)-YY-MMDD-(24-hr time). For example, the SWMU 94 sample No. 7 in this text is identified by the laboratory as CA094/7-97-0314-1136.

Table 4.2-28.

SUMMARY OF SWMU 94 SOIL SAMPLE RESULTS

No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
1	6	Sandtrap	ND	<20	<10	ND	ND	NT	NT	NT
2	6	Sandtrap	ND	<20	<10	ND	ND	NT	NT	NT
3	6	Sandtrap	ND	<20	ND	NT	NT	NT	NT	NT
4	6	Sandtrap	ND	ND	ND	NT	NT	NT	NT	NT
5	6.5	Sandtrap	ND	ND	ND	NT	NT	NT	NT	NT
6	6.5	Sandtrap	ND	ND	ND	NT	NT	NT	NT	NT
7	6.5	Sandtrap	NT	NT	NT	NT	ND	ND[1]	ND	As, Ba[3]
8	n/a	excavated materials	NT	NT	NT	ND	NT	NT	NT	NT
9	8.5	OWS	ND	ND	<10	NT	NT	NT	NT	NT
10	8.5	OWS	ND	<20	<10	ND	ND	NT	NT	NT
11	8.5	OWS	ND	ND	<10	NT	NT	NT	NT	NT
12	8.5	OWS	ND	<20	ND	NT	NT	NT	NT	NT

SUMMARY OF SWMU 94 SOIL SAMPLE RESULTS										
No.	Depth (ft.)	Location	PID (units) ppm	4030 TPH ppm	4030 BTEX pprn	SWA846 8020A BTEX mg/Kg	SWA846 M8015 DRO mg/Kg	SWA846 8260 mg/Kg	SWA846 8270B SOX mg/Kg	Total Metals > bkgd mg/Kg
13	9	OWS	ND	<20	ND	NT	NT	NT	NT	NT
14	9	OWS	ND	ND	<10	NT	NT	NT	NT	NT
15	9	OWS	NT	NT	NT	NT	ND	ND	ND	As[4]
16	n/a	excavated soils	NT	NT	NT	ND	ND	NT	NT	NT
17	6	OWS	NT	NT	NT	NT	NT	ND	ND	< bkgd
18	6	Sandtrap	ND	<20	<10	NT	NT	NT	NT	NT
19	6	Sandtrap	ND	ND	<10	ND	ND	NT	NT	NT
20	6	Sandtrap	ND	ND	<10	NT	NT	NT	NT	NT
21	6	Sandtrap	ND	ND	<10	NT	NT	NT	NT	NT
22	6.5	Sandtrap	ND	ND	<10	NT	NT	NT	NT	NT
23	6.5	Sandtrap	ND	ND	<10	ND	ND	NT	NT	NT
24	6.5	Sandtrap	NT	NT	NT	NT	ND	ND	ND	< bkgd
25	n/a	excavated materials	NT	NT	NT	ND	NT	NT	NT	NT
26	n/a	excavated materials	NT	NT	NT	0.58[2]	2300	NT	NT	NT

[1] Only contaminant identified: Methylene Chloride at 0.06 mg/Kg.
[2] Ethylbenzene at 0.070 mg/Kg, O-Xylene at 0.51 mg/Kg.
[3] Arsenic at 6.4 mg/Kg, Barium at 812 mg/Kg.
[4] Arsenic at 5.6 mg/Kg.
ND indicates non-detect, or below detection limit
NT indicates not tested
* Upper threshold limit of background concentration, see Section 4.3, References, item #3.

UNIT DISPOSAL

The concrete from this unit was stockpiled on the abandoned runway site until samples were taken from the bottom inside walls of the unit. This sample was mixed with five other SWMU concrete samples (SWMU 57, 51, 94, 32a, and 8) to form a composite sample for laboratory analysis. The concrete sample was analyzed using TCLP methods for metals, pesticides, volatiles and sernivolatiles. Only low levels of barium (0.5 mg/L), 2-methylphenol/o-cresol (0.0068 mg/L) and %-methylphenol/m/p-cresol (0.0023 mg/L) were found in this sample.

The concrete (177.39 tons) and the asphalt (23.28 tons) associated with this unit were disposed of in the City of Clovis Public Landfill in Clovis, New Mexico between March 13 and April 28, 1997.

PROJECT COSTS

The total cost for SWMU 7 removal and restoration were $106,464.19 and are summarized in Table 4.2-29.

Table 4.2-29.

SWMU 94 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
1	Mobilization/Demobilization	16.257/MI	100	$1,626
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	0	$0
16	Concrete removal and disposal	237.38/T	180.41	$4,284.70
17	Concrete replacement	154.82/CY	112.75	$17,455.96
18	Sawcut asphalt	1.5/LF	243	$364.50
19	Asphalt removal and disposal	28.88/T	23.28	$672.33
20	Asphalt replacement	34.96/SY	0	$0
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	0	$0
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	0	$0
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	0	$0
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	0	$0
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	53.58	$4,862.38
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	13	$2,460.90
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	4	$2,156.80
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$45,035
41	Removal and Disposal of Sludge from OWS	113.76/GAL	0	$0

SWMU 94 CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	18	$2,844.18
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	18	$2,844.18
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	4	$1,500.33
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	4	$2,477.44
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	9	$1,397.52
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	0	$0
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	8	$6,389.52
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	8.27	$1,683.19
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	0	$0
Misc.	New Fencing installed at SWMU 94	LS	1	$8,409.27
Total				**$106,464.19**

SWMU 94 RISK EVALUATION

Site Conceptual Exposure Model

There are three potentially unique mechanisms, or exposure pathways, by which an individual or population would come in contact with a chemical(s) of concern at SWMU 94: direct contact with soil, inhalation of airborne emissions from soil, and domestic use of groundwater on the Base or at the Base boundary. The persons, structures, utilities, surface waters, and water supply wells that are or may be adversely affected by a release at SWMU 94 are the potential receptors. The potential receptors include Base workers (e.g., military and Base personnel, Base contractors, construction workers, Base residents and Base visitors), and residential receptors at the Base boundary downgradient of the SWMU who may use the groundwater.

Comparison of Concentrations in Soil to Risk Based Screening Levels (RBSLs)

The ***EPA Region 6 Human Health Media-Specific Screening Levels,*** dated October 30, 1996, a look-up table, was used to determine whether site conditions satisfy the criteria for recommendation of regulatory closure or warrant a more site-specific evaluation. Maximum

detected soil concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals were compared to EPA Region VI risk-based screening levels (RBSLs) for residential soil to evaluate whether a significant release (i.e., capable of posing a risk to human health) has occurred at SWMU 94. EPA Region VI RBSLs were used for the comparison because they are a comprehensive and up-to-date list of RBSLs derived using accepted risk assessment methodology. As noted, Table 4.1.1 shows a summary of VOCs, SVOCs and metals detected in soil samples collected at SWMU 94. Table 4.1-3 delineates the maximum concentrations of metals detected at SWMU 94.

The volatile organic compound (VOC), methylene chloride was detected in Sample No. 7 at a depth of 6.5 feet bgs at a concentration of 0.06 mg/kg. The Region VI residential RBSL for this analyte is 11 mg/kg. The relatively low concentration of the VOC in this sample is well within the Region VI RBSL, and, therefore, protective of human health.

Table 4.2-30.

SWMU 94 Maximum Soil Sample Concentration of Metals

Sample No.	Total Metals mg/Kg		TLCP Metals mg/L	Background Conc. Region VI / Cannon AFB [1] Mg/Kg		Region IV Residential RBSL mg/Kg
7	Arsenic	6.4	< 0.40	1.1-16.7	3.6	0.32 C
	Barium	812	1.6	430	805	5300 N
	Cadmium	0.29	< 0.0050	0.01-1.0	1.3	38 N
	Chromium	9.2	NT	38	13.3	31 C
	Nickel	6.9	NT	16	11.4	1500 N
24	Lead	4.4	NT	10-18	7.1	400 N

N - noncarcinogenic
C - carcinogenic
NT - not tested

[1]CAFB Background Investigation, 1997

Barium at a concentration of 812 mg/kg was detected in Sample No. 7 at a depth to 6.5 feet bgs. This value exceeds the Region VI background level of 430 mg/kg, but is well within the Region VI RBSL of 5300 mg/kg.

Arsenic was detected in Sample No.7 at a depth of 6.5 feet and at a concentration of 6.4 mg/kg. This concentration lies well within the Region VI background range, however, it exceeds the Region VI RBSL of 0.32 mg/kg for carcinogenic arsenic and the RBSL of 2.2 mg/Kg for non-carcinogenic arsenic. Since naturally occurring concentrations of arsenic in soils in this region are known to be relatively high and greatly exceed the carcinogenic RBSL of 0.32 mg/kg, it is impractical to impose this RBSL as the clean-up criterion value at this site. In this case, the maximum concentration of total arsenic at this site exceeds the background concentration of 3.6

mg/kg, suggested by the ***Background Investigation, Cannon Air Force Base, New Mexico,*** dated September 1997.

The risk assumptions incorporated into the RBSL value should be re-examined to more reasonably portray specific site conditions. The soil in question lies at a depth of 6.5 feet below ground surface and even in a residential scenario, it will be disturbed only intermittently for subsurface construction of utilities or structural foundations. In addition, the excavations were refilled with local soils obtained off-base which were analyzed for the 8 RCRA metals, including arsenic, by the EPA toxic leaching procedure (TCLP) methods. The TCLP results indicated that arsenic was not present at concentrations at or above the detection limit of 0.050 mg/l. These backfill soils were never in contact with the OWS or sandtrap facilities, and therefore, could not have been contaminated by constituents these facilities contained or leaked.

The reasonable maximum exposure (RME) assumptions inherent in the risk calculations include an exposure frequency of 350 days per year and an exposure duration of 30 years for an adult male weighing 70 kg. Using the maximum arsenic concentration and the assumptions included in the RME as described above for an adult male ingesting soil, the cancer risk value is 5.613-06. This is an upper bound estimate. For any future scenario, including residential use of the site, these assumptions are simply not reasonable. When the exposure frequency is reduced to a more reasonable value, 100 days, for example and the frequency is reduced to 10 years, the risk value becomes 5.4E-07, an order of magnitude lower and well below the acceptable cancer risk of 1.0E-06.
Alternatively, if we look at the RME for a child ingesting soil containing the maximum concentration value of 6.4 mg/kg, the cancer risk is 1.2E-04. When the exposure frequency is reduced to 100 days, the risk value becomes 3.5E-05, an order of magnitude lower and well within the acceptable cancer risk range of LOE-6 and 1.0 E-04.

Among the other metal analytes tested, none exceeds the respective Region VI RBSL. In addition, this site is paved with asphalt and located in an industrial portion of the base. It can be reasonably asserted, therefore, that no chemicals, with the exception of arsenic, were detected at concentrations which are likely to pose a potentially significant human health risk based on any current or future land use scenario for SWMU 94.

Evaluation of the Groundwater Pathway

The depth to groundwater is approximately 240 feet at Cannon AFB (Woodward Clyde, 1992). Additionally site lithology in the vadose zone, including clays and Caliche (calcium carbonate) layers, as well as the asphalt paving over the site, would tend to impede infiltration and dissolved-phase and pure-phase contaminant transport. Organics are much more likely to be transported by dissolved-phase and pure-phase mechanisms than are inorganics. Due to these considerations, unsaturated zone transport was assumed not to be a significant transport mechanism, therefore, the potential risks and hazards associated with groundwater use and ingestion were not considered as a complete in-direct exposure pathway.

Risk Conclusion

The results of the soil investigation following the removal of the oil/water separator at SWMU 94 indicate that arsenic levels at the OWS site and the west sandtrap exceed the RBSL and the local background concentrations determined by the ***Background Investigation*** (1997). These arsenic levels do not pose an unacceptable human health risk for the soil ingestion exposure pathway, if site-specific exposure assumptions are used instead of the RME standards. For this reason, further evaluation of this SWMU is not warranted.

4.3 REFERENCES

1. Woodward-Clyde. 1992. ***Remedial Investigation Report for 18 Solid Waste Management Units***. Cannon AFB, Clovis, New Mexico. October.

2. United States Environmental Protection Agency (EPA). 1996. ***EPA Region 6 Human Health Media-Specific Screening Levels***. October.

3. Cannon Air Force Base, New Mexico. 1997. ***Background Investigation, Cannon Air Force Base, New Mexico***. September.

5.0 SUMMARY OF WORK ACTIVITIES

5.1 TOTAL CONTRACT QUANTITIES AND COSTS

Table 5.1-1 summarizes the total contract quantities and costs.

Table 5.1-1.

TOTAL CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	**Description**	**$/Unit**	**Quantity**	**Cost(s)**
1	Mobilization/Demobilization	16.257/MI	200 MI	$3,251.40
2	Travel cost pertaining to construction contract	1957.8/EA	0	$0
15	Sawcut concrete	12.93/LF	269 LF	$3,478.17
16	Concrete removal and disposal	237.38/T	335.96 T	$79,751.66
17	Concrete replacement	154.82/CY	148.75 CY	$23,029.48
18	Sawcut asphalt	1.5/LF	732 LF	$1,098
19	Asphalt removal and disposal	28.88/T	61.38 T	$1,772.65
20	Asphalt replacement	34.96/SY	158.09 SY	$5,526.83
25	Waste Oils, Tank Contents, Pump, Transport, Dispose, Recycle and/or Treatment, Complete	5.09/GAL	379 GAL	$1,929.11
26	Hazardous & Dangerous Substances, Tank Contents, Pump, Transport, Dispose and/or Treatment, Complete	56.76/GAL	50 GAL	$2,838
27	Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	2.61/GAL	8,276.91 GAL	$21,602.73
28	Non-Contaminated Water, Tank Contents, Pump, Transport, Recycle and/or Dispose, Complete	0.86/GAL	6,008.23 GAL	$5,167.08
29	Hazardous Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	289.15/T	0	$0
30	Highly Contaminated Soil, Including Excavation, Transportation, Treatment, Disposal and Required Backfill Material, Complete	90.75/T	64.66 T	$5,867.90
33	Soil Sampling & Analysis, Method 8015 Modified (TPH), Complete	189.3/EA	98	$18,551.40
38	Soil Sampling & Analysis, Method 6010 (Total Metals), Completed	539.20/EA	42	$22,646.40
40	Remove OWSs, USTs and associated piping, install new OWSs, all per drawings 0 and C1 through C 12	LS	1	$490,580

TOTAL CONTRACT QUANTITIES AND COSTS				
Contract Bid Item No.	Description	$/Unit	Quantity	Cost(s)
41	Removal and Disposal of Sludge from OWS	113.76/GAL	500 GAL	$56,880
42	Soil Sampling & Analysis, total BTEX Rapid Assay or Equivalent Immunoassay-BTEX), Complete	158.01/EA	151	$23,859.51
43	Soil Sampling & Analysis, Draft Method 4030 (Immunoassay-TPH), Complete	158.01/EA	172	$27,177.72
44	Soil Sampling & Analysis, Method 8260 VOAs), Complete	375.08/EA	30	$11,252.40
45	Soil Sampling & Analysis, Method 8270 (Semi-VOAs), Complete	619.36/EA	30	$18,580.80
46	Soil Sampling & Analysis, Method 8020 (BTEX), Complete	155.28/EA	56	$8,695.68
47	Case 780D Backhoe, Operator & Laborer, Complete	140.5/HR	9 HR	$1,264.50
48	Soil Sampling & Analysis, Method 1311 (TCLP), Total Analyte List Metals and SVOCs, Complete	798.69/EA	53	$42,330.57
49	Remove & Dispose of Non-hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	203.53/ 55-GAL DRUM	16.27	$3,311.43
50	Remove & Dispose of Hazardous Sludge from OWS (Partial drums that cannot be filled from another unit shall be paid as full drum).	474.90/ 55-GAL DRUM	17	$8,073.30
Misc.	New Fencing installed at SWMU 94	LS	1	$8,409.27
Total				**$896,926.58**

5.2 TOTAL QUANTITIES OF EXCAVATED SOILS

5.2.1 CONTAMINATED SOILS

Contaminated soils were defined in this corrective measure as excavated soils which when analyzed by laboratory and field methods, contained TPH levels at or greater than 100 ppm, and/or BTEX at or greater than 50, and/or exceeded the Toxicity Characteristic limits. None of the soils excavated under this corrective measure, however, had TCLP metals results that exceeded theToxicity Characteristic limits. Table 5-2 includes a summary of the contaminated soil quantities. All contaminated soils were disposed of at Gandy Marley, Inc. in Tatum, New Mexico.

5.2.2 NON-CONTAMINATED SOILS

Non-contaminated soils were defined in this corrective measure as excavated soils which when analyzed by laboratory and field methods, contained TPH levels less than 100 ppm, and BTEX less than 50, and did not exceed the Toxicity Characteristic limits. Table 5-2 includes a summary

of the non-contaminated soil quantities. Non-contaminated soils were disposed of at either the CAFB construction debris landfill, or the City of Clovis Public Landfill.

Table 5.2-1

QUANTITIES & DISPOSITION OF EXCAVATED SOILS

SWMU No.	VOLUME (Cubic Yards)	DISQUALIFYING ANALYSIS	DISPOSAL LOCATION
7	5	None	CAFB Construction Debris Landfill
8	10	None	CAFB Construction Debris Landfill
9	25	None	City of Clovis Public Landfill
11	10	None	CAFB Construction Debris Landfill
32a	15	None	City of Clovis Public Landfill
33b	10	None	CAFB Construction Debris Landfill
38	19	None	CAFB Construction Debris Landfill
39	10	None	CAFB Construction Debris Landfill
46	10	None	CAFB Construction Debris Landfill
47	20	None	City of Clovis Public Landfill
51	10	None	CAFB Construction Debris Landfill
51	1	TPH (7200 ppm)	Gandy Marley, Inc.
57	15	None	City of Clovis Public Landfill
70	10	TPH (870-1500 ppm)	Gandy Marley, Inc.
92	30	None	CAFB Construction Debris Landfill
94	20	None	CAFB Construction Debris Landfill
94	53.58	TPH (2300 ppm)	Gandy Marley, Inc.

In summary, excavated soils were removed to one of three locations in these quantities:

- CAFB Construction Debris Landfill — 134 cubic yards
- City of Clovis Public Landfill — 75
- Gandy Marley, Inc., Tatum, NM — 64.58

(3)

• CAFB 99-003

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CORRECTIVE MEASURE COMPLETION REPORT

APPENDICES II AND III
SOLID WASTE MANAGEMENT UNITS

CANNON AIR FORCE BASE
CLOVIS, NEW MEXICO

VOLUME 2

Prepared for:

CANNON AIR FORCE BASE
27 CES/CEVR
Environmental Flight

July 1999

Prepared by:

U.S. ARMY CORPS OF ENGINEERS
ALBUQUERQUE DISTRICT

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APPENDIX I

OIL WATER SEPARATOR CONTENTS
ANALYTICAL RESULTS

ANALYTICA
ENVIRONMENTAL
LABORATORIES
an Analytica Group company

USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-121
Date: 10/07/96 16:08
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/23/96
Date Completed: 10/07/96

SAMPLE IDENTIFICATION

Sample Number	Client Description	Sample Number	Client Description
01	CA000-Backfill-01	02	CA01/001-96-0920-0900

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]

All analyses meet quality assurance objectives.

ASSAIGAI
ANALYTICAL
LABORATORIES
7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

Report Generated:
January 14, 1997 14:13

CERTIFICATE OF ANALYSIS
RESULTS BY SAMPLE

SENT TO: US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

ATTN: SUSAN GANT

WORKORDER # : 9701020
WORK ID : ADDITION TO WO#11250
CLIENT CODE : USA01
DATE RECEIVED : 11/27/96

Lab ID: 9701020-01A
Sample ID: CA001/002-96-1125-1430
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	32.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	ND	mg/L	0.0030	1.0	01/10/97	M9714
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

Lab ID: 9701020-02A
Sample ID: CA33B/002-96-1125-1450
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	35.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	ND	mg/L	0.0030	1.0	01/10/97	M9714
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

Lab ID: 9701020-03A
Sample ID: CA47A/00296-1125-1515
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	35.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

Member: American Council of Independent Laboratories, Inc.

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Sample: **01A** **CA000-Backfill-01** Collected: **09/20/96** Matrix: **SOIL**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/30/96
Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/26/96
Barium		1.3		0.020	mg/L	09/26/96
Cadmium		ND		0.0050	mg/L	09/26/96
Chromium		ND		0.010	mg/L	09/26/96
Lead		ND		0.050	mg/L	09/26/96
Nickel		ND		0.020	mg/L	09/26/96
Selenium		ND		0.10	mg/L	09/26/96
Silver		ND		0.010	mg/L	09/26/96

Sample: **02A** **CA01/001-96-0920-0900** Collected: **09/20/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	10/07/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/26/96
pH	EPA 150.1	7.5		0.10	pH units	09/23/96

Sample: **02B** **CA01/001-96-0920-0900** Collected: **09/20/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	10/01/96
Chloromethane		ND		10	ug/L	10/01/96
Vinyl Chloride		ND		2.0	ug/L	10/01/96
Bromomethane		ND		10	ug/L	10/01/96
Chloroethane		ND		10	ug/L	10/01/96
Trichlorofluoromethane		ND		10	ug/L	10/01/96
1,1-Dichloroethene		ND		5.0	ug/L	10/01/96
Trichlorotrifluoroethane		ND		3.0	ug/L	10/01/96
Methylene Chloride		ND		10	ug/L	10/01/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	10/01/96
1,1-Dichloroethane		ND		5.0	ug/L	10/01/96
2,2-Dichloropropane		ND		5.0	ug/L	10/01/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	10/01/96
Bromochloromethane		ND		5.0	ug/L	10/01/96
Chloroform		ND		3.0	ug/L	10/01/96
1,1,1-Trichloroethane		ND		5.0	ug/L	10/01/96
Carbon Tetrachloride		ND		10	ug/L	10/01/96
1,1-Dichloropropene		ND		5.0	ug/L	10/01/96
Benzene		ND		1.0	ug/L	10/01/96
1,2-Dichloroethane		ND		5.0	ug/L	10/01/96
Trichloroethene		ND		3.0	ug/L	10/01/96
1,2-Dichloropropane		ND		3.0	ug/L	10/01/96
Dibromomethane		ND		3.0	ug/L	10/01/96
Bromodichloromethane		ND		3.0	ug/L	10/01/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	10/01/96
Toluene		ND		1.0	ug/L	10/01/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	10/01/96
1,1,2-Trichloroethane		ND		3.0	ug/L	10/01/96
Tetrachloroethene		ND		3.0	ug/L	10/01/96
1,3-Dichloropropane		ND		3.0	ug/L	10/01/96
Dibromochloromethane		ND		3.0	ug/L	10/01/96
1,2-Dibromoethane		ND		3.0	ug/L	10/01/96
Chlorobenzene		ND		3.0	ug/L	10/01/96
Ethylbenzene		ND		1.0	ug/L	10/01/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	10/01/96
m,p-Xylenes		ND		1.0	ug/L	10/01/96
o-Xylene		ND		1.0	ug/L	10/01/96
Styrene		ND		3.0	ug/L	10/01/96
Bromoform		ND		5.0	ug/L	10/01/96
Isopropylbenzene		ND		2.0	ug/L	10/01/96
Bromobenzene		ND		3.0	ug/L	10/01/96
n-Propylbenzene		ND		5.0	ug/L	10/01/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	10/01/96
1,2,3-Trichloropropane		ND		3.0	ug/L	10/01/96
2-Chlorotoluene		ND		1.0	ug/L	10/01/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	10/01/96
4-Chlorotoluene		ND		1.0	ug/L	10/01/96

Sample: **02B** **CA01/001-96-0920-0900** Collected: **09/20/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		5.0	ug/L	10/01/96
1,2,4-Trimethylbenzene		ND		5.0	ug/L	10/01/96
sec-Butylbenzene		ND		5.0	ug/L	10/01/96
4-Isopropyltoluene		ND		5.0	ug/L	10/01/96
1,3-Dichlorobenzene		ND		2.0	ug/L	10/01/96
1,4-Dichlorobenzene		ND		2.0	ug/L	10/01/96
n-Butylbenzene		ND		5.0	ug/L	10/01/96
1,2-Dichlorobenzene		ND		5.0	ug/L	10/01/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L	10/01/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L	10/01/96
Hexachlorobutadiene		ND		5.0	ug/L	10/01/96
Napthalene		ND		5.0	ug/L	10/01/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L	10/01/96
Acetone		ND		50	ug/L	10/01/96
Acrylonitrile		ND		10	ug/L	10/01/96
2-Butanone		ND		50	ug/L	10/01/96
Carbon Disulfide		ND		5.0	ug/L	10/01/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L	10/01/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L	10/01/96
2-Hexanone		ND		20	ug/L	10/01/96
Iodomethane		ND		5.0	ug/L	10/01/96
4-Methyl-2-pentanone		ND		20	ug/L	10/01/96
Vinyl Acetate		ND		5.0	ug/L	10/01/96
tert-Butyl methyl ether		ND		5.0	ug/L	10/01/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		110		Min:	80	Max: 120
Toluene d-8		98.0		Min:	88	Max: 110
p-Bromofluorobenzene		98.0		Min:	86	Max: 115

Sample: **02D** **CA01/001-96-0920-0900** Collected: **09/20/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		10	ug/L	10/05/96
bis(2-Chloroethyl) ether		ND		10	ug/L	10/05/96
2-Chlorophenol		ND		10	ug/L	10/05/96
1,3-Dichlorobenzene		ND		10	ug/L	10/05/96
1,4-Dichlorobenzene		ND		10	ug/L	10/05/96
Benzyl alcohol		ND		20	ug/L	10/05/96
1,2-Dichlorobenzene		ND		10	ug/L	10/05/96
2-Methylphenol		ND		10	ug/L	10/05/96
bis(2-Chloroisopropyl) ether		ND		10	ug/L	10/05/96
4-Methylphenol		ND		10	ug/L	10/05/96
n-Nitroso-di-n-propylamine		ND		10	ug/L	10/05/96
Hexachloroethane		ND		10	ug/L	10/05/96
Nitrobenzene		ND		10	ug/L	10/05/96
Isophorone		ND		10	ug/L	10/05/96
2-Nitrophenol		ND		10	ug/L	10/05/96
2,4-Dimethylphenol		ND		10	ug/L	10/05/96
Benzoic acid		ND		50	ug/L	10/05/96
bis(2-Chloroethoxy)methane		ND		10	ug/L	10/05/96
2,4-Dichlorophenol		ND		10	ug/L	10/05/96
1,2,4-Trichlorobenzene		ND		10	ug/L	10/05/96
Naphthalene		ND		10	ug/L	10/05/96
4-Chloroaniline		ND		10	ug/L	10/05/96
Hexachlorobutadiene		ND		10	ug/L	10/05/96
4-Chloro-3-methylphenol		ND		10	ug/L	10/05/96
2-Methylnaphthalene		ND		10	ug/L	10/05/96
Hexachlorocyclopentadiene		ND		10	ug/L	10/05/96
2,4,6-Trichlorophenol		ND		10	ug/L	10/05/96
2,4,5-Trichlorophenol		ND		50	ug/L	10/05/96
2-Chloronaphthalene		ND		10	ug/L	10/05/96
2-Nitroaniline		ND		50	ug/L	10/05/96
Dimethylphthalate		ND		10	ug/L	10/05/96
Acenaphthylene		ND		10	ug/L	10/05/96
3-Nitroaniline		ND		50	ug/L	10/05/96
Acenaphthene		ND		10	ug/L	10/05/96
2,4-Dinitrophenol		ND		50	ug/L	10/05/96
4-Nitrophenol		ND		50	ug/L	10/05/96
Dibenzofuran		ND		10	ug/L	10/05/96
2,6-Dinitrotoluene		ND		10	ug/L	10/05/96
2,4-Dinitrotoluene		ND		10	ug/L	10/05/96
Diethylphthalate		ND		10	ug/L	10/05/96
4-Chlorophenyl-phenylether		ND		10	ug/L	10/05/96
Fluorene		ND		10	ug/L	10/05/96
4-Nitroaniline		ND		10	ug/L	10/05/96
4,6-Dinitro-2-methylphenol		ND		50	ug/L	10/05/96
n-Nitrosodiphenylamine		ND		10	ug/L	10/05/96
4-Bromophenyl-phenylether		ND		10	ug/L	10/05/96

Sample: **02D** **CA01/001-96-0920-0900** Collected: **09/20/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		10	ug/L	10/05/96
Pentachlorophenol		ND		50	ug/L	10/05/96
Phenanthrene		ND		10	ug/L	10/05/96
Anthracene		ND		10	ug/L	10/05/96
Di-n-butylphthalate		ND		10	ug/L	10/05/96
Fluoranthene		ND		10	ug/L	10/05/96
Pyrene		ND		10	ug/L	10/05/96
Butylbenzylphthalate		ND		10	ug/L	10/05/96
3,3'-Dichlorobenzidine		ND		20	ug/L	10/05/96
Benzo(a)Anthracene		ND		10	ug/L	10/05/96
Chrysene		ND		10	ug/L	10/05/96
Bis(2-Ethylhexyl)phthalate		ND		10	ug/L	10/05/96
Di-n-octylphthalate		ND		10	ug/L	10/05/96
Benzo(b)fluoranthene		ND		10	ug/L	10/05/96
Benzo(k)fluoranthene		ND		10	ug/L	10/05/96
Benzo(a)pyrene		ND		10	ug/L	10/05/96
Indeno(1,2,3-cd)pyrene		ND		10	ug/L	10/05/96
Dibenz(a,h)anthracene		ND		10	ug/L	10/05/96
Benzo(g,h,i)perylene		ND		10	ug/L	10/05/96
SURROGATES, % Recovery						
2-Fluorophenol		49.3		Min: 21	Max: 100	
d5-Phenol		64.0		Min: 10	Max: 94	
d5-Nitrobenzene		78.0		Min: 35	Max: 114	
2-Fluorobiphenyl		69.0		Min: 43	Max: 116	
2,4,6-Tribromophenol		64.7		Min: 10	Max: 123	
d14-Terphenyl		71.0		Min: 33	Max: 141	

Sample: **02E** **CA01/001-96-0920-0900** Collected: **09/20/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/30/96
Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/26/96
Barium		0.13		0.020	mg/L	09/26/96
Cadmium		ND		0.0050	mg/L	09/26/96
Chromium		ND		0.010	mg/L	09/26/96
Lead		ND		0.050	mg/L	09/26/96
Nickel		ND		0.020	mg/L	09/26/96
Selenium		ND		0.10	mg/L	09/26/96
Silver		ND		0.010	mg/L	09/26/96

THE FOLLOWING CODES APPLY TO THE ANALYTICAL REPORT

RESULT field...
- ND = not detected at the reported limit
- NA = analyte not applicable (see case narrative/methods for discussion)

Q (qualifier) field...

GENERAL:
- * = Recovery or %RPD outside method specifications
- H = value is estimated due to analysis run outside EPA holding times
- E = reported concentration is above the instrument calibration range
- D = analyte was diluted to bring within instrument calibration range or to remove matrix interferences

ORGANIC ANALYSIS DATA QUALIFIERS:
- B = analyte was detected in the laboratory method blank
- J = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)

INORGANIC ANALYSIS DATA QUALIFIERS:
- B = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)
- A = post digestion spike did not meet criteria (70-130%), therefore the reporting limit was raised by a factor of two to reflect spike failure
- S = reported value determined by the Method of Standard Additions

1311EM:	TCLP EXTRACTION Toxicity Characteristic Leachate Procedure (Metals)	METHOD: 1311
1311HG:	MERCURY, TCLP Extracted Maximum Contaminant Level (mg/L)	METHOD: 7470 0.2
1311MN:	METALS (ICP), TCLP Extracted Maximum Contaminant Level (mg/L) Arsenic Barium Cadmium Chromium Lead Nickel Selenium Silver	METHOD: 3010/6010 5.0 100 1.0 5.0 5.0 NA 1.0 5.0
ICPTW	Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Flame Atomic Absorption (FAA) or Inductively Coupled Plasma (ICP) Spectroscopy according to EPA 200.0 and/or SW-846.	METHOD: 200.0/3010A
8260_W:	VOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8260
3520_B:	Continuous Liquid-Liquid Extraction - BNAs The continuous liquid-liquid extraction used with this method (3520) is modified to conform with the EPA-CLP methodology (OLM01.0) in which dual pH extraction has been replaced with one 18 hour extraction at a pH of <2.0.	METHOD: 3520B
8270_W:	SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8270
IGN_W:	IGNITABILITY - Pensky-Martens Closed Cup	METHOD: EPA 1010
PH_W:	pH (ELECTRODE)	METHOD: 150.1
RCN_S:	CYANIDE, Reactive EPA Action Level: 250 mg HCN/Kg waste Due to method limitations spike recoveries are minimal.	METHOD: SW 7.3.3.2
RS2_S:	REACTIVE SULFIDE EPA Action Level: 500 mg H_2S/Kg waste Prepared by SW 7.3.4.2. Due to method limitations spike recoveries are minimal.	METHOD: 376.2

Sample: **01A CA000-Backfill-01** Matrix: **SOIL**

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Mercury, TCLP Extracted	SW 7470	09/20/96	09/23/96	09/24/96	09/27/96	09/30/96
Metals, TCLP Extracted	SW 3010/6010	09/20/96	09/23/96	09/24/96	09/25/96	09/26/96

Sample: **02A CA01/001-96-0920-0900** Matrix: **WATER**

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/20/96	09/23/96	NA	09/20/96	09/26/96
Ignitability	EPA 1010	09/20/96	09/23/96	NA		10/07/96
Sulfide, Reactive	SW 7.3.4.2	09/20/96	09/23/96	NA	09/20/96	09/26/96
pH	EPA 150.1	09/20/96	09/23/96	NA		09/23/96

Sample: **02B CA01/001-96-0920-0900** Matrix: **WATER**

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/20/96	09/23/96	NA		10/01/96

Sample: **02D CA01/001-96-0920-0900** Matrix: **WATER**

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/20/96	09/23/96	NA	09/25/96	10/05/96

Sample: **02E CA01/001-96-0920-0900** Matrix: **WATER**

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Mercury, TCLP Extracted	SW 7470	09/20/96	09/23/96	09/24/96	09/27/96	09/30/96
Metals, TCLP Extracted	SW 3010/6010	09/20/96	09/23/96	09/24/96	09/25/96	09/26/96

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325 Interlocken Parkway, Suite 200
Broomfield, Colorado 80021
(303) 469-8868 or 1-800-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE
Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE

FAX

P. O. NO.

ANALYTICA USE ONLY
№ 002935

CSN 607172
LGN 9609121
LOC Homer 2
QC Corp 3
PM Jim Robinson
DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	TCLP MET-BARA+N.
20sept96	1125	CAØØØ-Backfill-01	1	1

COMMENTS

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
Brian J	20sept96/1325	Fed Ex	9/21/96 1030hr				

003-0294

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Report Generated:
January 2, 1997 11:12

CERTIFICATE OF ANALYSIS
RESULTS BY SAMPLE

SENT TO: US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

ATTN: SUSAN GANT

WORKORDER # : 9611250
WORK ID : CANNON OWS
CLIENT CODE : USA01
DATE RECEIVED : 11/27/96

Lab ID: 9611250-01A
Sample ID: CA001/002-96-1125-1430

Collected: 11/25/96 14:30:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND	mg/Kg	0.010	91	12/09/96	SMSVOA409
Chloromethane	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
Iodomethane	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
Acetone	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
[illegible]omethane	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
[illegible] Chloride	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
[illegible]ethane	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
[illegible]orofluoromethane	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
[illegible]on 113	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
Carbon Disulfide	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
Acrolein	ND	mg/Kg	0.020	91	12/09/96	SMSVOA409
Methylene Chloride	ND	mg/Kg	0.010	91	12/09/96	SMSVOA409
1,1-Dichloroethene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
1,1-Dichloroethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Acrylonitrile	ND	mg/Kg	0.020	91	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Chloroform	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
1,2-Dichloroethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Vinyl Acetate	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
2-Butanone (MEK)	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Carbon Tetrachloride	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Bromodichloromethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
1,2-Dichloropropane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Dibromomethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Trichloroethene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Chlorodibromomethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Ethyl Methacrylate	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Benzene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Bromoform	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
4-Methyl-2-Pentanone (MIBK)	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
Tetrachloroethene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
1,1,2,2-Tetrachloroethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
1,2-Dibromoethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
[illegible]anone (MBK)	ND	mg/Kg	0.0050	91	12/09/96	SMSVOA409
[illegible]-Tetrachloroethane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
[illegible]e	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
[illegible]robenzene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Ethylbenzene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409

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ID: 9611250-01A **Collected:** 11/25/96 14:30:00
Sample ID: CA001/002-96-1125-1430 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
1,4-Dichloro-2-Butene	ND	mg/Kg	0.010	91	12/09/96	SMSVOA409
Styrene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
P/M Xylene	ND	mg/Kg	0.0020	91	12/09/96	SMSVOA409
O-Xylene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
1,2,3-Trichloropropane	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	91	12/09/96	SMSVOA409
1,2-Dichlorobenzene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
1,3-Dichlorobenzene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409
1,4-Dichlorobenzene	ND	mg/Kg	0.0010	91	12/09/96	SMSVOA409

Lab ID: 9611250-01B **Collected:** 11/25/96 14:30:00
Sample ID: CA001/002-96-1125-1430 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/SW846 7471	12/05/96	N/A				
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/10/96	SFLASH215
M[illegible]CURY (CVAA)/SW846 7471						
[illegible]ry	0.50	mg/Kg	0.15	1.0	12/06/96	M96195
[illegible]P) DIG /SW846 3050	12/02/96	N/A				
[illegible]S-ICP/SW846 6010						
[illegible]r, Ag	1.2	mg/Kg	1.0	1.0	12/03/96	M96176
Aluminum, Al	NT	mg/Kg	25			M96176
Arsenic, As	ND	mg/Kg	3.0	1.0	12/03/96	M96176
Barium, Ba	192	mg/Kg	0.50	1.0	12/03/96	M96176
Beryllium, Be	NT	mg/Kg	0.50			M96176
Calcium, Ca	NT	mg/Kg	15			M96176
Cadmium, Cd	25.2	mg/Kg	0.20	1.0	12/03/96	M96176
Cobalt, Co	NT	mg/Kg	0.50			M96176
Chromium, Cr	80.2	mg/Kg	1.0	1.0	12/03/96	M96176
Copper, Cu	NT	mg/Kg	0.50			M96176
Iron, Fe	NT	mg/Kg	15			M96176
Potassium, K	NT	mg/Kg	10			M96176
Magnesium, Mg	NT	mg/Kg	10			M96176
Manganese, Mn	NT	mg/Kg	0.25			M96176
Sodium, Na	NT	mg/Kg	15			M96176
Nickel, Ni	10.1	mg/Kg	2.0	1.0	12/03/96	M96176
Lead, Pb	294	mg/Kg	2.0	1.0	12/03/96	M96176
Antimony, Sb	NT	mg/Kg	1.5			M96176
Selenium, Se	ND	mg/Kg	2.5	1.0	12/03/96	M96176
Vanadium, V	NT	mg/Kg	0.15			M96176
Zinc, Zn	NT	mg/Kg	5.0			M96176
pH/SW846 9045B						
pH	7.5	pH Units	0.10	1.0	12/09/96	SPH247
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96117
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/17/96	W96117
SVOA(SOX) Soil/SW846 8270B	12/02/96	N/A				
n-Nitrosodimethylamine	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
Pyridine	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
Aniline	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
bis(2-Chloroethyl) Ether	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
[illegible]rophenol	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
[illegible]chlorobenzene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
[illegible]chlorobenzene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
[illegible]ol	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
1,2-Dichlorobenzene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131

ID: 9611250-01B **Collected:** 11/25/96 14:30:00
Sample ID: CA001/002-96-1125-1430 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA(SOX) Soil/SW846 8270B						
Benzyl Alcohol	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
bis(2-Chloroisopropyl) Ether	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
2-Methylphenol / O-Cresol	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Hexachloroethane	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
n-Nitroso-di-n-propylamine	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Nitrobenzene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
3/4 Methylphenol / M/P-Cresol	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Isophorone	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
2-Nitrophenol	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
bis(2-Chloroethoxy) Methane	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
2,4-Dimethylphenol	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
1,2,4-Trichlorobenzene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Naphthalene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Benzoic Acid	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
2,4-Dichlorophenol	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
4-Chloroaniline	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
Hexachlorobutadiene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
2-Methylnaphthalene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
4-Chloro-3-methylphenol	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Hexachlorocyclopentadiene	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
2,4,6-Trichlorophenol	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
2,4,5-Trichlorophenol	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
2-Chloronaphthalene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
2-Nitroaniline	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
phthylene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
hylphthalate	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
nitrotoluene	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
Acenaphthene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
3-Nitroaniline	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
Dibenzofuran	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
2,4-Dinitrotoluene	ND	mg/Kg	2.5	17	12/12/96	SMSSVOA131
Fluorene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
4-Chlorophenyl-phenylether	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Diethylphthalate	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
4-Nitrophenol	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
4,6-Dinitro-2-methylphenol	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
n-Nitrosodiphenylamine	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
4-Nitroaniline	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
4-Bromophenyl-phenylether	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Hexachlorobenzene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Pentachlorophenol	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
2,4-Dinitrophenol	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
Phenanthrene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Anthracene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Di-n-butylphthalate	ND	mg/Kg	5.0	17	12/12/96	SMSSVOA131
Fluoranthene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Pyrene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Butylbenzylphthalate	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Benzo(a)anthracene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Chrysene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
3,3'-Dichlorobenzidine	ND	mg/Kg	10	17	12/12/96	SMSSVOA131
bis(2-Ethylhexyl)phthalate	100	mg/Kg	2.5	17	12/12/96	SMSSVOA131
Di-n-octyl phthalate	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Benzo(b) + (k)fluoranthene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
1-Methylnaphthalene	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
Benzo(a)pyrene	ND	mg/Kg	0.50	17	12/12/96	SMSSVOA131
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
Benzo(g,h,i)perylene	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
5-Tetrachlorophenol	ND	mg/Kg	2.5	17	12/12/96	SMSSVOA131
azene	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131
z(a,h)anthracene	ND	mg/Kg	1.0	17	12/12/96	SMSSVOA131

ID: 9611250-01C **Collected:** 11/25/96 14:30:00
Sample ID: CA001/002-96-1125-1430 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	4310	mg/Kg	5.0	50	12/04/96	W9697

Lab ID: 9611250-02A **Collected:** 11/25/96 14:50:00
Sample ID: CA33B/002-96-1125-1450 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND*	mg/Kg	0.010	5000	12/09/96	SMSVOA409
Chloromethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Iodomethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Acetone	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Bromomethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Vinyl Chloride	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Chloroethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Trichlorofluoromethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Freon 113	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Carbon Disulfide	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Acrolein	ND*	mg/Kg	0.020	5000	12/09/96	SMSVOA409
lene Chloride	ND*	mg/Kg	0.010	5000	12/09/96	SMSVOA409
chloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
chloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
ionitrile	ND*	mg/Kg	0.020	5000	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Chloroform	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,2-Dichloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Vinyl Acetate	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
2-Butanone (MEK)	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Carbon Tetrachloride	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Bromodichloromethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,2-Dichloropropane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Dibromomethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Trichloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Chlorodibromomethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Ethyl Methacrylate	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Benzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Bromoform	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
4-Methyl-2-Pentanone (MIBK)	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Tetrachloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,1,2,2-Tetrachloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,2-Dibromoethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
2-Hexanone (MBK)	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Toluene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Chlorobenzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Ethylbenzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,4-Dichloro-2-Butene	ND*	mg/Kg	0.010	5000	12/09/96	SMSVOA409
ne	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
ylene	ND*	mg/Kg	0.0020	5000	12/09/96	SMSVOA409
ne	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
-Trichloropropane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND*	mg/Kg	0.010	5000	12/09/96	SMSVOA409

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

Lab job no.: _____ Date _____

Page 1 of 3

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SI
MIDLAND, TEXAS 05
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client _____ Project Manager / Contact _____

Address _____ Telephone No. _____

City / State / Zip _____ Fax No. _____

Project Name / Number _____ Samplers: *(Signature)* _____

Contract / Purchase Order / Quote _____

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	8260	8270 (SVOC)	[illegible]	TCLP Metals	TRPH	[illegible]					Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	✓										
[illegible]					[illegible]			2		✓			✓						
[illegible]	[illegible]		[illegible]		[illegible]	[illegible]		1	✓										
[illegible]					[illegible]	[illegible]		2		✓			✓						
[illegible]	[illegible]		[illegible]		[illegible]			1											
[illegible]					[illegible]			2		✓									
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]														
[illegible]					[illegible]	[illegible]													
[illegible] B	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		2											
[illegible]					[illegible]	[illegible]		2											
[illegible]					[illegible]	[illegible]		1											
[illegible]					[illegible]	[illegible]		1	✓										

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature [illegible]	[illegible]	Signature _____	Signature _____		Signature _____
Printed [illegible]	Time [illegible]	Printed _____	Printed _____	Time	Printed _____
Company [illegible]		Company _____	Company _____		Company _____
Reason [illegible]		Reason _____	Reason _____		Reason _____

Method of Shipment: _____

Shipment No. _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CO[illegible]R

ANALYTICA
ENVIRONMENTAL
LABORATORIES
an Analytica Group company

325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-093
Date: 09/30/96 20:26
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/14/96
Date Completed: 09/30/96

SAMPLE IDENTIFICATION

Sample Number	Client Description
01	CA11/002-96-0912-0945
02	CA92/002-96-0912-1045
03	CA07/001-96-0911-1535
04	CA11/001-96-0912-09:40
05	CA92/001-96-0912-10:40
06	Trip Blank
07	CA112/001-96-0911-1355
08	CA33B/001-96-0911-1450
09	CA07/002-96-0911-1540
10	Trip Blank

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- o Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]
- o Solid and waste samples are reported on a "dry weight" basis, i.e. correction is made for moisture content.

Problems encountered with the analyses are discussed in the following narrative.

Sample CA92/002-96-0912-1044 is reported with a surrogate standard recovery outside quality control limits for the 8260 analysis. The internal standard area recoveries were also below QC limits. This is due to sample matrix and was verified in a secondary analysis.

The 8270 semivolatile analyses for the following samples are reported with internal standard area recoveries below the QC limits:

CA11/002-96-0911
CA7/001-96-0911
CA92/001-96-0912-10:40
CA112/001-96-0911-1355

These results are due to sample matrix and were verified in secondary analyses.

The 8270 semivolatile analyses for the following samples are reported with surrogate standard recoveries outside QC limits:

CA11/002-96-0912-0945 (one base/neutral surrogate)
CA07/001-96-0911-1535 (two acid surrogates and one base/neutral suurogate)

Analytica's quality assurance plan allows for one acid surrogate and one base/neutral surrogate standard to be outside quality control windows and still be of acceptable quality control. This emulates the EPA CLP quality assurance guidelines. These results were verified in secondary analyses.

The 8270 matrix spike/matrix spike duplicate results for samples CA92/001-96-0912-10:40 and CA112/001-96-0911-1355 are reported with some of the spike compound recoveries below QC limits. These results were also confirmed in secondary analyses and are attributable to sample matrix. The associated method blank spike recoveries are all within acceptance limits.

The 8270 soil method blank is reported with target analyte Di-n-butylphthalate above reporting limit. This is due to laboratory contamination in the method 3540 soxhlet extraction process. Mr. Brian Jordan of the USACE has been notified of this problem for prior projects where this extraction method was requested. Analytica is actively pursuing the source of this contamination. The reported phthalate ester target compounds should be looked at as possible laboratory contamination sources.

Sample: **03A** **CA07/001-96-0911-1535** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Percent Moisture	ASTM D2216	73.1		0.1	WT%	09/19/96
Semivolatile Organics	SW 8270A					
Phenol		ND		12000	ug/Kg-DRY	09/30/96
bis(2-Chloroethyl) ether		ND		12000	ug/Kg-DRY	09/30/96
2-Chlorophenol		ND		12000	ug/Kg-DRY	09/30/96
1,3-Dichlorobenzene		ND		12000	ug/Kg-DRY	09/30/96
1,4-Dichlorobenzene		ND		12000	ug/Kg-DRY	09/30/96
Benzyl alcohol		ND		25000	ug/Kg-DRY	09/30/96
1,2-Dichlorobenzene		ND		12000	ug/Kg-DRY	09/30/96
2-Methylphenol		ND		12000	ug/Kg-DRY	09/30/96
bis(2-Chloroisopropyl) ether		ND		12000	ug/Kg-DRY	09/30/96
4-Methylphenol		ND		12000	ug/Kg-DRY	09/30/96
n-Nitroso-di-n-propylamine		ND		12000	ug/Kg-DRY	09/30/96
Hexachloroethane		ND		12000	ug/Kg-DRY	09/30/96
Nitrobenzene		ND		12000	ug/Kg-DRY	09/30/96
Isophorone		ND		12000	ug/Kg-DRY	09/30/96
2-Nitrophenol		ND		12000	ug/Kg-DRY	09/30/96
2,4-Dimethylphenol		ND		12000	ug/Kg-DRY	09/30/96
Benzoic acid		ND		62000	ug/Kg-DRY	09/30/96
bis(2-Chloroethoxy)methane		ND		12000	ug/Kg-DRY	09/30/96
2,4-Dichlorophenol		ND		12000	ug/Kg-DRY	09/30/96
1,2,4-Trichlorobenzene		ND		12000	ug/Kg-DRY	09/30/96
Naphthalene		8100	DJ	12000	ug/Kg-DRY	09/30/96
4-Chloroaniline		ND		12000	ug/Kg-DRY	09/30/96
Hexachlorobutadiene		ND		12000	ug/Kg-DRY	09/30/96
4-Chloro-3-methylphenol		ND		25000	ug/Kg-DRY	09/30/96
2-Methylnaphthalene		7400	DJ	12000	ug/Kg-DRY	09/30/96
Hexachlorocyclopentadiene		ND		12000	ug/Kg-DRY	09/30/96
2,4,6-Trichlorophenol		ND		12000	ug/Kg-DRY	09/30/96
2,4,5-Trichlorophenol		ND		62000	ug/Kg-DRY	09/30/96
2-Chloronaphthalene		ND		12000	ug/Kg-DRY	09/30/96
2-Nitroaniline		ND		62000	ug/Kg-DRY	09/30/96
Dimethylphthalate		ND		12000	ug/Kg-DRY	09/30/96
Acenaphthylene		ND		12000	ug/Kg-DRY	09/30/96
3-Nitroaniline		ND		62000	ug/Kg-DRY	09/30/96
Acenaphthene		ND		12000	ug/Kg-DRY	09/30/96
2,4-Dinitrophenol		ND		62000	ug/Kg-DRY	09/30/96
4-Nitrophenol		ND		62000	ug/Kg-DRY	09/30/96
Dibenzofuran		ND		12000	ug/Kg-DRY	09/30/96
2,6-Dinitrotoluene		ND		12000	ug/Kg-DRY	09/30/96
2,4-Dinitrotoluene		ND		12000	ug/Kg-DRY	09/30/96
Diethylphthalate		ND		12000	ug/Kg-DRY	09/30/96
4-Chlorophenyl-phenylether		ND		12000	ug/Kg-DRY	09/30/96
Fluorene		ND		12000	ug/Kg-DRY	09/30/96
4-Nitroaniline		ND		62000	ug/Kg-DRY	09/30/96
4,6-Dinitro-2-methylphenol		ND		62000	ug/Kg-DRY	09/30/96
n-Nitrosodiphenylamine		ND		12000	ug/Kg-DRY	09/30/96
4-Bromophenyl-phenylether		ND		12000	ug/Kg-DRY	09/30/96

Sample: 03A CA07/001-96-0911-1535 Collected: 09/11/96 Matrix: SLUDGE

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		12000	ug/Kg-DRY	09/30/96
Pentachlorophenol		ND		62000	ug/Kg-DRY	09/30/96
Phenanthrene		1400	DJ	12000	ug/Kg-DRY	09/30/96
Anthracene		ND		12000	ug/Kg-DRY	09/30/96
Di-n-butylphthalate		13000	DB	12000	ug/Kg-DRY	09/30/96
Fluoranthene		ND		12000	ug/Kg-DRY	09/30/96
Pyrene		ND		12000	ug/Kg-DRY	09/30/96
Butylbenzylphthalate		ND		12000	ug/Kg-DRY	09/30/96
3,3'-Dichlorobenzidine		ND		25000	ug/Kg-DRY	09/30/96
Benzo(a)Anthracene		ND		12000	ug/Kg-DRY	09/30/96
Chrysene		ND		12000	ug/Kg-DRY	09/30/96
Bis(2-Ethylhexyl)phthalate		13000	D	12000	ug/Kg-DRY	09/30/96
Di-n-octylphthalate		ND		12000	ug/Kg-DRY	09/30/96
Benzo(b)fluoranthene		ND		12000	ug/Kg-DRY	09/30/96
Benzo(k)fluoranthene		ND		12000	ug/Kg-DRY	09/30/96
Benzo(a)pyrene		ND		12000	ug/Kg-DRY	09/30/96
Indeno(1,2,3-cd)pyrene		ND		12000	ug/Kg-DRY	09/30/96
Dibenz(a,h)anthracene		ND		12000	ug/Kg-DRY	09/30/96
Benzo(g,h,i)perylene		ND		12000	ug/Kg-DRY	09/30/96
SURROGATES, % Recovery						
2-Fluorophenol		17.4	*	Min:	25	Max: 121
d5-Phenol		19.5	*	Min:	24	Max: 113
d5-Nitrobenzene		51.7		Min:	23	Max: 120
2-Fluorobiphenyl		20.0	*	Min:	30	Max: 115
2,4,6-Tribromophenol		24.7		Min:	19	Max: 122
d14-Terphenyl		27.5		Min:	18	Max: 137

Sample: **03A** **CA07/001-96-0911-1535** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		4600	ug/Kg-DRY	09/24/96
Chloromethane		ND		4600	ug/Kg-DRY	09/24/96
Vinyl Chloride		ND		930	ug/Kg-DRY	09/24/96
Bromomethane		ND		4600	ug/Kg-DRY	09/24/96
Chloroethane		ND		4600	ug/Kg-DRY	09/24/96
Trichlorofluoromethane		ND		4600	ug/Kg-DRY	09/24/96
1,1-Dichloroethene		ND		2300	ug/Kg-DRY	09/24/96
Trichlorotrifluoroethane		ND		1400	ug/Kg-DRY	09/24/96
Methylene Chloride		ND		4600	ug/Kg-DRY	09/24/96
trans-1,2-Dichloroethene		ND		1400	ug/Kg-DRY	09/24/96
1,1-Dichloroethane		ND		2300	ug/Kg-DRY	09/24/96
2,2-Dichloropropane		ND		2300	ug/Kg-DRY	09/24/96
cis-1,2-Dichloroethene		ND		1400	ug/Kg-DRY	09/24/96
Bromochloromethane		ND		2300	ug/Kg-DRY	09/24/96
Chloroform		ND		1400	ug/Kg-DRY	09/24/96
1,1,1-Trichloroethane		ND		2300	ug/Kg-DRY	09/24/96
Carbon Tetrachloride		ND		4600	ug/Kg-DRY	09/24/96
1,1-Dichloropropene		ND		2300	ug/Kg-DRY	09/24/96
Benzene		ND		460	ug/Kg-DRY	09/24/96
1,2-Dichloroethane		ND		2300	ug/Kg-DRY	09/24/96
Trichloroethene		ND		1400	ug/Kg-DRY	09/24/96
1,2-Dichloropropane		ND		1400	ug/Kg-DRY	09/24/96
Dibromomethane		ND		1400	ug/Kg-DRY	09/24/96
Bromodichloromethane		ND		1400	ug/Kg-DRY	09/24/96
cis-1,3-Dichloropropene		ND		1400	ug/Kg-DRY	09/24/96
Toluene		ND		460	ug/Kg-DRY	09/24/96
trans-1,3-Dichloropropene		ND		2300	ug/Kg-DRY	09/24/96
1,1,2-Trichloroethane		ND		1400	ug/Kg-DRY	09/24/96
Tetrachloroethene		ND		1400	ug/Kg-DRY	09/24/96
1,3-Dichloropropane		ND		1400	ug/Kg-DRY	09/24/96
Dibromochloromethane		ND		1400	ug/Kg-DRY	09/24/96
1,2-Dibromoethane		ND		1400	ug/Kg-DRY	09/24/96
Chlorobenzene		ND		1400	ug/Kg-DRY	09/24/96
Ethylbenzene		ND		460	ug/Kg-DRY	09/24/96
1,1,1,2-Tetrachloroethane		ND		1400	ug/Kg-DRY	09/24/96
m,p-Xylenes		7100	D	460	ug/Kg-DRY	09/24/96
o-Xylene		2700	D	460	ug/Kg-DRY	09/24/96
Styrene		ND		1400	ug/Kg-DRY	09/24/96
Bromoform		ND		2300	ug/Kg-DRY	09/24/96
Isopropylbenzene		2000	D	930	ug/Kg-DRY	09/24/96
Bromobenzene		ND		1400	ug/Kg-DRY	09/24/96
n-Propylbenzene		3500	D	2300	ug/Kg-DRY	09/24/96
1,1,2,2-Tetrachlorethane		ND		2300	ug/Kg-DRY	09/24/96
1,2,3-Trichloropropane		ND		1400	ug/Kg-DRY	09/24/96
2-Chlorotoluene		ND		460	ug/Kg-DRY	09/24/96
1,3,5-Trimethylbenzene		9800	D	2300	ug/Kg-DRY	09/24/96
4-Chlorotoluene		ND		460	ug/Kg-DRY	09/24/96

Sample: **03A** **CA07/001-96-0911-1535** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		2300	ug/Kg-DRY	09/24/96
1,2,4-Trimethylbenzene		30000	D	2300	ug/Kg-DRY	09/24/96
sec-Butylbenzene		2300	D	2300	ug/Kg-DRY	09/24/96
4-Isopropyltoluene		11000	D	2300	ug/Kg-DRY	09/24/96
1,3-Dichlorobenzene		ND		930	ug/Kg-DRY	09/24/96
1,4-Dichlorobenzene		4900	D	930	ug/Kg-DRY	09/24/96
n-Butylbenzene		ND		2300	ug/Kg-DRY	09/24/96
1,2-Dichlorobenzene		ND		2300	ug/Kg-DRY	09/24/96
1,2-Dibromo-3-chloropropane		ND		4600	ug/Kg-DRY	09/24/96
1,2,4-Trichlorobenzene		ND		2300	ug/Kg-DRY	09/24/96
Hexachlorobutadiene		ND		2300	ug/Kg-DRY	09/24/96
Napthalene		6000	D	2300	ug/Kg-DRY	09/24/96
1,2,3-Trichlorobenzene		ND		2300	ug/Kg-DRY	09/24/96
Acetone		ND		23000	ug/Kg-DRY	09/24/96
Acrylonitrile		ND		4600	ug/Kg-DRY	09/24/96
2-Butanone		ND		23000	ug/Kg-DRY	09/24/96
Carbon Disulfide		ND		2300	ug/Kg-DRY	09/24/96
trans-1,4-Dichloro-2-butene		ND		4600	ug/Kg-DRY	09/24/96
2-Chloroethyl Vinyl Ether		ND		4600	ug/Kg-DRY	09/24/96
2-Hexanone		ND		9300	ug/Kg-DRY	09/24/96
Iodomethane		ND		2300	ug/Kg-DRY	09/24/96
4-Methyl-2-pentanone		ND		9300	ug/Kg-DRY	09/24/96
Vinyl Acetate		ND		2300	ug/Kg-DRY	09/24/96
tert-Butyl methyl ether		ND		2300	ug/Kg-DRY	09/24/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		104		Min:	80	Max: 120
Toluene d-8		104		Min:	81	Max: 117
p-Bromofluorobenzene		95.7		Min:	74	Max: 121

Sample: **03B** **CA07/001-96-0911-1535** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/24/96
Barium		0.50		0.020	mg/L	09/24/96
Cadmium		ND		0.0050	mg/L	09/24/96
Chromium		ND		0.010	mg/L	09/24/96
Lead		ND		0.050	mg/L	09/24/96
Selenium		ND		0.10	mg/L	09/24/96
Silver		ND		0.010	mg/L	09/24/96
Ignitability	EPA 1010	>200		47	Deg F/1atm	09/25/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/24/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/26/96
pH	EPA 9045A	7.7		0.10	pH units	09/18/96

Sample: **09A** **CA07/002-96-0911-1540** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	09/25/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/26/96
pH	EPA 150.1	6.1		0.10	pH units	09/18/96

Sample: 09B CA07/002-96-0911-1540 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	09/24/96
Chloromethane		ND		10	ug/L	09/24/96
Vinyl Chloride		ND		2.0	ug/L	09/24/96
Bromomethane		ND		10	ug/L	09/24/96
Chloroethane		ND		10	ug/L	09/24/96
Trichlorofluoromethane		ND		10	ug/L	09/24/96
1,1-Dichloroethene		ND		5.0	ug/L	09/24/96
Trichlorotrifluoroethane		ND		3.0	ug/L	09/24/96
Methylene Chloride		ND		10	ug/L	09/24/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	09/24/96
1,1-Dichloroethane		ND		5.0	ug/L	09/24/96
2,2-Dichloropropane		ND		5.0	ug/L	09/24/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	09/24/96
Bromochloromethane		ND		5.0	ug/L	09/24/96
Chloroform		ND		3.0	ug/L	09/24/96
1,1,1-Trichloroethane		ND		5.0	ug/L	09/24/96
Carbon Tetrachloride		ND		10	ug/L	09/24/96
1,1-Dichloropropene		ND		5.0	ug/L	09/24/96
Benzene		ND		1.0	ug/L	09/24/96
1,2-Dichloroethane		ND		5.0	ug/L	09/24/96
Trichloroethene		ND		3.0	ug/L	09/24/96
1,2-Dichloropropane		ND		3.0	ug/L	09/24/96
Dibromomethane		ND		3.0	ug/L	09/24/96
Bromodichloromethane		ND		3.0	ug/L	09/24/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	09/24/96
Toluene		ND		1.0	ug/L	09/24/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	09/24/96
1,1,2-Trichloroethane		ND		3.0	ug/L	09/24/96
Tetrachloroethene		ND		3.0	ug/L	09/24/96
1,3-Dichloropropane		ND		3.0	ug/L	09/24/96
Dibromochloromethane		ND		3.0	ug/L	09/24/96
1,2-Dibromoethane		ND		3.0	ug/L	09/24/96
Chlorobenzene		ND		3.0	ug/L	09/24/96
Ethylbenzene		ND		1.0	ug/L	09/24/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	09/24/96
m,p-Xylenes		1.8		1.0	ug/L	09/24/96
o-Xylene		ND		1.0	ug/L	09/24/96
Styrene		ND		3.0	ug/L	09/24/96
Bromoform		ND		5.0	ug/L	09/24/96
Isopropylbenzene		ND		2.0	ug/L	09/24/96
Bromobenzene		ND		3.0	ug/L	09/24/96
n-Propylbenzene		ND		5.0	ug/L	09/24/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	09/24/96
1,2,3-Trichloropropane		ND		3.0	ug/L	09/24/96
2-Chlorotoluene		ND		1.0	ug/L	09/24/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	09/24/96
4-Chlorotoluene		ND		1.0	ug/L	09/24/96

Sample: **09B** **CA07/002-96-0911-1540** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		5.0	ug/L	09/24/96
1,2,4-Trimethylbenzene		3.6	J	5.0	ug/L	09/24/96
sec-Butylbenzene		ND		5.0	ug/L	09/24/96
4-Isopropyltoluene		ND		5.0	ug/L	09/24/96
1,3-Dichlorobenzene		ND		2.0	ug/L	09/24/96
1,4-Dichlorobenzene		1.7	J	2.0	ug/L	09/24/96
n-Butylbenzene		ND		5.0	ug/L	09/24/96
1,2-Dichlorobenzene		ND		5.0	ug/L	09/24/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L	09/24/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L	09/24/96
Hexachlorobutadiene		ND		5.0	ug/L	09/24/96
Napthalene		2.1	J	5.0	ug/L	09/24/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L	09/24/96
Acetone		ND		50	ug/L	09/24/96
Acrylonitrile		ND		10	ug/L	09/24/96
2-Butanone		ND		50	ug/L	09/24/96
Carbon Disulfide		ND		5.0	ug/L	09/24/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L	09/24/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L	09/24/96
2-Hexanone		ND		20	ug/L	09/24/96
Iodomethane		ND		5.0	ug/L	09/24/96
4-Methyl-2-pentanone		ND		20	ug/L	09/24/96
Vinyl Acetate		ND		5.0	ug/L	09/24/96
tert-Butyl methyl ether		ND		5.0	ug/L	09/24/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		108		Min:	80	Max: 120
Toluene d-8		106		Min:	88	Max: 110
p-Bromofluorobenzene		98.0		Min:	86	Max: 115

Sample: 09D CA07/002-96-0911-1540 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		10	ug/L	09/26/96
bis(2-Chloroethyl) ether		ND		10	ug/L	09/26/96
2-Chlorophenol		ND		10	ug/L	09/26/96
1,3-Dichlorobenzene		ND		10	ug/L	09/26/96
1,4-Dichlorobenzene		ND		10	ug/L	09/26/96
Benzyl alcohol		ND		20	ug/L	09/26/96
1,2-Dichlorobenzene		ND		10	ug/L	09/26/96
2-Methylphenol		ND		10	ug/L	09/26/96
bis(2-Chloroisopropyl) ether		ND		10	ug/L	09/26/96
4-Methylphenol		ND		10	ug/L	09/26/96
n-Nitroso-di-n-propylamine		ND		10	ug/L	09/26/96
Hexachloroethane		ND		10	ug/L	09/26/96
Nitrobenzene		ND		10	ug/L	09/26/96
Isophorone		ND		10	ug/L	09/26/96
2-Nitrophenol		ND		10	ug/L	09/26/96
2,4-Dimethylphenol		ND		10	ug/L	09/26/96
Benzoic acid		ND		50	ug/L	09/26/96
bis(2-Chloroethoxy)methane		ND		10	ug/L	09/26/96
2,4-Dichlorophenol		ND		10	ug/L	09/26/96
1,2,4-Trichlorobenzene		ND		10	ug/L	09/26/96
Naphthalene		ND		10	ug/L	09/26/96
4-Chloroaniline		ND		10	ug/L	09/26/96
Hexachlorobutadiene		ND		10	ug/L	09/26/96
4-Chloro-3-methylphenol		ND		10	ug/L	09/26/96
2-Methylnaphthalene		ND		10	ug/L	09/26/96
Hexachlorocyclopentadiene		ND		10	ug/L	09/26/96
2,4,6-Trichlorophenol		ND		10	ug/L	09/26/96
2,4,5-Trichlorophenol		ND		50	ug/L	09/26/96
2-Chloronaphthalene		ND		10	ug/L	09/26/96
2-Nitroaniline		ND		50	ug/L	09/26/96
Dimethylphthalate		ND		10	ug/L	09/26/96
Acenaphthylene		ND		10	ug/L	09/26/96
3-Nitroaniline		ND		50	ug/L	09/26/96
Acenaphthene		ND		10	ug/L	09/26/96
2,4-Dinitrophenol		ND		50	ug/L	09/26/96
4-Nitrophenol		ND		50	ug/L	09/26/96
Dibenzofuran		ND		10	ug/L	09/26/96
2,6-Dinitrotoluene		ND		10	ug/L	09/26/96
2,4-Dinitrotoluene		ND		10	ug/L	09/26/96
Diethylphthalate		1.2	J	10	ug/L	09/26/96
4-Chlorophenyl-phenylether		ND		10	ug/L	09/26/96
Fluorene		ND		10	ug/L	09/26/96
4-Nitroaniline		ND		10	ug/L	09/26/96
4,6-Dinitro-2-methylphenol		ND		50	ug/L	09/26/96
n-Nitrosodiphenylamine		ND		10	ug/L	09/26/96
4-Bromophenyl-phenylether		ND		10	ug/L	09/26/96

Sample: **09D** **CA07/002-96-0911-1540** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		10	ug/L	09/26/96
Pentachlorophenol		ND		50	ug/L	09/26/96
Phenanthrene		ND		10	ug/L	09/26/96
Anthracene		ND		10	ug/L	09/26/96
Di-n-butylphthalate		ND		10	ug/L	09/26/96
Fluoranthene		ND		10	ug/L	09/26/96
Pyrene		ND		10	ug/L	09/26/96
Butylbenzylphthalate		ND		10	ug/L	09/26/96
3,3'-Dichlorobenzidine		ND		20	ug/L	09/26/96
Benzo(a)Anthracene		ND		10	ug/L	09/26/96
Chrysene		ND		10	ug/L	09/26/96
Bis(2-Ethylhexyl)phthalate		1.6	J	10	ug/L	09/26/96
Di-n-octylphthalate		ND		10	ug/L	09/26/96
Benzo(b)fluoranthene		ND		10	ug/L	09/26/96
Benzo(k)fluoranthene		ND		10	ug/L	09/26/96
Benzo(a)pyrene		ND		10	ug/L	09/26/96
Indeno(1,2,3-cd)pyrene		ND		10	ug/L	09/26/96
Dibenz(a,h)anthracene		ND		10	ug/L	09/26/96
Benzo(g,h,i)perylene		ND		10	ug/L	09/26/96
SURROGATES, % Recovery						
2-Fluorophenol		49.3		Min: 21	Max: 100	
d5-Phenol		42.0		Min: 10	Max: 94	
d5-Nitrobenzene		80.0		Min: 35	Max: 114	
2-Fluorobiphenyl		76.0		Min: 43	Max: 116	
2,4,6-Tribromophenol		93.3		Min: 10	Max: 123	
d14-Terphenyl		43.0		Min: 33	Max: 141	

Sample: **09E** **CA07/002-96-0911-1540** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/24/96
Barium		0.13		0.020	mg/L	09/24/96
Cadmium		ND		0.0050	mg/L	09/24/96
Chromium		ND		0.010	mg/L	09/24/96
Lead		ND		0.050	mg/L	09/24/96
Selenium		ND		0.10	mg/L	09/24/96
Silver		ND		0.010	mg/L	09/24/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/24/96

Analytica, Incorporated

SAMPLE RECEIVING CHECKLIST

Client:	USACE NM	Matrix:	Sludge/Water
CSN #:	607172	# Samples rcvd:	3 7
W/O #:	9609093	# Bottles Rcvd:	38
Date Recvd:	9-14-96	Analytica B/O:	4

Cooler Temp:	x	* temp blanks were at 5°C & ~ 4°C.
Custody seal present & intact:	YES / NO	
Chain in cooler:	YES / NO	
Chain Matches sample ID's:	YES / NO	
Trip blank presented:	YES / NO	
Samples w. LT 5 days HT:	YES / NO	pH Holding times expired prior to receipt @ AZ.
Critical samples & tests:	YES / NO	
Samples preserved properly:	YES / NO	

CORROSIVITY Has longer Holding Time [illegible]

Project Definition Complete @ login:	YES / NO	
Further Definition:		
Discrepencies:	Trip Blank not on COC for samples taken 9/12. it was Received.	
Corrective Actions:		
Comments:		

	Date/time	Initials
Login completed:	9/16/96 1345	KI
Def completed:	9-16-96 1535	[illegible]

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkw ite 200
Broomfield, Color 021
(303) 469-8868 or 1-80 73-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

ANALYTICA USE ONLY: № 002800

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-3540/8270	TCLP&RCRA 1311/6010
12Sept96	0945	CA11/002-96-0912-0945	3				
12Sept96	1045	CA92/002-96-0912-1045	3				

Temp Blanks bath @ 5.0°C. KI

COMMENTS: Soxhlet Extraction for SVOC-BNA extraction

MEANS OF DELIVERY:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1530	Fed Ex		Fed X	9/14/96 1120 hrs		9/14/96 1130 hrs

003-0294

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Park[illegible] ite 200
Broomfield, Color[illegible] 021
(303) 469-8868 or 1-8[illegible]-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

8 RCRA Metals

ANALYTICA USE ONLY: № 002797

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity pH Ignitability	VOC - 8260	SVOC - 3540/8270	TCLP Met/1311/7470/7471/8010	Combined Jars						
11Sept96	1535	CA07/001-96-0911-1535	3	1	1	1	1							

Temp Blanks @~4.0°C
KI

COMMENTS

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13Sept96 1545	Fed Ex	~~9/14/96~~ ~~11:30 hrs~~ 9/14/96 11:30 hrs	Fed X	~~9/14/96~~ ~~11:30 hrs~~		9/14/96 11:30 hrs

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Park[illegible] ite 200
Broomfield, Color[illegible])21
(303) 469-8868 or 1-8[illegible]-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE
Alb. NM 87109

TELEPHONE: 505-342-3472

FAX: 505-342-3497

PROJECT ID/DESCRIPTION: Cannon OWS

P. O. NO.:

ANALYTICA USE ONLY: № 002801

CSN 607172

LGN 96090 93

LOC Walkin C3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, TSN	VOC-8260	SVOC-8270	TCLP 8RCRA MET
12Sept96	0940	CA11/001-96-0912-0940	5	1	2	1	1
12Sept96	1040	CA92/001-96-0912-1040	6	1	2	2	1

Temp Blanks both @ 5.0°C.
KC

COMMENTS: SVOC (QC) taken @ CA92/001-96-0912-1040

MEANS OF DELIVERY:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13 Sept 96 1545	Fed Ex		Fed X	9/14/96 11 Beh		9/14/96 1130

003-0294

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Park ite 200
Broomfield, Colo 021
(303) 469-8868 or 1-8 373-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

8 RCRA

ANALYTICA USE ONLY: № 002798

CSN 607172

LGN 9609093

LOC Watkin C3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one): WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-8270	TCLP MET 1311/7470/7470/6010							
11Sept96	1355	CA112/001-96-0911-1355	6	1	2	2	1							
11Sept96	1450	CA33B/001-96-0911-1450	5	1	2	1	1							
11Sept96	1540	CA07/002-96-0911-1540	5	1	2	1	1							
11Sept96	—	Trip Blank	1		1									

Temp Blanks @ ~4.0°C.
KI

COMMENTS: Liquid/Liquid extraction for 8270
SVOC (QC) taken @ CA112/001-96-0911-1355

MEANS OF DELIVERY:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1545	Fed Ex	9/14/96 1120 hr				9/14/96 1130 hr

003-0294

ID: 9611250-05A
ple ID: CA08/001-96-1126-1400

Collected: 11/26/96 14:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER/SW846 8270B						
Pentachlorophenol	ND	ug/L	20	1.9	12/21/96	WMSSVOA176
2,4-Dinitrophenol	ND	ug/L	50	1.9	12/21/96	WMSSVOA176
Phenanthrene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Anthracene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Di-n-butylphthalate	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Fluoranthene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Pyrene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Butylbenzylphthalate	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Benzo(a)anthracene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Chrysene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
3,3'-Dichlorobenzidine	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
bis(2-Ethylhexyl)phthalate	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Di-n-octyl phthalate	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Benzo(b)+(k)fluoranthene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
1-Methylnaphthalene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Benzo(a)pyrene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Indeno(1,2,3-cd)pyrene	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Benzo(g,h,i)perylene	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	1.9	12/21/96	WMSSVOA176
Azobenzene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Dibenz(a,h)anthracene	ND	ug/L	10	1.9	12/21/96	WMSSVOA176

D: 9611250-05B
le ID: CA08/001-96-1126-1400

Collected: 11/26/96 14:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/11/96	WFLASH200
pH/EPA 150.1						
pH	7.6	pH Units	0.10	1.0	12/03/96	WPH446
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96116
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/18/96	W96116

Lab ID: 9611250-05C
Sample ID: CA08/001-96-1126-1400

Collected: 11/26/96 14:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	2.3	mg/L	0.10	1.0	12/03/96	W9695

Lab ID: 9611250-05D
Sample ID: CA08/001-96-1126-1400

Collected: 11/26/96 14:00:00
Matrix: WATER

/ METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/EPA 245.1	12/03/96	N/A				

D: 9611250-05D **Collected:** 11/26/96 14:00:00
Sample ID: CA08/001-96-1126-1400 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
MERCURY (CVAA)/EPA 245.1						
Mercury	ND	mg/L	0.00020	1.0	12/04/96	M96182
Metals-(ICP)DIG SW846 3005	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND		0.020	1.0	12/03/96	M96175
Aluminum, Al	NT		0.50			M96175
Arsenic, As	ND		0.060	1.0	12/03/96	M96175
Barium, Ba	0.05		0.010	1.0	12/03/96	M96175
Beryllium, Be	NT		0.0010			M96175
Calcium, Ca	NT		0.30			M96175
Cadmium, Cd	ND		0.0040	1.0	12/03/96	M96175
Cobalt, Co	NT		0.010			M96175
Chromium, Cr	ND		0.020	1.0	12/03/96	M96175
Copper, Cu	NT		0.010			M96175
Iron, Fe	NT		0.30			M96175
Potassium, K	NT		0.20			M96175
Magnesium, Mg	NT		0.20			M96175
Manganese, Mn	NT		0.0050			M96175
Sodium, Na	NT		0.30			M96175
Nickel, Ni	ND		0.040	1.0	12/03/96	M96175
Lead, Pb	0.07		0.040	1.0	12/03/96	M96175
Antimony, Sb	NT		0.030			M96175
Selenium, Se	ND		0.050	1.0	12/03/96	M96175
Thallium, Tl	NT		0.40			M96175
[illegible]dium, V	NT		0.0030			M96175
Zn	NT		0.10			M96175

Lab ID: 9611250-05E **Collected:** 11/26/96 14:00:00
Sample ID: CA08/001-96-1126-1400 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES /SW846 8260B						
Dichlorodifluoromethane	ND	ug/L	10	1.0	12/06/96	WMSVOA500
Chloromethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Iodomethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Acetone	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Bromomethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Vinyl Chloride	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Chloroethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Trichlorofluoromethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Freon 113	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Carbon Disulfide	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Acrolein	ND	ug/L	20	1.0	12/06/96	WMSVOA500
Methylene Chloride	ND	ug/L	10	1.0	12/06/96	WMSVOA500
1,1-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,1-Dichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Acrylonitrile	ND	ug/L	20	1.0	12/06/96	WMSVOA500
trans-1,2-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Chloroform	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,2-Dichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Vinyl Acetate	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
cis-1,2-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
2-Butanone (MEK)	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
[illegible] Trichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
[illegible]ı Tetrachloride	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
[illegible]dichloromethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
[illegible]chloropropane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Dibromomethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500

ID: 9611250-05E
ple ID: CA08/001-96-1126-1400

Collected: 11/26/96 14:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES /SW846 8260B						
trans-1,3-Dichloropropene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
Trichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
Chlorodibromomethane	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
Ethyl Methacrylate	ND	ug/L	5.0	1.0	12/06/96	WMSV0A500
2-Chloroethylvinyl Ether	ND	ug/L	5.0	1.0	12/06/96	WMSV0A500
1,1,2-Trichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
Benzene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
cis-1,3-Dichloropropene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
Bromoform	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0	1.0	12/06/96	WMSV0A500
Tetrachloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
1,2-Dibromoethane	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
2-Hexanone (MBK)	ND	ug/L	5.0	1.0	12/06/96	WMSV0A500
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
Toluene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
Chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
Ethylbenzene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
1,4-Dichloro-2-Butene	ND	ug/L	10	1.0	12/06/96	WMSV0A500
Styrene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
P/M Xylene	ND	ug/L	2.0	1.0	12/06/96	WMSV0A500
O-Xylene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
1,2,3-Trichloropropane	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
yl-tert Butyl Ether	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500
ichlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSV0A500

Lab ID: 9611250-06A
Sample ID: CA57/001-96-1126-1040

Collected: 11/26/96 10:40:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CANCELLED SAMPLE	n/a	N/A				

Lab ID: 9611250-06B
Sample ID: CA57/001-96-1126-1040

Collected: 11/26/96 10:40:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/11/96	WFLASH200
pH/EPA 150.1						
pH	8.3	pH Units	0.10	1.0	12/03/96	WPH446
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96116
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/18/96	W96116

Chain of Custody Record

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ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

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EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: [illegible] Date 22 Nov 96

Page 1 of 3

Client: ACE

Address: [illegible] Jefferson NE

City / State / Zip: Albuquerque NM 87109

Project Name / Number: Conoco 1935

Contract / Purchase Order / Quote:

Project Manager / Contact: Susan Gant

Telephone No.: 505-342-3471

Fax No.: 505-342-3497

Samplers: (Signature)

Analysis Required

ALL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 [illegible] oz Jars	4°C	—	1	✓								
[illegible]	"	"	"	"	2 [illegible] oz Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	[illegible]	[illegible]	"	1 [illegible] oz Jar	4°C	—	1	✓								
[illegible]	"	"	"	"	2 [illegible] oz Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	"	[illegible]	"	1 [illegible] oz Jar	[illegible]	—	1	✓								
[illegible]	"	"	"	"	2 [illegible] oz Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	[illegible]	[illegible]	"	1 [illegible] oz Jar	[illegible]	—	1	✓								
[illegible]	"	"	"	"	2 [illegible] oz Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	[illegible]	[illegible]	"	1 [illegible] oz Jar	4°C	—	1	✓								
[illegible]	"	"	"	"	2 [illegible] oz Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	[illegible]	[illegible]	"	3-1L AG	4°C	—	3			✓			✓			
[illegible]	"	"	"	"	2-1L AG	4°C	HCl	2					✓				
[illegible]	"	"	"	"	1-500mL PL	4°C	HNO3	1				✓					
[illegible]	"	"	"	"	2 [illegible]	4°C	[illegible]	2	✓								

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	22 Nov 96	Signature:	Signature:		Signature:
Printed: [illegible]	Time 1355	Printed:	Printed:	Time	Printed:
Company: ACE		Company:	Company:		Company:
Reason: [illegible]		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES

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MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 11210 Date 24 Nov 96

Page 2 of 2

Client: [illegible]

Address: 4101 Jefferson Pl NE

City / State / Zip: Albuquerque NM 87109

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: Susan [illegible]

Telephone No.: [illegible] 3471

Fax No.: [illegible]

Samplers: (Signature) [illegible]

Analysis Required: [illegible]

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
01A	CA5 9/201-96 1100-1040	24 Nov 96	1040	Grab	3 - 1 L AG	4°C	—	3		✓			✓				
02	"				2 - 1 L AG	"	HCl	2				✓					
03	"				1 - 500 mL PL	"	HNO3	1			✓						
04	"				2 - 40 mL VOA	"	HCl	2	✓								
05A	CA5 9/201-96 1200-1300	"	"	"	3 - 1 L AG	"	—	3		✓			✓				
06	"				2 - 1 L AG	"	HCl	2				✓					
07	"				1 - 500 mL PL	"	HNO3	1			✓						
08	"				2 - 40 mL VOA	"	HCl	2	✓								

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature [illegible]	24 Nov 96	Signature [illegible]	Signature		Signature
Printed [illegible]	Time 1355	Printed [illegible]	Printed	Time	Printed
Company AAL		Company AAL	Company		Company
Reason ANALYSIS		Reason	Reason		Reason

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

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MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 1250 Date 24 Nov 96

Page 2 of 3

Client

Address

City / State / Zip

Project Name / Number

Contract / Purchase Order / Quote

Project Manager / Contact

Telephone No.

Fax No. 3199

Samplers: *(Signature)*

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers										Remarks
					2-1L AG	4°C	—	3		✓			✓					
					2-1L AG	4°C	HCl	2			✓	✓						
					1-500mL PL	4°C	HNO3	1			✓							
					2-40mL VOA	4°C	HCl	2	✓									
					2-1L AG	4°C	—	3		✓			✓					
					2-1L AG	4°C	HCl	2				✓						
					1-500mL PL	4°C	HNO3			✓	✓							
					2-40mL VOA	4°C	HCl	2	✓									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature	27 Nov 96	Signature	Signature		Signature
Printed	Time 1355	Printed	Printed	Time	Printed
Company		Company	Company		Company
Reason		Reason	Reason		Reason

Method of Shipment

Shipment No.

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CC

ASSAIGAI ANALYTICAL LABORATORIES, INC.
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3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

Attn: SUSAN GANT

Purchase Order: DACW47-96-P-0338
Invoice Number: 929480

Order #: 97-01-224
Date: 07/01/97 14:07
Work ID: CANNON OWS
Date Received: 01/29/97
Date Completed: 02/26/97

Client Code: USA01

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	CA32A/001-1600-012897	06	CA94A/001-0900-012897
02	CA32A/002-1615-012897	07	CA94A/002-0915-012897
03	CA32A/003-1630-012897	08	CA94B/002-1000-012897
04	CA08/002-1430-012897	09	CA09/003-1505-012897
05	CA94B/001-0945-012897		

ND = None Detected D_F = Dilution Factor NT = Not Tested
B = Analyte was present in the blank
E = Estimated Value or Result exceeds calibration range
MULTIPLY THE LIMIT(= AAL'S DETECTION LIMIT) BY DILUTION FACTOR

Wm. P. Biava
Certified By
WILLIAM P. BIAVA

Member: American Council of Independent Laboratories, Inc.

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Report Generated:
March 13, 1997 16:24

CERTIFICATE OF ANALYSIS
RESULTS BY SAMPLE

SENT TO: US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

ATTN: SUSAN GANT

WORKORDER # : 9702215
WORK ID : CANNON OWS
CLIENT CODE : USA01
DATE RECEIVED : 01/28/97

Lab ID: 9702215-01A
Sample ID: CA32A/003-1630-012897
Collected: 01/28/97 16:30:00
Matrix: SOLID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	61.00	% (Percent)				
FLASH POINT/SW846 1010						
Flash Point	44	Deg Centigrade	20	1.0	03/11/97	SFLASH221
pH/SW846 9045B						
pH	7.0	pH Units	0.10	1.0	03/11/97	SPH258
R[illegible]TIVITY/SW846 7-3						
[illegible]de	NON-REACT	mg/Kg of Waste	500		03/11/97	W97114
[illegible](FAA) DIG/1311/3005	NON-REACT	mg/Kg of Waste	250	1.0	03/11/97	W97114
[illegible] CADMIUM(FA)/1311/7130	03/05/97	N/A				
Cadmium, Cd	0.038	mg/L	0.0030	1.0	03/12/97	M97167
TCLP EXTRACTION/TCLP 1311	03/03/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	03/06/97	M97167

Lab ID: 9702215-02A
Sample ID: CA08/002-1430-012897
Collected: 01/28/97 14:30:00
Matrix: SOLID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	34.00	% (Percent)				
FLASH POINT/SW846 1010						
Flash Point	> 60	Deg Centigrade	20	1.0	03/11/97	SFLASH221
pH/SW846 9045B						
pH	7.1	pH Units	0.10	1.0	03/11/97	SPH258
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	03/11/97	W97114
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	03/11/97	W97114
TCLP (FAA) DIG/1311/3005	03/05/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	ND	mg/L	0.0030	1.0	03/12/97	M97167
TCLP EXTRACTION/TCLP 1311	03/03/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	03/06/97	M97167

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Received: 01/29/97

Results by Sample

SAMPLE ID CA08/002-1430-012897 FRACTION 04C TEST CODE 8260 NAME VOLATILES/SW846 8260

Date & Time Collected 01/28/97 14:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	0.010	1250	02/10/97
Chloromethane	ND	0.0050	1250	02/10/97
Iodomethane	ND	0.0050	1250	02/10/97
Acetone	ND	0.0050	1250	02/10/97
Bromomethane	ND	0.0050	1250	02/10/97
Vinyl Chloride	ND	0.0050	1250	02/10/97
Chloroethane	ND	0.0050	1250	02/10/97
Trichlorofluoromethane	ND	0.0050	1250	02/10/97
Freon 113	ND	0.0050	1250	02/10/97
Carbon Disulfide	ND	0.0050	1250	02/10/97
Acrolein	ND	0.020	1250	02/10/97
Methylene Chloride	ND	0.010	1250	02/10/97
1,1-Dichloroethene	ND	0.0010	1250	02/10/97
1,1-Dichloroethane	ND	0.0010	1250	02/10/97
Acrylonitrile	ND	0.020	1250	02/10/97
trans-1,2-Dichloroethene	ND	0.0010	1250	02/10/97
Chloroform	ND	0.0010	1250	02/10/97
1,2-Dichloroethane	ND	0.0010	1250	02/10/97
Vinyl Acetate	ND	0.0050	1250	02/10/97
cis-1,2-Dichloroethene	ND	0.0010	1250	02/10/97
2-Butanone (MEK)	ND	0.0050	1250	02/10/97
1,1,1-Trichloroethane	ND	0.0010	1250	02/10/97
Carbon Tetrachloride	ND	0.0010	1250	02/10/97
Bromodichloromethane	ND	0.0010	1250	02/10/97
1,2-Dichloropropane	ND	0.0010	1250	02/10/97
Dibromomethane	ND	0.0010	1250	02/10/97
trans-1,3-Dichloropropene	ND	0.0010	1250	02/10/97
Trichloroethene	ND	0.0010	1250	02/10/97
Chlorodibromomethane	ND	0.0010	1250	02/10/97
Ethyl Methacrylate	ND	0.0050	1250	02/10/97
2-Chloroethylvinyl Ether	ND	0.0050	1250	02/10/97
1,1,2-Trichloroethane	ND	0.0010	1250	02/10/97
Benzene	ND	0.0010	1250	02/10/97
cis-1,3-Dichloropropene	ND	0.0010	1250	02/10/97
Bromoform	ND	0.0010	1250	02/10/97
4-Methyl-2-Pentanone (MIBK)	ND	0.0050	1250	02/10/97
Tetrachloroethene	ND	0.0010	1250	02/10/97
1,1,2,2-Tetrachloroethane	ND	0.0010	1250	02/10/97
1,2-Dibromoethane	ND	0.0010	1250	02/10/97
2-Hexanone (MBK)	ND	0.0050	1250	02/10/97
1,1,1,2-Tetrachloroethane	ND	0.0010	1250	02/10/97
Toluene	ND	0.0010	1250	02/10/97
Chlorobenzene	ND	0.0010	1250	02/10/97
Ethylbenzene	ND	0.0010	1250	02/10/97
1,4-Dichloro-2-Butene	ND	0.010	1250	02/10/97
Styrene	ND	0.0010	1250	02/10/97
P/M Xylene	ND	0.0020	1250	02/10/97
O-Xylene	ND	0.0010	1250	02/10/97
1,2,3-Trichloropropane	ND	0.0010	1250	02/10/97
Methyl-tert Butyl Ether	ND	0.010	1250	02/10/97

SAMPLE ID CA08/002-1430-012897 FRACTION 04C TEST CODE 8260 NAME VOLATILES/SW846 8260
Date & Time Collected 01/28/97 14:30:00 Category SOLID

1,2-Dichlorobenzene	ND	0.0010	1250	02/10/97
1,3-Dichlorobenzene	ND	0.0010	1250	02/10/97
1,4-Dichlorobenzene	ND	0.0010	1250	02/10/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST LT
FILE ID MSV0401.D
UNITS mg/Kg
BATCH_ID SMSVOA427
PRCNT_MOIST

Received: 01/29/97 Results by Sample

SAMPLE ID CA08/002-1430-012897 FRACTION 04A TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B

Date & Time Collected 01/28/97 14:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	1.0	180	02/08/97
Pyridine	ND	10	180	02/08/97
Aniline	ND	10	180	02/08/97
bis(2-Chloroethyl) Ether	ND	0.50	180	02/08/97
2-Chlorophenol	ND	0.50	180	02/08/97
1,3-Dichlorobenzene	ND	0.50	180	02/08/97
1,4-Dichlorobenzene	ND	0.50	180	02/08/97
Phenol	ND	0.50	180	02/08/97
1,2-Dichlorobenzene	ND	0.50	180	02/08/97
Benzyl Alcohol	ND	10	180	02/08/97
bis(2-Chloroisopropyl) Ether	ND	1.0	180	02/08/97
2-Methylphenol / O-Cresol	ND	0.50	180	02/08/97
Hexachloroethane	ND	0.50	180	02/08/97
n-Nitroso-di-n-propylamine	ND	0.50	180	02/08/97
Nitrobenzene	ND	0.50	180	02/08/97
3/4 Methylphenol / M/P-Cresol	ND	0.50	180	02/08/97
Isophorone	ND	0.50	180	02/08/97
2-Nitrophenol	ND	1.0	180	02/08/97
bis(2-Chloroethoxy) Methane	ND	0.50	180	02/08/97
2,4-Dimethylphenol	ND	1.0	180	02/08/97
1,2,4-Trichlorobenzene	ND	0.50	180	02/08/97
Naphthalene	ND	0.50	180	02/08/97
Benzoic Acid	ND	10	180	02/08/97
2,4-Dichlorophenol	ND	1.0	180	02/08/97
4-Chloroaniline	ND	10	180	02/08/97
Hexachlorobutadiene	ND	0.50	180	02/08/97
2-Methylnaphthalene	ND	0.50	180	02/08/97
4-Chloro-3-methylphenol	ND	0.50	180	02/08/97
Hexachlorocyclopentadiene	ND	10	180	02/08/97
2,4,6-Trichlorophenol	ND	1.0	180	02/08/97
2,4,5-Trichlorophenol	ND	1.0	180	02/08/97
2-Chloronaphthalene	ND	0.50	180	02/08/97
2-Nitroaniline	ND	1.0	180	02/08/97
Acenaphthylene	ND	0.50	180	02/08/97
Dimethylphthalate	ND	0.50	180	02/08/97
2,6-Dinitrotoluene	ND	1.0	180	02/08/97
Acenaphthene	ND	0.50	180	02/08/97
3-Nitroaniline	ND	10	180	02/08/97
Dibenzofuran	ND	0.50	180	02/08/97
2,4-Dinitrotoluene	ND	2.5	180	02/08/97
Fluorene	ND	0.50	180	02/08/97
4-Chlorophenyl-phenylether	ND	0.50	180	02/08/97
Diethylphthalate	ND	0.50	180	02/08/97
4-Nitrophenol	ND	10	180	02/08/97
4,6-Dinitro-2-methylphenol	ND	10	180	02/08/97
n-Nitrosodiphenylamine	ND	0.50	180	02/08/97
4-Nitroaniline	ND	10	180	02/08/97
4-Bromophenyl-phenylether	ND	0.50	180	02/08/97
Hexachlorobenzene	ND	0.50	180	02/08/97
Pentachlorophenol	ND	10	180	02/08/97

SAMPLE ID CA08/002-1430-012897 FRACTION 04A TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B
Date & Time Collected 01/28/97 14:30:00 Category SOLID

2,4-Dinitrophenol	ND	10	180	02/08/97
Phenanthrene	ND	0.50	180	02/08/97
Anthracene	ND	0.50	180	02/08/97
Di-n-butylphthalate	ND	5.0	180	02/08/97
Fluoranthene	ND	0.50	180	02/08/97
Pyrene	ND	0.50	180	02/08/97
Butylbenzylphthalate	ND	0.50	180	02/08/97
Benzo(a)anthracene	ND	0.50	180	02/08/97
Chrysene	ND	0.50	180	02/08/97
3,3'-Dichlorobenzidine	ND	10	180	02/08/97
bis(2-Ethylhexyl)phthalate	ND	2.5	180	02/08/97
Di-n-octyl phthalate	ND	0.50	180	02/08/97
Benzo(b)+(k)fluoranthene	ND	0.50	180	02/08/97
1-Methylnaphthalene	ND	1.0	180	02/08/97
Benzo(a)pyrene	ND	0.50	180	02/08/97
Indeno(1,2,3-cd)pyrene	ND	1.0	180	02/08/97
Benzo(g,h,i)perylene	ND	1.0	180	02/08/97
2,3,4,6-Tetrachlorophenol	ND	2.5	180	02/08/97
Azobenzene	ND	1.0	180	02/08/97
Dibenz(a,h)anthracene	ND	1.0	180	02/08/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0229.D
UNITS mg/Kg
BATCH_ID SMSSVOA141
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA08/002-1430-012897 FRACTION 04B TEST CODE S6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 14:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	01/31/97	01/31/97
Arsenic, As	ND	3.0	1.0	01/31/97	01/31/97
Barium, Ba	202	0.50	1.0	01/31/97	01/31/97
Cadmium, Cd	33.2	0.20	1.0	01/31/97	01/31/97
Chromium, Cr	69.2	1.0	1.0	01/31/97	01/31/97
Lead, Pb	116	2.0	1.0	01/31/97	01/31/97
Selenium, Se	ND	2.5	1.0	01/31/97	01/31/97

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/Kg

BATCH_ID M9785

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA08/002-1430-012897 FRACTION **04B** TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471

Date & Time Collected 01/28/97 14:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.15	1.0	02/06/97	02/06/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M97100

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA08/002-1430-012897 FRACTION 04D TEST CODE STRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 14:30:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	8950E*	5.0	250	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/Kg

BATCH_ID W9776

PRCNT_MOIST

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 1924 Date: [illegible]

Page 1 of 2

Client: USACE

Address: 4101 [illegible]

City / State / Zip: Alb NM 87107

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: 362-3107

Samplers: (Signature) [illegible]

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required									Remarks
5[illegible]	CA4A/002-0[illegible]	[illegible]	[illegible]	[illegible]	1 Pint [illegible]	[illegible]	[illegible]	2	1									
5[illegible]					3 Amber	[illegible]	—	3		1			1	1				
5[illegible]					1 HC Amber	[illegible]	[illegible]	1										
5[illegible]					1 Soil [illegible]	[illegible]	[illegible]	1			1							
5[illegible]	CA4A/002-0[illegible]				2 Pint [illegible]	[illegible]	[illegible]	2	1									
[illegible]	[illegible]				2 [illegible]	[illegible]	—	3										
[illegible]					[illegible]			1										
[illegible]					1 Soil Pint	[illegible]	[illegible]	1			1							
7[illegible]	CA4A/002-0[illegible]		[illegible]		2 [illegible] Jars	[illegible]	—	2		1	1		1					
7[illegible]	CA4A/002-0[illegible]		[illegible]		1 [illegible] Jar	[illegible]	—	1	1			1						W
[illegible]	CA4B/002-[illegible]				2 [illegible] Jar	[illegible]		2		1	1		1					
[illegible]	CA4B/002-[illegible]		[illegible]		2 [illegible]	[illegible]	—	2	1			1						

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	[illegible] 97	Signature: [illegible]	Signature:		Signature:
Printed: CRUZ JORDAN	Time: 1540	Printed:	Printed:	Time:	Printed:
Company: USACE		Company: AAL	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

COURIER

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 1224 Date

Page 2 of 2

Client: PLACC

Project Manager / Contact: Susan Orr

Address: 4101 Jefferson N.E.

Telephone No.: 505 342 3421

City / State / Zip: Alb NM 87109

Fax No.: 505 342 3400

Project Name / Number: Carson Oil

Samplers: (Signature)

Contract / Purchase Order / Quote

Analysis Required

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers										Remarks
A-1	[illegible]	[illegible]	[illegible]	[illegible]	2 [illegible]	4	—	2										
A-2	[illegible]				2 [illegible]	4	—	2										

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	12-16-97	Signature: [illegible]	Signature:		Signature:
Printed: [illegible] JORDAN	Time: 1540	Printed:	Printed:	Time	Printed:
Company: PLACC		Company: AAL	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CL[illegible]ER

D: 9702215-03A
Sample ID: CA94A/002-0915-012897

Collected: 01/28/97 09:15:00
Matrix: SOLID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	60.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	03/05/97	N/A				
TCLP EXTRACTION/TCLP 1311	03/03/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	03/06/97	M97167

Lab ID: 9702215-04A
Sample ID: CA09/003-1505-012897

Collected: 01/28/97 15:05:00
Matrix: SOLID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	62.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	03/05/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	0.010	mg/L	0.0030	1.0	03/12/97	M97167
TCLP CHROMIUM(F)/1311/7190						
Chromium, Cr	0.20	mg/L	0.020	1.0	03/06/97	M97167
TCLP EXTRACTION/TCLP 1311	03/03/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	0.2	mg/L	0.10	1.0	03/06/97	M97167

Fred L. Shore, Ph.D.
VP of Laboratory Operations

'D: 9611250-03C **Collected:** 11/25/96 15:15:00
ple ID: CA47A/002-96-1125-1515 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	18600	mg/Kg	5.0	200	12/04/96	W9697

Lab ID: 9611250-04A **Collected:** 11/26/96 15:00:00
Sample ID: CA09/002-96-1126-1500 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND	mg/Kg	0.010	39	12/09/96	SMSVOA409
Chloromethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Iodomethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Acetone	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Bromomethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Vinyl Chloride	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Chloroethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Trichlorofluoromethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Freon 113	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Carbon Disulfide	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Acrolein	ND	mg/Kg	0.020	39	12/09/96	SMSVOA409
lene Chloride	0.31	mg/Kg	0.010	39	12/09/96	SMSVOA409
chloroethene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
chloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
onitrile	ND	mg/Kg	0.020	39	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Chloroform	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,2-Dichloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Vinyl Acetate	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	4.7	mg/Kg	0.0010	39	12/09/96	SMSVOA409
2-Butanone (MEK)	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Carbon Tetrachloride	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Bromodichloromethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,2-Dichloropropane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Dibromomethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Trichloroethene	0.14	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Chlorodibromomethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Ethyl Methacrylate	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Benzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Bromoform	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
4-Methyl-2-Pentanone (MIBK)	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Tetrachloroethene	0.074	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,1,2,2-Tetrachloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,2-Dibromoethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
2-Hexanone (MBK)	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Toluene	0.89	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Chlorobenzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Ethylbenzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1 4-Dichloro-2-Butene	ND	mg/Kg	0.010	39	12/09/96	SMSVOA409
ne	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
ylene	ND	mg/Kg	0.0020	39	12/09/96	SMSVOA409
ne	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Trichloropropane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	39	12/09/96	SMSVOA409

ID: 9611250-04A **Collected:** 11/26/96 15:00:00
ple ID: CA09/002-96-1126-1500 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
1,2-Dichlorobenzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,3-Dichlorobenzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,4-Dichlorobenzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409

Lab ID: 9611250-04B **Collected:** 11/26/96 15:00:00
Sample ID: CA09/002-96-1126-1500 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/SW846 7471	12/05/96	N/A				
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/10/96	SFLASH215
MERCURY (CVAA)/SW846 7471						
Mercury	ND	mg/Kg	0.15	1.0	12/06/96	M96195
Metal(ICP) DIG /SW846 3050	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND	mg/Kg	1.0	1.0	12/03/96	M96176
Aluminum, Al	NT	mg/Kg	25			M96176
Arsenic, As	ND	mg/Kg	3.0	1.0	12/03/96	M96176
n, Ba	134	mg/Kg	0.50	1.0	12/03/96	M96176
ium, Be	NT	mg/Kg	0.50			M96176
m, Ca	NT	mg/Kg	15			M96176
ium, Cd	3.41	mg/Kg	0.20	1.0	12/03/96	M96176
Cobalt, Co	NT	mg/Kg	0.50			M96176
Chromium, Cr	16.1	mg/Kg	1.0	1.0	12/03/96	M96176
Copper, Cu	NT	mg/Kg	0.50			M96176
Iron, Fe	NT	mg/Kg	15			M96176
Potassium, K	NT	mg/Kg	10			M96176
Magnesium, Mg	NT	mg/Kg	10			M96176
Manganese, Mn	NT	mg/Kg	0.25			M96176
Sodium, Na	NT	mg/Kg	15			M96176
Nickel, Ni	6.9	mg/Kg	2.0	1.0	12/03/96	M96176
Lead, Pb	40.4	mg/Kg	2.0	1.0	12/03/96	M96176
Antimony, Sb	NT	mg/Kg	1.5			M96176
Selenium, Se	ND	mg/Kg	2.5	1.0	12/03/96	M96176
Vanadium, V	NT	mg/Kg	0.15			M96176
Zinc, Zn	NT	mg/Kg	5.0			M96176
pH/SW846 9045B						
pH	7.1	pH Units	0.10	1.0	12/09/96	SPH247
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96117
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/17/96	W96117
SVOA(SOX) Soil/SW846 8270B	12/03/96	N/A				
n-Nitrosodimethylamine	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
Pyridine	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
Aniline	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
bis(2-Chloroethyl) Ether	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
2-Chlorophenol	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
1,3-Dichlorobenzene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
1,4-Dichlorobenzene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Phenol	1.5	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
1,2-Dichlorobenzene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Benzyl Alcohol	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
Chloroisopropyl) Ether	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
ylphenol / O-Cresol	2.5	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
loroethane	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
so-di-n-propylamine	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Nitrobenzene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131

ID: 9611250-04B
ple ID: CA09/002-96-1126-1500

Collected: 11/26/96 15:00:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA(SOX) Soil/SW846 8270B						
3/4 Methylphenol / M/P-Cresol	1.9	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Isophorone	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
2-Nitrophenol	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
bis(2-Chloroethoxy) Methane	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
2,4-Dimethylphenol	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
1,2,4-Trichlorobenzene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Naphthalene	0.97	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Benzoic Acid	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
2,4-Dichlorophenol	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
4-Chloroaniline	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
Hexachlorobutadiene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
2-Methylnaphthalene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
4-Chloro-3-methylphenol	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Hexachlorocyclopentadiene	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
2,4,6-Trichlorophenol	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
2,4,5-Trichlorophenol	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
2-Chloronaphthalene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
2-Nitroaniline	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
Acenaphthylene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Dimethylphthalate	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
2,6-Dinitrotoluene	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
Acenaphthene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
3-Nitroaniline	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
nzofuran	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
nitrotoluene	ND	mg/Kg	2.5	1.9	12/14/96	SMSSVOA131
ne	1.4	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
rophenyl-phenylether	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
ylphthalate	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
4-Nitrophenol	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
4,6-Dinitro-2-methylphenol	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
n-Nitrosodiphenylamine	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
4-Nitroaniline	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
4-Bromophenyl-phenylether	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Hexachlorobenzene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Pentachlorophenol	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
2,4-Dinitrophenol	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
Phenanthrene	6.1	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Anthracene	1.5	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Di-n-butylphthalate	ND	mg/Kg	5.0	1.9	12/14/96	SMSSVOA131
Fluoranthene	5.2	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Pyrene	4.5	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Butylbenzylphthalate	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Benzo(a)anthracene	1.8	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Chrysene	2.0	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
3,3'-Dichlorobenzidine	ND	mg/Kg	10	1.9	12/14/96	SMSSVOA131
bis(2-Ethylhexyl)phthalate	ND	mg/Kg	2.5	1.9	12/14/96	SMSSVOA131
Di-n-octyl phthalate	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Benzo(b)+(k)fluoranthene	ND	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
1-Methylnaphthalene	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
Benzo(a)pyrene	1.6	mg/Kg	0.50	1.9	12/14/96	SMSSVOA131
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
Benzo(g,h,i)perylene	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
2,3,4,6-Tetrachlorophenol	ND	mg/Kg	2.5	1.9	12/14/96	SMSSVOA131
Azobenzene	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131
Dibenz(a,h)anthracene	ND	mg/Kg	1.0	1.9	12/14/96	SMSSVOA131

ID: 9611250-04C **Collected:** 11/26/96 15:00:00
.ple ID: CA09/002-96-1126-1500 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	453	mg/Kg	5.0	20	12/04/96	W9697

Lab ID: 9611250-05A **Collected:** 11/26/96 14:00:00
Sample ID: CA08/001-96-1126-1400 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER XT/SW846 3520	12/02/96	N/A				
SVOA WATER/SW846 8270B						
n-Nitrosodimethylamine	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Pyridine	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Aniline	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
bis(2-Chloroethyl) Ether	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
2-Chlorophenol	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
1,3-Dichlorobenzene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
1,4-Dichlorobenzene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Phenol	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
1,2-Dichlorobenzene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Benzyl Alcohol	ND	ug/L	50	1.9	12/21/96	WMSSVOA176
Chloroisopropyl) Ether	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
ıylphenol / O-Cresol	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
hloroethane	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
oso-di-n-propylamine	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Nitrobenzene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
3/4 Methylphenol / M/P-Cresol	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Isophorone	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
2-Nitrophenol	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
bis(2-Chloroethoxy) Methane	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
2,4-Dimethylphenol	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Naphthalene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Benzoic Acid	ND	ug/L	100	1.9	12/21/96	WMSSVOA176
2,4-Dichlorophenol	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
4-Chloroaniline	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Hexachlorobutadiene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
2-Methylnaphthalene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
4-Chloro-3-methylphenol	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Hexachlorocyclopentadiene	ND	ug/L	50	1.9	12/21/96	WMSSVOA176
2,4,6-Trichlorophenol	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
2,4,5-Trichlorophenol	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
2-Chloronaphthalene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
2-Nitroaniline	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Acenaphthylene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Dimethylphthalate	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
2,6-Dinitrotoluene	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Acenaphthene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
3-Nitroaniline	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Dibenzofuran	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
2,4-Dinitrotoluene	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
Fluorene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
4-Chlorophenyl-phenylether	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Diethylphthalate	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
4-Nitrophenol	ND	ug/L	20	1.9	12/21/96	WMSSVOA176
initro-2-methylphenol	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
osodiphenylamine	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
aniline	ND	ug/L	10	1.9	12/21/96	WMSSVOA176
nophenyl-phenylether	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176
Hexachlorobenzene	ND	ug/L	1.0	1.9	12/21/96	WMSSVOA176

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

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ALBUQUERQUE, NEW MEXICO 87109
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EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: [illegible] Date 22 Nov 96

Page 1 of 3

Client: USACE

Address: 4101 Jefferson Plaza NE

City / State / Zip: Albuquerque NM 87109

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: 505-342-3497

Fax No.: 505-342-3497

Samplers: (Signature) [illegible]

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	BTEX (8020)	Chlorinated Hydrocarbons (8010)	Aromatic Volatiles (8020)	Semi-Volatiles (8270)					Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 qt Jar	4°C	—	1	✓								
[illegible]	"	"	"	"	2 40 ml Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	"	[illegible]	"	1 qt Jar	4°C	—	1	✓								
[illegible]	"	"	"	"	2 40 ml Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	"	[illegible]	"	1 qt Jar	4°C	—	1	✓								
[illegible]	"	"	"	"	2 40 ml Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	[illegible]	[illegible]	"	1 qt Jar	4°C	—	1	✓								
[illegible]	"	"	"	"	2 40 ml Jars	4°C	—	2		✓	✓	✓	✓				
[illegible]	[illegible]	[illegible]	[illegible]	"	2 - 1L AG	4°C	—	2			✓			✓			
[illegible]	"	"	"	"	2 - 1L AG	4°C	HCl	2				✓					
[illegible]	"	"	"	"	1 - 500 ml poly	4°C	HNO3	1					✓				
[illegible]	"	"	"	"	1 - 500 ml poly	4°C	[illegible]	2	✓								

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	[illegible]	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time: 1555	Printed: [illegible]	Printed:	Time:	Printed:
Company: [illegible]		Company:	Company:		Company:
Reason: [illegible]		Reason:	Reason:		Reason:

Received at Shipment:

Shipment No.:

Seal of Container(s):

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

Chain of Custody Record

SAIGAI ANALYTICAL LABORATORIES

Lab job no.: 11250 Date 27 Nov 96

Page 2 of 3

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(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client: USACE

Address: 4101 Jefferson Pl NE

City / State / Zip: Albuquerque NM 87109

Project Name / Number: Cannon CWS

Contract / Purchase Order / Quote:

Project Manager / Contact: Susan Gant

Telephone No.: 505-342-3471

Fax No.: 505-342-3497

Samplers: (Signature)

Analysis Required

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	8260	8270	RCRA 8 + Al	TRPH	TPH					Remarks
06A,B	CA57/001-96-1126-1040	26Nov96	1040	Grab	3 - 1LAG	4°C	—	3		✓			✓					
06C	"	"	"	"	2 - 1LAG	"	HCl	2				✓						
06D	"	"	"		1 - 500mL Pl.	"	HNO_3	1			✓							
06E	"	"	"	"	2 - 40mL Vials	"	HCl	2	✓									
07A,B	CA51/001-96-1126-1300	"	1300	"	3 - 1LAG	"	—	3		✓			✓					
07C	"	"	"	"	2 - 1LAG	"	HCl	2				✓						
07D	"	"	"	"	1 - 500mL Pl.	"	HNO_3	1			✓							
07E	"	"	"	"	2 - 40mL Vials	"	HCl	2	✓									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature:	27Nov96	Signature:	Signature:		Signature:
Printed: BRIAN JORDAN	Time 1355	Printed:	Printed:	Time	Printed:
Company: USACE		Company:	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

Lab job no.: 11250 Date 27 Nov 96

Page 3 of 3

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MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client: USACE

Address: 4101 Jefferson Pl. NE

City / State / Zip: Albuquerque NM 87109

Project Name / Number: Cannon OWS

Contract / Purchase Order / Quote:

Project Manager / Contact: Susan Gant

Telephone No.: 505-342-3471

Fax No.: 505-342-~~3497~~ 3199

Samplers: (Signature)

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	8260	8270	RCRA + Al.	TRPH	+ HEP Rent.					Remarks
08A,B	CA47B/001-96-1126-0915	26Nov96	0915	Grab	3-1LAG	4°C	—	3		✓		✓						
08C	"	"	"	"	2-1LAG	4°C	HCl	2				✓						
08D	"	"	"	"	1-500mL Pl.	4°C	HNO_3	1			✓							
08E	"	"	"	"	2-40mL Vials	4°C	HCl	2	✓									
09A,B	CA47A/001-96-1126-1005	26Nov96	1005	"	3-1LAG	4°C	—	3		✓		✓						
09C	"	"	"	"	2-1LAG	4°C	HCl	2				✓						
09D	"	"	"	"	1-500mL Pl.	4°C	HNO_3	1			✓							
09E	"	"	"	"	2-40mL Vials	4°C	HCl	2	✓									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature:	27 Nov 96	Signature:	Signature:		Signature:
Printed: BRIAN JORDAN	Time	Printed: DANIEL J. [illegible]	Printed:	Time	Printed:
Company: USACE	1355	Company: AAL	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CC

ASSAIGAI ANALYTICAL LABORATORIES, INC.
7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

Attn: SUSAN GANT

Purchase Order: DACW47-96-P-0338
Invoice Number: 929480

Order #: 97-01-224
Date: 07/01/97 14:07
Work ID: CANNON OWS
Date Received: 01/29/97
Date Completed: 02/26/97

Client Code: USA01

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
01	CA32A/001-1600-012897	06	CA94A/001-0900-012897
02	CA32A/002-1615-012897	07	CA94A/002-0915-012897
03	CA32A/003-1630-012897	08	CA94B/002-1000-012897
04	CA08/002-1430-012897	09	CA09/003-1505-012897
05	CA94B/001-0945-012897		

ND = None Detected D_F = Dilution Factor NT = Not Tested
B = Analyte was present in the blank
E = Estimated Value or Result exceeds calibration range
MULTIPLY THE LIMIT(= AAL'S DETECTION LIMIT) BY DILUTION FACTOR

Wm. P. Biava
Certified By
WILLIAM P. BIAVA

Member: American Council of Independent Laboratories, Inc.

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Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA09/003-1505-012897 FRACTION 09C TEST CODE 8260 NAME VOLATILES/SW846 8260

Date & Time Collected 01/28/97 15:05:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	0.010	***	02/10/97
Chloromethane	ND	0.0050	***	02/10/97
Iodomethane	ND	0.0050	***	02/10/97
Acetone	ND	0.0050	***	02/10/97
Bromomethane	ND	0.0050	***	02/10/97
Vinyl Chloride	ND	0.0050	***	02/10/97
Chloroethane	ND	0.0050	***	02/10/97
Trichlorofluoromethane	ND	0.0050	***	02/10/97
Freon 113	ND	0.0050	***	02/10/97
Carbon Disulfide	ND	0.0050	***	02/10/97
Acrolein	ND	0.020	***	02/10/97
Methylene Chloride	52000	0.010	***	02/10/97
1,1-Dichloroethene	ND	0.0010	***	02/10/97
1,1-Dichloroethane	ND	0.0010	***	02/10/97
Acrylonitrile	ND	0.020	***	02/10/97
trans-1,2-Dichloroethene	ND	0.0010	***	02/10/97
Chloroform	ND	0.0010	***	02/10/97
1,2-Dichloroethane	ND	0.0010	***	02/10/97
Vinyl Acetate	ND	0.0050	***	02/10/97
cis-1,2-Dichloroethene	ND	0.0010	***	02/10/97
2-Butanone (MEK)	ND	0.0050	***	02/10/97
1,1,1-Trichloroethane	ND	0.0010	***	02/10/97
Carbon Tetrachloride	ND	0.0010	***	02/10/97
Bromodichloromethane	ND	0.0010	***	02/10/97
1,2-Dichloropropane	ND	0.0010	***	02/10/97
Dibromomethane	ND	0.0010	***	02/10/97
trans-1,3-Dichloropropene	ND	0.0010	***	02/10/97
Trichloroethene	36000	0.0010	***	02/10/97
Chlorodibromomethane	ND	0.0010	***	02/10/97
Ethyl Methacrylate	ND	0.0050	***	02/10/97
2-Chloroethylvinyl Ether	ND	0.0050	***	02/10/97
1,1,2-Trichloroethane	ND	0.0010	***	02/10/97
Benzene	ND	0.0010	***	02/10/97
cis-1,3-Dichloropropene	ND	0.0010	***	02/10/97
Bromoform	ND	0.0010	***	02/10/97
4-Methyl-2-Pentanone (MIBK)	ND	0.0050	***	02/10/97
Tetrachloroethene	ND	0.0010	***	02/10/97
1,1,2,2-Tetrachloroethane	ND	0.0010	***	02/10/97
1,2-Dibromoethane	ND	0.0010	***	02/10/97
2-Hexanone (MBK)	ND	0.0050	***	02/10/97
1,1,1,2-Tetrachloroethane	ND	0.0010	***	02/10/97
Toluene	7300	0.0010	***	02/10/97
Chlorobenzene	ND	0.0010	***	02/10/97
Ethylbenzene	ND	0.0010	***	02/10/97
1,4-Dichloro-2-Butene	ND	0.010	***	02/10/97
Styrene	ND	0.0010	***	02/10/97
P/M Xylene	510	0.0020	***	02/10/97
O-Xylene	ND	0.0010	***	02/10/97
1,2,3-Trichloropropane	ND	0.0010	***	02/10/97
Methyl-tert Butyl Ether	ND	0.010	***	02/10/97

SAMPLE ID CA09/003-1505-012897 FRACTION 09C TEST CODE 8260 NAME VOLATILES/SW846 8260
Date & Time Collected 01/28/97 15:05:00 Category SOLID

1,2-Dichlorobenzene	1400	0.0010	***	02/10/97
1,3-Dichlorobenzene	950	0.0010	***	02/10/97
1,4-Dichlorobenzene	840	0.0010	***	02/10/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST LT
FILE ID MSV0399.D
UNITS mg/Kg
BATCH_ID SMSVOA427
PRCNT_MOIST

Received: 01/29/97 Results by Sample

SAMPLE ID CA09/003-1505-012897 FRACTION 09B TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B

Date & Time Collected 01/28/97 15:05:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	1.0	200	02/11/97
Pyridine	ND	10	200	02/11/97
Aniline	ND	10	200	02/11/97
bis(2-Chloroethyl) Ether	ND	0.50	200	02/11/97
2-Chlorophenol	ND	0.50	200	02/11/97
1,3-Dichlorobenzene	710	0.50	200	02/11/97
1,4-Dichlorobenzene	690	0.50	200	02/11/97
Phenol	ND	0.50	200	02/11/97
1,2-Dichlorobenzene	1000	0.50	200	02/11/97
Benzyl Alcohol	ND	10	200	02/11/97
bis(2-Chloroisopropyl) Ether	ND	1.0	200	02/11/97
2-Methylphenol / O-Cresol	ND	0.50	200	02/11/97
Hexachloroethane	ND	0.50	200	02/11/97
n-Nitroso-di-n-propylamine	ND	0.50	200	02/11/97
Nitrobenzene	ND	0.50	200	02/11/97
3/4 Methylphenol / M/P-Cresol	ND	0.50	200	02/11/97
Isophorone	ND	0.50	200	02/11/97
2-Nitrophenol	ND	1.0	200	02/11/97
bis(2-Chloroethoxy) Methane	ND	0.50	200	02/11/97
2,4-Dimethylphenol	ND	1.0	200	02/11/97
1,2,4-Trichlorobenzene	ND	0.50	200	02/11/97
Naphthalene	130	0.50	200	02/11/97
Benzoic Acid	ND	10	200	02/11/97
2,4-Dichlorophenol	ND	1.0	200	02/11/97
4-Chloroaniline	ND	10	200	02/11/97
Hexachlorobutadiene	ND	0.50	200	02/11/97
2-Methylnaphthalene	ND	0.50	200	02/11/97
4-Chloro-3-methylphenol	ND	0.50	200	02/11/97
Hexachlorocyclopentadiene	ND	10	200	02/11/97
2,4,6-Trichlorophenol	ND	1.0	200	02/11/97
2,4,5-Trichlorophenol	ND	1.0	200	02/11/97
2-Chloronaphthalene	ND	0.50	200	02/11/97
2-Nitroaniline	ND	1.0	200	02/11/97
Acenaphthylene	ND	0.50	200	02/11/97
Dimethylphthalate	ND	0.50	200	02/11/97
2,6-Dinitrotoluene	ND	1.0	200	02/11/97
Acenaphthene	ND	0.50	200	02/11/97
3-Nitroaniline	ND	10	200	02/11/97
Dibenzofuran	ND	0.50	200	02/11/97
2,4-Dinitrotoluene	ND	2.5	200	02/11/97
Fluorene	ND	0.50	200	02/11/97
4-Chlorophenyl-phenylether	ND	0.50	200	02/11/97
Diethylphthalate	ND	0.50	200	02/11/97
4-Nitrophenol	ND	10	200	02/11/97
4,6-Dinitro-2-methylphenol	ND	10	200	02/11/97
n-Nitrosodiphenylamine	ND	0.50	200	02/11/97
4-Nitroaniline	ND	10	200	02/11/97
4-Bromophenyl-phenylether	ND	0.50	200	02/11/97
Hexachlorobenzene	ND	0.50	200	02/11/97
Pentachlorophenol	ND	10	200	02/11/97

SAMPLE ID CA09/003-1505-012897 FRACTION 09B TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B
Date & Time Collected 01/28/97 15:05:00 Category SOLID

2,4-Dinitrophenol	ND	10	200	02/11/97
Phenanthrene	ND	0.50	200	02/11/97
Anthracene	ND	0.50	200	02/11/97
Di-n-butylphthalate	ND	5.0	200	02/11/97
Fluoranthene	ND	0.50	200	02/11/97
Pyrene	ND	0.50	200	02/11/97
Butylbenzylphthalate	ND	0.50	200	02/11/97
Benzo(a)anthracene	ND	0.50	200	02/11/97
Chrysene	ND	0.50	200	02/11/97
3,3'-Dichlorobenzidine	ND	10	200	02/11/97
bis(2-Ethylhexyl)phthalate	ND	2.5	200	02/11/97
Di-n-octyl phthalate	ND	0.50	200	02/11/97
Benzo(b)+(k)fluoranthene	ND	0.50	200	02/11/97
1-Methylnaphthalene	ND	1.0	200	02/11/97
Benzo(a)pyrene	ND	0.50	200	02/11/97
Indeno(1,2,3-cd)pyrene	ND	1.0	200	02/11/97
Benzo(g,h,i)perylene	ND	1.0	200	02/11/97
2,3,4,6-Tetrachlorophenol	ND	2.5	200	02/11/97
Azobenzene	ND	1.0	200	02/11/97
Dibenz(a,h)anthracene	ND	1.0	200	02/11/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0247.D
UNITS mg/Kg
BATCH_ID SMSSVOA141
PRCNT_MOIST

Received: 01/29/97

Results by Sample

SAMPLE ID CA09/003-1505-012897 FRACTION 09B TEST CODE S6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 15:05:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	01/31/97	01/31/97
Arsenic, As	ND	3.0	1.0	01/31/97	01/31/97
Barium, Ba	814	0.50	1.0	01/31/97	01/31/97
Cadmium, Cd	27.8	0.20	1.0	01/31/97	01/31/97
Chromium, Cr	611	1.0	1.0	01/31/97	01/31/97
Lead, Pb	2240	2.0	1.0	01/31/97	01/31/97
Selenium, Se	ND	2.5	1.0	01/31/97	01/31/97

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/Kg

BATCH_ID M9785

Received: 01/29/97 Results by Sample

SAMPLE ID CA09/003-1505-012897 FRACTION 09B TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
Date & Time Collected 01/28/97 15:05:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.15	1.0	02/06/97	02/06/97

Notes and Definitions for this Report:

ANALYST KH
UNITS mg/Kg
BATCH_ID M97100
PRCNT_MOIST

Received: 01/29/97 **Results by Sample**

SAMPLE ID CA09/003-1505-012897 FRACTION 09B TEST CODE SFLASH NAME FLASH POINT/SW846 1010

Date & Time Collected 01/28/97 15:05:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Flash Point	>60	20	1.0	02/05/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST BP

UNITS Deg Centigrade

BATCH_ID SFLASH218

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA09/003-1505-012897 FRACTION 09B TEST CODE SPH NAME pH/SW846 9045B

Date & Time Collected 01/28/97 15:05:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
pH	10.5	0.10	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS pH Units

BATCH_ID SPH252

COMMENTS

Received: 01/29/97 Results by Sample

SAMPLE ID CA09/003-1505-012897 FRACTION 09B TEST CODE SREACT NAME REACTIVITY/SW846 7-3

Date & Time Collected 01/28/97 15:05:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Sulfide	NON-REACT	500	1.0	02/13/97
Cyanide	NON-REACT	250	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS mg/Kg of Waste

BATCH_ID W9766

COMMENTS

Received: 01/29/97

Results by Sample

SAMPLE ID CA09/003-1505-012897 FRACTION 09D TEST CODE STRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 15:05:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	54100E*	5.0	625	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/Kg

BATCH_ID W9776

PRCNT_MOIST

US ARMY CORP OF ENGINEERS

*Please Note: The pH analysis was not performed immediately upon receipt. Additionally, the TRPH analysis were performed out of the EPA recommended hold-time. The client was informed and requested that the analyses continue. There is no charge for the TRPH analyses.

**Please Note: The dilution factor for Fraction O2C is 500,000.

***Please Note: The dilution factor for Fraction O9C is 250000.

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab Job no.: [illegible] Date [illegible]

Page 1 of 2

Client: USACE

Address: 4101 Jefferson [illegible]

City / State / Zip: [illegible] NM [illegible]

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible]

Samplers: (Signature) [illegible]

Analysis Required

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
5E	CA[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4C	[illegible]	2	1									
5E					3 [illegible] Amber	4C	—	3		1			1	1				
5E					1 16 Amber	4C	[illegible]	1										
5E					1 [illegible] Plastic	[illegible]	[illegible]	1			1							
6A	CA[illegible]				[illegible]	4C	[illegible]	2	1									
6A	CA[illegible]				2 [illegible] Amber	4C	—	3										
6B					[illegible]	4C	[illegible]	1										
6B					1 [illegible] Plastic	4C	[illegible]	1			1							
7A	CA[illegible]002 [illegible]		1115		2 [illegible] Jars	4C	—	2		1	1		1					
7A	CA[illegible]002 [illegible]		[illegible]		2 [illegible] Jars	4C	—	2	1									
7B	CA[illegible]002 [illegible]		[illegible]		2 [illegible] Jars	4C	—	2		1	1		1					
[illegible]	CA[illegible] [illegible]		[illegible]		2 [illegible]	4C	—	2	1									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	[illegible]	Signature: [illegible]	Signature:		Signature:
Printed: [illegible] JORDAN	Time: 1540	Printed:	Printed:	Time	Printed:
Company: USACE		Company: [illegible]	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

Lab job no.: 13234 Date

Page 2 of 2

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client: [illegible]

Project Manager / Contact: [illegible]

Address: 4101 Jefferson Pl. NE

Telephone No.: 505 242 8421

City / State / Zip: Alb. NM 87109

Fax No.: 505 242 1195

Project Name / Number: Cuarto Owl

Samplers: (Signature)

Contract / Purchase Order / Quote

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers										Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5 [illegible]	[illegible]	—	[illegible]										
[illegible]	[illegible]				2 [illegible]	[illegible]	—	[illegible]										

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	[illegible]	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time	Printed:	Printed:	Time	Printed:
Company: CGCC	1540	Company: AAL	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CUSTOMER

ANALYTICA
ENVIRONMENTAL
LABORATORIES
an Analytica Group company

325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-093
Date: 09/30/96 20:26
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/14/96
Date Completed: 09/30/96

SAMPLE IDENTIFICATION

Sample Number	Client Description	Sample Number	Client Description
01	CA11/002-96-0912-0945	06	Trip Blank
02	CA92/002-96-0912-1045	07	CA112/001-96-0911-1355
03	CA07/001-96-0911-1535	08	CA33B/001-96-0911-1450
04	CA11/001-96-0912-09:40	09	CA07/002-96-0911-1540
05	CA92/001-96-0912-10:40	10	Trip Blank

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- o Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]
- o Solid and waste samples are reported on a "dry weight" basis, i.e. correction is made for moisture content.

Problems encountered with the analyses are discussed in the following narrative.

Sample CA92/002-96-0912-1044 is reported with a surrogate standard recovery outside quality control limits for the 8260 analysis. The internal standard area recoveries were also below QC limits. This is due to sample matrix and was verified in a secondary analysis.

The 8270 semivolatile analyses for the following samples are reported with internal standard area recoveries below the QC limits:

CA11/002-96-0911
CA7/001-96-0911
CA92/001-96-0912-10:40
CA112/001-96-0911-1355

These results are due to sample matrix and were verified in secondary analyses.

The 8270 semivolatile analyses for the following samples are reported with surrogate standard recoveries outside QC limits:

CA11/002-96-0912-0945 (one base/neutral surrogate)
CA07/001-96-0911-1535 (two acid surrogates and one base/neutral suurogate)

Analytica's quality assurance plan allows for one acid surrogate and one base/neutral surrogate standard to be outside quality control windows and still be of acceptable quality control. This emulates the EPA CLP quality assurance guidelines. These results were verified in secondary analyses.

The 8270 matrix spike/matrix spike duplicate results for samples CA92/001-96-0912-10:40 and CA112/001-96-0911-1355 are reported with some of the spike compound recoveries below QC limits. These results were also confirmed in secondary analyses and are attributable to sample matrix. The associated method blank spike recoveries are all within acceptance limits.

The 8270 soil method blank is reported with target analyte Di-n-butylphthalate above reporting limit. This is due to laboratory contamination in the method 3540 soxhlet extraction process. Mr. Brian Jordan of the USACE has been notified of this problem for prior projects where this extraction method was requested. Analytica is actively pursuing the source of this contamination. The reported phthalate ester target compounds should be looked at as possible laboratory contamination sources.

Sample: **04A** **CA11/001-96-0912-09:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	09/25/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/26/96
pH	EPA 150.1	7.1		0.10	pH units	09/18/96

Sample: 04B CA11/001-96-0912-09:40 Collected: 09/12/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	09/23/96
Chloromethane		ND		10	ug/L	09/23/96
Vinyl Chloride		ND		2.0	ug/L	09/23/96
Bromomethane		ND		10	ug/L	09/23/96
Chloroethane		ND		10	ug/L	09/23/96
Trichlorofluoromethane		ND		10	ug/L	09/23/96
1,1-Dichloroethene		ND		5.0	ug/L	09/23/96
Trichlorotrifluoroethane		ND		3.0	ug/L	09/23/96
Methylene Chloride		ND		10	ug/L	09/23/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	09/23/96
1,1-Dichloroethane		ND		5.0	ug/L	09/23/96
2,2-Dichloropropane		ND		5.0	ug/L	09/23/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	09/23/96
Bromochloromethane		ND		5.0	ug/L	09/23/96
Chloroform		ND		3.0	ug/L	09/23/96
1,1,1-Trichloroethane		ND		5.0	ug/L	09/23/96
Carbon Tetrachloride		ND		10	ug/L	09/23/96
1,1-Dichloropropene		ND		5.0	ug/L	09/23/96
Benzene		ND		1.0	ug/L	09/23/96
1,2-Dichloroethane		ND		5.0	ug/L	09/23/96
Trichloroethene		ND		3.0	ug/L	09/23/96
1,2-Dichloropropane		ND		3.0	ug/L	09/23/96
Dibromomethane		ND		3.0	ug/L	09/23/96
Bromodichloromethane		ND		3.0	ug/L	09/23/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	09/23/96
Toluene		ND		1.0	ug/L	09/23/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	09/23/96
1,1,2-Trichloroethane		ND		3.0	ug/L	09/23/96
Tetrachloroethene		ND		3.0	ug/L	09/23/96
1,3-Dichloropropane		ND		3.0	ug/L	09/23/96
Dibromochloromethane		ND		3.0	ug/L	09/23/96
1,2-Dibromoethane		ND		3.0	ug/L	09/23/96
Chlorobenzene		ND		3.0	ug/L	09/23/96
Ethylbenzene		ND		1.0	ug/L	09/23/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	09/23/96
m,p-Xylenes		ND		1.0	ug/L	09/23/96
o-Xylene		ND		1.0	ug/L	09/23/96
Styrene		ND		3.0	ug/L	09/23/96
Bromoform		ND		5.0	ug/L	09/23/96
Isopropylbenzene		ND		2.0	ug/L	09/23/96
Bromobenzene		ND		3.0	ug/L	09/23/96
n-Propylbenzene		ND		5.0	ug/L	09/23/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	09/23/96
1,2,3-Trichloropropane		ND		3.0	ug/L	09/23/96
2-Chlorotoluene		ND		1.0	ug/L	09/23/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	09/23/96
4-Chlorotoluene		ND		1.0	ug/L	09/23/96

Sample: **04B** **CA11/001-96-0912-09:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		5.0	ug/L	09/23/96
1,2,4-Trimethylbenzene		ND		5.0	ug/L	09/23/96
sec-Butylbenzene		ND		5.0	ug/L	09/23/96
4-Isopropyltoluene		ND		5.0	ug/L	09/23/96
1,3-Dichlorobenzene		ND		2.0	ug/L	09/23/96
1,4-Dichlorobenzene		ND		2.0	ug/L	09/23/96
n-Butylbenzene		ND		5.0	ug/L	09/23/96
1,2-Dichlorobenzene		ND		5.0	ug/L	09/23/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L	09/23/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L	09/23/96
Hexachlorobutadiene		ND		5.0	ug/L	09/23/96
Napthalene		ND		5.0	ug/L	09/23/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L	09/23/96
Acetone		ND		50	ug/L	09/23/96
Acrylonitrile		ND		10	ug/L	09/23/96
2-Butanone		ND		50	ug/L	09/23/96
Carbon Disulfide		ND		5.0	ug/L	09/23/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L	09/23/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L	09/23/96
2-Hexanone		ND		20	ug/L	09/23/96
Iodomethane		ND		5.0	ug/L	09/23/96
4-Methyl-2-pentanone		ND		20	ug/L	09/23/96
Vinyl Acetate		ND		5.0	ug/L	09/23/96
tert-Butyl methyl ether		ND		5.0	ug/L	09/23/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		92.0		Min:	80	Max: 120
Toluene d-8		104		Min:	88	Max: 110
p-Bromofluorobenzene		94.0		Min:	86	Max: 115

Sample: **04D** **CA11/001-96-0912-09:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		10	ug/L	09/25/96
bis(2-Chloroethyl) ether		ND		10	ug/L	09/25/96
2-Chlorophenol		ND		10	ug/L	09/25/96
1,3-Dichlorobenzene		ND		10	ug/L	09/25/96
1,4-Dichlorobenzene		ND		10	ug/L	09/25/96
Benzyl alcohol		ND		20	ug/L	09/25/96
1,2-Dichlorobenzene		ND		10	ug/L	09/25/96
2-Methylphenol		ND		10	ug/L	09/25/96
bis(2-Chloroisopropyl) ether		ND		10	ug/L	09/25/96
4-Methylphenol		ND		10	ug/L	09/25/96
n-Nitroso-di-n-propylamine		ND		10	ug/L	09/25/96
Hexachloroethane		ND		10	ug/L	09/25/96
Nitrobenzene		ND		10	ug/L	09/25/96
Isophorone		ND		10	ug/L	09/25/96
2-Nitrophenol		ND		10	ug/L	09/25/96
2,4-Dimethylphenol		ND		10	ug/L	09/25/96
Benzoic acid		ND		50	ug/L	09/25/96
bis(2-Chloroethoxy)methane		ND		10	ug/L	09/25/96
2,4-Dichlorophenol		ND		10	ug/L	09/25/96
1,2,4-Trichlorobenzene		ND		10	ug/L	09/25/96
Naphthalene		ND		10	ug/L	09/25/96
4-Chloroaniline		ND		10	ug/L	09/25/96
Hexachlorobutadiene		ND		10	ug/L	09/25/96
4-Chloro-3-methylphenol		ND		10	ug/L	09/25/96
2-Methylnaphthalene		ND		10	ug/L	09/25/96
Hexachlorocyclopentadiene		ND		10	ug/L	09/25/96
2,4,6-Trichlorophenol		ND		10	ug/L	09/25/96
2,4,5-Trichlorophenol		ND		50	ug/L	09/25/96
2-Chloronaphthalene		ND		10	ug/L	09/25/96
2-Nitroaniline		ND		50	ug/L	09/25/96
Dimethylphthalate		ND		10	ug/L	09/25/96
Acenaphthylene		ND		10	ug/L	09/25/96
3-Nitroaniline		ND		50	ug/L	09/25/96
Acenaphthene		ND		10	ug/L	09/25/96
2,4-Dinitrophenol		ND		50	ug/L	09/25/96
4-Nitrophenol		ND		50	ug/L	09/25/96
Dibenzofuran		ND		10	ug/L	09/25/96
2,6-Dinitrotoluene		ND		10	ug/L	09/25/96
2,4-Dinitrotoluene		ND		10	ug/L	09/25/96
Diethylphthalate		ND		10	ug/L	09/25/96
4-Chlorophenyl-phenylether		ND		10	ug/L	09/25/96
Fluorene		ND		10	ug/L	09/25/96
4-Nitroaniline		ND		10	ug/L	09/25/96
4,6-Dinitro-2-methylphenol		ND		50	ug/L	09/25/96
n-Nitrosodiphenylamine		ND		10	ug/L	09/25/96
4-Bromophenyl-phenylether		ND		10	ug/L	09/25/96

Sample: **04D** **CA11/001-96-0912-09:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		10	ug/L	09/25/96
Pentachlorophenol		ND		50	ug/L	09/25/96
Phenanthrene		ND		10	ug/L	09/25/96
Anthracene		ND		10	ug/L	09/25/96
Di-n-butylphthalate		ND		10	ug/L	09/25/96
Fluoranthene		ND		10	ug/L	09/25/96
Pyrene		ND		10	ug/L	09/25/96
Butylbenzylphthalate		ND		10	ug/L	09/25/96
3,3'-Dichlorobenzidine		ND		20	ug/L	09/25/96
Benzo(a)Anthracene		ND		10	ug/L	09/25/96
Chrysene		ND		10	ug/L	09/25/96
Bis(2-Ethylhexyl)phthalate		ND		10	ug/L	09/25/96
Di-n-octylphthalate		ND		10	ug/L	09/25/96
Benzo(b)fluoranthene		ND		10	ug/L	09/25/96
Benzo(k)fluoranthene		ND		10	ug/L	09/25/96
Benzo(a)pyrene		ND		10	ug/L	09/25/96
Indeno(1,2,3-cd)pyrene		ND		10	ug/L	09/25/96
Dibenz(a,h)anthracene		ND		10	ug/L	09/25/96
Benzo(g,h,i)perylene		ND		10	ug/L	09/25/96
SURROGATES, % Recovery						
2-Fluorophenol		55.3		Min: 21	Max: 100	
d5-Phenol		73.3		Min: 10	Max: 94	
d5-Nitrobenzene		83.0		Min: 35	Max: 114	
2-Fluorobiphenyl		80.0		Min: 43	Max: 116	
2,4,6-Tribromophenol		93.3		Min: 10	Max: 123	
d14-Terphenyl		49.0		Min: 33	Max: 141	

Sample: **04E** **CA11/001-96-0912-09:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/24/96
Barium		0.22		0.020	mg/L	09/24/96
Cadmium		ND		0.0050	mg/L	09/24/96
Chromium		ND		0.010	mg/L	09/24/96
Lead		ND		0.050	mg/L	09/24/96
Selenium		ND		0.10	mg/L	09/24/96
Silver		ND		0.010	mg/L	09/24/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/24/96

Sample: **01A** **CA11/002-96-0912-0945** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Percent Moisture	ASTM D2216	81.2		0.1	WT%	09/19/96
Semivolatile Organics	SW 8270A					
Phenol		ND		18000	ug/Kg-DRY	09/29/96
bis(2-Chloroethyl) ether		ND		18000	ug/Kg-DRY	09/29/96
2-Chlorophenol		ND		18000	ug/Kg-DRY	09/29/96
1,3-Dichlorobenzene		ND		18000	ug/Kg-DRY	09/29/96
1,4-Dichlorobenzene		ND		18000	ug/Kg-DRY	09/29/96
Benzyl alcohol		ND		35000	ug/Kg-DRY	09/29/96
1,2-Dichlorobenzene		ND		18000	ug/Kg-DRY	09/29/96
2-Methylphenol		ND		18000	ug/Kg-DRY	09/29/96
bis(2-Chloroisopropyl) ether		ND		18000	ug/Kg-DRY	09/29/96
4-Methylphenol		ND		18000	ug/Kg-DRY	09/29/96
n-Nitroso-di-n-propylamine		ND		18000	ug/Kg-DRY	09/29/96
Hexachloroethane		ND		18000	ug/Kg-DRY	09/29/96
Nitrobenzene		ND		18000	ug/Kg-DRY	09/29/96
Isophorone		ND		18000	ug/Kg-DRY	09/29/96
2-Nitrophenol		ND		18000	ug/Kg-DRY	09/29/96
2,4-Dimethylphenol		ND		18000	ug/Kg-DRY	09/29/96
Benzoic acid		ND		89000	ug/Kg-DRY	09/29/96
bis(2-Chloroethoxy)methane		ND		18000	ug/Kg-DRY	09/29/96
2,4-Dichlorophenol		ND		18000	ug/Kg-DRY	09/29/96
1,2,4-Trichlorobenzene		ND		18000	ug/Kg-DRY	09/29/96
Naphthalene		15000	DJ	18000	ug/Kg-DRY	09/29/96
4-Chloroaniline		ND		18000	ug/Kg-DRY	09/29/96
Hexachlorobutadiene		ND		18000	ug/Kg-DRY	09/29/96
4-Chloro-3-methylphenol		ND		35000	ug/Kg-DRY	09/29/96
2-Methylnaphthalene		24000	D	18000	ug/Kg-DRY	09/29/96
Hexachlorocyclopentadiene		ND		18000	ug/Kg-DRY	09/29/96
2,4,6-Trichlorophenol		ND		18000	ug/Kg-DRY	09/29/96
2,4,5-Trichlorophenol		ND		89000	ug/Kg-DRY	09/29/96
2-Chloronaphthalene		ND		18000	ug/Kg-DRY	09/29/96
2-Nitroaniline		ND		89000	ug/Kg-DRY	09/29/96
Dimethylphthalate		ND		18000	ug/Kg-DRY	09/29/96
Acenaphthylene		ND		18000	ug/Kg-DRY	09/29/96
3-Nitroaniline		ND		89000	ug/Kg-DRY	09/29/96
Acenaphthene		ND		18000	ug/Kg-DRY	09/29/96
2,4-Dinitrophenol		ND		89000	ug/Kg-DRY	09/29/96
4-Nitrophenol		ND		89000	ug/Kg-DRY	09/29/96
Dibenzofuran		ND		18000	ug/Kg-DRY	09/29/96
2,6-Dinitrotoluene		ND		18000	ug/Kg-DRY	09/29/96
2,4-Dinitrotoluene		ND		18000	ug/Kg-DRY	09/29/96
Diethylphthalate		ND		18000	ug/Kg-DRY	09/29/96
4-Chlorophenyl-phenylether		ND		18000	ug/Kg-DRY	09/29/96
Fluorene		ND		18000	ug/Kg-DRY	09/29/96
4-Nitroaniline		ND		89000	ug/Kg-DRY	09/29/96
4,6-Dinitro-2-methylphenol		ND		89000	ug/Kg-DRY	09/29/96
n-Nitrosodiphenylamine		ND		18000	ug/Kg-DRY	09/29/96
4-Bromophenyl-phenylether		ND		18000	ug/Kg-DRY	09/29/96

Sample: 01A CA11/002-96-0912-0945 Collected: 09/12/96 Matrix: SLUDGE

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		18000	ug/Kg-DRY	09/29/96
Pentachlorophenol		ND		89000	ug/Kg-DRY	09/29/96
Phenanthrene		2700	DJ	18000	ug/Kg-DRY	09/29/96
Anthracene		ND		18000	ug/Kg-DRY	09/29/96
Di-n-butylphthalate		36000	DB	18000	ug/Kg-DRY	09/29/96
Fluoranthene		2100	DJ	18000	ug/Kg-DRY	09/29/96
Pyrene		ND		18000	ug/Kg-DRY	09/29/96
Butylbenzylphthalate		2300	DJ	18000	ug/Kg-DRY	09/29/96
3,3'-Dichlorobenzidine		ND		35000	ug/Kg-DRY	09/29/96
Benzo(a)Anthracene		ND		18000	ug/Kg-DRY	09/29/96
Chrysene		ND		18000	ug/Kg-DRY	09/29/96
Bis(2-Ethylhexyl)phthalate		86000	D	18000	ug/Kg-DRY	09/29/96
Di-n-octylphthalate		5900	DJ	18000	ug/Kg-DRY	09/29/96
Benzo(b)fluoranthene		ND		18000	ug/Kg-DRY	09/29/96
Benzo(k)fluoranthene		ND		18000	ug/Kg-DRY	09/29/96
Benzo(a)pyrene		ND		18000	ug/Kg-DRY	09/29/96
Indeno(1,2,3-cd)pyrene		ND		18000	ug/Kg-DRY	09/29/96
Dibenz(a,h)anthracene		ND		18000	ug/Kg-DRY	09/29/96
Benzo(g,h,i)perylene		ND		18000	ug/Kg-DRY	09/29/96
SURROGATES, % Recovery						
2-Fluorophenol		34.4		Min:	25	Max: 121
d5-Phenol		44.4		Min:	24	Max: 113
d5-Nitrobenzene		189	*	Min:	23	Max: 120
2-Fluorobiphenyl		61.1		Min:	30	Max: 115
2,4,6-Tribromophenol		59.3		Min:	19	Max: 122
d14-Terphenyl		61.1		Min:	18	Max: 137

Sample: **01A** **CA11/002-96-0912-0945** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		13000	ug/Kg-DRY	09/24/96
Chloromethane		ND		13000	ug/Kg-DRY	09/24/96
Vinyl Chloride		ND		2700	ug/Kg-DRY	09/24/96
Bromomethane		ND		13000	ug/Kg-DRY	09/24/96
Chloroethane		ND		13000	ug/Kg-DRY	09/24/96
Trichlorofluoromethane		ND		13000	ug/Kg-DRY	09/24/96
1,1-Dichloroethene		ND		6600	ug/Kg-DRY	09/24/96
Trichlorotrifluoroethane		ND		4000	ug/Kg-DRY	09/24/96
Methylene Chloride		ND		13000	ug/Kg-DRY	09/24/96
trans-1,2-Dichloroethene		ND		4000	ug/Kg-DRY	09/24/96
1,1-Dichloroethane		ND		6600	ug/Kg-DRY	09/24/96
2,2-Dichloropropane		ND		6600	ug/Kg-DRY	09/24/96
cis-1,2-Dichloroethene		ND		4000	ug/Kg-DRY	09/24/96
Bromochloromethane		ND		6600	ug/Kg-DRY	09/24/96
Chloroform		ND		4000	ug/Kg-DRY	09/24/96
1,1,1-Trichloroethane		ND		6600	ug/Kg-DRY	09/24/96
Carbon Tetrachloride		ND		13000	ug/Kg-DRY	09/24/96
1,1-Dichloropropene		ND		6600	ug/Kg-DRY	09/24/96
Benzene		ND		1300	ug/Kg-DRY	09/24/96
1,2-Dichloroethane		ND		6600	ug/Kg-DRY	09/24/96
Trichloroethene		ND		4000	ug/Kg-DRY	09/24/96
1,2-Dichloropropane		ND		4000	ug/Kg-DRY	09/24/96
Dibromomethane		ND		4000	ug/Kg-DRY	09/24/96
Bromodichloromethane		ND		4000	ug/Kg-DRY	09/24/96
cis-1,3-Dichloropropene		ND		4000	ug/Kg-DRY	09/24/96
Toluene		ND		1300	ug/Kg-DRY	09/24/96
trans-1,3-Dichloropropene		ND		6600	ug/Kg-DRY	09/24/96
1,1,2-Trichloroethane		ND		4000	ug/Kg-DRY	09/24/96
Tetrachloroethene		ND		4000	ug/Kg-DRY	09/24/96
1,3-Dichloropropane		ND		4000	ug/Kg-DRY	09/24/96
Dibromochloromethane		ND		4000	ug/Kg-DRY	09/24/96
1,2-Dibromoethane		ND		4000	ug/Kg-DRY	09/24/96
Chlorobenzene		ND		4000	ug/Kg-DRY	09/24/96
Ethylbenzene		25000	D	1300	ug/Kg-DRY	09/24/96
1,1,1,2-Tetrachloroethane		ND		4000	ug/Kg-DRY	09/24/96
m,p-Xylenes		44000	D	1300	ug/Kg-DRY	09/24/96
o-Xylene		31000	D	1300	ug/Kg-DRY	09/24/96
Styrene		ND		4000	ug/Kg-DRY	09/24/96
Bromoform		ND		6600	ug/Kg-DRY	09/24/96
Isopropylbenzene		15000	D	2700	ug/Kg-DRY	09/24/96
Bromobenzene		ND		4000	ug/Kg-DRY	09/24/96
n-Propylbenzene		26000	D	6600	ug/Kg-DRY	09/24/96
1,1,2,2-Tetrachlorethane		ND		6600	ug/Kg-DRY	09/24/96
1,2,3-Trichloropropane		ND		4000	ug/Kg-DRY	09/24/96
2-Chlorotoluene		ND		1300	ug/Kg-DRY	09/24/96
1,3,5-Trimethylbenzene		9500	D	6600	ug/Kg-DRY	09/24/96
4-Chlorotoluene		ND		1300	ug/Kg-DRY	09/24/96

Sample: **01A** **CA11/002-96-0912-0945** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		6600	ug/Kg-DRY	09/24/96
1,2,4-Trimethylbenzene		210000	D	6600	ug/Kg-DRY	09/24/96
sec-Butylbenzene		18000	D	6600	ug/Kg-DRY	09/24/96
4-Isopropyltoluene		47000	D	6600	ug/Kg-DRY	09/24/96
1,3-Dichlorobenzene		ND		2700	ug/Kg-DRY	09/24/96
1,4-Dichlorobenzene		3200	D	2700	ug/Kg-DRY	09/24/96
n-Butylbenzene		13000	D	6600	ug/Kg-DRY	09/24/96
1,2-Dichlorobenzene		ND		6600	ug/Kg-DRY	09/24/96
1,2-Dibromo-3-chloropropane		ND		13000	ug/Kg-DRY	09/24/96
1,2,4-Trichlorobenzene		ND		6600	ug/Kg-DRY	09/24/96
Hexachlorobutadiene		ND		6600	ug/Kg-DRY	09/24/96
Napthalene		19000	D	6600	ug/Kg-DRY	09/24/96
1,2,3-Trichlorobenzene		ND		6600	ug/Kg-DRY	09/24/96
Acetone		ND		66000	ug/Kg-DRY	09/24/96
Acrylonitrile		ND		13000	ug/Kg-DRY	09/24/96
2-Butanone		ND		66000	ug/Kg-DRY	09/24/96
Carbon Disulfide		ND		6600	ug/Kg-DRY	09/24/96
trans-1,4-Dichloro-2-butene		ND		13000	ug/Kg-DRY	09/24/96
2-Chloroethyl Vinyl Ether		ND		13000	ug/Kg-DRY	09/24/96
2-Hexanone		ND		27000	ug/Kg-DRY	09/24/96
Iodomethane		ND		6600	ug/Kg-DRY	09/24/96
4-Methyl-2-pentanone		ND		27000	ug/Kg-DRY	09/24/96
Vinyl Acetate		ND		6600	ug/Kg-DRY	09/24/96
tert-Butyl methyl ether		ND		6600	ug/Kg-DRY	09/24/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		115		Min:	80	Max: 120
Toluene d-8		111		Min:	81	Max: 117
p-Bromofluorobenzene		97.0		Min:	74	Max: 121

Sample: **01B** **CA11/002-96-0912-0945** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/24/96
Barium		0.91		0.020	mg/L	09/24/96
Cadmium		ND		0.0050	mg/L	09/24/96
Chromium		ND		0.010	mg/L	09/24/96
Lead		ND		0.050	mg/L	09/24/96
Selenium		ND		0.10	mg/L	09/24/96
Silver		ND		0.010	mg/L	09/24/96
Ignitability	EPA 1010	>200		47	Deg F/1atm	09/25/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/24/96
Sulfide, Reactive	SW 7.3.4.2	370		16	mg/Kg	09/26/96
pH	EPA 9045A	7.9		0.10	pH units	09/18/96

Analytica, Incorporated

SAMPLE RECEIVING CHECKLIST

Client:	USACE NM	Matrix:	Sludge/Water
CSN #:	607172	# Samples rcvd:	3 7
W/O #:	9609093	# Bottles Rcvd:	38
Date Recvd:	9-14-96	Analytica B/O:	4

Cooler Temp:	*	* temp blanks were at 5°C & ~ 4°C.
Custody seal present & intact:	YES / NO	
Chain in cooler:	YES / NO	
Chain Matches sample ID's:	YES / NO	
Trip blank presented:	YES / NO	

Samples w. LT 5 days HT:	YES / NO	pH Holding times expired prior to receipt @ AZ.
Critical samples & tests:	YES / NO	
Samples preserved properly:	YES / NO	

COMPLEXITY Has longer Holding Time

Project Definition

Complete @ login:	YES / NO	
Further Definition:		

Discrepencies: Trip Blank not on COC for samples taken 9/12. it was Received.

Corrective Actions:

Comments:

	Date/time	Initials
Login completed:	9/16/96 1345	KI
Def completed:	9-16-96 1535	[illegible]

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkw ite 200
Broomfield, Color 021
(303) 469-8868 or 1-8 373-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

ANALYTICA USE ONLY: № 002800

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-3540/8270	TCLP&RCRA 1311/6010
12Sept96	0945	CA11/002-96-0912-0945	3				
12Sept96	1045	CA92/002-96-0912-1045	3				

Temp Blanks bctn @ 5.0°C. KI

COMMENTS: Soxhlet Extraction for SVOC-BNA extraction

MEANS OF DELIVERY:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1530	Fed Ex		Fed X	9/14/96 1120 hrs		9/14/96 1130 hrs

003-0294

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Color 021
(303) 469-8868 or 1-800-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl NE, Albuquerque NM 87109

TELEPHONE: 505-342-3472

FAX: 505-342-3497

PROJECT ID/DESCRIPTION: Cannon OWS

P. O. NO.

ANALYTICA USE ONLY: № 002797

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED: 8 RCRA Metals

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity/pH/ignitability	VOC - 8260	SVOC - 3540/8270	TCLP Metals/311/2340/4010	Combined Jars
11Sept96	1535	CA07/001-96-0911-1535	3	1	1	1	1	

Temp Blanks @~4.0°C
KI

COMMENTS

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13Sept96 1545	Fed EX	~~9/14/96~~ ~~11:30 hrs~~ 9/14/96 11:30 hrs	Fed X	~~9/14/96~~ ~~11:30 hrs~~		9/14/96 11:30 hrs

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Park ite 200
Broomfield, Color 021
(303) 469-8868 or 1-8 873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE
Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.

ANALYTICA USE ONLY: № 002801

CSN 607172

LGN 9609093

LOC Walkin C3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity pH IGN	VOC-8260	SVOC-8270	TCLP 8RCRA MET
12Sept96	0940	CA11/001-96-0912-0940	5	1	2	1	1
12Sept96	1040	CA92/001-96-0912-1040	6	1	2	2	1

Temp Blanks both @ 5.0°C.
KC

COMMENTS: SVOC (QC) taken @ CA92/001-96-0912-1040

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13 Sept96 1545	Fed Ex		Fed X	9/14/96 11 Bel		9/14/96 1130

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Color. 021
(303) 469-8868 or 1-8 73-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.

8 RCRA

ANALYTICA USE ONLY: № 002798

CSN 607172

LGN 9609093

LOC Walkin C3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one): WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-8270	TCLP MET 1311/7470/7471/7060/7740/6010
11Sept96	1355	CA112/001-96-0911-1355	6	1	2	2	1
11Sept96	1450	CA33B/001-96-0911-1450	5	1	2	1	1
11Sept96	1540	CA07/002-96-0911-1540	5	1	2	1	1
11Sept96	—	Trip Blank	1		1		

Temp Blanks @ ~4.0° C.
KE

COMMENTS: Liquid/Liquid extraction for 8270
SVOC (QC) taken @ CA112/001-96-0911-1355

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1545	Fed Ex	9/14/96 1120 hrs				9/14/96 1130 hrs

003-0294

ASSAIGAI ANALYTICAL LABORATORIES, INC.
7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

Attn: SUSAN GANT

Purchase Order: DACW47-96-P-0338
Invoice Number: 929480

Order #: 97-01-224
Date: 07/01/97 14:07
Work ID: CANNON OWS
Date Received: 01/29/97
Date Completed: 02/26/97

Client Code: USA01

SAMPLE IDENTIFICATION

Sample Number	Sample Description
01	CA32A/001-1600-012897
02	CA32A/002-1615-012897
03	CA32A/003-1630-012897
04	CA08/002-1430-012897
05	CA94B/001-0945-012897
06	CA94A/001-0900-012897
07	CA94A/002-0915-012897
08	CA94B/002-1000-012897
09	CA09/003-1505-012897

ND = None Detected D_F = Dilution Factor NT = Not Tested
B = Analyte was present in the blank
E = Estimated Value or Result exceeds calibration range
MULTIPLY THE LIMIT(= AAL'S DETECTION LIMIT) BY DILUTION FACTOR

Wm. P. Biava
Certified By
WILLIAM P. BIAVA

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Report Generated:
March 13, 1997 16:24

CERTIFICATE OF ANALYSIS
RESULTS BY SAMPLE

SENT TO: US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

ATTN: SUSAN GANT

WORKORDER # : 9702215
WORK ID : CANNON OWS
CLIENT CODE : USA01
DATE RECEIVED : 01/28/97

Lab ID: 9702215-01A
Sample ID: CA32A/003-1630-012897
Collected: 01/28/97 16:30:00
Matrix: SOLID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	61.00	% (Percent)				
FLASH POINT/SW846 1010						
Flash Point	44	Deg Centigrade	20	1.0	03/11/97	SFLASH221
pH/SW846 9045B						
pH	7.0	pH Units	0.10	1.0	03/11/97	SPH258
R[illegible]IVITY/SW846 7-3						
[illegible]de	NON-REACT	mg/Kg of Waste	500		03/11/97	W97114
[illegible]FAA) DIG/1311/3005	NON-REACT	mg/Kg of Waste	250	1.0	03/11/97	W97114
[illegible] CADMIUM(FA)/1311/7130	03/05/97	N/A				
Cadmium, Cd	0.038	mg/L	0.0030	1.0	03/12/97	M97167
TCLP EXTRACTION/TCLP 1311	03/03/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	03/06/97	M97167

Lab ID: 9702215-02A
Sample ID: CA08/002-1430-012897
Collected: 01/28/97 14:30:00
Matrix: SOLID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	34.00	% (Percent)				
FLASH POINT/SW846 1010						
Flash Point	> 60	Deg Centigrade	20	1.0	03/11/97	SFLASH221
pH/SW846 9045B						
pH	7.1	pH Units	0.10	1.0	03/11/97	SPH258
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	03/11/97	W97114
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	03/11/97	W97114
TCLP (FAA) DIG/1311/3005	03/05/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	ND	mg/L	0.0030	1.0	03/12/97	M97167
TCLP EXTRACTION/TCLP 1311	03/03/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	03/06/97	M97167

Member: American Council of Independent Laboratories, Inc.

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Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01E TEST CODE W6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	0.020	1.0	02/03/97	02/03/97
Arsenic, As	ND	0.060	1.0	02/03/97	01/31/97
Barium, Ba	0.11	0.010	1.0	02/03/97	02/03/97
Cadmium, Cd	0.308	0.0040	1.0	02/03/97	02/03/97
Chromium, Cr	0.02	0.020	1.0	02/03/97	02/03/97
Lead, Pb	NT	0.040			
Selenium, Se	ND	0.050	1.0	02/03/97	02/03/97

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/L

BATCH_ID M9782,M9788

Received: 01/29/97

REPORT
Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01A TEST CODE W8260 NAME VOLATILES /SW846 8260B
Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	10	1.0	02/04/97
Chloromethane	ND	5.0	1.0	02/04/97
Iodomethane	ND	5.0	1.0	02/04/97
Acetone	150	5.0	1.0	02/04/97
Bromomethane	ND	5.0	1.0	02/04/97
Vinyl Chloride	ND	5.0	1.0	02/04/97
Chloroethane	ND	5.0	1.0	02/04/97
Trichlorofluoromethane	ND	5.0	1.0	02/04/97
Freon 113	ND	5.0	1.0	02/04/97
Carbon Disulfide	ND	5.0	1.0	02/04/97
Acrolein	ND	20	1.0	02/04/97
Methylene Chloride	ND	10	1.0	02/04/97
1,1-Dichloroethene	ND	1.0	1.0	02/04/97
1,1-Dichloroethane	ND	1.0	1.0	02/04/97
Acrylonitrile	ND	20	1.0	02/04/97
trans-1,2-Dichloroethene	ND	1.0	1.0	02/04/97
Chloroform	ND	1.0	1.0	02/04/97
1,2-Dichloroethane	ND	1.0	1.0	02/04/97
Vinyl Acetate	ND	5.0	1.0	02/04/97
cis-1,2-Dichloroethene	ND	1.0	1.0	02/04/97
2-Butanone (MEK)	ND	5.0	1.0	02/04/97
1,1,1-Trichloroethane	ND	1.0	1.0	02/04/97
Carbon Tetrachloride	ND	1.0	1.0	02/04/97
Bromodichloromethane	1.3	1.0	1.0	02/04/97
1,2-Dichloropropane	ND	1.0	1.0	02/04/97
Dibromomethane	ND	1.0	1.0	02/04/97
trans-1,3-Dichloropropene	ND	1.0	1.0	02/04/97
Trichloroethene	ND	1.0	1.0	02/04/97
Chlorodibromomethane	4.4	1.0	1.0	02/04/97
Ethyl Methacrylate	ND	5.0	1.0	02/04/97
2-Chloroethylvinyl Ether	ND	5.0	1.0	02/04/97
1,1,2-Trichloroethane	ND	1.0	1.0	02/04/97
Benzene	ND	1.0	1.0	02/04/97
cis-1,3-Dichloropropene	ND	1.0	1.0	02/04/97
Bromoform	6.5	1.0	1.0	02/04/97
4-Methyl-2-Pentanone (MIBK)	5.3	5.0	1.0	02/04/97
Tetrachloroethene	ND	1.0	1.0	02/04/97
1,1,2,2-Tetrachloroethane	ND	1.0	1.0	02/04/97
1,2-Dibromoethane	ND	1.0	1.0	02/04/97
2-Hexanone (MBK)	ND	5.0	1.0	02/04/97
1,1,1,2-Tetrachloroethane	ND	1.0	1.0	02/04/97
Toluene	1.5	1.0	1.0	02/04/97
Chlorobenzene	ND	1.0	1.0	02/04/97
Ethylbenzene	1.3	1.0	1.0	02/04/97
1,4-Dichloro-2-Butene	ND	10	1.0	02/04/97
Styrene	ND	1.0	1.0	02/04/97
P/M Xylene	3.0	2.0	1.0	02/04/97
O-Xylene	1.7	1.0	1.0	02/04/97
1,2,3-Trichloropropane	ND	1.0	1.0	02/04/97
Methyl-tert Butyl Ether	ND	1.0	1.0	02/04/97

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

Continued From Above

SAMPLE ID CA32A/001-1600-012897 FRACTION 01A TEST CODE W8260 NAME VOLATILES /SW846 8260B

Date & Time Collected 01/28/97 16:00:00 Category WATER

1,2-Dichlorobenzene	ND	1.0	1.0	02/04/97
1,3-Dichlorobenzene	ND	1.0	1.0	02/04/97
1,4-Dichlorobenzene	ND	1.0	1.0	02/04/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST LT

FILE ID MSV0337.D

UNITS ug/L

BATCH_ID WMSVOA511

PRCNT_MOIST

Received: 01/29/97

REPORT
Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01C TEST CODE W8270 NAME SVOA WATER/SW846 8270B
Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	10	89	02/04/97
Pyridine	ND	10	89	02/04/97
Aniline	ND	10	89	02/04/97
bis(2-Chloroethyl) Ether	ND	1.0	89	02/04/97
2-Chlorophenol	ND	1.0	89	02/04/97
1,3-Dichlorobenzene	ND	1.0	89	02/04/97
1,4-Dichlorobenzene	ND	1.0	89	02/04/97
Phenol	ND	10	89	02/04/97
1,2-Dichlorobenzene	ND	1.0	89	02/04/97
Benzyl Alcohol	ND	50	89	02/04/97
bis(2-Chloroisopropyl) Ether	ND	1.0	89	02/04/97
2-Methylphenol / O-Cresol	ND	1.0	89	02/04/97
Hexachloroethane	ND	1.0	89	02/04/97
n-Nitroso-di-n-propylamine	ND	1.0	89	02/04/97
Nitrobenzene	ND	1.0	89	02/04/97
3/4 Methylphenol / M/P-Cresol	ND	1.0	89	02/04/97
Isophorone	ND	1.0	89	02/04/97
2-Nitrophenol	ND	10	89	02/04/97
bis(2-Chloroethoxy) Methane	ND	1.0	89	02/04/97
2,4-Dimethylphenol	ND	1.0	89	02/04/97
1,2,4-Trichlorobenzene	ND	1.0	89	02/04/97
Naphthalene	ND	1.0	89	02/04/97
Benzoic Acid	ND	100	89	02/04/97
2,4-Dichlorophenol	ND	10	89	02/04/97
4-Chloroaniline	ND	10	89	02/04/97
Hexachlorobutadiene	ND	1.0	89	02/04/97
2-Methylnaphthalene	ND	1.0	89	02/04/97
4-Chloro-3-methylphenol	ND	10	89	02/04/97
Hexachlorocyclopentadiene	ND	50	89	02/04/97
2,4,6-Trichlorophenol	ND	10	89	02/04/97
2,4,5-Trichlorophenol	ND	10	89	02/04/97
2-Chloronaphthalene	ND	1.0	89	02/04/97
2-Nitroaniline	ND	10	89	02/04/97
Acenaphthylene	ND	1.0	89	02/04/97
Dimethylphthalate	ND	1.0	89	02/04/97
2,6-Dinitrotoluene	ND	10	89	02/04/97
Acenaphthene	ND	1.0	89	02/04/97
3-Nitroaniline	ND	10	89	02/04/97
Dibenzofuran	ND	1.0	89	02/04/97
2,4-Dinitrotoluene	ND	10	89	02/04/97
Fluorene	ND	1.0	89	02/04/97
4-Chlorophenyl-phenylether	ND	1.0	89	02/04/97
Diethylphthalate	ND	1.0	89	02/04/97
4-Nitrophenol	ND	20	89	02/04/97
4,6-Dinitro-2-methylphenol	ND	10	89	02/04/97
n-Nitrosodiphenylamine	ND	1.0	89	02/04/97
4-Nitroaniline	ND	10	89	02/04/97
4-Bromophenyl-phenylether	ND	1.0	89	02/04/97
Hexachlorobenzene	ND	1.0	89	02/04/97
Pentachlorophenol	ND	20	89	02/04/97

Received: 01/29/97

REPORT
Results by Sample

Work Order # 97-01-224
Continued From Above

SAMPLE ID CA32A/001-1600-012897 FRACTION 01C TEST CODE W8270 NAME SVOA WATER/SW846 8270B
Date & Time Collected 01/28/97 16:00:00 Category WATER

2,4-Dinitrophenol	ND	50	89	02/04/97
Phenanthrene	ND	1.0	89	02/04/97
Anthracene	ND	1.0	89	02/04/97
Di-n-butylphthalate	ND	10	89	02/04/97
Fluoranthene	ND	1.0	89	02/04/97
Pyrene	ND	1.0	89	02/04/97
Butylbenzylphthalate	ND	1.0	89	02/04/97
Benzo(a)anthracene	ND	1.0	89	02/04/97
Chrysene	ND	1.0	89	02/04/97
3,3'-Dichlorobenzidine	ND	10	89	02/04/97
bis(2-Ethylhexyl)phthalate	ND	10	89	02/04/97
Di-n-octyl phthalate	ND	10	89	02/04/97
Benzo(b)+(k)fluoranthene	ND	1.0	89	02/04/97
1-Methylnaphthalene	ND	1.0	89	02/04/97
Benzo(a)pyrene	ND	1.0	89	02/04/97
Indeno(1,2,3-cd)pyrene	ND	10	89	02/04/97
Benzo(g,h,i)perylene	ND	10	89	02/04/97
2,3,4,6-Tetrachlorophenol	ND	50	89	02/04/97
Azobenzene	ND	1.0	89	02/04/97
Dibenz(a,h)anthracene	ND	10	89	02/04/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0152.D
UNITS ug/L
BATCH_ID WMSSVOA180
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01E TEST CODE WCVHG NAME MERCURY (CVAA)/EPA 245.1

Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.00020	10	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/L

BATCH_ID M9784

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01E TEST CODE WFAAPB NAME LEAD (FAA)/EPA 239.1

Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Lead, Pb	ND	0.10	1.0	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/L

BATCH_ID M9782

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01B TEST CODE WFLASH NAME FLASH POINT/SW846 1010

Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Flash Point	>60	20	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS Deg Centigrade

BATCH_ID WFLASH202

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01B TEST CODE WPH NAME pH/EPA 150.1

Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
pH	9.2*	0.10	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS pH Units

BATCH_ID WPH470

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01B TEST CODE WREACT NAME REACTIVITY/SW846 7-3

Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Sulfide	NON-REACT	500	1.0	02/13/97
Cyanide	NON-REACT	250	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS mg/Kg of Waste

BATCH_ID W9766

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/001-1600-012897 FRACTION 01D TEST CODE WTRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 16:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	106E*	0.10	52	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/L

BATCH_ID W9783

COMMENTS

Received: 01/29/97

REPORT
Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02A TEST CODE 8260 NAME VOLATILES/SW846 8260
Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	0.010	2500	02/10/97
Chloromethane	ND	0.0050	2500	02/10/97
Iodomethane	ND	0.0050	2500	02/10/97
Acetone	ND	0.0050	2500	02/10/97
Bromomethane	ND	0.0050	2500	02/10/97
Vinyl Chloride	ND	0.0050	2500	02/10/97
Chloroethane	ND	0.0050	2500	02/10/97
Trichlorofluoromethane	ND	0.0050	2500	02/10/97
Freon 113	ND	0.0050	2500	02/10/97
Carbon Disulfide	ND	0.0050	2500	02/10/97
Acrolein	ND	0.020	2500	02/10/97
Methylene Chloride	ND	0.010	2500	02/10/97
1,1-Dichloroethene	ND	0.0010	2500	02/10/97
1,1-Dichloroethane	ND	0.0010	2500	02/10/97
Acrylonitrile	ND	0.020	2500	02/10/97
trans-1,2-Dichloroethene	ND	0.0010	2500	02/10/97
Chloroform	ND	0.0010	2500	02/10/97
1,2-Dichloroethane	ND	0.0010	2500	02/10/97
Vinyl Acetate	ND	0.0050	2500	02/10/97
cis-1,2-Dichloroethene	ND	0.0010	2500	02/10/97
2-Butanone (MEK)	ND	0.0050	2500	02/10/97
1,1,1-Trichloroethane	ND	0.0010	2500	02/10/97
Carbon Tetrachloride	ND	0.0010	2500	02/10/97
Bromodichloromethane	ND	0.0010	2500	02/10/97
1,2-Dichloropropane	ND	0.0010	2500	02/10/97
Dibromomethane	ND	0.0010	2500	02/10/97
trans-1,3-Dichloropropene	ND	0.0010	2500	02/10/97
Trichloroethene	ND	0.0010	2500	02/10/97
Chlorodibromomethane	ND	0.0010	2500	02/10/97
Ethyl Methacrylate	ND	0.0050	2500	02/10/97
2-Chloroethylvinyl Ether	ND	0.0050	2500	02/10/97
1,1,2-Trichloroethane	ND	0.0010	2500	02/10/97
Benzene	ND	0.0010	2500	02/10/97
cis-1,3-Dichloropropene	ND	0.0010	2500	02/10/97
Bromoform	ND	0.0010	2500	02/10/97
4-Methyl-2-Pentanone (MIBK)	ND	0.0050	2500	02/10/97
Tetrachloroethene	ND	0.0010	2500	02/10/97
1,1,2,2-Tetrachloroethane	ND	0.0010	2500	02/10/97
1,2-Dibromoethane	ND	0.0010	2500	02/10/97
2-Hexanone (MBK)	ND	0.0050	2500	02/10/97
1,1,1,2-Tetrachloroethane	ND	0.0010	2500	02/10/97
Toluene	ND	0.0010	2500	02/10/97
Chlorobenzene	ND	0.0010	2500	02/10/97
Ethylbenzene	7.9	0.0010	2500	02/10/97
1,4-Dichloro-2-Butene	ND	0.010	2500	02/10/97
Styrene	ND	0.0010	2500	02/10/97
P/M Xylene	15	0.0020	2500	02/10/97
O-Xylene	9.4	0.0010	2500	02/10/97
1,2,3-Trichloropropane	ND	0.0010	2500	02/10/97
Methyl-tert Butyl Ether	ND	0.010	2500	02/10/97

Received: 01/29/97

REPORT
Results by Sample

Work Order # 97-01-224
Continued From Above

SAMPLE ID CA32A/002-1615-012897 FRACTION 02A TEST CODE 8260 NAME VOLATILES/SW846 8260
Date & Time Collected 01/28/97 16:15:00 Category WATER

1,2-Dichlorobenzene	ND	0.0010	2500	02/10/97
1,3-Dichlorobenzene	ND	0.0010	2500	02/10/97
1,4-Dichlorobenzene	ND	0.0010	2500	02/10/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST LT
FILE ID MSV0398.D
UNITS mg/Kg
BATCH_ID SMSVOA427
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02B TEST CODE OFLASH NAME FLASH POINT/SW846 1010

Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Flash Point	>60	20	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS Deg Centigrade

BATCH_ID OFLASH67

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02B TEST CODE OPH NAME pH/SW846 9045

Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Corrosivity as pH	7.5	0.10	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS pH Units

BATCH_ID OPH34

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02D TEST CODE S6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	02/11/97	02/12/97
Arsenic, As	NT	3.0			
Barium, Ba	13.9	0.50	1.0	02/11/97	02/12/97
Cadmium, Cd	29.3	0.20	1.0	02/11/97	02/12/97
Chromium, Cr	2.3	1.0	1.0	02/11/97	02/12/97
Lead, Pb	11.3	2.0	1.0	02/11/97	02/12/97
Selenium, Se	NT	2.5			

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/Kg

BATCH_ID M97109

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02D TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471

Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.15	1.0	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M9783

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02D TEST CODE SGFAS NAME ARSENIC (GFAA)/SW846 7060

Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Arsenic, As	ND	0.25	1.0	02/11/97	02/12/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M97109

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02D TEST CODE SGFSE NAME SELENIUM (GFAA)/SW846 7740

Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Selenium, Se	ND	0.25	1.0	02/11/97	02/12/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M97109

PRCNT_MOIST

Received: 01/29/97

REPORT
Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02C TEST CODE W8270 NAME SVOA WATER/SW846 8270B
Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	10	**	02/04/97
Pyridine	ND	10	**	02/04/97
Aniline	ND	10	**	02/04/97
bis(2-Chloroethyl) Ether	ND	1.0	**	02/04/97
2-Chlorophenol	ND	1.0	**	02/04/97
1,3-Dichlorobenzene	ND	1.0	**	02/04/97
1,4-Dichlorobenzene	ND	1.0	**	02/04/97
Phenol	ND	10	**	02/04/97
1,2-Dichlorobenzene	ND	1.0	**	02/04/97
Benzyl Alcohol	ND	50	**	02/04/97
bis(2-Chloroisopropyl) Ether	ND	1.0	**	02/04/97
2-Methylphenol / O-Cresol	ND	1.0	**	02/04/97
Hexachloroethane	ND	1.0	**	02/04/97
n-Nitroso-di-n-propylamine	ND	1.0	**	02/04/97
Nitrobenzene	ND	1.0	**	02/04/97
3/4 Methylphenol / M/P-Cresol	ND	1.0	**	02/04/97
Isophorone	ND	1.0	**	02/04/97
2-Nitrophenol	ND	10	**	02/04/97
bis(2-Chloroethoxy) Methane	ND	1.0	**	02/04/97
2,4-Dimethylphenol	ND	1.0	**	02/04/97
1,2,4-Trichlorobenzene	ND	1.0	**	02/04/97
Naphthalene	ND	1.0	**	02/04/97
Benzoic Acid	ND	100	**	02/04/97
2,4-Dichlorophenol	ND	10	**	02/04/97
4-Chloroaniline	ND	10	**	02/04/97
Hexachlorobutadiene	ND	1.0	**	02/04/97
2-Methylnaphthalene	ND	1.0	**	02/04/97
4-Chloro-3-methylphenol	ND	10	**	02/04/97
Hexachlorocyclopentadiene	ND	50	**	02/04/97
2,4,6-Trichlorophenol	ND	10	**	02/04/97
2,4,5-Trichlorophenol	ND	10	**	02/04/97
2-Chloronaphthalene	ND	1.0	**	02/04/97
2-Nitroaniline	ND	10	**	02/04/97
Acenaphthylene	ND	1.0	**	02/04/97
Dimethylphthalate	ND	1.0	**	02/04/97
2,6-Dinitrotoluene	ND	10	**	02/04/97
Acenaphthene	ND	1.0	**	02/04/97
3-Nitroaniline	ND	10	**	02/04/97
Dibenzofuran	ND	1.0	**	02/04/97
2,4-Dinitrotoluene	ND	10	**	02/04/97
Fluorene	ND	1.0	**	02/04/97
4-Chlorophenyl-phenylether	ND	1.0	**	02/04/97
Diethylphthalate	ND	1.0	**	02/04/97
4-Nitrophenol	ND	20	**	02/04/97
4,6-Dinitro-2-methylphenol	ND	10	**	02/04/97
n-Nitrosodiphenylamine	ND	1.0	**	02/04/97
4-Nitroaniline	ND	10	**	02/04/97
4-Bromophenyl-phenylether	ND	1.0	**	02/04/97
Hexachlorobenzene	ND	1.0	**	02/04/97
Pentachlorophenol	ND	20	**	02/04/97

SAMPLE ID CA32A/002-1615-012897 FRACTION 02C TEST CODE W8270 NAME SVOA WATER/SW846 8270B
Date & Time Collected 01/28/97 16:15:00 Category WATER

2,4-Dinitrophenol	ND	50	**	02/04/97
Phenanthrene	ND	1.0	**	02/04/97
Anthracene	ND	1.0	**	02/04/97
Di-n-butylphthalate	ND	10	**	02/04/97
Fluoranthene	ND	1.0	**	02/04/97
Pyrene	ND	1.0	**	02/04/97
Butylbenzylphthalate	ND	1.0	**	02/04/97
Benzo(a)anthracene	ND	1.0	**	02/04/97
Chrysene	ND	1.0	**	02/04/97
3,3'-Dichlorobenzidine	ND	10	**	02/04/97
bis(2-Ethylhexyl)phthalate	ND	10	**	02/04/97
Di-n-octyl phthalate	ND	10	**	02/04/97
Benzo(b)+(k)fluoranthene	ND	1.0	**	02/04/97
1-Methylnaphthalene	ND	1.0	**	02/04/97
Benzo(a)pyrene	ND	1.0	**	02/04/97
Indeno(1,2,3-cd)pyrene	ND	10	**	02/04/97
Benzo(g,h,i)perylene	ND	10	**	02/04/97
2,3,4,6-Tetrachlorophenol	ND	50	**	02/04/97
Azobenzene	ND	1.0	**	02/04/97
Dibenz(a,h)anthracene	ND	10	**	02/04/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0153.D
UNITS ug/L
BATCH_ID WMSSVOA180
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02B TEST CODE WREACT NAME REACTIVITY/SW846 7-3

Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Sulfide	NON-REACT	500	1.0	02/13/97
Cyanide	NON-REACT	250	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS mg/Kg of Waste

BATCH_ID W9766

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/002-1615-012897 FRACTION 02E TEST CODE WTRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 16:15:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	1130000E*	0.10	**	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/L

BATCH_ID W9783

COMMENTS

Received: 01/29/97

REPORT
Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/003-1630-012897 FRACTION 03C TEST CODE 8260 NAME VOLATILES/SW846 8260
Date & Time Collected 01/28/97 16:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	0.010	1250	02/10/97
Chloromethane	ND	0.0050	1250	02/10/97
Iodomethane	ND	0.0050	1250	02/10/97
Acetone	ND	0.0050	1250	02/10/97
Bromomethane	ND	0.0050	1250	02/10/97
Vinyl Chloride	ND	0.0050	1250	02/10/97
Chloroethane	ND	0.0050	1250	02/10/97
Trichlorofluoromethane	ND	0.0050	1250	02/10/97
Freon 113	ND	0.0050	1250	02/10/97
Carbon Disulfide	ND	0.0050	1250	02/10/97
Acrolein	ND	0.020	1250	02/10/97
Methylene Chloride	ND	0.010	1250	02/10/97
1,1-Dichloroethene	ND	0.0010	1250	02/10/97
1,1-Dichloroethane	ND	0.0010	1250	02/10/97
Acrylonitrile	ND	0.020	1250	02/10/97
trans-1,2-Dichloroethene	ND	0.0010	1250	02/10/97
Chloroform	ND	0.0010	1250	02/10/97
1,2-Dichloroethane	ND	0.0010	1250	02/10/97
Vinyl Acetate	ND	0.0050	1250	02/10/97
cis-1,2-Dichloroethene	ND	0.0010	1250	02/10/97
2-Butanone (MEK)	ND	0.0050	1250	02/10/97
1,1,1-Trichloroethane	ND	0.0010	1250	02/10/97
Carbon Tetrachloride	ND	0.0010	1250	02/10/97
Bromodichloromethane	ND	0.0010	1250	02/10/97
1,2-Dichloropropane	ND	0.0010	1250	02/10/97
Dibromomethane	ND	0.0010	1250	02/10/97
trans-1,3-Dichloropropene	ND	0.0010	1250	02/10/97
Trichloroethene	ND	0.0010	1250	02/10/97
Chlorodibromomethane	ND	0.0010	1250	02/10/97
Ethyl Methacrylate	ND	0.0050	1250	02/10/97
2-Chloroethylvinyl Ether	ND	0.0050	1250	02/10/97
1,1,2-Trichloroethane	ND	0.0010	1250	02/10/97
Benzene	ND	0.0010	1250	02/10/97
cis-1,3-Dichloropropene	ND	0.0010	1250	02/10/97
Bromoform	ND	0.0010	1250	02/10/97
4-Methyl-2-Pentanone (MIBK)	ND	0.0050	1250	02/10/97
Tetrachloroethene	ND	0.0010	1250	02/10/97
1,1,2,2-Tetrachloroethane	ND	0.0010	1250	02/10/97
1,2-Dibromoethane	ND	0.0010	1250	02/10/97
2-Hexanone (MBK)	ND	0.0050	1250	02/10/97
1,1,1,2-Tetrachloroethane	ND	0.0010	1250	02/10/97
Toluene	11	0.0010	1250	02/10/97
Chlorobenzene	ND	0.0010	1250	02/10/97
Ethylbenzene	7.6	0.0010	1250	02/10/97
1,4-Dichloro-2-Butene	ND	0.010	1250	02/10/97
Styrene	ND	0.0010	1250	02/10/97
P/M Xylene	18	0.0020	1250	02/10/97
O-Xylene	7.4	0.0010	1250	02/10/97
1,2,3-Trichloropropane	ND	0.0010	1250	02/10/97
Methyl-tert Butyl Ether	ND	0.010	1250	02/10/97

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

Continued From Above

SAMPLE ID CA32A/003-1630-012897 FRACTION 03C TEST CODE 8260 NAME VOLATILES/SW846 8260

Date & Time Collected 01/28/97 16:30:00 Category SOLID

1,2-Dichlorobenzene	ND	0.0010	1250	02/10/97
1,3-Dichlorobenzene	ND	0.0010	1250	02/10/97
1,4-Dichlorobenzene	ND	0.0010	1250	02/10/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST LT

FILE ID MSV0400.D

UNITS mg/Kg

BATCH_ID SMSV0A427

PRCNT_MOIST

Received: 01/29/97

REPORT
Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/003-1630-012897 FRACTION 03A TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B
Date & Time Collected 01/28/97 16:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	1.0	1200	02/08/97
Pyridine	ND	10	1200	02/08/97
Aniline	ND	10	1200	02/08/97
bis(2-Chloroethyl) Ether	ND	0.50	1200	02/08/97
2-Chlorophenol	ND	0.50	1200	02/08/97
1,3-Dichlorobenzene	ND	0.50	1200	02/08/97
1,4-Dichlorobenzene	ND	0.50	1200	02/08/97
Phenol	ND	0.50	1200	02/08/97
1,2-Dichlorobenzene	ND	0.50	1200	02/08/97
Benzyl Alcohol	ND	10	1200	02/08/97
bis(2-Chloroisopropyl) Ether	ND	1.0	1200	02/08/97
2-Methylphenol / O-Cresol	ND	0.50	1200	02/08/97
Hexachloroethane	ND	0.50	1200	02/08/97
n-Nitroso-di-n-propylamine	ND	0.50	1200	02/08/97
Nitrobenzene	ND	0.50	1200	02/08/97
3/4 Methylphenol / M/P-Cresol	ND	0.50	1200	02/08/97
Isophorone	ND	0.50	1200	02/08/97
2-Nitrophenol	ND	1.0	1200	02/08/97
bis(2-Chloroethoxy) Methane	ND	0.50	1200	02/08/97
2,4-Dimethylphenol	ND	1.0	1200	02/08/97
1,2,4-Trichlorobenzene	ND	0.50	1200	02/08/97
Naphthalene	ND	0.50	1200	02/08/97
Benzoic Acid	ND	10	1200	02/08/97
2,4-Dichlorophenol	ND	1.0	1200	02/08/97
4-Chloroaniline	ND	10	1200	02/08/97
Hexachlorobutadiene	ND	0.50	1200	02/08/97
2-Methylnaphthalene	ND	0.50	1200	02/08/97
4-Chloro-3-methylphenol	ND	0.50	1200	02/08/97
Hexachlorocyclopentadiene	ND	10	1200	02/08/97
2,4,6-Trichlorophenol	ND	1.0	1200	02/08/97
2,4,5-Trichlorophenol	ND	1.0	1200	02/08/97
2-Chloronaphthalene	ND	0.50	1200	02/08/97
2-Nitroaniline	ND	1.0	1200	02/08/97
Acenaphthylene	ND	0.50	1200	02/08/97
Dimethylphthalate	ND	0.50	1200	02/08/97
2,6-Dinitrotoluene	ND	1.0	1200	02/08/97
Acenaphthene	ND	0.50	1200	02/08/97
3-Nitroaniline	ND	10	1200	02/08/97
Dibenzofuran	ND	0.50	1200	02/08/97
2,4-Dinitrotoluene	ND	2.5	1200	02/08/97
Fluorene	ND	0.50	1200	02/08/97
4-Chlorophenyl-phenylether	ND	0.50	1200	02/08/97
Diethylphthalate	ND	0.50	1200	02/08/97
4-Nitrophenol	ND	10	1200	02/08/97
4,6-Dinitro-2-methylphenol	ND	10	1200	02/08/97
n-Nitrosodiphenylamine	ND	0.50	1200	02/08/97
4-Nitroaniline	ND	10	1200	02/08/97
4-Bromophenyl-phenylether	ND	0.50	1200	02/08/97
Hexachlorobenzene	ND	0.50	1200	02/08/97
Pentachlorophenol	ND	10	1200	02/08/97

REPORT
Results by Sample

Work Order # 97-01-224
Continued From Above

SAMPLE ID CA32A/003-1630-012897 FRACTION 03A TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B
Date & Time Collected 01/28/97 16:30:00 Category SOLID

2,4-Dinitrophenol	ND	10	1200	02/08/97
Phenanthrene	ND	0.50	1200	02/08/97
Anthracene	ND	0.50	1200	02/08/97
Di-n-butylphthalate	ND	5.0	1200	02/08/97
Fluoranthene	ND	0.50	1200	02/08/97
Pyrene	ND	0.50	1200	02/08/97
Butylbenzylphthalate	ND	0.50	1200	02/08/97
Benzo(a)anthracene	ND	0.50	1200	02/08/97
Chrysene	ND	0.50	1200	02/08/97
3,3'-Dichlorobenzidine	ND	10	1200	02/08/97
bis(2-Ethylhexyl)phthalate	ND	2.5	1200	02/08/97
Di-n-octyl phthalate	ND	0.50	1200	02/08/97
Benzo(b)+(k)fluoranthene	ND	0.50	1200	02/08/97
1-Methylnaphthalene	ND	1.0	1200	02/08/97
Benzo(a)pyrene	ND	0.50	1200	02/08/97
Indeno(1,2,3-cd)pyrene	ND	1.0	1200	02/08/97
Benzo(g,h,i)perylene	ND	1.0	1200	02/08/97
2,3,4,6-Tetrachlorophenol	ND	2.5	1200	02/08/97
Azobenzene	ND	1.0	1200	02/08/97
Dibenz(a,h)anthracene	ND	1.0	1200	02/08/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0228.D
UNITS mg/Kg
BATCH_ID SMSSVOA141
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/003-1630-012897 FRACTION 03B TEST CODE S6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 16:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	01/31/97	01/31/97
Arsenic, As	ND	3.0	1.0	01/31/97	01/31/97
Barium, Ba	398	0.50	1.0	01/31/97	01/31/97
Cadmium, Cd	152	0.20	1.0	01/31/97	01/31/97
Chromium, Cr	60.0	1.0	1.0	01/31/97	01/31/97
Lead, Pb	242	2.0	1.0	01/31/97	01/31/97
Selenium, Se	ND	2.5	1.0	01/31/97	01/31/97

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/Kg

BATCH_ID M9785

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/003-1630-012897 FRACTION 03B TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471

Date & Time Collected 01/28/97 16:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.15	1.0	02/06/97	02/06/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M97100

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA32A/003-1630-012897 FRACTION 03D TEST CODE STRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 16:30:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	91500E*	5.0	625	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/Kg

BATCH_ID W9776

PRCNT_MOIST

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 1324 Date: [illegible]

Page 1 of 2

Client: US ACE

Address: 4101 Jefferson N.E.

City / State / Zip: Alb NM 87109

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible]

Samplers: (Signature) [illegible]

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
5A	CA9A[illegible]	[illegible]	[illegible]	[illegible]	1 Tedlar Bag	4C	[illegible]	2	1								
5B	"				3 Amber	4C	—	3		1			1	1			
5C	"				1 1L Amber	4C	[illegible]	1									
5E					1 500mL Plastic	4C	[illegible]	1			1						
6A	CA9A[illegible]				2 Tedlar Bags	4C	[illegible]	2	1								
6B	CA9A[illegible]				2 1L Amber	4C	—	2									
6C					1 1L Amber	4C	[illegible]	1									
6E					1 500mL Plastic	4C	[illegible]	1			1						
7B	CA9A[illegible]002-0[illegible]		[illegible]		2 32z Jars	4C	—	2		1	1		1				
7D	CA9A[illegible]002-0[illegible]		[illegible]		2 32z Jar	4C	—	2	1			1					
7E	CA9A[illegible]002-[illegible]				2 32z Jar	4C		2		1	1		1				
[illegible]	CA9A[illegible]				[illegible]	4C		2	1								

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	[illegible]	Signature: [illegible]	Signature:		Signature:
Printed: T. RIMA JORDAN		Printed:	Printed:		Printed:
Company: US ACE	Time: 1540	Company: AAL	Company:	Time:	Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

[illegible]

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 1334 Date

Page 2 of 2

Client: ACC

Project Manager / Contact: Sean Gut

Address: 4101 Jefferson Pl

Telephone No.: 505 242 1421

City / State / Zip: Alb NM 87109

Fax No.: 505 342 7130

Project Name / Number: Canon Dwg

Samplers: (Signature)

Contract / Purchase Order / Quote

Analysis Required

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers										Remarks
1-B	Aq/003 [illegible]	[illegible]	[illegible]	[illegible]	2 [illegible]	[illegible]	—	[illegible]										
1-A	[illegible]				2 [illegible]	[illegible]	—	2										
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature [illegible]	15 Jan 97	Signature [illegible]	Signature		Signature
Printed DAVID JORDAN	Time 1540	Printed	Printed	Time	Printed
Company ACC		Company AAL	Company		Company
Reason ANALYSIS		Reason	Reason		Reason

Method of Shipment:

Shipment No.

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CUSTOMER

ANALYTICA
ENVIRONMENTAL
LABORATORIES
an Analytica Group company

325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-093
Date: 09/30/96 20:26
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/14/96
Date Completed: 09/30/96

SAMPLE IDENTIFICATION

Sample Number	Client Description
01	CA11/002-96-0912-0945
02	CA92/002-96-0912-1045
03	CA07/001-96-0911-1535
04	CA11/001-96-0912-09:40
05	CA92/001-96-0912-10:40
06	Trip Blank
07	CA112/001-96-0911-1355
08	CA33B/001-96-0911-1450
09	CA07/002-96-0911-1540
10	Trip Blank

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- o Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]
- o Solid and waste samples are reported on a "dry weight" basis, i.e. correction is made for moisture content.

Problems encountered with the analyses are discussed in the following narrative.

Sample CA92/002-96-0912-1044 is reported with a surrogate standard recovery outside quality control limits for the 8260 analysis. The internal standard area recoveries were also below QC limits. This is due to sample matrix and was verified in a secondary analysis.

The 8270 semivolatile analyses for the following samples are reported with internal standard area recoveries below the QC limits:

CA11/002-96-0911
CA7/001-96-0911
CA92/001-96-0912-10:40
CA112/001-96-0911-1355

These results are due to sample matrix and were verified in secondary analyses.

The 8270 semivolatile analyses for the following samples are reported with surrogate standard recoveries outside QC limits:

CA11/002-96-0912-0945 (one base/neutral surrogate)
CA07/001-96-0911-1535 (two acid surrogates and one base/neutral suurogate)

Analytica's quality assurance plan allows for one acid surrogate and one base/neutral surrogate standard to be outside quality control windows and still be of acceptable quality control. This emulates the EPA CLP quality assurance guidelines. These results were verified in secondary analyses.

The 8270 matrix spike/matrix spike duplicate results for samples CA92/001-96-0912-10:40 and CA112/001-96-0911-1355 are reported with some of the spike compound recoveries below QC limits. These results were also confirmed in secondary analyses and are attributable to sample matrix. The associated method blank spike recoveries are all within acceptance limits.

The 8270 soil method blank is reported with target analyte Di-n-butylphthalate above reporting limit. This is due to laboratory contamination in the method 3540 soxhlet extraction process. Mr. Brian Jordan of the USACE has been notified of this problem for prior projects where this extraction method was requested. Analytica is actively pursuing the source of this contamination. The reported phthalate ester target compounds should be looked at as possible laboratory contamination sources.

Sample: **08A** **CA33B/001-96-0911-1450** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	09/25/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/26/96
pH	EPA 150.1	7.6		0.10	pH units	09/18/96

Sample: 08B CA33B/001-96-0911-1450 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	09/24/96
Chloromethane		ND		10	ug/L	09/24/96
Vinyl Chloride		ND		2.0	ug/L	09/24/96
Bromomethane		ND		10	ug/L	09/24/96
Chloroethane		ND		10	ug/L	09/24/96
Trichlorofluoromethane		ND		10	ug/L	09/24/96
1,1-Dichloroethene		ND		5.0	ug/L	09/24/96
Trichlorotrifluoroethane		ND		3.0	ug/L	09/24/96
Methylene Chloride		ND		10	ug/L	09/24/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	09/24/96
1,1-Dichloroethane		ND		5.0	ug/L	09/24/96
2,2-Dichloropropane		ND		5.0	ug/L	09/24/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	09/24/96
Bromochloromethane		ND		5.0	ug/L	09/24/96
Chloroform		ND		3.0	ug/L	09/24/96
1,1,1-Trichloroethane		ND		5.0	ug/L	09/24/96
Carbon Tetrachloride		ND		10	ug/L	09/24/96
1,1-Dichloropropene		ND		5.0	ug/L	09/24/96
Benzene		ND		1.0	ug/L	09/24/96
1,2-Dichloroethane		ND		5.0	ug/L	09/24/96
Trichloroethene		ND		3.0	ug/L	09/24/96
1,2-Dichloropropane		ND		3.0	ug/L	09/24/96
Dibromomethane		ND		3.0	ug/L	09/24/96
Bromodichloromethane		ND		3.0	ug/L	09/24/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	09/24/96
Toluene		ND		1.0	ug/L	09/24/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	09/24/96
1,1,2-Trichloroethane		ND		3.0	ug/L	09/24/96
Tetrachloroethene		ND		3.0	ug/L	09/24/96
1,3-Dichloropropane		ND		3.0	ug/L	09/24/96
Dibromochloromethane		ND		3.0	ug/L	09/24/96
1,2-Dibromoethane		ND		3.0	ug/L	09/24/96
Chlorobenzene		ND		3.0	ug/L	09/24/96
Ethylbenzene		ND		1.0	ug/L	09/24/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	09/24/96
m,p-Xylenes		ND		1.0	ug/L	09/24/96
o-Xylene		ND		1.0	ug/L	09/24/96
Styrene		ND		3.0	ug/L	09/24/96
Bromoform		ND		5.0	ug/L	09/24/96
Isopropylbenzene		ND		2.0	ug/L	09/24/96
Bromobenzene		ND		3.0	ug/L	09/24/96
n-Propylbenzene		ND		5.0	ug/L	09/24/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	09/24/96
1,2,3-Trichloropropane		ND		3.0	ug/L	09/24/96
2-Chlorotoluene		ND		1.0	ug/L	09/24/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	09/24/96
4-Chlorotoluene		ND		1.0	ug/L	09/24/96

Sample: **08B** **CA33B/001-96-0911-1450** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		5.0	ug/L	09/24/96
1,2,4-Trimethylbenzene		ND		5.0	ug/L	09/24/96
sec-Butylbenzene		ND		5.0	ug/L	09/24/96
4-Isopropyltoluene		ND		5.0	ug/L	09/24/96
1,3-Dichlorobenzene		ND		2.0	ug/L	09/24/96
1,4-Dichlorobenzene		ND		2.0	ug/L	09/24/96
n-Butylbenzene		ND		5.0	ug/L	09/24/96
1,2-Dichlorobenzene		ND		5.0	ug/L	09/24/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L	09/24/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L	09/24/96
Hexachlorobutadiene		ND		5.0	ug/L	09/24/96
Napthalene		ND		5.0	ug/L	09/24/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L	09/24/96
Acetone		ND		50	ug/L	09/24/96
Acrylonitrile		ND		10	ug/L	09/24/96
2-Butanone		ND		50	ug/L	09/24/96
Carbon Disulfide		ND		5.0	ug/L	09/24/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L	09/24/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L	09/24/96
2-Hexanone		ND		20	ug/L	09/24/96
Iodomethane		ND		5.0	ug/L	09/24/96
4-Methyl-2-pentanone		ND		20	ug/L	09/24/96
Vinyl Acetate		ND		5.0	ug/L	09/24/96
tert-Butyl methyl ether		ND		5.0	ug/L	09/24/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		102		Min: 80	Max: 120	
Toluene d-8		106		Min: 88	Max: 110	
p-Bromofluorobenzene		104		Min: 86	Max: 115	

Sample: **08D** **CA33B/001-96-0911-1450** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		10	ug/L	09/26/96
bis(2-Chloroethyl) ether		ND		10	ug/L	09/26/96
2-Chlorophenol		ND		10	ug/L	09/26/96
1,3-Dichlorobenzene		ND		10	ug/L	09/26/96
1,4-Dichlorobenzene		ND		10	ug/L	09/26/96
Benzyl alcohol		ND		20	ug/L	09/26/96
1,2-Dichlorobenzene		ND		10	ug/L	09/26/96
2-Methylphenol		ND		10	ug/L	09/26/96
bis(2-Chloroisopropyl) ether		ND		10	ug/L	09/26/96
4-Methylphenol		ND		10	ug/L	09/26/96
n-Nitroso-di-n-propylamine		ND		10	ug/L	09/26/96
Hexachloroethane		ND		10	ug/L	09/26/96
Nitrobenzene		ND		10	ug/L	09/26/96
Isophorone		ND		10	ug/L	09/26/96
2-Nitrophenol		ND		10	ug/L	09/26/96
2,4-Dimethylphenol		ND		10	ug/L	09/26/96
Benzoic acid		ND		50	ug/L	09/26/96
bis(2-Chloroethoxy)methane		ND		10	ug/L	09/26/96
2,4-Dichlorophenol		ND		10	ug/L	09/26/96
1,2,4-Trichlorobenzene		ND		10	ug/L	09/26/96
Naphthalene		ND		10	ug/L	09/26/96
4-Chloroaniline		ND		10	ug/L	09/26/96
Hexachlorobutadiene		ND		10	ug/L	09/26/96
4-Chloro-3-methylphenol		ND		10	ug/L	09/26/96
2-Methylnaphthalene		ND		10	ug/L	09/26/96
Hexachlorocyclopentadiene		ND		10	ug/L	09/26/96
2,4,6-Trichlorophenol		ND		10	ug/L	09/26/96
2,4,5-Trichlorophenol		ND		50	ug/L	09/26/96
2-Chloronaphthalene		ND		10	ug/L	09/26/96
2-Nitroaniline		ND		50	ug/L	09/26/96
Dimethylphthalate		ND		10	ug/L	09/26/96
Acenaphthylene		ND		10	ug/L	09/26/96
3-Nitroaniline		ND		50	ug/L	09/26/96
Acenaphthene		ND		10	ug/L	09/26/96
2,4-Dinitrophenol		ND		50	ug/L	09/26/96
4-Nitrophenol		ND		50	ug/L	09/26/96
Dibenzofuran		ND		10	ug/L	09/26/96
2,6-Dinitrotoluene		ND		10	ug/L	09/26/96
2,4-Dinitrotoluene		ND		10	ug/L	09/26/96
Diethylphthalate		ND		10	ug/L	09/26/96
4-Chlorophenyl-phenylether		ND		10	ug/L	09/26/96
Fluorene		ND		10	ug/L	09/26/96
4-Nitroaniline		ND		10	ug/L	09/26/96
4,6-Dinitro-2-methylphenol		ND		50	ug/L	09/26/96
n-Nitrosodiphenylamine		ND		10	ug/L	09/26/96
4-Bromophenyl-phenylether		ND		10	ug/L	09/26/96

Sample: **08D** **CA33B/001-96-0911-1450** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		10	ug/L	09/26/96
Pentachlorophenol		ND		50	ug/L	09/26/96
Phenanthrene		ND		10	ug/L	09/26/96
Anthracene		ND		10	ug/L	09/26/96
Di-n-butylphthalate		ND		10	ug/L	09/26/96
Fluoranthene		ND		10	ug/L	09/26/96
Pyrene		ND		10	ug/L	09/26/96
Butylbenzylphthalate		ND		10	ug/L	09/26/96
3,3'-Dichlorobenzidine		ND		20	ug/L	09/26/96
Benzo(a)Anthracene		ND		10	ug/L	09/26/96
Chrysene		ND		10	ug/L	09/26/96
Bis(2-Ethylhexyl)phthalate		ND		10	ug/L	09/26/96
Di-n-octylphthalate		ND		10	ug/L	09/26/96
Benzo(b)fluoranthene		ND		10	ug/L	09/26/96
Benzo(k)fluoranthene		ND		10	ug/L	09/26/96
Benzo(a)pyrene		ND		10	ug/L	09/26/96
Indeno(1,2,3-cd)pyrene		ND		10	ug/L	09/26/96
Dibenz(a,h)anthracene		ND		10	ug/L	09/26/96
Benzo(g,h,i)perylene		ND		10	ug/L	09/26/96
SURROGATES, % Recovery						
2-Fluorophenol		49.3		Min: 21	Max: 100	
d5-Phenol		51.3		Min: 10	Max: 94	
d5-Nitrobenzene		86.0		Min: 35	Max: 114	
2-Fluorobiphenyl		68.0		Min: 43	Max: 116	
2,4,6-Tribromophenol		93.3		Min: 10	Max: 123	
d14-Terphenyl		37.0		Min: 33	Max: 141	

Sample: **08E** **CA33B/001-96-0911-1450** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/24/96
Barium		0.13		0.020	mg/L	09/24/96
Cadmium		ND		0.0050	mg/L	09/24/96
Chromium		ND		0.010	mg/L	09/24/96
Lead		ND		0.050	mg/L	09/24/96
Selenium		ND		0.10	mg/L	09/24/96
Silver		ND		0.010	mg/L	09/24/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/24/96

Analytica, Incorporated

SAMPLE RECEIVING CHECKLIST

Client:	USACE NM	Matrix:	Sludge/Water
CSN #:	607172	# Samples rcvd:	3 7
W/O #:	9609093	# Bottles Rcvd:	38
Date Recvd:	9-14-96	Analytica B/O:	4

Cooler Temp:	*	* temp blanks were at 5°C & ~ 4°C.
Custody seal present & intact:	YES / NO	
Chain in cooler:	YES / NO	
Chain Matches sample ID's:	YES / NO	
Trip blank presented:	YES / NO	
Samples w. LT 5 days HT:	YES / NO	pH Holding times expired prior to receipt @ AZ.
Critical samples & tests:	YES / NO	
Samples preserved properly:	YES / NO	

corrosivity has longer holding time etc

Project Definition Complete @ login:	YES / NO	
Further Definition:		

Discrepencies:	Trip Blank not on COC for samples taken 9/12. it was Received.
Corrective Actions:	
Comments:	

	Date/time	Initials
Login completed:	9/16/96 1345	KI
Def completed:	9-16-96 1535	(C)

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkw ite 200
Broomfield, Color 021
(303) 469-8868 or 1-8 73-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

ANALYTICA USE ONLY: № 002800

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-3540/8270	TCLP&RCRA 1311/6010								
12Sept96	0945	CA11/002-96-0912-0945	3												
12Sept96	1045	CA92/002-96-0912-1045	3												

Temp Blanks bctn @ 5.0°C. KI

COMMENTS: Soxhlet Extraction for SVOC-BNA extraction

MEANS OF DELIVERY:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1530	Fed Ex		Fed X	9/14/96 1120 hrs		9/14/96 1130 hrs

003-0294

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Colora 021
(303) 469-8868 or 1-800-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

ANALYTICA USE ONLY: № 002797

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED: 8 RCRA Metals

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity pH Ignit	VOC - 8260	SVOC - 3540/8270	TCLP Met 1311/7470/7196/7740/7410	Combined Jars						
11Sept96	1535	CA07/001-96-0911-1535	3	1	1	1	1							

Temp Blanks @~4.0°C
KI

COMMENTS

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13Sept96 1545	Fed EX	~~9/14/96~~ ~~11:30 hrs~~ 9/14/96 11:30 hrs	Fed X	~~9/14/96~~ ~~11:30 hrs~~		9/14/96 11:30 hrs

003-0294

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkw ite 200
Broomfield, Color 021
(303) 469-8868 or 1-800-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

ANALYTICA USE ONLY: № 002801

CSN 607172

LGN 96009093

LOC Walkin C3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity/pH/IGN	VOC-8260	SVOC-8270	TCLP 8RCRA MET
12Sept96	0940	CA11/001-96-0912-0940	5	1	2	1	1
12Sept96	1040	CA92/001-96-0912-1040	6	1	2	2	1

Temp Blanks both @ 5.0°C.
KE

COMMENTS: SVOC (QC) taken @ CA92/001-96-0912-1040

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13 Sept 96 1545	Fed Ex		Fed X	9/14/96 11 Bedy		9/14/96 1130

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Color. 021
(303) 469-8868 or 1-8 873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.

8 RCRA

ANALYTICA USE ONLY: № 002798

CSN 607172

LGN 9609093

LOC Walkin C3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-8270	TCLP MET 1311/7470/7471/7060/7740/7421								
11Sept96	1355	CA112/001-96-0911-1355	6	1	2	2	1								
11Sept96	1450	CA33B/001-96-0911-1450	5	1	2	1	1								
11Sept96	1540	CAØ7/002-96-0911-1540	5	1	2	1	1								
11Sept96	—	Trip Blank	1		1										

Temp Blanks @ ~4.0° C.
KE

COMMENTS: Liquid/Liquid extraction for 8270 SVOC (QC) taken @ CA112/001-96-0911-1355

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1545	Fed Ex	9/14/96 1120 hrs				9/14/96 1130 hrs

003-0294

ASSAIGAI
ANALYTICAL
LABORATORIES
7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

Report Generated:
January 14, 1997 14:13

CERTIFICATE OF ANALYSIS
RESULTS BY SAMPLE

SENT TO: US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

ATTN: SUSAN GANT

WORKORDER # : 9701020
WORK ID : ADDITION TO WO#11250
CLIENT CODE : USA01
DATE RECEIVED : 11/27/96

Lab ID: 9701020-01A
Sample ID: CA001/002-96-1125-1430
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	32.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	ND	mg/L	0.0030	1.0	01/10/97	M9714
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

Lab ID: 9701020-02A
Sample ID: CA33B/002-96-1125-1450
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	35.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	ND	mg/L	0.0030	1.0	01/10/97	M9714
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

Lab ID: 9701020-03A
Sample ID: CA47A/00296-1125-1515
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	35.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

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ID: 9611250-01C
ple ID: CA001/002-96-1125-1430

Collected: 11/25/96 14:30:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	4310	mg/Kg	5.0	50	12/04/96	W9697

Lab ID: 9611250-02A
Sample ID: CA33B/002-96-1125-1450

Collected: 11/25/96 14:50:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND*	mg/Kg	0.010	5000	12/09/96	SMSVOA409
Chloromethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Iodomethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Acetone	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Bromomethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Vinyl Chloride	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Chloroethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Trichlorofluoromethane	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Freon 113	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Carbon Disulfide	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
A[illegible]lein	ND*	mg/Kg	0.020	5000	12/09/96	SMSVOA409
[illegible]lene Chloride	ND*	mg/Kg	0.010	5000	12/09/96	SMSVOA409
[illegible]chloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
[illegible]chloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
[illegible]onitrile	ND*	mg/Kg	0.020	5000	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Chloroform	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,2-Dichloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Vinyl Acetate	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
2-Butanone (MEK)	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Carbon Tetrachloride	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Bromodichloromethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,2-Dichloropropane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Dibromomethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Trichloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Chlorodibromomethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Ethyl Methacrylate	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Benzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Bromoform	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
4-Methyl-2-Pentanone (MIBK)	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
Tetrachloroethene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,1,2,2-Tetrachloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,2-Dibromoethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
2-Hexanone (MBK)	ND*	mg/Kg	0.0050	5000	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Toluene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Chlorobenzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Ethylbenzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,4-Dichloro-2-Butene	ND*	mg/Kg	0.010	5000	12/09/96	SMSVOA409
[illegible]e	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
[illegible]ylene	ND*	mg/Kg	0.0020	5000	12/09/96	SMSVOA409
[illegible]ne	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
[illegible]richloropropane	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND*	mg/Kg	0.010	5000	12/09/96	SMSVOA409

D: 9611250-02A
ple ID: CA33B/002-96-1125-1450

Collected: 11/25/96 14:50:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
1,2-Dichlorobenzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,3-Dichlorobenzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409
1,4-Dichlorobenzene	ND*	mg/Kg	0.0010	5000	12/09/96	SMSVOA409

Lab ID: 9611250-02B
Sample ID: CA33B/002-96-1125-1450

Collected: 11/25/96 14:50:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/SW846 7471	12/05/96	N/A				
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/10/96	SFLASH215
MERCURY (CVAA)/SW846 7471						
Mercury	ND	mg/Kg	0.15	1.0	12/06/96	M96195
Metal(ICP) DIG /SW846 3050	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND	mg/Kg	1.0	1.0	12/03/96	M96176
Aluminum, Al	NT	mg/Kg	25			M96176
A[illegible]enic, As	ND	mg/Kg	3.0	1.0	12/03/96	M96176
[illegible]n, Ba	76.1	mg/Kg	0.50	1.0	12/03/96	M96176
[illegible]um, Be	NT	mg/Kg	0.50			M96176
[illegible]m, Ca	NT	mg/Kg	15			M96176
[illegible]ium, Cd	20.8	mg/Kg	0.20	1.0	12/03/96	M96176
Cobalt, Co	NT	mg/Kg	0.50			M96176
Chromium, Cr	35.1	mg/Kg	1.0	1.0	12/03/96	M96176
Copper, Cu	NT	mg/Kg	0.50			M96176
Iron, Fe	NT	mg/Kg	15			M96176
Potassium, K	NT	mg/Kg	10			M96176
Magnesium, Mg	NT	mg/Kg	10			M96176
Manganese, Mn	NT	mg/Kg	0.25			M96176
Sodium, Na	NT	mg/Kg	15			M96176
Nickel, Ni	5.5	mg/Kg	2.0	1.0	12/03/96	M96176
Lead, Pb	188	mg/Kg	2.0	1.0	12/03/96	M96176
Antimony, Sb	NT	mg/Kg	1.5			M96176
Selenium, Se	ND	mg/Kg	2.5	1.0	12/03/96	M96176
Vanadium, V	NT	mg/Kg	0.15			M96176
Zinc, Zn	NT	mg/Kg	5.0			M96176
pH/SW846 9045B						
pH	8.0	pH Units	0.10	1.0	12/09/96	SPH247
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96117
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/17/96	W96117
SVOA(SOX) Soil/SW846 8270B	12/02/96	N/A				
n-Nitrosodimethylamine	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
Pyridine	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
Aniline	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
bis(2-Chloroethyl) Ether	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
2-Chlorophenol	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
1,3-Dichlorobenzene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
1,4-Dichlorobenzene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Phenol	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
1,2-Dichlorobenzene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Benzyl Alcohol	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
[illegible]Chloroisopropyl) Ether	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
[illegible]ylphenol / O-Cresol	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
[illegible]loroethane	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
[illegible]oso-di-n-propylamine	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Nitrobenzene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131

D: 9611250-02B
Sample ID: CA33B/002-96-1125-1450

Collected: 11/25/96 14:50:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA(SOX) Soil/SW846 8270B						
3/4 Methylphenol / M/P-Cresol	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Isophorone	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
2-Nitrophenol	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
bis(2-Chloroethoxy) Methane	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
2,4-Dimethylphenol	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
1,2,4-Trichlorobenzene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Naphthalene	82	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Benzoic Acid	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
2,4-Dichlorophenol	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
4-Chloroaniline	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
Hexachlorobutadiene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
2-Methylnaphthalene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
4-Chloro-3-methylphenol	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Hexachlorocyclopentadiene	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
2,4,6-Trichlorophenol	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
2,4,5-Trichlorophenol	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
2-Chloronaphthalene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
2-Nitroaniline	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
Acenaphthylene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Dimethylphthalate	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
2,6-Dinitrotoluene	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
Acenaphthene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
3-Nitroaniline	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
[illegible]nzofuran	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
[illegible]nitrotoluene	ND	mg/Kg	2.5	33	12/12/96	SMSSVOA131
[illegible]ne	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
[illegible]rophenyl-phenylether	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
[illegible]ylphthalate	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
4-Nitrophenol	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
4,6-Dinitro-2-methylphenol	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
n-Nitrosodiphenylamine	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
4-Nitroaniline	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
4-Bromophenyl-phenylether	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Hexachlorobenzene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Pentachlorophenol	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
2,4-Dinitrophenol	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
Phenanthrene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Anthracene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Di-n-butylphthalate	ND	mg/Kg	5.0	33	12/12/96	SMSSVOA131
Fluoranthene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Pyrene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Butylbenzylphthalate	38	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Benzo(a)anthracene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Chrysene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
3,3'-Dichlorobenzidine	ND	mg/Kg	10	33	12/12/96	SMSSVOA131
bis(2-Ethylhexyl)phthalate	84	mg/Kg	2.5	33	12/12/96	SMSSVOA131
Di-n-octyl phthalate	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Benzo(b)+(k)fluoranthene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
1-Methylnaphthalene	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
Benzo(a)pyrene	ND	mg/Kg	0.50	33	12/12/96	SMSSVOA131
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
Benzo(g,h,i)perylene	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
2,3,4,6-Tetrachlorophenol	ND	mg/Kg	2.5	33	12/12/96	SMSSVOA131
Azobenzene	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131
Dibenz(a,h)anthracene	ND	mg/Kg	1.0	33	12/12/96	SMSSVOA131

ID: 9611250-02C
ple ID: CA33B/002-96-1125-1450

Collected: 11/25/96 14:50:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	7000	mg/Kg	5.0	50	12/04/96	W9697

Lab ID: 9611250-03A
Sample ID: CA47A/002-96-1125-1515

Collected: 11/25/96 15:15:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND	mg/Kg	0.010	4300	12/09/96	SMSVOA409
Chloromethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Iodomethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Acetone	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Bromomethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Vinyl Chloride	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Chloroethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Trichlorofluoromethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Freon 113	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Carbon Disulfide	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
^ ^olein	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
lene Chloride	ND	mg/Kg	0.020	4300	12/09/96	SMSVOA409
.chloroethene	ND	mg/Kg	0.010	4300	12/09/96	SMSVOA409
ichloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
,onitrile	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND	mg/Kg	0.020	4300	12/09/96	SMSVOA409
Chloroform	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,2-Dichloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Vinyl Acetate	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
2-Butanone (MEK)	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Carbon Tetrachloride	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Bromodichloromethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,2-Dichloropropane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Dibromomethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Trichloroethene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Chlorodibromomethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Ethyl Methacrylate	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Benzene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Bromoform	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
4-Methyl-2-Pentanone (MIBK)	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Tetrachloroethene	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
1,1,2,2-Tetrachloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,2-Dibromoethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
2-Hexanone (MBK)	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Toluene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Chlorobenzene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Ethylbenzene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1 4-Dichloro-2-Butene	110	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
'e	ND	mg/Kg	0.010	4300	12/09/96	SMSVOA409
.ylene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
'ne	380	mg/Kg	0.0020	4300	12/09/96	SMSVOA409
Trichloropropane	57	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
	ND	mg/Kg	0.010	4300	12/09/96	SMSVOA409

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ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SP.
MIDLAND, TEXAS 7[illegible]05
(915) 570-1116

Lab job no.: _____ Date _____

Page 1 of 2

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client _____ Project Manager / Contact _____

Address _____ Telephone No. _____

City / State / Zip _____ Fax No. _____

Project Name / Number _____ Samplers: *(Signature)* _____

Contract / Purchase Order / Quote _____

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required: 8260	8270 (with PAH)	PAH	TCLP	TRPH						Remarks
01	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	✓										
02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					✓						
03	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	✓										
04	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
05	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
06	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
07	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
08	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
09	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]											
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	✓										

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature [illegible]	[illegible]	Signature [illegible]	Signature		Signature
Printed [illegible]	Time [illegible]	Printed [illegible]	Printed	Time	Printed
Company [illegible]		Company [illegible]	Company		Company
Reason [illegible]		Reason	Reason		Reason

Method of Shipment: _____

Shipment No. _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CC[illegible]R

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1910 N. BIG SP
MIDLAND, TEXAS 79705
(915) 570-1116

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City / State / Zip _____

Project Name / Number _____

Contract / Purchase Order / Quote _____

Project Manager / Contact _____

Telephone No. _____

Fax No. _____

Samplers: *(Signature)* _____

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required										Remarks

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature		Signature	Signature		Signature
Printed	Time	Printed	Printed	Time	Printed
Company		Company	Company		Company
Reason		Reason	Reason		Reason

Method of Shipment: _____

Shipment No. _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

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MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client _____ Project Manager / Contact _____

Address _____ Telephone No. _____

City / State / Zip _____ Fax No. _____

Project Name / Number _____ Samplers: *(Signature)* _____

Contract / Purchase Order / Quote _____

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required: BTEX	8260	8270	METALS	TRPH	PHENOLS						Remarks

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature		Signature	Signature		Signature
Printed	Time	Printed	Printed	Time	Printed
Company		Company	Company		Company
Reason		Reason	Reason		Reason

Method of Shipment: _____

Shipment No. _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CC ..R

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325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-870
FAX: (303) 469-525

USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-070
Date: 09/24/96 09:20
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/12/96
Date Completed: 09/19/96

SAMPLE IDENTIFICATION

Sample Number	Client Description	Sample Number	Client Description
01	CA391001-96-0911-0730	05	CA391002-96-0911-0740
02	CA461001-96-0911-0830	06	CA461002-96-0911-0840
03	CA381001-96-0911-1005	07	CA381002-96-0911-1010
04	Trip Blank		

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]

- Solid and waste samples are reported on a "dry weight" basis, i.e. correction is made for moisture content.

Problems encountered with the analyses are discussed in the following narrative:

These results include 8270 BNA analytical dilution results for the following samples: CA391002-96-0911-0740 for Naphthalene and Bis(2-ethylhexyl)phthalate.
CA461002-96-0911-0840 for Butylbenzylphthalate and Bis(2-ethylhexyl)-phthalate.
CA381002-96-0911-1010 for Naphthalene and Bis(2-ethylhexyl)phthalate.

Sample CA381002-96-0911-1010 has a Naphthalene value which was not included in the initial report. This is due to sample matrix which prevented the compound from being detected through the sample matrix effect before the sample extract was diluted. The same applies for sample CA461002-96-0911-0840 and target analyte Bis(2-ethylhexyl)phthalate which was also not reported in the initial results.

The soil samples for this project contain some of the phthalate ester target compounds for the 8270 BNA analyses. The associated method blank for the above samples is reported with target analyte Di-n-butylphthalate @ 8000 ug/Kg at a reporting limit of 330 ug/Kg. Per SW-846 protocol the method blank must have all target analytes below established reporting limits.

Samples CA381001-96-0911-1005 and CA381002-96-0911-1010 are reported with one base/neutral surrogate standard recovery outside quality control windows for the 8270 analysis. This is due to sample matrix and non-target compound interference. The internal standard area recoveries for samples CA391002-96-0911-0740, CA381002-96-0911-1010 and CA461002-96-0911-0840 were below quality control windows. This is also due to sample matrix and will be verified in secondary analyses.

Sample: **03A** **CA381001-96-0911-1005** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.25	mg/Kg	09/19/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	09/13/96
Sulfide, Reactive	SW 7.3.4.2	27		16	mg/Kg	09/19/96
pH	EPA 150.1	6.7		0.10	pH units	09/12/96

Sample: 03B CA381001-96-0911-1005 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	09/17/96
Chloromethane		ND		10	ug/L	09/17/96
Vinyl Chloride		ND		2.0	ug/L	09/17/96
Bromomethane		ND		10	ug/L	09/17/96
Chloroethane		ND		10	ug/L	09/17/96
Trichlorofluoromethane		ND		10	ug/L	09/17/96
1,1-Dichloroethene		ND		5.0	ug/L	09/17/96
Trichlorotrifluoroethane		ND		3.0	ug/L	09/17/96
Methylene Chloride		ND		10	ug/L	09/17/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	09/17/96
1,1-Dichloroethane		ND		5.0	ug/L	09/17/96
2,2-Dichloropropane		ND		5.0	ug/L	09/17/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	09/17/96
Bromochloromethane		ND		5.0	ug/L	09/17/96
Chloroform		ND		3.0	ug/L	09/17/96
1,1,1-Trichloroethane		ND		5.0	ug/L	09/17/96
Carbon Tetrachloride		ND		10	ug/L	09/17/96
1,1-Dichloropropene		ND		5.0	ug/L	09/17/96
Benzene		ND		1.0	ug/L	09/17/96
1,2-Dichloroethane		ND		5.0	ug/L	09/17/96
Trichloroethene		ND		3.0	ug/L	09/17/96
1,2-Dichloropropane		ND		3.0	ug/L	09/17/96
Dibromomethane		ND		3.0	ug/L	09/17/96
Bromodichloromethane		ND		3.0	ug/L	09/17/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	09/17/96
Toluene		3.2		1.0	ug/L	09/17/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	09/17/96
1,1,2-Trichloroethane		ND		3.0	ug/L	09/17/96
Tetrachloroethene		ND		3.0	ug/L	09/17/96
1,3-Dichloropropane		ND		3.0	ug/L	09/17/96
Dibromochloromethane		ND		3.0	ug/L	09/17/96
1,2-Dibromoethane		ND		3.0	ug/L	09/17/96
Chlorobenzene		ND		3.0	ug/L	09/17/96
Ethylbenzene		ND		1.0	ug/L	09/17/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	09/17/96
m,p-Xylenes		1.5		1.0	ug/L	09/17/96
o-Xylene		0.97	J	1.0	ug/L	09/17/96
Styrene		ND		3.0	ug/L	09/17/96
Bromoform		ND		5.0	ug/L	09/17/96
Isopropylbenzene		ND		2.0	ug/L	09/17/96
Bromobenzene		ND		3.0	ug/L	09/17/96
n-Propylbenzene		ND		5.0	ug/L	09/17/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	09/17/96
1,2,3-Trichloropropane		ND		3.0	ug/L	09/17/96
2-Chlorotoluene		ND		1.0	ug/L	09/17/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	09/17/96
4-Chlorotoluene		ND		1.0	ug/L	09/17/96
tert-Butylbenzene		ND		5.0	ug/L	09/17/96

Sample: **03B** **CA381001-96-0911-1005** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units		Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)					
1,2,4-Trimethylbenzene		3.0	J	5.0	ug/L		09/17/96
sec-Butylbenzene		ND		5.0	ug/L		09/17/96
4-Isopropyltoluene		ND		5.0	ug/L		09/17/96
1,3-Dichlorobenzene		ND		2.0	ug/L		09/17/96
1,4-Dichlorobenzene		ND		2.0	ug/L		09/17/96
n-Butylbenzene		ND		5.0	ug/L		09/17/96
1,2-Dichlorobenzene		ND		5.0	ug/L		09/17/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L		09/17/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L		09/17/96
Hexachlorobutadiene		ND		5.0	ug/L		09/17/96
Napthalene		4.8	J	5.0	ug/L		09/17/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L		09/17/96
Acetone		59		50	ug/L		09/17/96
Acrylonitrile		ND		10	ug/L		09/17/96
2-Butanone		55		50	ug/L		09/17/96
Carbon Disulfide		ND		5.0	ug/L		09/17/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L		09/17/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L		09/17/96
2-Hexanone		ND		20	ug/L		09/17/96
Iodomethane		ND		5.0	ug/L		09/17/96
4-Methyl-2-pentanone		ND		20	ug/L		09/17/96
Vinyl Acetate		ND		5.0	ug/L		09/17/96
tert-Butyl methyl ether		ND		5.0	ug/L		09/17/96
SURROGATES, % Recovery							
1,2-Dichloroethane-d4		102		Min:	80	Max:	120
Toluene d-8		102		Min:	88	Max:	110
p-Bromofluorobenzene		108		Min:	86	Max:	115

Sample: **03D** **CA381001-96-0911-1005** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		10	ug/L	09/17/96
bis(2-Chloroethyl) ether		ND		10	ug/L	09/17/96
2-Chlorophenol		ND		10	ug/L	09/17/96
1,3-Dichlorobenzene		ND		10	ug/L	09/17/96
1,4-Dichlorobenzene		ND		10	ug/L	09/17/96
Benzyl alcohol		ND		20	ug/L	09/17/96
1,2-Dichlorobenzene		ND		10	ug/L	09/17/96
2-Methylphenol		ND		10	ug/L	09/17/96
bis(2-Chloroisopropyl) ether		ND		10	ug/L	09/17/96
4-Methylphenol		ND		10	ug/L	09/17/96
n-Nitroso-di-n-propylamine		ND		10	ug/L	09/17/96
Hexachloroethane		ND		10	ug/L	09/17/96
Nitrobenzene		ND		10	ug/L	09/17/96
Isophorone		ND		10	ug/L	09/17/96
2-Nitrophenol		ND		10	ug/L	09/17/96
2,4-Dimethylphenol		ND		10	ug/L	09/17/96
Benzoic acid		ND		50	ug/L	09/17/96
bis(2-Chloroethoxy)methane		ND		10	ug/L	09/17/96
2,4-Dichlorophenol		ND		10	ug/L	09/17/96
1,2,4-Trichlorobenzene		ND		10	ug/L	09/17/96
Naphthalene		3.7	J	10	ug/L	09/17/96
4-Chloroaniline		ND		10	ug/L	09/17/96
Hexachlorobutadiene		ND		10	ug/L	09/17/96
4-Chloro-3-methylphenol		ND		10	ug/L	09/17/96
2-Methylnaphthalene		1.4	J	10	ug/L	09/17/96
Hexachlorocyclopentadiene		ND		10	ug/L	09/17/96
2,4,6-Trichlorophenol		ND		10	ug/L	09/17/96
2,4,5-Trichlorophenol		ND		50	ug/L	09/17/96
2-Chloronaphthalene		ND		10	ug/L	09/17/96
2-Nitroaniline		ND		50	ug/L	09/17/96
Dimethylphthalate		ND		10	ug/L	09/17/96
Acenaphthylene		ND		10	ug/L	09/17/96
3-Nitroaniline		ND		50	ug/L	09/17/96
Acenaphthene		ND		10	ug/L	09/17/96
2,4-Dinitrophenol		ND		50	ug/L	09/17/96
4-Nitrophenol		ND		50	ug/L	09/17/96
Dibenzofuran		ND		10	ug/L	09/17/96
2,6-Dinitrotoluene		ND		10	ug/L	09/17/96
2,4-Dinitrotoluene		ND		10	ug/L	09/17/96
Diethylphthalate		ND		10	ug/L	09/17/96
4-Chlorophenyl-phenylether		ND		10	ug/L	09/17/96
Fluorene		ND		10	ug/L	09/17/96
4-Nitroaniline		ND		10	ug/L	09/17/96
4,6-Dinitro-2-methylphenol		ND		50	ug/L	09/17/96
n-Nitrosodiphenylamine		ND		10	ug/L	09/17/96
4-Bromophenyl-phenylether		ND		10	ug/L	09/17/96
Hexachlorobenzene		ND		10	ug/L	09/17/96

Sample: 03D CA381001-96-0911-1005 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units		Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)					
Pentachlorophenol		ND		50	ug/L		09/17/96
Phenanthrene		ND		10	ug/L		09/17/96
Anthracene		ND		10	ug/L		09/17/96
Di-n-butylphthalate		ND		10	ug/L		09/17/96
Fluoranthene		ND		10	ug/L		09/17/96
Pyrene		ND		10	ug/L		09/17/96
Butylbenzylphthalate		ND		10	ug/L		09/17/96
3,3'-Dichlorobenzidine		ND		20	ug/L		09/17/96
Benzo(a)Anthracene		ND		10	ug/L		09/17/96
Chrysene		ND		10	ug/L		09/17/96
Bis(2-Ethylhexyl)phthalate		14		10	ug/L		09/17/96
Di-n-octylphthalate		ND		10	ug/L		09/17/96
Benzo(b)fluoranthene		ND		10	ug/L		09/17/96
Benzo(k)fluoranthene		ND		10	ug/L		09/17/96
Benzo(a)pyrene		ND		10	ug/L		09/17/96
Indeno(1,2,3-cd)pyrene		ND		10	ug/L		09/17/96
Dibenz(a,h)anthracene		ND		10	ug/L		09/17/96
Benzo(g,h,i)perylene		ND		10	ug/L		09/17/96
SURROGATES, % Recovery							
2-Fluorophenol		60.7		Min:	21	Max:	100
d5-Phenol		86.7		Min:	10	Max:	94
d5-Nitrobenzene		120	*	Min:	35	Max:	114
2-Fluorobiphenyl		96.0		Min:	43	Max:	116
2,4,6-Tribromophenol		100		Min:	10	Max:	123
d14-Terphenyl		110		Min:	33	Max:	141

Sample: 03E CA381001-96-0911-1005 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/18/96
Barium		0.25		0.020	mg/L	09/18/96
Cadmium		ND		0.0050	mg/L	09/18/96
Chromium		ND		0.010	mg/L	09/18/96
Lead		ND		0.050	mg/L	09/18/96
Selenium		ND		0.10	mg/L	09/18/96
Silver		ND		0.010	mg/L	09/18/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/17/96

Sample: **07A** **CA381002-96-0911-1010** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Percent Moisture	ASTM D2216	78.6		0.1	WT%	09/12/96
Semivolatile Organics	SW 8270A					
Phenol		ND		1600	ug/Kg-DRY	09/19/96
bis(2-Chloroethyl) ether		ND		1600	ug/Kg-DRY	09/19/96
2-Chlorophenol		ND		1600	ug/Kg-DRY	09/19/96
1,3-Dichlorobenzene		ND		1600	ug/Kg-DRY	09/19/96
1,4-Dichlorobenzene		ND		1600	ug/Kg-DRY	09/19/96
Benzyl alcohol		ND		3100	ug/Kg-DRY	09/19/96
1,2-Dichlorobenzene		ND		1600	ug/Kg-DRY	09/19/96
2-Methylphenol		ND		1600	ug/Kg-DRY	09/19/96
bis(2-Chloroisopropyl) ether		ND		1600	ug/Kg-DRY	09/19/96
4-Methylphenol		ND		1600	ug/Kg-DRY	09/19/96
n-Nitroso-di-n-propylamine		ND		1600	ug/Kg-DRY	09/19/96
Hexachloroethane		ND		1600	ug/Kg-DRY	09/19/96
Nitrobenzene		ND		1600	ug/Kg-DRY	09/19/96
Isophorone		ND		1600	ug/Kg-DRY	09/19/96
2-Nitrophenol		ND		1600	ug/Kg-DRY	09/19/96
2,4-Dimethylphenol		ND		1600	ug/Kg-DRY	09/19/96
Benzoic acid		ND		7800	ug/Kg-DRY	09/19/96
bis(2-Chloroethoxy)methane		ND		1600	ug/Kg-DRY	09/19/96
2,4-Dichlorophenol		ND		1600	ug/Kg-DRY	09/19/96
1,2,4-Trichlorobenzene		ND		1600	ug/Kg-DRY	09/19/96
Naphthalene		25000	D	16000	ug/Kg-DRY	09/20/96
4-Chloroaniline		ND		1600	ug/Kg-DRY	09/19/96
Hexachlorobutadiene		ND		1600	ug/Kg-DRY	09/19/96
4-Chloro-3-methylphenol		ND		3100	ug/Kg-DRY	09/19/96
2-Methylnaphthalene		ND		1600	ug/Kg-DRY	09/19/96
Hexachlorocyclopentadiene		ND		1600	ug/Kg-DRY	09/19/96
2,4,6-Trichlorophenol		ND		1600	ug/Kg-DRY	09/19/96
2,4,5-Trichlorophenol		ND		7800	ug/Kg-DRY	09/19/96
2-Chloronaphthalene		ND		1600	ug/Kg-DRY	09/19/96
2-Nitroaniline		ND		7800	ug/Kg-DRY	09/19/96
Dimethylphthalate		ND		1600	ug/Kg-DRY	09/19/96
Acenaphthylene		ND		1600	ug/Kg-DRY	09/19/96
3-Nitroaniline		ND		7800	ug/Kg-DRY	09/19/96
Acenaphthene		ND		1600	ug/Kg-DRY	09/19/96
2,4-Dinitrophenol		ND		7800	ug/Kg-DRY	09/19/96
4-Nitrophenol		ND		7800	ug/Kg-DRY	09/19/96
Dibenzofuran		ND		1600	ug/Kg-DRY	09/19/96
2,6-Dinitrotoluene		ND		1600	ug/Kg-DRY	09/19/96
2,4-Dinitrotoluene		ND		1600	ug/Kg-DRY	09/19/96
Diethylphthalate		ND		1600	ug/Kg-DRY	09/19/96
4-Chlorophenyl-phenylether		ND		1600	ug/Kg-DRY	09/19/96
Fluorene		ND		1600	ug/Kg-DRY	09/19/96
4-Nitroaniline		ND		7800	ug/Kg-DRY	09/19/96
4,6-Dinitro-2-methylphenol		ND		7800	ug/Kg-DRY	09/19/96
n-Nitrosodiphenylamine		ND		1600	ug/Kg-DRY	09/19/96
4-Bromophenyl-phenylether		ND		1600	ug/Kg-DRY	09/19/96
Hexachlorobenzene		ND		1600	ug/Kg-DRY	09/19/96

Sample: 07A CA381002-96-0911-1010 Collected: 09/11/96 Matrix: SLUDGE

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Pentachlorophenol		ND		7800	ug/Kg-DRY	09/19/96
Phenanthrene		ND		1600	ug/Kg-DRY	09/19/96
Anthracene		ND		1600	ug/Kg-DRY	09/19/96
Di-n-butylphthalate		ND		1600	ug/Kg-DRY	09/19/96
Fluoranthene		ND		1600	ug/Kg-DRY	09/19/96
Pyrene		ND		1600	ug/Kg-DRY	09/19/96
Butylbenzylphthalate		ND		1600	ug/Kg-DRY	09/19/96
3,3'-Dichlorobenzidine		ND		3100	ug/Kg-DRY	09/19/96
Benzo(a)Anthracene		ND		1600	ug/Kg-DRY	09/19/96
Chrysene		1900		1600	ug/Kg-DRY	09/19/96
Bis(2-Ethylhexyl)phthalate		260000	D	16000	ug/Kg-DRY	09/20/96
Di-n-octylphthalate		ND		1600	ug/Kg-DRY	09/19/96
Benzo(b)fluoranthene		ND		1600	ug/Kg-DRY	09/19/96
Benzo(k)fluoranthene		ND		1600	ug/Kg-DRY	09/19/96
Benzo(a)pyrene		ND		1600	ug/Kg-DRY	09/19/96
Indeno(1,2,3-cd)pyrene		ND		1600	ug/Kg-DRY	09/19/96
Dibenz(a,h)anthracene		ND		1600	ug/Kg-DRY	09/19/96
Benzo(g,h,i)perylene		ND		1600	ug/Kg-DRY	09/19/96
SURROGATES, % Recovery						
2-Fluorophenol		47.8		Min:	25	Max: 121
d5-Phenol		60.9		Min:	24	Max: 113
d5-Nitrobenzene		338	*	Min:	23	Max: 120
2-Fluorobiphenyl		61.9		Min:	30	Max: 115
2,4,6-Tribromophenol		73.9		Min:	19	Max: 122
d14-Terphenyl		113		Min:	18	Max: 137

Sample: **07A** **CA381002-96-0911-1010** Collected: **09/11/96** **Matrix: SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		5800	ug/Kg-DRY	09/19/96
Chloromethane		ND		5800	ug/Kg-DRY	09/19/96
Vinyl Chloride		ND		1200	ug/Kg-DRY	09/19/96
Bromomethane		ND		5800	ug/Kg-DRY	09/19/96
Chloroethane		ND		5800	ug/Kg-DRY	09/19/96
Trichlorofluoromethane		ND		5800	ug/Kg-DRY	09/19/96
1,1-Dichloroethene		ND		2900	ug/Kg-DRY	09/19/96
Trichlorotrifluoroethane		ND		1800	ug/Kg-DRY	09/19/96
Methylene Chloride		ND		5800	ug/Kg-DRY	09/19/96
trans-1,2-Dichloroethene		ND		1800	ug/Kg-DRY	09/19/96
1,1-Dichloroethane		ND		2900	ug/Kg-DRY	09/19/96
2,2-Dichloropropane		ND		2900	ug/Kg-DRY	09/19/96
cis-1,2-Dichloroethene		ND		1800	ug/Kg-DRY	09/19/96
Bromochloromethane		ND		2900	ug/Kg-DRY	09/19/96
Chloroform		ND		1800	ug/Kg-DRY	09/19/96
1,1,1-Trichloroethane		ND		2900	ug/Kg-DRY	09/19/96
Carbon Tetrachloride		ND		5800	ug/Kg-DRY	09/19/96
1,1-Dichloropropene		ND		2900	ug/Kg-DRY	09/19/96
Benzene		ND		580	ug/Kg-DRY	09/19/96
1,2-Dichloroethane		ND		2900	ug/Kg-DRY	09/19/96
Trichloroethene		ND		1800	ug/Kg-DRY	09/19/96
1,2-Dichloropropane		ND		1800	ug/Kg-DRY	09/19/96
Dibromomethane		ND		1800	ug/Kg-DRY	09/19/96
Bromodichloromethane		ND		1800	ug/Kg-DRY	09/19/96
cis-1,3-Dichloropropene		ND		1800	ug/Kg-DRY	09/19/96
Toluene		2300	D	580	ug/Kg-DRY	09/19/96
trans-1,3-Dichloropropene		ND		2900	ug/Kg-DRY	09/19/96
1,1,2-Trichloroethane		ND		1800	ug/Kg-DRY	09/19/96
Tetrachloroethene		ND		1800	ug/Kg-DRY	09/19/96
1,3-Dichloropropane		ND		1800	ug/Kg-DRY	09/19/96
Dibromochloromethane		ND		1800	ug/Kg-DRY	09/19/96
1,2-Dibromoethane		ND		1800	ug/Kg-DRY	09/19/96
Chlorobenzene		ND		1800	ug/Kg-DRY	09/19/96
Ethylbenzene		9000	D	580	ug/Kg-DRY	09/19/96
1,1,1,2-Tetrachloroethane		ND		1800	ug/Kg-DRY	09/19/96
m,p-Xylenes		17000	D	580	ug/Kg-DRY	09/19/96
o-Xylene		9100	D	580	ug/Kg-DRY	09/19/96
Styrene		ND		1800	ug/Kg-DRY	09/19/96
Bromoform		ND		2900	ug/Kg-DRY	09/19/96
Isopropylbenzene		3400	D	1200	ug/Kg-DRY	09/19/96
Bromobenzene		ND		1800	ug/Kg-DRY	09/19/96
n-Propylbenzene		5500	D	2900	ug/Kg-DRY	09/19/96
1,1,2,2-Tetrachlorethane		ND		2900	ug/Kg-DRY	09/19/96
1,2,3-Trichloropropane		ND		1800	ug/Kg-DRY	09/19/96
2-Chlorotoluene		ND		580	ug/Kg-DRY	09/19/96
1,3,5-Trimethylbenzene		14000	D	2900	ug/Kg-DRY	09/19/96
4-Chlorotoluene		ND		580	ug/Kg-DRY	09/19/96
tert-Butylbenzene		ND		2900	ug/Kg-DRY	09/19/96

Sample: **07A** **CA381002-96-0911-1010** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
1,2,4-Trimethylbenzene		55000	D	2900	ug/Kg-DRY	09/19/96
sec-Butylbenzene		5100	D	2900	ug/Kg-DRY	09/19/96
4-Isopropyltoluene		33000	D	2900	ug/Kg-DRY	09/19/96
1,3-Dichlorobenzene		ND		1200	ug/Kg-DRY	09/19/96
1,4-Dichlorobenzene		ND		1200	ug/Kg-DRY	09/19/96
n-Butylbenzene		ND		2900	ug/Kg-DRY	09/19/96
1,2-Dichlorobenzene		ND		2900	ug/Kg-DRY	09/19/96
1,2-Dibromo-3-chloropropane		ND		5800	ug/Kg-DRY	09/19/96
1,2,4-Trichlorobenzene		ND		2900	ug/Kg-DRY	09/19/96
Hexachlorobutadiene		ND		2900	ug/Kg-DRY	09/19/96
Napthalene		81000	D	2900	ug/Kg-DRY	09/19/96
1,2,3-Trichlorobenzene		ND		2900	ug/Kg-DRY	09/19/96
Acetone		ND		29000	ug/Kg-DRY	09/19/96
Acrylonitrile		ND		5800	ug/Kg-DRY	09/19/96
2-Butanone		ND		29000	ug/Kg-DRY	09/19/96
Carbon Disulfide		ND		2900	ug/Kg-DRY	09/19/96
trans-1,4-Dichloro-2-butene		ND		5800	ug/Kg-DRY	09/19/96
2-Chloroethyl Vinyl Ether		ND		5800	ug/Kg-DRY	09/19/96
2-Hexanone		ND		12000	ug/Kg-DRY	09/19/96
Iodomethane		ND		2900	ug/Kg-DRY	09/19/96
4-Methyl-2-pentanone		ND		12000	ug/Kg-DRY	09/19/96
Vinyl Acetate		ND		2900	ug/Kg-DRY	09/19/96
tert-Butyl methyl ether		ND		2900	ug/Kg-DRY	09/19/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		103		Min: 80	Max: 120	
Toluene d-8		103		Min: 81	Max: 117	
p-Bromofluorobenzene		100		Min: 74	Max: 121	

Sample: **07B** **CA381002-96-0911-1010** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.25	mg/Kg	09/19/96
Ignitability	EPA 1010	>200		47	Deg F/latm	09/13/96
Sulfide, Reactive	SW 7.3.4.2	67		16	mg/Kg	09/19/96
pH	EPA 9045A	6.8		0.10	pH units	09/12/96

Sample: **07C** **CA381002-96-0911-1010** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/18/96
Barium		0.52		0.020	mg/L	09/18/96
Cadmium		ND		0.0050	mg/L	09/18/96
Chromium		0.014		0.010	mg/L	09/18/96
Lead		ND		0.050	mg/L	09/18/96
Selenium		ND		0.10	mg/L	09/18/96
Silver		ND		0.010	mg/L	09/18/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/17/96

THE FOLLOWING CODES APPLY TO THE ANALYTICAL REPORT

RESULT field...
- ND = not detected at the reported limit
- NA = analyte not applicable (see case narrative/methods for discussion)

Q (qualifier) field...

GENERAL:
- * = Recovery or %RPD outside method specifications
- H = value is estimated due to analysis run outside EPA holding times
- E = reported concentration is above the instrument calibration range
- D = analyte was diluted to bring within instrument calibration range or to remove matrix interferences

ORGANIC ANALYSIS DATA QUALIFIERS:
- B = analyte was detected in the laboratory method blank
- J = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)

INORGANIC ANALYSIS DATA QUALIFIERS:
- B = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)
- A = post digestion spike did not meet criteria (70-130%), therefore the reporting limit was raised by a factor of two to reflect spike failure
- S = reported value determined by the Method of Standard Additions

1311EM:	TCLP EXTRACTION Toxicity Characteristic Leachate Procedure (Metals)	METHOD: 1311
1311HG:	MERCURY, TCLP Extracted Maximum Contaminant Level (mg/L)	METHOD: 7470 0.2
ICPTW	Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Flame Atomic Absorption (FAA) or Inductively Coupled Plasma (ICP) Spectroscopy according to EPA 200.0 and/or SW-846.	METHOD: 200.0/3010A
1311_M:	METALS (ICP), TCLP Extracted Maximum Contaminant Level (mg/L) Arsenic Barium Cadmium Chromium Lead Selenium Silver	METHOD: 3010/6010 5.0 100 1.0 5.0 5.0 1.0 5.0
8260_S:	VOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8260
8260_W:	VOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8260
3520_B:	Continuous Liquid-Liquid Extraction - BNAs The continuous liquid-liquid extraction used with this method (3520) is modified to conform with the EPA-CLP methodology (OLM01.0) in which dual pH extraction has been replaced with one 18 hour extraction at a pH of <2.0.	METHOD: 3520B
3540_B:	Soxhlet Extraction - BNA	METHOD: 3540B
8270_S:	SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8270
8270_W:	SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8270
PMOIST:	PERCENT MOISTURE	METHOD: ASTM D2216
IGN_S:	IGNITABILITY	METHOD: 1010
IGN_W:	IGNITABILITY - Pensky-Martens Closed Cup	METHOD: EPA 1010
PH_S:	pH (ELECTRODE)	METHOD: 9045
PH_W:	pH (ELECTRODE)	METHOD: 150.1
RCN_S:	CYANIDE, Reactive EPA Action Level: 250 mg HCN/Kg waste Due to method limitations spike recoveries are minimal.	METHOD: SW 7.3.3.2

RS2_S: REACTIVE SULFIDE METHOD: 376.2
EPA Action Level: 500 mg H_2S/Kg waste
Prepared by SW 7.3.4.2.
Due to method limitations spike recoveries are minimal.

Sample: 01A CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 01B CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 01D CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 01E CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 02A CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 02B CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 02D CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 02E CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 03A CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 03B CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 03D CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 03E CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 04A Trip Blank Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 05A CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/18/96

Sample: 05B CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 05C CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 06A CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/18/96

Sample: 06B CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 06C CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 07A CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/19/96

Sample: 07B CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 07C CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

ANALYTICA ENVIRONMENTAL LABORATORIES

Quick turn

CHAIN OF CUSTODY RECORD

325 Interlocken Parkwa e 200
Broomfield, Colorao 1
(303) 469-8868 or 1-800-873-8707
FAX: (303) 469-5254

CLIENT NAME	USACE
CLIENT CONTACT	BRIAN JORDAN
CLIENT ADDRESS	4101 Jefferson Pl. NE Alb NM 87109
PROJECT ID/DESCRIPTION	Cannon OWS
TELEPHONE	505-342-3472
FAX	505 342 3497
P. O. NO.	

BRCRA Metals

ANALYTICA USE ONLY
№ 02796

CSN
LGN
LOC
QC
PM
DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Total Lead	VOC 8260	SVOC 8270/8310	TCLP Metals	Cadmium Chrom						
11Sept96	0740	CA39/002-96-0911-0740	3	1	1	1	1							
11Sept96	0840	CA46/002-96-0911-0840	3	1	1	1	1							
11Sept96	1010	CA28/002-96-0911-1010	3	1	1	1	1							

COMMENTS Quick Turn (5 days)

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	11Sept96 1155	Fed Ex					

003-0294

ANALYTICA ENVIRONMENTAL LABORATORIES

Quick Turn

CHAIN OF CUSTODY RECORD

325 Interlocken Parkwa 'e 200
Broomfield, Colorac 21
(303) 469-8868 or 1-800-3 3-8707
FAX: (303) 469-5254

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl NE, Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3472

P. O. NO.:

8RCRA

ANALYTICA USE ONLY: NO 002795

CSN:

LGN:

LOC:

QC:

PM:

DUE:

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity pH Ign	VOC-8260	SVOC-8270	TCLP Metals							
11Sep96	0730	CA39/001-96-0911-0730	5	1	2	1	1							
11Sep96	0830	CA46/001-96-0911-0830	5	1	2	1	1							
11Sep96	1005	CA35/001-96-0911-1005	5	1	2	1	1							
—	—	TRIP Blank	1		1									

COMMENTS: Quick Turn of 5 days

MEANS OF DELIVERY: Fed EX

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	9/11/96 1155	Fed EX					

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES
an Analytica Group company

325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-870
FAX: (303) 469-525

USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-070
Date: 09/24/96 09:20
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/12/96
Date Completed: 09/19/96

SAMPLE IDENTIFICATION

Sample Number	Client Description	Sample Number	Client Description
01	CA391001-96-0911-0730	05	CA391002-96-0911-0740
02	CA461001-96-0911-0830	06	CA461002-96-0911-0840
03	CA381001-96-0911-1005	07	CA381002-96-0911-1010
04	Trip Blank		

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]

- Solid and waste samples are reported on a "dry weight" basis, i.e. correction is made for moisture content.

Problems encountered with the analyses are discussed in the following narrative:

These results include 8270 BNA analytical dilution results for the following samples: CA391002-96-0911-0740 for Naphthalene and Bis(2-ethylhexyl)phthalate.
CA461002-96-0911-0840 for Butylbenzylphthalate and Bis(2-ethylhexyl)-phthalate.
CA381002-96-0911-1010 for Naphthalene and Bis(2-ethylhexyl)phthalate.

Sample CA381002-96-0911-1010 has a Naphthalene value which was not included in the initial report. This is due to sample matrix which prevented the compound from being detected through the sample matrix effect before the sample extract was diluted. The same applies for sample CA461002-96-0911-0840 and target analyte Bis(2-ethylhexyl)phthalate which was also not reported in the initial results.

The soil samples for this project contain some of the phthalate ester target compounds for the 8270 BNA analyses. The associated method blank for the above samples is reported with target analyte Di-n-butylphthalate @ 8000 ug/Kg at a reporting limit of 330 ug/Kg. Per SW-846 protocol the method blank must have all target analytes below established reporting limits.

Samples CA381001-96-0911-1005 and CA381002-96-0911-1010 are reported with one base/neutral surrogate standard recovery outside quality control windows for the 8270 analysis. This is due to sample matrix and non-target compound interference. The internal standard area recoveries for samples CA391002-96-0911-0740, CA381002-96-0911-1010 and CA461002-96-0911-0840 were below quality control windows. This is also due to sample matrix and will be verified in secondary analyses.

Sample: 01A CA391001-96-0911-0730 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.25	mg/Kg	09/19/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	09/13/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/19/96
pH	EPA 150.1	8.5		0.10	pH units	09/12/96

Sample: **01B** **CA391001-96-0911-0730** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	09/17/96
Chloromethane		ND		10	ug/L	09/17/96
Vinyl Chloride		ND		2.0	ug/L	09/17/96
Bromomethane		ND		10	ug/L	09/17/96
Chloroethane		ND		10	ug/L	09/17/96
Trichlorofluoromethane		ND		10	ug/L	09/17/96
1,1-Dichloroethene		ND		5.0	ug/L	09/17/96
Trichlorotrifluoroethane		ND		3.0	ug/L	09/17/96
Methylene Chloride		ND		10	ug/L	09/17/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	09/17/96
1,1-Dichloroethane		ND		5.0	ug/L	09/17/96
2,2-Dichloropropane		ND		5.0	ug/L	09/17/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	09/17/96
Bromochloromethane		ND		5.0	ug/L	09/17/96
Chloroform		ND		3.0	ug/L	09/17/96
1,1,1-Trichloroethane		ND		5.0	ug/L	09/17/96
Carbon Tetrachloride		ND		10	ug/L	09/17/96
1,1-Dichloropropene		ND		5.0	ug/L	09/17/96
Benzene		ND		1.0	ug/L	09/17/96
1,2-Dichloroethane		ND		5.0	ug/L	09/17/96
Trichloroethene		ND		3.0	ug/L	09/17/96
1,2-Dichloropropane		ND		3.0	ug/L	09/17/96
Dibromomethane		ND		3.0	ug/L	09/17/96
Bromodichloromethane		ND		3.0	ug/L	09/17/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	09/17/96
Toluene		ND		1.0	ug/L	09/17/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	09/17/96
1,1,2-Trichloroethane		ND		3.0	ug/L	09/17/96
Tetrachloroethene		ND		3.0	ug/L	09/17/96
1,3-Dichloropropane		ND		3.0	ug/L	09/17/96
Dibromochloromethane		ND		3.0	ug/L	09/17/96
1,2-Dibromoethane		ND		3.0	ug/L	09/17/96
Chlorobenzene		ND		3.0	ug/L	09/17/96
Ethylbenzene		ND		1.0	ug/L	09/17/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	09/17/96
m,p-Xylenes		4.7		1.0	ug/L	09/17/96
o-Xylene		ND		1.0	ug/L	09/17/96
Styrene		ND		3.0	ug/L	09/17/96
Bromoform		ND		5.0	ug/L	09/17/96
Isopropylbenzene		ND		2.0	ug/L	09/17/96
Bromobenzene		ND		3.0	ug/L	09/17/96
n-Propylbenzene		ND		5.0	ug/L	09/17/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	09/17/96
1,2,3-Trichloropropane		ND		3.0	ug/L	09/17/96
2-Chlorotoluene		ND		1.0	ug/L	09/17/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	09/17/96
4-Chlorotoluene		ND		1.0	ug/L	09/17/96
tert-Butylbenzene		ND		5.0	ug/L	09/17/96

Sample: **01B** **CA391001-96-0911-0730** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
1,2,4-Trimethylbenzene		ND		5.0	ug/L	09/17/96
sec-Butylbenzene		ND		5.0	ug/L	09/17/96
4-Isopropyltoluene		ND		5.0	ug/L	09/17/96
1,3-Dichlorobenzene		ND		2.0	ug/L	09/17/96
1,4-Dichlorobenzene		ND		2.0	ug/L	09/17/96
n-Butylbenzene		ND		5.0	ug/L	09/17/96
1,2-Dichlorobenzene		ND		5.0	ug/L	09/17/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L	09/17/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L	09/17/96
Hexachlorobutadiene		ND		5.0	ug/L	09/17/96
Napthalene		ND		5.0	ug/L	09/17/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L	09/17/96
Acetone		ND		50	ug/L	09/17/96
Acrylonitrile		ND		10	ug/L	09/17/96
2-Butanone		ND		50	ug/L	09/17/96
Carbon Disulfide		ND		5.0	ug/L	09/17/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L	09/17/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L	09/17/96
2-Hexanone		ND		20	ug/L	09/17/96
Iodomethane		ND		5.0	ug/L	09/17/96
4-Methyl-2-pentanone		ND		20	ug/L	09/17/96
Vinyl Acetate		ND		5.0	ug/L	09/17/96
tert-Butyl methyl ether		ND		5.0	ug/L	09/17/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		98.0		Min: 80	Max: 120	
Toluene d-8		100		Min: 88	Max: 110	
p-Bromofluorobenzene		110		Min: 86	Max: 115	

Sample: 01D CA391001-96-0911-0730 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		10	ug/L	09/17/96
bis(2-Chloroethyl) ether		ND		10	ug/L	09/17/96
2-Chlorophenol		ND		10	ug/L	09/17/96
1,3-Dichlorobenzene		ND		10	ug/L	09/17/96
1,4-Dichlorobenzene		ND		10	ug/L	09/17/96
Benzyl alcohol		ND		20	ug/L	09/17/96
1,2-Dichlorobenzene		ND		10	ug/L	09/17/96
2-Methylphenol		ND		10	ug/L	09/17/96
bis(2-Chloroisopropyl) ether		ND		10	ug/L	09/17/96
4-Methylphenol		2.2	J	10	ug/L	09/17/96
n-Nitroso-di-n-propylamine		ND		10	ug/L	09/17/96
Hexachloroethane		ND		10	ug/L	09/17/96
Nitrobenzene		ND		10	ug/L	09/17/96
Isophorone		ND		10	ug/L	09/17/96
2-Nitrophenol		ND		10	ug/L	09/17/96
2,4-Dimethylphenol		3.8	J	10	ug/L	09/17/96
Benzoic acid		ND		50	ug/L	09/17/96
bis(2-Chloroethoxy)methane		ND		10	ug/L	09/17/96
2,4-Dichlorophenol		ND		10	ug/L	09/17/96
1,2,4-Trichlorobenzene		ND		10	ug/L	09/17/96
Naphthalene		ND		10	ug/L	09/17/96
4-Chloroaniline		ND		10	ug/L	09/17/96
Hexachlorobutadiene		ND		10	ug/L	09/17/96
4-Chloro-3-methylphenol		ND		10	ug/L	09/17/96
2-Methylnaphthalene		ND		10	ug/L	09/17/96
Hexachlorocyclopentadiene		ND		10	ug/L	09/17/96
2,4,6-Trichlorophenol		ND		10	ug/L	09/17/96
2,4,5-Trichlorophenol		ND		50	ug/L	09/17/96
2-Chloronaphthalene		ND		10	ug/L	09/17/96
2-Nitroaniline		ND		50	ug/L	09/17/96
Dimethylphthalate		ND		10	ug/L	09/17/96
Acenaphthylene		ND		10	ug/L	09/17/96
3-Nitroaniline		ND		50	ug/L	09/17/96
Acenaphthene		ND		10	ug/L	09/17/96
2,4-Dinitrophenol		ND		50	ug/L	09/17/96
4-Nitrophenol		ND		50	ug/L	09/17/96
Dibenzofuran		ND		10	ug/L	09/17/96
2,6-Dinitrotoluene		ND		10	ug/L	09/17/96
2,4-Dinitrotoluene		ND		10	ug/L	09/17/96
Diethylphthalate		ND		10	ug/L	09/17/96
4-Chlorophenyl-phenylether		ND		10	ug/L	09/17/96
Fluorene		ND		10	ug/L	09/17/96
4-Nitroaniline		ND		10	ug/L	09/17/96
4,6-Dinitro-2-methylphenol		ND		50	ug/L	09/17/96
n-Nitrosodiphenylamine		ND		10	ug/L	09/17/96
4-Bromophenyl-phenylether		ND		10	ug/L	09/17/96
Hexachlorobenzene		ND		10	ug/L	09/17/96

Sample: **01D** **CA391001-96-0911-0730** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Pentachlorophenol		ND		50	ug/L	09/17/96
Phenanthrene		ND		10	ug/L	09/17/96
Anthracene		ND		10	ug/L	09/17/96
Di-n-butylphthalate		ND		10	ug/L	09/17/96
Fluoranthene		ND		10	ug/L	09/17/96
Pyrene		ND		10	ug/L	09/17/96
Butylbenzylphthalate		ND		10	ug/L	09/17/96
3,3'-Dichlorobenzidine		ND		20	ug/L	09/17/96
Benzo(a)Anthracene		ND		10	ug/L	09/17/96
Chrysene		ND		10	ug/L	09/17/96
Bis(2-Ethylhexyl)phthalate		ND		10	ug/L	09/17/96
Di-n-octylphthalate		ND		10	ug/L	09/17/96
Benzo(b)fluoranthene		ND		10	ug/L	09/17/96
Benzo(k)fluoranthene		ND		10	ug/L	09/17/96
Benzo(a)pyrene		ND		10	ug/L	09/17/96
Indeno(1,2,3-cd)pyrene		ND		10	ug/L	09/17/96
Dibenz(a,h)anthracene		ND		10	ug/L	09/17/96
Benzo(g,h,i)perylene		ND		10	ug/L	09/17/96
SURROGATES, % Recovery						
2-Fluorophenol		65.3		Min: 21	Max: 100	
d5-Phenol		80.0		Min: 10	Max: 94	
d5-Nitrobenzene		94.0		Min: 35	Max: 114	
2-Fluorobiphenyl		93.0		Min: 43	Max: 116	
2,4,6-Tribromophenol		120		Min: 10	Max: 123	
d14-Terphenyl		92.0		Min: 33	Max: 141	

Sample: **01E** **CA391001-96-0911-0730** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/18/96
Barium		0.10		0.020	mg/L	09/18/96
Cadmium		ND		0.0050	mg/L	09/18/96
Chromium		ND		0.010	mg/L	09/18/96
Lead		ND		0.050	mg/L	09/18/96
Selenium		ND		0.10	mg/L	09/18/96
Silver		ND		0.010	mg/L	09/18/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/17/96

Sample: **05A** **CA391002-96-0911-0740** Collected: **09/11/96** **Matrix: SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Percent Moisture	ASTM D2216	80.1		0.1	WT%	09/12/96
Semivolatile Organics	SW 8270A					
Phenol		ND		1700	ug/Kg-DRY	09/19/96
bis(2-Chloroethyl) ether		ND		1700	ug/Kg-DRY	09/19/96
2-Chlorophenol		ND		1700	ug/Kg-DRY	09/19/96
1,3-Dichlorobenzene		ND		1700	ug/Kg-DRY	09/19/96
1,4-Dichlorobenzene		ND		1700	ug/Kg-DRY	09/19/96
Benzyl alcohol		ND		3400	ug/Kg-DRY	09/19/96
1,2-Dichlorobenzene		ND		1700	ug/Kg-DRY	09/19/96
2-Methylphenol		ND		1700	ug/Kg-DRY	09/19/96
bis(2-Chloroisopropyl) ether		ND		1700	ug/Kg-DRY	09/19/96
4-Methylphenol		ND		1700	ug/Kg-DRY	09/19/96
n-Nitroso-di-n-propylamine		ND		1700	ug/Kg-DRY	09/19/96
Hexachloroethane		ND		1700	ug/Kg-DRY	09/19/96
Nitrobenzene		ND		1700	ug/Kg-DRY	09/19/96
Isophorone		ND		1700	ug/Kg-DRY	09/19/96
2-Nitrophenol		ND		1700	ug/Kg-DRY	09/19/96
2,4-Dimethylphenol		ND		1700	ug/Kg-DRY	09/19/96
Benzoic acid		ND		8400	ug/Kg-DRY	09/19/96
bis(2-Chloroethoxy)methane		ND		1700	ug/Kg-DRY	09/19/96
2,4-Dichlorophenol		ND		1700	ug/Kg-DRY	09/19/96
1,2,4-Trichlorobenzene		ND		1700	ug/Kg-DRY	09/19/96
Naphthalene		40000	D	17000	ug/Kg-DRY	09/20/96
4-Chloroaniline		ND		1700	ug/Kg-DRY	09/19/96
Hexachlorobutadiene		ND		1700	ug/Kg-DRY	09/19/96
4-Chloro-3-methylphenol		ND		3400	ug/Kg-DRY	09/19/96
2-Methylnaphthalene		5500		1700	ug/Kg-DRY	09/20/96
Hexachlorocyclopentadiene		ND		1700	ug/Kg-DRY	09/19/96
2,4,6-Trichlorophenol		ND		1700	ug/Kg-DRY	09/19/96
2,4,5-Trichlorophenol		ND		8400	ug/Kg-DRY	09/19/96
2-Chloronaphthalene		ND		1700	ug/Kg-DRY	09/19/96
2-Nitroaniline		ND		8400	ug/Kg-DRY	09/19/96
Dimethylphthalate		ND		1700	ug/Kg-DRY	09/19/96
Acenaphthylene		ND		1700	ug/Kg-DRY	09/19/96
3-Nitroaniline		ND		8400	ug/Kg-DRY	09/19/96
Acenaphthene		ND		1700	ug/Kg-DRY	09/19/96
2,4-Dinitrophenol		ND		8400	ug/Kg-DRY	09/19/96
4-Nitrophenol		ND		8400	ug/Kg-DRY	09/19/96
Dibenzofuran		ND		1700	ug/Kg-DRY	09/19/96
2,6-Dinitrotoluene		ND		1700	ug/Kg-DRY	09/19/96
2,4-Dinitrotoluene		ND		1700	ug/Kg-DRY	09/19/96
Diethylphthalate		ND		1700	ug/Kg-DRY	09/19/96
4-Chlorophenyl-phenylether		ND		1700	ug/Kg-DRY	09/19/96
Fluorene		ND		1700	ug/Kg-DRY	09/19/96
4-Nitroaniline		ND		8400	ug/Kg-DRY	09/19/96
4,6-Dinitro-2-methylphenol		ND		8400	ug/Kg-DRY	09/19/96
n-Nitrosodiphenylamine		ND		1700	ug/Kg-DRY	09/19/96
4-Bromophenyl-phenylether		ND		1700	ug/Kg-DRY	09/19/96
Hexachlorobenzene		ND		1700	ug/Kg-DRY	09/19/96

Sample: 05A CA391002-96-0911-0740 Collected: 09/11/96 Matrix: SLUDGE

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Pentachlorophenol		ND		8400	ug/Kg-DRY	09/19/96
Phenanthrene		ND		1700	ug/Kg-DRY	09/19/96
Anthracene		ND		1700	ug/Kg-DRY	09/19/96
Di-n-butylphthalate		ND		1700	ug/Kg-DRY	09/19/96
Fluoranthene		ND		1700	ug/Kg-DRY	09/19/96
Pyrene		27000		1700	ug/Kg-DRY	09/19/96
Butylbenzylphthalate		ND		1700	ug/Kg-DRY	09/19/96
3,3'-Dichlorobenzidine		ND		3400	ug/Kg-DRY	09/19/96
Benzo(a)Anthracene		7500		1700	ug/Kg-DRY	09/19/96
Chrysene		ND		1700	ug/Kg-DRY	09/19/96
Bis(2-Ethylhexyl)phthalate		290000	D	170000	ug/Kg-DRY	09/20/96
Di-n-octylphthalate		9800		1700	ug/Kg-DRY	09/19/96
Benzo(b)fluoranthene		ND		1700	ug/Kg-DRY	09/19/96
Benzo(k)fluoranthene		14000		1700	ug/Kg-DRY	09/19/96
Benzo(a)pyrene		5400		1700	ug/Kg-DRY	09/19/96
Indeno(1,2,3-cd)pyrene		ND		1700	ug/Kg-DRY	09/19/96
Dibenz(a,h)anthracene		ND		1700	ug/Kg-DRY	09/19/96
Benzo(g,h,i)perylene		ND		1700	ug/Kg-DRY	09/19/96
SURROGATES, % Recovery						
2-Fluorophenol		29.6		Min:	25	Max: 121
d5-Phenol		35.6		Min:	24	Max: 113
d5-Nitrobenzene		42.4		Min:	23	Max: 120
2-Fluorobiphenyl		39.4		Min:	30	Max: 115
2,4,6-Tribromophenol		44.0		Min:	19	Max: 122
d14-Terphenyl		58.8		Min:	18	Max: 137

Sample: **05A** **CA391002-96-0911-0740** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		6300	ug/Kg-DRY	09/18/96
Chloromethane		ND		6300	ug/Kg-DRY	09/18/96
Vinyl Chloride		ND		1300	ug/Kg-DRY	09/18/96
Bromomethane		ND		6300	ug/Kg-DRY	09/18/96
Chloroethane		ND		6300	ug/Kg-DRY	09/18/96
Trichlorofluoromethane		ND		6300	ug/Kg-DRY	09/18/96
1,1-Dichloroethene		ND		3100	ug/Kg-DRY	09/18/96
Trichlorotrifluoroethane		ND		1900	ug/Kg-DRY	09/18/96
Methylene Chloride		ND		6300	ug/Kg-DRY	09/18/96
trans-1,2-Dichloroethene		ND		1900	ug/Kg-DRY	09/18/96
1,1-Dichloroethane		ND		3100	ug/Kg-DRY	09/18/96
2,2-Dichloropropane		ND		3100	ug/Kg-DRY	09/18/96
cis-1,2-Dichloroethene		ND		1900	ug/Kg-DRY	09/18/96
Bromochloromethane		ND		3100	ug/Kg-DRY	09/18/96
Chloroform		ND		1900	ug/Kg-DRY	09/18/96
1,1,1-Trichloroethane		ND		3100	ug/Kg-DRY	09/18/96
Carbon Tetrachloride		ND		6300	ug/Kg-DRY	09/18/96
1,1-Dichloropropene		ND		3100	ug/Kg-DRY	09/18/96
Benzene		ND		630	ug/Kg-DRY	09/18/96
1,2-Dichloroethane		ND		3100	ug/Kg-DRY	09/18/96
Trichloroethene		ND		1900	ug/Kg-DRY	09/18/96
1,2-Dichloropropane		ND		1900	ug/Kg-DRY	09/18/96
Dibromomethane		ND		1900	ug/Kg-DRY	09/18/96
Bromodichloromethane		ND		1900	ug/Kg-DRY	09/18/96
cis-1,3-Dichloropropene		ND		1900	ug/Kg-DRY	09/18/96
Toluene		7300	D	630	ug/Kg-DRY	09/18/96
trans-1,3-Dichloropropene		ND		3100	ug/Kg-DRY	09/18/96
1,1,2-Trichloroethane		ND		1900	ug/Kg-DRY	09/18/96
Tetrachloroethene		ND		1900	ug/Kg-DRY	09/18/96
1,3-Dichloropropane		ND		1900	ug/Kg-DRY	09/18/96
Dibromochloromethane		ND		1900	ug/Kg-DRY	09/18/96
1,2-Dibromoethane		ND		1900	ug/Kg-DRY	09/18/96
Chlorobenzene		ND		1900	ug/Kg-DRY	09/18/96
Ethylbenzene		4200	D	630	ug/Kg-DRY	09/18/96
1,1,1,2-Tetrachloroethane		ND		1900	ug/Kg-DRY	09/18/96
m,p-Xylenes		13000	D	630	ug/Kg-DRY	09/18/96
o-Xylene		4300	D	630	ug/Kg-DRY	09/18/96
Styrene		ND		1900	ug/Kg-DRY	09/18/96
Bromoform		ND		3100	ug/Kg-DRY	09/18/96
Isopropylbenzene		ND		1300	ug/Kg-DRY	09/18/96
Bromobenzene		ND		1900	ug/Kg-DRY	09/18/96
n-Propylbenzene		ND		3100	ug/Kg-DRY	09/18/96
1,1,2,2-Tetrachlorethane		ND		3100	ug/Kg-DRY	09/18/96
1,2,3-Trichloropropane		ND		1900	ug/Kg-DRY	09/18/96
2-Chlorotoluene		ND		630	ug/Kg-DRY	09/18/96
1,3,5-Trimethylbenzene		14000	D	3100	ug/Kg-DRY	09/18/96
4-Chlorotoluene		ND		630	ug/Kg-DRY	09/18/96
tert-Butylbenzene		ND		3100	ug/Kg-DRY	09/18/96

Sample: **05A** **CA391002-96-0911-0740** Collected: **09/11/96** **Matrix: SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
1,2,4-Trimethylbenzene		84000	D	3100	ug/Kg-DRY	09/18/96
sec-Butylbenzene		ND		3100	ug/Kg-DRY	09/18/96
4-Isopropyltoluene		100000	D	3100	ug/Kg-DRY	09/18/96
1,3-Dichlorobenzene		ND		1300	ug/Kg-DRY	09/18/96
1,4-Dichlorobenzene		ND		1300	ug/Kg-DRY	09/18/96
n-Butylbenzene		ND		3100	ug/Kg-DRY	09/18/96
1,2-Dichlorobenzene		ND		3100	ug/Kg-DRY	09/18/96
1,2-Dibromo-3-chloropropane		ND		6300	ug/Kg-DRY	09/18/96
1,2,4-Trichlorobenzene		ND		3100	ug/Kg-DRY	09/18/96
Hexachlorobutadiene		ND		3100	ug/Kg-DRY	09/18/96
Napthalene		31000	D	3100	ug/Kg-DRY	09/18/96
1,2,3-Trichlorobenzene		ND		3100	ug/Kg-DRY	09/18/96
Acetone		ND		31000	ug/Kg-DRY	09/18/96
Acrylonitrile		ND		6300	ug/Kg-DRY	09/18/96
2-Butanone		ND		31000	ug/Kg-DRY	09/18/96
Carbon Disulfide		ND		3100	ug/Kg-DRY	09/18/96
trans-1,4-Dichloro-2-butene		ND		6300	ug/Kg-DRY	09/18/96
2-Chloroethyl Vinyl Ether		ND		6300	ug/Kg-DRY	09/18/96
2-Hexanone		ND		13000	ug/Kg-DRY	09/18/96
Iodomethane		ND		3100	ug/Kg-DRY	09/18/96
4-Methyl-2-pentanone		ND		13000	ug/Kg-DRY	09/18/96
Vinyl Acetate		ND		3100	ug/Kg-DRY	09/18/96
tert-Butyl methyl ether		ND		3100	ug/Kg-DRY	09/18/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		116		Min: 80	Max: 120	
Toluene d-8		100		Min: 81	Max: 117	
p-Bromofluorobenzene		103		Min: 74	Max: 121	

Sample: **05B** **CA391002-96-0911-0740** Collected: **09/11/96** **Matrix: SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.25	mg/Kg	09/19/96
Ignitability	EPA 1010	>200		47	Deg F/1atm	09/13/96
Sulfide, Reactive	SW 7.3.4.2	220		16	mg/Kg	09/19/96
pH	EPA 9045A	7.2		0.10	pH units	09/12/96

Sample: **05C** **CA391002-96-0911-0740** Collected: **09/11/96** **Matrix: SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/18/96
Barium		0.58		0.020	mg/L	09/18/96
Cadmium		ND		0.0050	mg/L	09/18/96
Chromium		0.015		0.010	mg/L	09/18/96
Lead		ND		0.050	mg/L	09/18/96
Selenium		ND		0.10	mg/L	09/18/96
Silver		ND		0.010	mg/L	09/18/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/17/96

THE FOLLOWING CODES APPLY TO THE ANALYTICAL REPORT

RESULT field...
- ND = not detected at the reported limit
- NA = analyte not applicable (see case narrative/methods for discussion)

Q (qualifier) field...

GENERAL:
- * = Recovery or %RPD outside method specifications
- H = value is estimated due to analysis run outside EPA holding times
- E = reported concentration is above the instrument calibration range
- D = analyte was diluted to bring within instrument calibration range or to remove matrix interferences

ORGANIC ANALYSIS DATA QUALIFIERS:
- B = analyte was detected in the laboratory method blank
- J = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)

INORGANIC ANALYSIS DATA QUALIFIERS:
- B = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)
- A = post digestion spike did not meet criteria (70-130%), therefore the reporting limit was raised by a factor of two to reflect spike failure
- S = reported value determined by the Method of Standard Additions

1311EM:	TCLP EXTRACTION Toxicity Characteristic Leachate Procedure (Metals)	METHOD: 1311
1311HG:	MERCURY, TCLP Extracted Maximum Contaminant Level (mg/L)	METHOD: 7470 0.2
ICPTW	Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Flame Atomic Absorption (FAA) or Inductively Coupled Plasma (ICP) Spectroscopy according to EPA 200.0 and/or SW-846.	METHOD: 200.0/3010A
1311_M:	METALS (ICP), TCLP Extracted Maximum Contaminant Level (mg/L)	METHOD: 3010/6010
	Arsenic	5.0
	Barium	100
	Cadmium	1.0
	Chromium	5.0
	Lead	5.0
	Selenium	1.0
	Silver	5.0
8260_S:	VOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8260
8260_W:	VOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8260
3520_B:	Continuous Liquid-Liquid Extraction - BNAs The continuous liquid-liquid extraction used with this method (3520) is modified to conform with the EPA-CLP methodology (OLM01.0) in which dual pH extraction has been replaced with one 18 hour extraction at a pH of <2.0.	METHOD: 3520B
3540_B:	Soxhlet Extraction - BNA	METHOD: 3540B
8270_S:	SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8270
8270_W:	SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8270
PMOIST:	PERCENT MOISTURE	METHOD: ASTM D2216
IGN_S:	IGNITABILITY	METHOD: 1010
IGN_W:	IGNITABILITY - Pensky-Martens Closed Cup	METHOD: EPA 1010
PH_S:	pH (ELECTRODE)	METHOD: 9045
PH_W:	pH (ELECTRODE)	METHOD: 150.1
RCN_S:	CYANIDE, Reactive EPA Action Level: 250 mg HCN/Kg waste Due to method limitations spike recoveries are minimal.	METHOD: SW 7.3.3.2

RS2_S: REACTIVE SULFIDE METHOD: 376.2
EPA Action Level: 500 mg H2S/Kg waste
Prepared by SW 7.3.4.2.
Due to method limitations spike recoveries are minimal.

Sample: 01A CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 01B CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 01D CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 01E CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 02A CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 02B CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 02D CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 02E CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 03A CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 03B CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 03D CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 03E CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 04A Trip Blank Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 05A CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/18/96

Sample: 05B CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 05C CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 06A CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/18/96

Sample: 06B CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 06C CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 07A CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/19/96

Sample: 07B CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 07C CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

ANALYTICA ENVIRONMENTAL LABORATORIES

Quick Turn

CHAIN OF CUSTODY RECORD

325 Interlocken Parkway Ste 200
Broomfield, Colorado 21
(303) 469-8868 or 1-800-373-8707
FAX: (303) 469-5254

CLIENT NAME	USACE
CLIENT CONTACT	BRIAN JORDAN
CLIENT ADDRESS	4101 Jefferson Pl. NE, ABQ NM 87109
PROJECT ID/DESCRIPTION	Cannon CWS
TELEPHONE	505-342-3472
FAX	505 342 3497
P. O. NO.	

8 RCRA Metals

ANALYTICA USE ONLY
№ 02796

CSN
LGN
LOC
QC
PM
DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Total Metals	VOC 8260	SVOC 8270	8 RCRA Metals		Cubical Jars						
11 Sept 96	0740	CA39/002-96-0911-0740	3	1	1	1	1								
11 Sept 96	0840	CA46/002-96-0911-0840	3	1	1	1	1								
11 Sept 96	1010	CA28/002-96-0911-1010	3	1	1	1	1								

COMMENTS Quick Turn (5 days)

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	11 Sept 96 / 1155	Fed Ex					

003-0294

ANALYTICA ENVIRONMENTAL LABORATORIES

Quick Turn
CHAIN OF CUSTODY RECORD

325 Interlocken Parkwa[illegible] e 200
Broomfield, Colorac[illegible] .1
(303) 469-8868 or 1-800-[illegible]3-8707
FAX: (303) 469-5254

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl NE, Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3472

P. O. NO.:

8RCRA

ANALYTICA USE ONLY: № 002795

CSN

LGN

LOC

QC

PM

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity pH Lab	VOC-8260	SVOC-8270	[illegible]
11Sep96	0730	CA39/001-96-0911-0730	5	1	2	1	1
11Sep96	0830	CA46/001-96-0911-0830	5	1	2	1	1
11Sep96	1005	CA38/001-96-0911-1005	5	1	2	1	1
—	—	TRIP Blank	1		1		

COMMENTS: Quick Turn of 5 days

MEANS OF DELIVERY: Fed Ex

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	9/11/96 1155	Fed Ex					

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES
an Analytica Group company

325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-870
FAX: (303) 469-525

USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-070
Date: 09/24/96 09:20
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/12/96
Date Completed: 09/19/96

SAMPLE IDENTIFICATION

Sample Number	Client Description	Sample Number	Client Description
01	CA391001-96-0911-0730	05	CA391002-96-0911-0740
02	CA461001-96-0911-0830	06	CA461002-96-0911-0840
03	CA381001-96-0911-1005	07	CA381002-96-0911-1010
04	Trip Blank		

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]

- Solid and waste samples are reported on a "dry weight" basis, i.e. correction is made for moisture content.

Problems encountered with the analyses are discussed in the following narrative:

These results include 8270 BNA analytical dilution results for the following samples: CA391002-96-0911-0740 for Naphthalene and Bis(2-ethylhexyl)phthalate.
CA461002-96-0911-0840 for Butylbenzylphthalate and Bis(2-ethylhexyl)-phthalate.
CA381002-96-0911-1010 for Naphthalene and Bis(2-ethylhexyl)phthalate.

Sample CA381002-96-0911-1010 has a Naphthalene value which was not included in the initial report. This is due to sample matrix which prevented the compound from being detected through the sample matrix effect before the sample extract was diluted. The same applies for sample CA461002-96-0911-0840 and target analyte Bis(2-ethylhexyl)phthalate which was also not reported in the initial results.

The soil samples for this project contain some of the phthalate ester target compounds for the 8270 BNA analyses. The associated method blank for the above samples is reported with target analyte Di-n-butylphthalate @ 8000 ug/Kg at a reporting limit of 330 ug/Kg. Per SW-846 protocol the method blank must have all target analytes below established reporting limits.

Samples CA381001-96-0911-1005 and CA381002-96-0911-1010 are reported with one base/neutral surrogate standard recovery outside quality control windows for the 8270 analysis. This is due to sample matrix and non-target compound interference. The internal standard area recoveries for samples CA391002-96-0911-0740, CA381002-96-0911-1010 and CA461002-96-0911-0840 were below quality control windows. This is also due to sample matrix and will be verified in secondary analyses.

Sample: **02A** **CA461001-96-0911-0830** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.25	mg/Kg	09/19/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	09/13/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/19/96
pH	EPA 150.1	8.1		0.10	pH units	09/12/96

Sample: **02B** **CA461001-96-0911-0830** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	09/17/96
Chloromethane		ND		10	ug/L	09/17/96
Vinyl Chloride		ND		2.0	ug/L	09/17/96
Bromomethane		ND		10	ug/L	09/17/96
Chloroethane		ND		10	ug/L	09/17/96
Trichlorofluoromethane		ND		10	ug/L	09/17/96
1,1-Dichloroethene		ND		5.0	ug/L	09/17/96
Trichlorotrifluoroethane		ND		3.0	ug/L	09/17/96
Methylene Chloride		ND		10	ug/L	09/17/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	09/17/96
1,1-Dichloroethane		ND		5.0	ug/L	09/17/96
2,2-Dichloropropane		ND		5.0	ug/L	09/17/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	09/17/96
Bromochloromethane		ND		5.0	ug/L	09/17/96
Chloroform		ND		3.0	ug/L	09/17/96
1,1,1-Trichloroethane		ND		5.0	ug/L	09/17/96
Carbon Tetrachloride		ND		10	ug/L	09/17/96
1,1-Dichloropropene		ND		5.0	ug/L	09/17/96
Benzene		ND		1.0	ug/L	09/17/96
1,2-Dichloroethane		ND		5.0	ug/L	09/17/96
Trichloroethene		ND		3.0	ug/L	09/17/96
1,2-Dichloropropane		ND		3.0	ug/L	09/17/96
Dibromomethane		ND		3.0	ug/L	09/17/96
Bromodichloromethane		ND		3.0	ug/L	09/17/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	09/17/96
Toluene		ND		1.0	ug/L	09/17/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	09/17/96
1,1,2-Trichloroethane		ND		3.0	ug/L	09/17/96
Tetrachloroethene		ND		3.0	ug/L	09/17/96
1,3-Dichloropropane		ND		3.0	ug/L	09/17/96
Dibromochloromethane		ND		3.0	ug/L	09/17/96
1,2-Dibromoethane		ND		3.0	ug/L	09/17/96
Chlorobenzene		ND		3.0	ug/L	09/17/96
Ethylbenzene		ND		1.0	ug/L	09/17/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	09/17/96
m,p-Xylenes		ND		1.0	ug/L	09/17/96
o-Xylene		ND		1.0	ug/L	09/17/96
Styrene		ND		3.0	ug/L	09/17/96
Bromoform		ND		5.0	ug/L	09/17/96
Isopropylbenzene		ND		2.0	ug/L	09/17/96
Bromobenzene		ND		3.0	ug/L	09/17/96
n-Propylbenzene		ND		5.0	ug/L	09/17/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	09/17/96
1,2,3-Trichloropropane		ND		3.0	ug/L	09/17/96
2-Chlorotoluene		ND		1.0	ug/L	09/17/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	09/17/96
4-Chlorotoluene		ND		1.0	ug/L	09/17/96
tert-Butylbenzene		ND		5.0	ug/L	09/17/96

Sample: **02B** **CA461001-96-0911-0830** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
1,2,4-Trimethylbenzene		ND		5.0	ug/L	09/17/96
sec-Butylbenzene		ND		5.0	ug/L	09/17/96
4-Isopropyltoluene		ND		5.0	ug/L	09/17/96
1,3-Dichlorobenzene		ND		2.0	ug/L	09/17/96
1,4-Dichlorobenzene		ND		2.0	ug/L	09/17/96
n-Butylbenzene		ND		5.0	ug/L	09/17/96
1,2-Dichlorobenzene		ND		5.0	ug/L	09/17/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L	09/17/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L	09/17/96
Hexachlorobutadiene		ND		5.0	ug/L	09/17/96
Napthalene		ND		5.0	ug/L	09/17/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L	09/17/96
Acetone		ND		50	ug/L	09/17/96
Acrylonitrile		ND		10	ug/L	09/17/96
2-Butanone		ND		50	ug/L	09/17/96
Carbon Disulfide		ND		5.0	ug/L	09/17/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L	09/17/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L	09/17/96
2-Hexanone		ND		20	ug/L	09/17/96
Iodomethane		ND		5.0	ug/L	09/17/96
4-Methyl-2-pentanone		ND		20	ug/L	09/17/96
Vinyl Acetate		ND		5.0	ug/L	09/17/96
tert-Butyl methyl ether		ND		5.0	ug/L	09/17/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		100		Min: 80	Max: 120	
Toluene d-8		106		Min: 88	Max: 110	
p-Bromofluorobenzene		110		Min: 86	Max: 115	

Sample: 02D CA461001-96-0911-0830 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		10	ug/L	09/17/96
bis(2-Chloroethyl) ether		ND		10	ug/L	09/17/96
2-Chlorophenol		ND		10	ug/L	09/17/96
1,3-Dichlorobenzene		ND		10	ug/L	09/17/96
1,4-Dichlorobenzene		ND		10	ug/L	09/17/96
Benzyl alcohol		ND		20	ug/L	09/17/96
1,2-Dichlorobenzene		ND		10	ug/L	09/17/96
2-Methylphenol		ND		10	ug/L	09/17/96
bis(2-Chloroisopropyl) ether		ND		10	ug/L	09/17/96
4-Methylphenol		ND		10	ug/L	09/17/96
n-Nitroso-di-n-propylamine		ND		10	ug/L	09/17/96
Hexachloroethane		ND		10	ug/L	09/17/96
Nitrobenzene		ND		10	ug/L	09/17/96
Isophorone		ND		10	ug/L	09/17/96
2-Nitrophenol		ND		10	ug/L	09/17/96
2,4-Dimethylphenol		ND		10	ug/L	09/17/96
Benzoic acid		ND		50	ug/L	09/17/96
bis(2-Chloroethoxy)methane		ND		10	ug/L	09/17/96
2,4-Dichlorophenol		ND		10	ug/L	09/17/96
1,2,4-Trichlorobenzene		ND		10	ug/L	09/17/96
Naphthalene		ND		10	ug/L	09/17/96
4-Chloroaniline		ND		10	ug/L	09/17/96
Hexachlorobutadiene		ND		10	ug/L	09/17/96
4-Chloro-3-methylphenol		ND		10	ug/L	09/17/96
2-Methylnaphthalene		ND		10	ug/L	09/17/96
Hexachlorocyclopentadiene		ND		10	ug/L	09/17/96
2,4,6-Trichlorophenol		ND		10	ug/L	09/17/96
2,4,5-Trichlorophenol		ND		50	ug/L	09/17/96
2-Chloronaphthalene		ND		10	ug/L	09/17/96
2-Nitroaniline		ND		50	ug/L	09/17/96
Dimethylphthalate		ND		10	ug/L	09/17/96
Acenaphthylene		ND		10	ug/L	09/17/96
3-Nitroaniline		ND		50	ug/L	09/17/96
Acenaphthene		ND		10	ug/L	09/17/96
2,4-Dinitrophenol		ND		50	ug/L	09/17/96
4-Nitrophenol		ND		50	ug/L	09/17/96
Dibenzofuran		ND		10	ug/L	09/17/96
2,6-Dinitrotoluene		ND		10	ug/L	09/17/96
2,4-Dinitrotoluene		ND		10	ug/L	09/17/96
Diethylphthalate		ND		10	ug/L	09/17/96
4-Chlorophenyl-phenylether		ND		10	ug/L	09/17/96
Fluorene		ND		10	ug/L	09/17/96
4-Nitroaniline		ND		10	ug/L	09/17/96
4,6-Dinitro-2-methylphenol		ND		50	ug/L	09/17/96
n-Nitrosodiphenylamine		ND		10	ug/L	09/17/96
4-Bromophenyl-phenylether		ND		10	ug/L	09/17/96
Hexachlorobenzene		ND		10	ug/L	09/17/96

Sample: **02D** **CA461001-96-0911-0830** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Pentachlorophenol		ND		50	ug/L	09/17/96
Phenanthrene		ND		10	ug/L	09/17/96
Anthracene		ND		10	ug/L	09/17/96
Di-n-butylphthalate		ND		10	ug/L	09/17/96
Fluoranthene		ND		10	ug/L	09/17/96
Pyrene		ND		10	ug/L	09/17/96
Butylbenzylphthalate		ND		10	ug/L	09/17/96
3,3'-Dichlorobenzidine		ND		20	ug/L	09/17/96
Benzo(a)Anthracene		ND		10	ug/L	09/17/96
Chrysene		ND		10	ug/L	09/17/96
Bis(2-Ethylhexyl)phthalate		ND		10	ug/L	09/17/96
Di-n-octylphthalate		ND		10	ug/L	09/17/96
Benzo(b)fluoranthene		ND		10	ug/L	09/17/96
Benzo(k)fluoranthene		ND		10	ug/L	09/17/96
Benzo(a)pyrene		ND		10	ug/L	09/17/96
Indeno(1,2,3-cd)pyrene		ND		10	ug/L	09/17/96
Dibenz(a,h)anthracene		ND		10	ug/L	09/17/96
Benzo(g,h,i)perylene		ND		10	ug/L	09/17/96
SURROGATES, % Recovery						
2-Fluorophenol		61.3		Min: 21	Max: 100	
d5-Phenol		73.3		Min: 10	Max: 94	
d5-Nitrobenzene		85.0		Min: 35	Max: 114	
2-Fluorobiphenyl		77.0		Min: 43	Max: 116	
2,4,6-Tribromophenol		107		Min: 10	Max: 123	
d14-Terphenyl		81.0		Min: 33	Max: 141	

Sample: **02E** **CA461001-96-0911-0830** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/18/96
Barium		0.30		0.020	mg/L	09/18/96
Cadmium		ND		0.0050	mg/L	09/18/96
Chromium		ND		0.010	mg/L	09/18/96
Lead		ND		0.050	mg/L	09/18/96
Selenium		ND		0.10	mg/L	09/18/96
Silver		ND		0.010	mg/L	09/18/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/17/96

Sample: 06A CA461002-96-0911-0840 Collected: 09/11/96 Matrix: SLUDGE

Test Description	Method	Result	Q	Limit	Units	Analyzed
Percent Moisture	ASTM D2216	53.5		0.1	WT%	09/12/96
Semivolatile Organics	SW 8270A					
Phenol		ND		720	ug/Kg-DRY	09/19/96
bis(2-Chloroethyl) ether		ND		720	ug/Kg-DRY	09/19/96
2-Chlorophenol		ND		720	ug/Kg-DRY	09/19/96
1,3-Dichlorobenzene		ND		720	ug/Kg-DRY	09/19/96
1,4-Dichlorobenzene		ND		720	ug/Kg-DRY	09/19/96
Benzyl alcohol		ND		1400	ug/Kg-DRY	09/19/96
1,2-Dichlorobenzene		ND		720	ug/Kg-DRY	09/19/96
2-Methylphenol		ND		720	ug/Kg-DRY	09/19/96
bis(2-Chloroisopropyl) ether		ND		720	ug/Kg-DRY	09/19/96
4-Methylphenol		ND		720	ug/Kg-DRY	09/19/96
n-Nitroso-di-n-propylamine		ND		720	ug/Kg-DRY	09/19/96
Hexachloroethane		ND		720	ug/Kg-DRY	09/19/96
Nitrobenzene		ND		720	ug/Kg-DRY	09/19/96
Isophorone		ND		720	ug/Kg-DRY	09/19/96
2-Nitrophenol		ND		720	ug/Kg-DRY	09/19/96
2,4-Dimethylphenol		ND		720	ug/Kg-DRY	09/19/96
Benzoic acid		ND		3600	ug/Kg-DRY	09/19/96
bis(2-Chloroethoxy)methane		ND		720	ug/Kg-DRY	09/19/96
2,4-Dichlorophenol		ND		720	ug/Kg-DRY	09/19/96
1,2,4-Trichlorobenzene		ND		720	ug/Kg-DRY	09/19/96
Naphthalene		6600		720	ug/Kg-DRY	09/19/96
4-Chloroaniline		ND		720	ug/Kg-DRY	09/19/96
Hexachlorobutadiene		ND		720	ug/Kg-DRY	09/19/96
4-Chloro-3-methylphenol		ND		1400	ug/Kg-DRY	09/19/96
2-Methylnaphthalene		7100		720	ug/Kg-DRY	09/19/96
Hexachlorocyclopentadiene		ND		720	ug/Kg-DRY	09/19/96
2,4,6-Trichlorophenol		ND		720	ug/Kg-DRY	09/19/96
2,4,5-Trichlorophenol		ND		3600	ug/Kg-DRY	09/19/96
2-Chloronaphthalene		ND		720	ug/Kg-DRY	09/19/96
2-Nitroaniline		ND		3600	ug/Kg-DRY	09/19/96
Dimethylphthalate		ND		720	ug/Kg-DRY	09/19/96
Acenaphthylene		ND		720	ug/Kg-DRY	09/19/96
3-Nitroaniline		ND		3600	ug/Kg-DRY	09/19/96
Acenaphthene		ND		720	ug/Kg-DRY	09/19/96
2,4-Dinitrophenol		ND		3600	ug/Kg-DRY	09/19/96
4-Nitrophenol		ND		3600	ug/Kg-DRY	09/19/96
Dibenzofuran		ND		720	ug/Kg-DRY	09/19/96
2,6-Dinitrotoluene		ND		720	ug/Kg-DRY	09/19/96
2,4-Dinitrotoluene		ND		720	ug/Kg-DRY	09/19/96
Diethylphthalate		ND		720	ug/Kg-DRY	09/19/96
4-Chlorophenyl-phenylether		ND		720	ug/Kg-DRY	09/19/96
Fluorene		ND		720	ug/Kg-DRY	09/19/96
4-Nitroaniline		ND		3600	ug/Kg-DRY	09/19/96
4,6-Dinitro-2-methylphenol		ND		3600	ug/Kg-DRY	09/19/96
n-Nitrosodiphenylamine		ND		720	ug/Kg-DRY	09/19/96
4-Bromophenyl-phenylether		ND		720	ug/Kg-DRY	09/19/96
Hexachlorobenzene		ND		720	ug/Kg-DRY	09/19/96

Sample: **06A** **CA461002-96-0911-0840** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Pentachlorophenol		ND		3600	ug/Kg-DRY	09/19/96
Phenanthrene		910		720	ug/Kg-DRY	09/19/96
Anthracene		ND		720	ug/Kg-DRY	09/19/96
Di-n-butylphthalate		ND		720	ug/Kg-DRY	09/19/96
Fluoranthene		ND		720	ug/Kg-DRY	09/19/96
Pyrene		ND		720	ug/Kg-DRY	09/19/96
Butylbenzylphthalate		190000	D	72000	ug/Kg-DRY	09/20/96
3,3'-Dichlorobenzidine		ND		1400	ug/Kg-DRY	09/19/96
Benzo(a)Anthracene		ND		720	ug/Kg-DRY	09/19/96
Chrysene		ND		720	ug/Kg-DRY	09/19/96
Bis(2-Ethylhexyl)phthalate		130000	D	72000	ug/Kg-DRY	09/20/96
Di-n-octylphthalate		ND		720	ug/Kg-DRY	09/19/96
Benzo(b)fluoranthene		ND		720	ug/Kg-DRY	09/19/96
Benzo(k)fluoranthene		ND		720	ug/Kg-DRY	09/19/96
Benzo(a)pyrene		ND		720	ug/Kg-DRY	09/19/96
Indeno(1,2,3-cd)pyrene		ND		720	ug/Kg-DRY	09/19/96
Dibenz(a,h)anthracene		ND		720	ug/Kg-DRY	09/19/96
Benzo(g,h,i)perylene		ND		720	ug/Kg-DRY	09/19/96
SURROGATES, % Recovery						
2-Fluorophenol		25.5		Min: 25	Max: 121	
d5-Phenol		27.3		Min: 24	Max: 113	
d5-Nitrobenzene		36.1		Min: 23	Max: 120	
2-Fluorobiphenyl		33.3		Min: 30	Max: 115	
2,4,6-Tribromophenol		30.0		Min: 19	Max: 122	
d14-Terphenyl		33.3		Min: 18	Max: 137	

Sample: **06A** **CA461002-96-0911-0840** Collected: **09/11/96** **Matrix: SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		2700	ug/Kg-DRY	09/18/96
Chloromethane		ND		2700	ug/Kg-DRY	09/18/96
Vinyl Chloride		ND		540	ug/Kg-DRY	09/18/96
Bromomethane		ND		2700	ug/Kg-DRY	09/18/96
Chloroethane		ND		2700	ug/Kg-DRY	09/18/96
Trichlorofluoromethane		ND		2700	ug/Kg-DRY	09/18/96
1,1-Dichloroethene		ND		1300	ug/Kg-DRY	09/18/96
Trichlorotrifluoroethane		ND		810	ug/Kg-DRY	09/18/96
Methylene Chloride		ND		2700	ug/Kg-DRY	09/18/96
trans-1,2-Dichloroethene		ND		810	ug/Kg-DRY	09/18/96
1,1-Dichloroethane		ND		1300	ug/Kg-DRY	09/18/96
2,2-Dichloropropane		ND		1300	ug/Kg-DRY	09/18/96
cis-1,2-Dichloroethene		ND		810	ug/Kg-DRY	09/18/96
Bromochloromethane		ND		1300	ug/Kg-DRY	09/18/96
Chloroform		ND		810	ug/Kg-DRY	09/18/96
1,1,1-Trichloroethane		ND		1300	ug/Kg-DRY	09/18/96
Carbon Tetrachloride		ND		2700	ug/Kg-DRY	09/18/96
1,1-Dichloropropene		ND		1300	ug/Kg-DRY	09/18/96
Benzene		ND		270	ug/Kg-DRY	09/18/96
1,2-Dichloroethane		ND		1300	ug/Kg-DRY	09/18/96
Trichloroethene		ND		810	ug/Kg-DRY	09/18/96
1,2-Dichloropropane		ND		810	ug/Kg-DRY	09/18/96
Dibromomethane		ND		810	ug/Kg-DRY	09/18/96
Bromodichloromethane		ND		810	ug/Kg-DRY	09/18/96
cis-1,3-Dichloropropene		ND		810	ug/Kg-DRY	09/18/96
Toluene		ND		270	ug/Kg-DRY	09/18/96
trans-1,3-Dichloropropene		ND		1300	ug/Kg-DRY	09/18/96
1,1,2-Trichloroethane		ND		810	ug/Kg-DRY	09/18/96
Tetrachloroethene		ND		810	ug/Kg-DRY	09/18/96
1,3-Dichloropropane		ND		810	ug/Kg-DRY	09/18/96
Dibromochloromethane		ND		810	ug/Kg-DRY	09/18/96
1,2-Dibromoethane		ND		810	ug/Kg-DRY	09/18/96
Chlorobenzene		ND		810	ug/Kg-DRY	09/18/96
Ethylbenzene		9800	D	270	ug/Kg-DRY	09/18/96
1,1,1,2-Tetrachloroethane		ND		810	ug/Kg-DRY	09/18/96
m,p-Xylenes		20000	D	270	ug/Kg-DRY	09/18/96
o-Xylene		790	D	270	ug/Kg-DRY	09/18/96
Styrene		ND		810	ug/Kg-DRY	09/18/96
Bromoform		ND		1300	ug/Kg-DRY	09/18/96
Isopropylbenzene		5200	D	540	ug/Kg-DRY	09/18/96
Bromobenzene		ND		810	ug/Kg-DRY	09/18/96
n-Propylbenzene		9200	D	1300	ug/Kg-DRY	09/18/96
1,1,2,2-Tetrachlorethane		ND		1300	ug/Kg-DRY	09/18/96
1,2,3-Trichloropropane		ND		810	ug/Kg-DRY	09/18/96
2-Chlorotoluene		ND		270	ug/Kg-DRY	09/18/96
1,3,5-Trimethylbenzene		15000	D	1300	ug/Kg-DRY	09/18/96
4-Chlorotoluene		ND		270	ug/Kg-DRY	09/18/96
tert-Butylbenzene		ND		1300	ug/Kg-DRY	09/18/96

Sample: **06A** **CA461002-96-0911-0840** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
1,2,4-Trimethylbenzene		37000	D	1300	ug/Kg-DRY	09/18/96
sec-Butylbenzene		4200	D	1300	ug/Kg-DRY	09/18/96
4-Isopropyltoluene		9100	D	1300	ug/Kg-DRY	09/18/96
1,3-Dichlorobenzene		ND		540	ug/Kg-DRY	09/18/96
1,4-Dichlorobenzene		ND		540	ug/Kg-DRY	09/18/96
n-Butylbenzene		ND		1300	ug/Kg-DRY	09/18/96
1,2-Dichlorobenzene		ND		1300	ug/Kg-DRY	09/18/96
1,2-Dibromo-3-chloropropane		ND		2700	ug/Kg-DRY	09/18/96
1,2,4-Trichlorobenzene		ND		1300	ug/Kg-DRY	09/18/96
Hexachlorobutadiene		ND		1300	ug/Kg-DRY	09/18/96
Napthalene		16000	D	1300	ug/Kg-DRY	09/18/96
1,2,3-Trichlorobenzene		ND		1300	ug/Kg-DRY	09/18/96
Acetone		ND		13000	ug/Kg-DRY	09/18/96
Acrylonitrile		ND		2700	ug/Kg-DRY	09/18/96
2-Butanone		ND		13000	ug/Kg-DRY	09/18/96
Carbon Disulfide		ND		1300	ug/Kg-DRY	09/18/96
trans-1,4-Dichloro-2-butene		ND		2700	ug/Kg-DRY	09/18/96
2-Chloroethyl Vinyl Ether		ND		2700	ug/Kg-DRY	09/18/96
2-Hexanone		ND		5400	ug/Kg-DRY	09/18/96
Iodomethane		ND		1300	ug/Kg-DRY	09/18/96
4-Methyl-2-pentanone		ND		5400	ug/Kg-DRY	09/18/96
Vinyl Acetate		ND		1300	ug/Kg-DRY	09/18/96
tert-Butyl methyl ether		ND		1300	ug/Kg-DRY	09/18/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		108		Min:	80	Max: 120
Toluene d-8		108		Min:	81	Max: 117
p-Bromofluorobenzene		100		Min:	74	Max: 121

Sample: **06B** **CA461002-96-0911-0840** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.25	mg/Kg	09/19/96
Ignitability	EPA 1010	>200		47	Deg F/1atm	09/13/96
Sulfide, Reactive	SW 7.3.4.2	270		16	mg/Kg	09/19/96
pH	EPA 9045A	7.2		0.10	pH units	09/12/96

Sample: **06C** **CA461002-96-0911-0840** Collected: **09/11/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/18/96
Barium		2.1		0.020	mg/L	09/18/96
Cadmium		ND		0.0050	mg/L	09/18/96
Chromium		0.058		0.010	mg/L	09/18/96
Lead		ND		0.050	mg/L	09/18/96
Selenium		ND		0.10	mg/L	09/18/96
Silver		ND		0.010	mg/L	09/18/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/17/96

THE FOLLOWING CODES APPLY TO THE ANALYTICAL REPORT

RESULT field...
- ND = not detected at the reported limit
- NA = analyte not applicable (see case narrative/methods for discussion)

Q (qualifier) field...

GENERAL:
- * = Recovery or %RPD outside method specifications
- H = value is estimated due to analysis run outside EPA holding times
- E = reported concentration is above the instrument calibration range
- D = analyte was diluted to bring within instrument calibration range or to remove matrix interferences

ORGANIC ANALYSIS DATA QUALIFIERS:
- B = analyte was detected in the laboratory method blank
- J = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)

INORGANIC ANALYSIS DATA QUALIFIERS:
- B = analyte was detected above the instrument detection limit (IDL) but below the analytical reporting limit (CRDL)
- A = post digestion spike did not meet criteria (70-130%), therefore the reporting limit was raised by a factor of two to reflect spike failure
- S = reported value determined by the Method of Standard Additions

1311EM:	TCLP EXTRACTION Toxicity Characteristic Leachate Procedure (Metals)	METHOD: 1311
1311HG:	MERCURY, TCLP Extracted Maximum Contaminant Level (mg/L)	METHOD: 7470 0.2
ICPTW	Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Flame Atomic Absorption (FAA) or Inductively Coupled Plasma (ICP) Spectroscopy according to EPA 200.0 and/or SW-846.	METHOD: 200.0/3010A
1311_M:	METALS (ICP), TCLP Extracted Maximum Contaminant Level (mg/L) Arsenic Barium Cadmium Chromium Lead Selenium Silver	METHOD: 3010/6010 5.0 100 1.0 5.0 5.0 1.0 5.0
8260_S:	VOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8260
8260_W:	VOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8260
3520_B:	Continuous Liquid-Liquid Extraction - BNAs The continuous liquid-liquid extraction used with this method (3520) is modified to conform with the EPA-CLP methodology (OLM01.0) in which dual pH extraction has been replaced with one 18 hour extraction at a pH of <2.0.	METHOD: 3520B
3540_B:	Soxhlet Extraction - BNA	METHOD: 3540B
8270_S:	SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8270
8270_W:	SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)	METHOD: 8270
PMOIST:	PERCENT MOISTURE	METHOD: ASTM D2216
IGN_S:	IGNITABILITY	METHOD: 1010
IGN_W:	IGNITABILITY - Pensky-Martens Closed Cup	METHOD: EPA 1010
PH_S:	pH (ELECTRODE)	METHOD: 9045
PH_W:	pH (ELECTRODE)	METHOD: 150.1
RCN_S:	CYANIDE, Reactive EPA Action Level: 250 mg HCN/Kg waste Due to method limitations spike recoveries are minimal.	METHOD: SW 7.3.3.2

RS2_S: REACTIVE SULFIDE METHOD: 376.2
EPA Action Level: 500 mg H2S/Kg waste
Prepared by SW 7.3.4.2.
Due to method limitations spike recoveries are minimal.

Sample: 01A CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 01B CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 01D CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 01E CA391001-96-0911-0730 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 02A CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 02B CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 02D CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 02E CA461001-96-0911-0830 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 03A CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 150.1	09/11/96	09/12/96	NA		09/12/96

Sample: 03B CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 03D CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/17/96

Sample: 03E CA381001-96-0911-1005 Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 04A Trip Blank Matrix: WATER

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/17/96

Sample: 05A CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/18/96

Sample: 05B CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 05C CA391002-96-0911-0740 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 06A CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/18/96

Sample: 06B CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 06C CA461002-96-0911-0840 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

Sample: 07A CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Percent Moisture	ASTM D2216	09/11/96	09/12/96	NA		09/12/96
Semivolatile Organics	SW 8270A	09/11/96	09/12/96	NA	09/12/96	09/20/96
Volatiles by GC/MS	SW 8260	09/11/96	09/12/96	NA		09/19/96

Sample: 07B CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
Cyanide, Reactive	SW 7.3.3.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
Ignitability	EPA 1010	09/11/96	09/12/96	NA		09/13/96
Sulfide, Reactive	SW 7.3.4.2	09/11/96	09/12/96	NA	09/17/96	09/19/96
pH	EPA 9045A	09/11/96	09/12/96	NA	09/12/96	09/12/96

Sample: 07C CA381002-96-0911-1010 Matrix: SLUDGE

Analysis	Method	Collected	Received	TCLP date	Extracted	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010	09/11/96	09/12/96	09/12/96	09/17/96	09/18/96
Mercury, TCLP Extracted	SW 7470	09/11/96	09/12/96	09/12/96	09/16/96	09/17/96

ANALYTICA ENVIRONMENTAL LABORATORIES

Quick turn

CHAIN OF CUSTODY RECORD

325 Interlocken Parkwa ɜ 200
Broomfield, Colorao 21
(303) 469-8868 or 1-800-873-8707
FAX: (303) 469-5254

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, NE NM 87109

PROJECT ID/DESCRIPTION: Cannon OUS

TELEPHONE: 505-342-3472

FAX: 505 342 3497

P. O. NO.

8 RCRA Metals

ANALYTICA USE ONLY: № 02796

CSN

LGN

LOC

QC

PM

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Metals pH TCLP	VOC 8260C	SVOC 8270/8310	TCLP Metals	Combined Jars
11 Sept 96	0740	CA39/002-96-0911-0740	3	1	1	1	1	✓
11 Sept 96	0840	CA46/002-96-0911-0840	3	1	1	1	1	✓
11 Sept 96	1010	CA38/002-96-0911-1010	3	1	1	1	1	✓

COMMENTS: Quick Turn (5 days)

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
[illegible] BRIAN JORDAN	11 Sept 96 1155	[illegible]					

003-0294

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkwa e 200
Broomfield, Colorac 21
(303) 469-8868 or 1-800-8/3-8707
FAX: (303) 469-5254

Quick Turn
CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl NE, Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.

8RCRA

ANALYTICA USE ONLY: № 002795

CSN

LGN

LOC

QC

PM

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity pH Ign.	VOC-8260	SVOC-8270	TPH 418.1							
11Sep'96	0730	CA39/001-96-0911-0730	5	1	2	1	1							
11Sep'96	0830	CA46/001-96-0911-0830	5	1	2	1	1							
11Sep'96	1005	CA35/001-96-0911-1005	5	1	2	1	1							
		TRIP Blank	1		1									

COMMENTS: Quick Turn of 5 days

MEANS OF DELIVERY: Fed EX

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	11Sep'96 1155	Fed EX					

003-0294

ID: 9611250-08E
ple ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
1,1-Dichloroethene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,1-Dichloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Acrylonitrile	ND	mg/Kg	0.020	2100	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Chloroform	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,2-Dichloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Vinyl Acetate	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
2-Butanone (MEK)	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Carbon Tetrachloride	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Bromodichloromethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,2-Dichloropropane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Dibromomethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Trichloroethene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Chlorodibromomethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Ethyl Methacrylate	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Benzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Bromoform	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
thyl-2-Pentanone (MIBK)	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
hloroethene	4.1	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
2-Tetrachloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
ibromoethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
exanone (MBK)	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Toluene	7.7	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Chlorobenzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Ethylbenzene	6.2	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,4-Dichloro-2-Butene	ND	mg/Kg	0.010	2100	12/09/96	SMSVOA409
Styrene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
P/M Xylene	31	mg/Kg	0.0020	2100	12/09/96	SMSVOA409
O-Xylene	15	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,2,3-Trichloropropane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	2100	12/09/96	SMSVOA409
1,2-Dichlorobenzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,3-Dichlorobenzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,4-Dichlorobenzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409

Lab ID: 9611250-09A
Sample ID: CA47A/001-96-1126-1005

Collected: 11/26/96 10:05:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER XT/SW846 3520	12/02/96	N/A				
SVOA WATER/SW846 8270B						
n-Nitrosodimethylamine	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Pyridine	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Aniline	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
bis(2-Chloroethyl) Ether	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
rophenol	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
chlorobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
chlorobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
l	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
1,2-Dichlorobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176

ID: 9611250-09A **Collected:** 11/26/96 10:05:00
Sample ID: CA47A/001-96-1126-1005 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER/SW846 8270B						
Benzyl Alcohol	ND	ug/L	50	3.4	12/27/96	WMSSVOA176
bis(2-Chloroisopropyl) Ether	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
2-Methylphenol / O-Cresol	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Hexachloroethane	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
n-Nitroso-di-n-propylamine	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Nitrobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
3/4 Methylphenol / M/P-Cresol	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Isophorone	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
2-Nitrophenol	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
bis(2-Chloroethoxy) Methane	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
2,4-Dimethylphenol	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
1,2,4-Trichlorobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Naphthalene	4.1	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Benzoic Acid	ND	ug/L	100	3.4	12/27/96	WMSSVOA176
2,4-Dichlorophenol	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
4-Chloroaniline	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Hexachlorobutadiene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
2-Methylnaphthalene	8.1	ug/L	1.0	3.4	12/27/96	WMSSVOA176
4-Chloro-3-methylphenol	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Hexachlorocyclopentadiene	ND	ug/L	50	3.4	12/27/96	WMSSVOA176
2,4,6-Trichlorophenol	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
2,4,5-Trichlorophenol	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
2-Chloronaphthalene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
[illegible]roaniline	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
[illegible]phthylene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
[illegible]ylphthalate	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
[illegible]nitrotoluene	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
[illegible]naphthene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
3-Nitroaniline	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Dibenzofuran	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
2,4-Dinitrotoluene	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Fluorene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
4-Chlorophenyl-phenylether	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Diethylphthalate	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
4-Nitrophenol	ND	ug/L	20	3.4	12/27/96	WMSSVOA176
4,6-Dinitro-2-methylphenol	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
n-Nitrosodiphenylamine	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
4-Nitroaniline	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
4-Bromophenyl-phenylether	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Hexachlorobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Pentachlorophenol	ND	ug/L	20	3.4	12/27/96	WMSSVOA176
2,4-Dinitrophenol	ND	ug/L	50	3.4	12/27/96	WMSSVOA176
Phenanthrene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Anthracene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Di-n-butylphthalate	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Fluoranthene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Pyrene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Butylbenzylphthalate	16	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Benzo(a)anthracene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Chrysene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
3,3'-Dichlorobenzidine	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
bis(2-Ethylhexyl)phthalate	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Di-n-octyl phthalate	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Benzo(b)+(k)fluoranthene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
1-Methylnaphthalene	5.5	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Benzo(a)pyrene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
Indeno(1,2,3-cd)pyrene	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
[illegible]zo(g,h,i)perylene	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
[illegible]5-Tetrachlorophenol	ND	ug/L	50	3.4	12/27/96	WMSSVOA176
[illegible]nzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
[illegible](a,h)anthracene	ND	ug/L	10	3.4	12/27/96	WMSSVOA176

D: 9611250-09B **Collected:** 11/26/96 10:05:00
ple ID: CA47A/001-96-1126-1005 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/11/96	WFLASH200
pH/EPA 150.1						
pH	7.4	pH Units	0.10	1.0	12/03/96	WPH446
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96116
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/18/96	W96116

Lab ID: 9611250-09C **Collected:** 11/26/96 10:05:00
Sample ID: CA47A/001-96-1126-1005 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	6.8	mg/L	0.10	2.0	12/03/96	W9695

Lab ID: 9611250-09D **Collected:** 11/26/96 10:05:00
S ple ID: CA47A/001-96-1126-1005 **Matrix:** WATER

/ METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/EPA 245.1	12/03/96	N/A				
MERCURY (CVAA)/EPA 245.1						
Mercury	ND	mg/L	0.00020	1.0	12/04/96	M96182
Metals-(ICP)DIG SW846 3005	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND		0.020	1.0	12/03/96	M96175
Aluminum, Al	NT		0.50			M96175
Arsenic, As	ND		0.060	1.0	12/03/96	M96175
Barium, Ba	0.12		0.010	1.0	12/03/96	M96175
Beryllium, Be	NT		0.0010			M96175
Calcium, Ca	NT		0.30			M96175
Cadmium, Cd	ND		0.0040	1.0	12/03/96	M96175
Cobalt, Co	NT		0.010			M96175
Chromium, Cr	ND		0.020	1.0	12/03/96	M96175
Copper, Cu	NT		0.010			M96175
Iron, Fe	NT		0.30			M96175
Potassium, K	NT		0.20			M96175
Magnesium, Mg	NT		0.20			M96175
Manganese, Mn	NT		0.0050			M96175
Sodium, Na	NT		0.30			M96175
Nickel, Ni	ND		0.040	1.0	12/03/96	M96175
Lead, Pb	0.12		0.040	1.0	12/03/96	M96175
Antimony, Sb	NT		0.030			M96175
Selenium, Se	ND		0.050	1.0	12/03/96	M96175
Thallium, Tl	NT		0.40			M96175
Vanadium, V	NT		0.0030			M96175
Zinc, Zn	NT		0.10			M96175

D: 9611250-09E **Collected:** 11/26/96 10:05:00
ple ID: CA47A/001-96-1126-1005 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES /SW846 8260B						
Dichlorodifluoromethane	ND	ug/L	10	1.0	12/06/96	WMSVOA500501
Chloromethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Iodomethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Acetone	26	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Bromomethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Vinyl Chloride	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Chloroethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Trichlorofluoromethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Freon 113	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Carbon Disulfide	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Acrolein	ND	ug/L	20	1.0	12/06/96	WMSVOA500501
Methylene Chloride	ND	ug/L	10	1.0	12/06/96	WMSVOA500501
1,1-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,1-Dichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Acrylonitrile	ND	ug/L	20	1.0	12/06/96	WMSVOA500501
trans-1,2-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Chloroform	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,2-Dichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Vinyl Acetate	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
cis-1,2-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
2-Butanone (MEK)	10***	ug/L	5.0	1.0	12/06/96	WMSVOA500501
1,1,1-Trichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Carbon Tetrachloride	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
·odichloromethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
chloropropane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
nomethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
,3-Dichloropropene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
·loroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Chlorodibromomethane	3.5	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Ethyl Methacrylate	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
2-Chloroethylvinyl Ether	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
1,1,2-Trichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Benzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
cis-1,3-Dichloropropene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Bromoform	5.1	ug/L	1.0	1.0	12/06/96	WMSVOA500501
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
Tetrachloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,2-Dibromoethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
2-Hexanone (MBK)	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500501
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Toluene	4.4	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Ethylbenzene	220	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,4-Dichloro-2-Butene	ND	ug/L	10	1.0	12/06/96	WMSVOA500501
Styrene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
P/M Xylene	770	ug/L	2.0	10	12/10/96	WMSVOA500501
O-Xylene	120	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,2,3-Trichloropropane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
Methyl-tert Butyl Ether	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,2-Dichlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,3-Dichlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501
1,4-Dichlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500501

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Report Generated:
January 14, 1997 14:13

CERTIFICATE OF ANALYSIS
RESULTS BY SAMPLE

SENT TO: US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

ATTN: SUSAN GANT

WORKORDER # : 9701020
WORK ID : ADDITION TO WO#11250
CLIENT CODE : USA01
DATE RECEIVED : 11/27/96

Lab ID: 9701020-01A
Sample ID: CA001/002-96-1125-1430
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	32.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	ND	mg/L	0.0030	1.0	01/10/97	M9714
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

Lab ID: 9701020-02A
Sample ID: CA33B/002-96-1125-1450
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	35.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	ND	mg/L	0.0030	1.0	01/10/97	M9714
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

Lab ID: 9701020-03A
Sample ID: CA47A/00296-1125-1515
Collected: 11/25/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	35.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

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ID: 9611250-02C **Collected:** 11/25/96 14:50:00
ple ID: CA33B/002-96-1125-1450 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	7000	mg/Kg	5.0	50	12/04/96	W9697

Lab ID: 9611250-03A **Collected:** 11/25/96 15:15:00
Sample ID: CA47A/002-96-1125-1515 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND	mg/Kg	0.010	4300	12/09/96	SMSVOA409
Chloromethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Iodomethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Acetone	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Bromomethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Vinyl Chloride	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Chloroethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Trichlorofluoromethane	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Freon 113	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Carbon Disulfide	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Acrolein	ND	mg/Kg	0.020	4300	12/09/96	SMSVOA409
lene Chloride	ND	mg/Kg	0.010	4300	12/09/96	SMSVOA409
chloroethene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
chloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
onitrile	ND	mg/Kg	0.020	4300	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Chloroform	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,2-Dichloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Vinyl Acetate	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
2-Butanone (MEK)	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Carbon Tetrachloride	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Bromodichloromethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,2-Dichloropropane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Dibromomethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Trichloroethene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Chlorodibromomethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Ethyl Methacrylate	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Benzene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Bromoform	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
4-Methyl-2-Pentanone (MIBK)	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
Tetrachloroethene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,1,2,2-Tetrachloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,2-Dibromoethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
2-Hexanone (MBK)	ND	mg/Kg	0.0050	4300	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Toluene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Chlorobenzene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Ethylbenzene	110	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,4-Dichloro-2-Butene	ND	mg/Kg	0.010	4300	12/09/96	SMSVOA409
e	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
ylene	380	mg/Kg	0.0020	4300	12/09/96	SMSVOA409
ne	57	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Trichloropropane	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	4300	12/09/96	SMSVOA409

ID: 9611250-03A **Collected:** 11/25/96 15:15:00
.ple ID: CA47A/002-96-1125-1515 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
1,2-Dichlorobenzene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,3-Dichlorobenzene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409
1,4-Dichlorobenzene	ND	mg/Kg	0.0010	4300	12/09/96	SMSVOA409

Lab ID: 9611250-03B **Collected:** 11/25/96 15:15:00
Sample ID: CA47A/002-96-1125-1515 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/SW846 7471	12/05/96	N/A				
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/10/96	SFLASH215
MERCURY (CVAA)/SW846 7471						
Mercury	ND	mg/Kg	0.15	1.0	12/06/96	M96195
Metal(ICP) DIG /SW846 3050	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND	mg/Kg	1.0	1.0	12/03/96	M96176
Aluminum, Al	NT	mg/Kg	25			M96176
Arsenic, As	ND	mg/Kg	3.0	1.0	12/03/96	M96176
Barium, Ba	1360	mg/Kg	0.50	1.0	12/03/96	M96176
Beryllium, Be	NT	mg/Kg	0.50			M96176
Calcium, Ca	NT	mg/Kg	15			M96176
Cadmium, Cd	9.12	mg/Kg	0.20	1.0	12/03/96	M96176
Cobalt, Co	NT	mg/Kg	0.50			M96176
Chromium, Cr	54.9	mg/Kg	1.0	1.0	12/03/96	M96176
Copper, Cu	NT	mg/Kg	0.50			M96176
Iron, Fe	NT	mg/Kg	15			M96176
Potassium, K	NT	mg/Kg	10			M96176
Magnesium, Mg	NT	mg/Kg	10			M96176
Manganese, Mn	NT	mg/Kg	0.25			M96176
Sodium, Na	NT	mg/Kg	15			M96176
Nickel, Ni	38.2	mg/Kg	2.0	1.0	12/03/96	M96176
Lead, Pb	299	mg/Kg	2.0	1.0	12/03/96	M96176
Antimony, Sb	NT	mg/Kg	1.5			M96176
Selenium, Se	ND	mg/Kg	2.5	1.0	12/03/96	M96176
Vanadium, V	NT	mg/Kg	0.15			M96176
Zinc, Zn	NT	mg/Kg	5.0			M96176
pH/SW846 9045B						
pH	6.8	pH Units	0.10	1.0	12/09/96	SPH247
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96117
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/17/96	W96117
SVOA(SOX) Soil/SW846 8270B	12/03/96	N/A				
n-Nitrosodimethylamine	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
Pyridine	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
Aniline	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
bis(2-Chloroethyl) Ether	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
2-Chlorophenol	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
1,3-Dichlorobenzene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
1,4-Dichlorobenzene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Phenol	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
1,2-Dichlorobenzene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Benzyl Alcohol	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
bis(2-Chloroisopropyl) Ether	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
4-Methylphenol / O-Cresol	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Hexachloroethane	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Isophorone	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Nitrobenzene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131

ID: 9611250-03B
ple ID: CA47A/002-96-1125-1515

Collected: 11/25/96 15:15:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA(SOX) Soil/SW846 8270B						
3/4 Methylphenol / M/P-Cresol	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Isophorone	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
2-Nitrophenol	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
bis(2-Chloroethoxy) Methane	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
2,4-Dimethylphenol	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
1,2,4-Trichlorobenzene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Naphthalene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Benzoic Acid	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
2,4-Dichlorophenol	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
4-Chloroaniline	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
Hexachlorobutadiene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
2-Methylnaphthalene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
4-Chloro-3-methylphenol	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Hexachlorocyclopentadiene	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
2,4,6-Trichlorophenol	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
2,4,5-Trichlorophenol	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
2-Chloronaphthalene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
2-Nitroaniline	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
Acenaphthylene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Dimethylphthalate	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
2,6-Dinitrotoluene	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
Acenaphthene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
3-Nitroaniline	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
nzofuran	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
nitrotoluene	ND	mg/Kg	2.5	101	12/14/96	SMSSVOA131
ne	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
rophenyl-phenylether	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
ylphthalate	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
4-Nitrophenol	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
4,6-Dinitro-2-methylphenol	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
n-Nitrosodiphenylamine	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
4-Nitroaniline	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
4-Bromophenyl-phenylether	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Hexachlorobenzene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Pentachlorophenol	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
2,4-Dinitrophenol	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
Phenanthrene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Anthracene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Di-n-butylphthalate	ND	mg/Kg	5.0	101	12/14/96	SMSSVOA131
Fluoranthene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Pyrene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Butylbenzylphthalate	100	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Benzo(a)anthracene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Chrysene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
3,3'-Dichlorobenzidine	ND	mg/Kg	10	101	12/14/96	SMSSVOA131
bis(2-Ethylhexyl)phthalate	ND	mg/Kg	2.5	101	12/14/96	SMSSVOA131
Di-n-octyl phthalate	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Benzo(b)+(k)fluoranthene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
1-Methylnaphthalene	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
Benzo(a)pyrene	ND	mg/Kg	0.50	101	12/14/96	SMSSVOA131
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
Benzo(g,h,i)perylene	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
2,3,4,6-Tetrachlorophenol	ND	mg/Kg	2.5	101	12/14/96	SMSSVOA131
Azobenzene	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131
Dibenz(a,h)anthracene	ND	mg/Kg	1.0	101	12/14/96	SMSSVOA131

D: 9611250-03C **Collected:** 11/25/96 15:15:00
ple ID: CA47A/002-96-1125-1515 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	18600	mg/Kg	5.0	200	12/04/96	W9697

Lab ID: 9611250-04A **Collected:** 11/26/96 15:00:00
Sample ID: CA09/002-96-1126-1500 **Matrix:** SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND	mg/Kg	0.010	39	12/09/96	SMSVOA409
Chloromethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Iodomethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Acetone	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Bromomethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Vinyl Chloride	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Chloroethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Trichlorofluoromethane	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Freon 113	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Carbon Disulfide	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Acrolein	ND	mg/Kg	0.020	39	12/09/96	SMSVOA409
lene Chloride	0.31	mg/Kg	0.010	39	12/09/96	SMSVOA409
chloroethene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
chloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
onitrile	ND	mg/Kg	0.020	39	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Chloroform	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,2-Dichloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Vinyl Acetate	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	4.7	mg/Kg	0.0010	39	12/09/96	SMSVOA409
2-Butanone (MEK)	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Carbon Tetrachloride	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Bromodichloromethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,2-Dichloropropane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Dibromomethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Trichloroethene	0.14	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Chlorodibromomethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Ethyl Methacrylate	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Benzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Bromoform	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
4-Methyl-2-Pentanone (MIBK)	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
Tetrachloroethene	0.074	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,1,2,2-Tetrachloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1,2-Dibromoethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
2-Hexanone (MBK)	ND	mg/Kg	0.0050	39	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Toluene	0.89	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Chlorobenzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Ethylbenzene	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
1 4-Dichloro-2-Butene	ND	mg/Kg	0.010	39	12/09/96	SMSVOA409
e	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
ylene	ND	mg/Kg	0.0020	39	12/09/96	SMSVOA409
ne	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
richloropropane	ND	mg/Kg	0.0010	39	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	39	12/09/96	SMSVOA409

ID: 9611250-07E
ple ID: CA51/001-96-1126-1300

Collected: 11/26/96 13:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
1,2-Dibromoethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
2-Hexanone (MBK)	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Toluene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Chlorobenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Ethylbenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,4-Dichloro-2-Butene	ND	mg/Kg	0.010	1500	12/09/96	SMSVOA409
Styrene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
P/M Xylene	ND	mg/Kg	0.0020	1500	12/09/96	SMSVOA409
O-Xylene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,2,3-Trichloropropane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	1500	12/09/96	SMSVOA409
1,2-Dichlorobenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,3-Dichlorobenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,4-Dichlorobenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409

Lab ID: 9611250-08A
Sample ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
WATER XT/SW846 3520	12/02/96	N/A				
WATER/SW846 8270B						
n-Nitrosodimethylamine	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Pyridine	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Aniline	ND	ug/L	10	8500	12/27/96	WMSSVOA176
bis(2-Chloroethyl) Ether	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2-Chlorophenol	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
1,3-Dichlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
1,4-Dichlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Phenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
1,2-Dichlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Benzyl Alcohol	ND	ug/L	50	8500	12/27/96	WMSSVOA176
bis(2-Chloroisopropyl) Ether	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2-Methylphenol / O-Cresol	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Hexachloroethane	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
n-Nitroso-di-n-propylamine	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Nitrobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
3/4 Methylphenol / M/P-Cresol	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Isophorone	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2-Nitrophenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
bis(2-Chloroethoxy) Methane	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2,4-Dimethylphenol	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
1,2,4-Trichlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Naphthalene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Benzoic Acid	ND	ug/L	100	8500	12/27/96	WMSSVOA176
2,4-Dichlorophenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
4-Chloroaniline	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Hexachlorobutadiene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2-Methylnaphthalene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
4-Chloro-3-methylphenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Hexachlorocyclopentadiene	ND	ug/L	50	8500	12/27/96	WMSSVOA176
2.4.6-Trichlorophenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Trichlorophenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
ronaphthalene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
aniline	ND	ug/L	10	8500	12/27/96	WMSSVOA176
phthylene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Dimethylphthalate	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176

ID: 9611250-08A
Sample ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER/SW846 8270B						
2,6-Dinitrotoluene	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Acenaphthene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
3-Nitroaniline	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Dibenzofuran	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2,4-Dinitrotoluene	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Fluorene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
4-Chlorophenyl-phenylether	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Diethylphthalate	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
4-Nitrophenol	ND	ug/L	20	8500	12/27/96	WMSSVOA176
4,6-Dinitro-2-methylphenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
n-Nitrosodiphenylamine	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
4-Nitroaniline	ND	ug/L	10	8500	12/27/96	WMSSVOA176
4-Bromophenyl-phenylether	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Hexachlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Pentachlorophenol	ND	ug/L	20	8500	12/27/96	WMSSVOA176
2,4-Dinitrophenol	ND	ug/L	50	8500	12/27/96	WMSSVOA176
Phenanthrene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Anthracene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Di-n-butylphthalate	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Fluoranthene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Pyrene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Butylbenzylphthalate	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Benzo(a)anthracene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
'sene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
)ichlorobenzidine	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Ethylhexyl)phthalate	ND	ug/L	10	8500	12/27/96	WMSSVOA176
ctyl phthalate	ND	ug/L	10	8500	12/27/96	WMSSVOA176
o(b)+(k)fluoranthene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
1-Methylnaphthalene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Benzo(a)pyrene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Indeno(1,2,3-cd)pyrene	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Benzo(g,h,i)perylene	ND	ug/L	10	8500	12/27/96	WMSSVOA176
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	8500	12/27/96	WMSSVOA176
Azobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Dibenz(a,h)anthracene	ND	ug/L	10	8500	12/27/96	WMSSVOA176

Lab ID: 9611250-08B
Sample ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/11/96	WFLASH200
pH/EPA 150.1						
pH	6.6	pH Units	0.10	1.0	12/03/96	WPH446
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96116
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/18/96	W96116

D: 9611250-08C
Sample ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	430000	mg/L	0.10	**	12/03/96	W9695

Lab ID: 9611250-08D
Sample ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/EPA 245.1	12/03/96	N/A				
MERCURY (CVAA)/EPA 245.1						
Mercury	ND	mg/L	0.00020	1.0	12/04/96	M96182
Metals-(ICP)DIG SW846 3005	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND		0.020	10	12/03/96	M96175
Aluminum, Al	NT		0.50			M96175
Arsenic, As	ND		0.060	10	12/03/96	M96175
Barium, Ba	12.8		0.010	10	12/03/96	M96175
Beryllium, Be	NT		0.0010			M96175
Calcium, Ca	NT		0.30			M96175
[illegible]ium, Cd	1.44		0.0040	10	12/03/96	M96175
[illegible], Co	NT		0.010			M96175
[illegible]ium, Cr	1.17		0.020	10	12/03/96	M96175
[illegible]r, Cu	NT		0.010			M96175
[illegible], Fe	NT		0.30			M96175
Potassium, K	NT		0.20			M96175
Magnesium, Mg	NT		0.20			M96175
Manganese, Mn	NT		0.0050			M96175
Sodium, Na	NT		0.30			M96175
Nickel, Ni	1.38		0.040	10	12/03/96	M96175
Lead, Pb	33.2		0.040	10	12/03/96	M96175
Antimony, Sb	NT		0.030			M96175
Selenium, Se	ND		0.050	10	12/03/96	M96175
Thallium, Tl	NT		0.40			M96175
Vanadium, V	NT		0.0030			M96175
Zinc, Zn	NT		0.10			M96175

Lab ID: 9611250-08E
Sample ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND	mg/Kg	0.010	2100	12/09/96	SMSVOA409
Chloromethane	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
Iodomethane	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
Acetone	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
Bromomethane	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
Vinyl Chloride	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
Chloroethane	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
[illegible]orofluoromethane	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
[illegible]113	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
[illegible] Disulfide	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
[illegible]in	ND	mg/Kg	0.020	2100	12/09/96	SMSVOA409
Methylene Chloride	ND	mg/Kg	0.010	2100	12/09/96	SMSVOA409

ID: 9611250-08E
ple ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
1,1-Dichloroethene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,1-Dichloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Acrylonitrile	ND	mg/Kg	0.020	2100	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Chloroform	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,2-Dichloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Vinyl Acetate	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
2-Butanone (MEK)	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Carbon Tetrachloride	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Bromodichloromethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,2-Dichloropropane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Dibromomethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Trichloroethene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Chlorodibromomethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Ethyl Methacrylate	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Benzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
cis-1,3-Dichloropropene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Bromoform	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
thyl-2-Pentanone (MIBK)	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
hloroethene	4.1	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
2-Tetrachloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
ibromoethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
xanone (MBK)	ND	mg/Kg	0.0050	2100	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Toluene	7.7	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Chlorobenzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Ethylbenzene	6.2	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,4-Dichloro-2-Butene	ND	mg/Kg	0.010	2100	12/09/96	SMSVOA409
Styrene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
P/M Xylene	31	mg/Kg	0.0020	2100	12/09/96	SMSVOA409
O-Xylene	15	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,2,3-Trichloropropane	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	2100	12/09/96	SMSVOA409
1,2-Dichlorobenzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,3-Dichlorobenzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409
1,4-Dichlorobenzene	ND	mg/Kg	0.0010	2100	12/09/96	SMSVOA409

Lab ID: 9611250-09A
Sample ID: CA47A/001-96-1126-1005

Collected: 11/26/96 10:05:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER XT/SW846 3520	12/02/96	N/A				
SVOA WATER/SW846 8270B						
n-Nitrosodimethylamine	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Pyridine	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
Aniline	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
bis(2-Chloroethyl) Ether	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
rophenol	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
chlorobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
chlorobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176
	ND	ug/L	10	3.4	12/27/96	WMSSVOA176
1,2-Dichlorobenzene	ND	ug/L	1.0	3.4	12/27/96	WMSSVOA176

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

Lab job no.: _____ Date _____

Page _____ of _____

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client _____ Project Manager / Contact _____

Address _____ Telephone No. _____

City / State / Zip _____ Fax No. _____

Project Name / Number _____ Samplers: *(Signature)* _____

Contract / Purchase Order / Quote _____

Analysis Required

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers										Remarks

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature		Signature	Signature		Signature
Printed	Time	Printed	Printed	Time	Printed
Company		Company	Company		Company
Reason		Reason	Reason		Reason

Method of Shipment: _____

Shipment No. _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: _____ Date _____

Page _____ of _____

Client _____

Address _____

City / State / Zip _____

Project Name / Number _____

Contract / Purchase Order / Quote _____

Project Manager / Contact _____

Telephone No. _____

Fax No. _____

Samplers: *(Signature)* _____

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required										Remarks

Relinquished by:
Signature _____
Printed _____
Company _____
Reason _____

Date _____
Time _____

Received by:
Signature _____
Printed _____
Company _____
Reason _____

Relinquished by:
Signature _____
Printed _____
Company _____
Reason _____

Date _____
Time _____

Received by:
Signature _____
Printed _____
Company _____
Reason _____

Method of Shipment: _____
Shipment No. _____
Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
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MIDLAND, TEXAS 79705
(915) 570-1116

Lab job no.: _____ Date _____

Page _____ of _____

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client _____

Address _____

City / State / Zip _____

Project Name / Number _____

Contract / Purchase Order / Quote _____

Project Manager / Contact _____

Telephone No. _____

Fax No. _____

Samplers: *(Signature)* _____

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required										Remarks

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature		Signature	Signature		Signature
Printed	Time	Printed	Printed	Time	Printed
Company		Company	Company		Company
Reason		Reason	Reason		Reason

Method of Shipment: _____

Shipment No. _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CC

ID: 9611250-07A
ple ID: CA51/001-96-1126-1300

Collected: 11/26/96 13:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER XT/SW846 3520	12/02/96	N/A				
SVOA WATER/SW846 8270B						
n-Nitrosodimethylamine	ND	ug/L	10	44	12/27/96	WMSSVOA176
Pyridine	ND	ug/L	10	44	12/27/96	WMSSVOA176
Aniline	ND	ug/L	10	44	12/27/96	WMSSVOA176
bis(2-Chloroethyl) Ether	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
2-Chlorophenol	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
1,3-Dichlorobenzene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
1,4-Dichlorobenzene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Phenol	ND	ug/L	10	44	12/27/96	WMSSVOA176
1,2-Dichlorobenzene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Benzyl Alcohol	ND	ug/L	50	44	12/27/96	WMSSVOA176
bis(2-Chloroisopropyl) Ether	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
2-Methylphenol / O-Cresol	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Hexachloroethane	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
n-Nitroso-di-n-propylamine	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Nitrobenzene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
3/4 Methylphenol / M/P-Cresol	730	ug/L	1.0	44	12/27/96	WMSSVOA176
Isophorone	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
2-Nitrophenol	ND	ug/L	10	44	12/27/96	WMSSVOA176
bis(2-Chloroethoxy) Methane	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
2,4-Dimethylphenol	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
1,2,4-Trichlorobenzene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Naphthalene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
oic Acid	ND	ug/L	100	44	12/27/96	WMSSVOA176
ichlorophenol	ND	ug/L	10	44	12/27/96	WMSSVOA176
oroaniline	ND	ug/L	10	44	12/27/96	WMSSVOA176
hlorobutadiene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
thylnaphthalene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
4-Chloro-3-methylphenol	ND	ug/L	10	44	12/27/96	WMSSVOA176
Hexachlorocyclopentadiene	ND	ug/L	50	44	12/27/96	WMSSVOA176
2,4,6-Trichlorophenol	ND	ug/L	10	44	12/27/96	WMSSVOA176
2,4,5-Trichlorophenol	ND	ug/L	10	44	12/27/96	WMSSVOA176
2-Chloronaphthalene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
2-Nitroaniline	ND	ug/L	10	44	12/27/96	WMSSVOA176
Acenaphthylene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Dimethylphthalate	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
2,6-Dinitrotoluene	ND	ug/L	10	44	12/27/96	WMSSVOA176
Acenaphthene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
3-Nitroaniline	ND	ug/L	10	44	12/27/96	WMSSVOA176
Dibenzofuran	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
2,4-Dinitrotoluene	ND	ug/L	10	44	12/27/96	WMSSVOA176
Fluorene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
4-Chlorophenyl-phenylether	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Diethylphthalate	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
4-Nitrophenol	ND	ug/L	20	44	12/27/96	WMSSVOA176
4,6-Dinitro-2-methylphenol	ND	ug/L	10	44	12/27/96	WMSSVOA176
n-Nitrosodiphenylamine	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
4-Nitroaniline	ND	ug/L	10	44	12/27/96	WMSSVOA176
4-Bromophenyl-phenylether	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Hexachlorobenzene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Pentachlorophenol	ND	ug/L	20	44	12/27/96	WMSSVOA176
2,4-Dinitrophenol	ND	ug/L	50	44	12/27/96	WMSSVOA176
Phenanthrene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Anthracene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Di-n-butylphthalate	ND	ug/L	10	44	12/27/96	WMSSVOA176
Fluoranthene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Pyrene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
lbenzylphthalate	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
(a)anthracene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
ene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
ichlorobenzidine	ND	ug/L	10	44	12/27/96	WMSSVOA176
thylhexyl)phthalate	ND	ug/L	10	44	12/27/96	WMSSVOA176
Di-n-octyl phthalate	ND	ug/L	10	44	12/27/96	WMSSVOA176

ID: 9611250-07A **Collected:** 11/26/96 13:00:00
ple ID: CA51/001-96-1126-1300 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER/SW846 8270B						
Benzo(b)+(k)fluoranthene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
1-Methylnaphthalene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Benzo(a)pyrene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Indeno(1,2,3-cd)pyrene	ND	ug/L	10	44	12/27/96	WMSSVOA176
Benzo(g,h,i)perylene	ND	ug/L	10	44	12/27/96	WMSSVOA176
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	44	12/27/96	WMSSVOA176
Azobenzene	ND	ug/L	1.0	44	12/27/96	WMSSVOA176
Dibenz(a,h)anthracene	ND	ug/L	10	44	12/27/96	WMSSVOA176

Lab ID: 9611250-07B **Collected:** 11/26/96 13:00:00
Sample ID: CA51/001-96-1126-1300 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/11/96	OFLASH059
pH/SW846 9045						
Corrosivity as pH	7.8	pH Units	0.10	1.0	12/09/96	OPH33
RE TIVITY/SW846 7-3						
[illegible]	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96116
[illegible]de	NON-REACT	mg/Kg of Waste	250	1.0	12/18/96	W96116

Lab ID: 9611250-07C **Collected:** 11/26/96 13:00:00
Sample ID: CA51/001-96-1126-1300 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	218000	mg/L	0.10	**	12/03/96	W9695

Lab ID: 9611250-07D **Collected:** 11/26/96 13:00:00
Sample ID: CA51/001-96-1126-1300 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/EPA 245.1	12/03/96	N/A				
MERCURY (CVAA)/EPA 245.1						
Mercury	ND	mg/L	0.00020	1.0	12/04/96	M96182
Metals-(ICP)DIG SW846 3005	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND		0.020	1.0	12/03/96	M96175
Aluminum, Al	NT		0.50			M96175
Arsenic, As	ND		0.060	1.0	12/03/96	M96175
P[illegible]um, Ba	0.14		0.010	1.0	12/03/96	M96175
[illegible]ium, Be	NT		0.0010			M96175
[illegible]m, Ca	NT		0.30			M96175
[illegible]m, Cd	0.012		0.0040	1.0	12/03/96	M96175
C[illegible]t, Co	NT		0.010			M96175
Chromium, Cr	0.05		0.020	1.0	12/03/96	M96175

ID: 9611250-07D
ple ID: CA51/001-96-1126-1300

Collected: 11/26/96 13:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
METALS-ICP/SW846 6010						
Copper, Cu	NT		0.010			M96175
Iron, Fe	NT		0.30			M96175
Potassium, K	NT		0.20			M96175
Magnesium, Mg	NT		0.20			M96175
Manganese, Mn	NT		0.0050			M96175
Sodium, Na	NT		0.30			M96175
Nickel, Ni	ND		0.040	1.0	12/03/96	M96175
Lead, Pb	0.61		0.040	1.0	12/03/96	M96175
Antimony, Sb	NT		0.030			M96175
Selenium, Se	ND		0.050	1.0	12/03/96	M96175
Thallium, Tl	NT		0.40			M96175
Vanadium, V	NT		0.0030			M96175
Zinc, Zn	NT		0.10			M96175

Lab ID: 9611250-07E
Sample ID: CA51/001-96-1126-1300

Collected: 11/26/96 13:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TILES/SW846 8260						
orodifluoromethane	ND	mg/Kg	0.010	1500	12/09/96	SMSVOA409
omethane	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
ethane	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
Acetone	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
Bromomethane	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
Vinyl Chloride	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
Chloroethane	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
Trichlorofluoromethane	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
Freon 113	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
Carbon Disulfide	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
Acrolein	ND	mg/Kg	0.020	1500	12/09/96	SMSVOA409
Methylene Chloride	ND	mg/Kg	0.010	1500	12/09/96	SMSVOA409
1,1-Dichloroethene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,1-Dichloroethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Acrylonitrile	ND	mg/Kg	0.020	1500	12/09/96	SMSVOA409
trans-1,2-Dichloroethene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Chloroform	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,2-Dichloroethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Vinyl Acetate	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
cis-1,2-Dichloroethene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
2-Butanone (MEK)	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
1,1,1-Trichloroethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Carbon Tetrachloride	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Bromodichloromethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,2-Dichloropropane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Dibromomethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
trans-1,3-Dichloropropene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Trichloroethene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Chlorodibromomethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Ethyl Methacrylate	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
1,1,2-Trichloroethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Benzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
3-Dichloropropene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
oform	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
yl-2-Pentanone (MIBK)	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
nloroethene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,1,2,2-Tetrachloroethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409

ID: 9611250-07E
ple ID: CA51/001-96-1126-1300

Collected: 11/26/96 13:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
1,2-Dibromoethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
2-Hexanone (MBK)	ND	mg/Kg	0.0050	1500	12/09/96	SMSVOA409
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Toluene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Chlorobenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Ethylbenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,4-Dichloro-2-Butene	ND	mg/Kg	0.010	1500	12/09/96	SMSVOA409
Styrene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
P/M Xylene	ND	mg/Kg	0.0020	1500	12/09/96	SMSVOA409
O-Xylene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,2,3-Trichloropropane	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	1500	12/09/96	SMSVOA409
1,2-Dichlorobenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,3-Dichlorobenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409
1,4-Dichlorobenzene	ND	mg/Kg	0.0010	1500	12/09/96	SMSVOA409

Lab ID: 9611250-08A
Sample ID: CA47B/001-96-1126-0915

Collected: 11/26/96 09:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
WATER XT/SW846 3520	12/02/96	N/A				
WATER/SW846 8270B						
n-Nitrosodimethylamine	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Pyridine	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Aniline	ND	ug/L	10	8500	12/27/96	WMSSVOA176
bis(2-Chloroethyl) Ether	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2-Chlorophenol	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
1,3-Dichlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
1,4-Dichlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Phenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
1,2-Dichlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Benzyl Alcohol	ND	ug/L	50	8500	12/27/96	WMSSVOA176
bis(2-Chloroisopropyl) Ether	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2-Methylphenol / O-Cresol	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Hexachloroethane	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
n-Nitroso-di-n-propylamine	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Nitrobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
3/4 Methylphenol / M/P-Cresol	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Isophorone	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2-Nitrophenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
bis(2-Chloroethoxy) Methane	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2,4-Dimethylphenol	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
1,2,4-Trichlorobenzene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Naphthalene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Benzoic Acid	ND	ug/L	100	8500	12/27/96	WMSSVOA176
2,4-Dichlorophenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
4-Chloroaniline	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Hexachlorobutadiene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
2-Methylnaphthalene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
4-Chloro-3-methylphenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Hexachlorocyclopentadiene	ND	ug/L	50	8500	12/27/96	WMSSVOA176
2,4,6-Trichlorophenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
Trichlorophenol	ND	ug/L	10	8500	12/27/96	WMSSVOA176
ronaphthalene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
aniline	ND	ug/L	10	8500	12/27/96	WMSSVOA176
phthylene	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176
Dimethylphthalate	ND	ug/L	1.0	8500	12/27/96	WMSSVOA176

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no. 11290 Date 27 Nov 96

Page 1 of 3

Client: ACE

Address: 7 Jefferson Pl NE

City / State / Zip: Albuquerque NM 87109

Project Name / Number: Cannon FGS

Contract / Purchase Order / Quote:

Project Manager / Contact: Susan Grant

Telephone No.: 505-342-3971

Fax No.: 505-342-3497

Samplers: (Signature)

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers										Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 1/2 oz jar	4°C	—	1	✓									
[illegible]	"	"	"	"	2 8 oz jars	4°C	—	2		✓	✓	✓	✓					
[illegible]	[illegible]	"	[illegible]	"	1 1/2 oz jar	4°C	—	1	✓									
[illegible]	"	"	"	"	2 8 oz jars	4°C	—	2		✓	✓	✓	✓					
[illegible]	[illegible]	"	[illegible]		1 1/2 oz jar	4°C	—	1	✓									
[illegible]	"	"	"		2 8 oz jars	4°C	—	2		✓	✓	✓	✓					
[illegible]	[illegible]	[illegible]	[illegible]		1 1/2 oz jar	4°C	—	1	✓									
[illegible]	"	"	"		2 8 oz jars	4°C	—	2		✓	✓	✓	✓					
[illegible]	[illegible]	[illegible]	[illegible]	"	2 1L AG	4°C	—	3			✓			✓				
[illegible]	"				2 1L AG	4°C	HCl	2					✓					
[illegible]	"				1 [illegible]	4°C	[illegible]	1				✓						
[illegible]	"				2 [illegible]	4°C	[illegible]	2	✓									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	27 Nov 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time 1255	Printed: [illegible]	Printed:	Time	Printed:
Company: AAL		Company:	Company:		Company:
Reason: [illegible]		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

WATER SAMPLE

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

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ALBUQUERQUE, NEW MEXICO 87109
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3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: UNO Date: 22 Nov 96

Page 2 of 2

Client: [illegible]

Address: [illegible]

City / State / Zip: [illegible]

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible]

Samplers: (Signature) [illegible]

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required									Remarks
UNO 2	CA5 [illegible]	[illegible]	[illegible]	[illegible]	3 - 1 L AG	4°C	—	3		✓		✓						
[illegible]					2 1 L AG	"	HCl	2			✓							
[illegible]					1 500 mL A	"	HNO3	1			✓							
[illegible]					2 40 mL Vials	"	HCl	2	✓									[illegible]
[illegible]	[illegible]	"	[illegible]		3 1 L AG		—	3		✓		✓						
[illegible]					2 1 L AG	"	HCl	2			✓							[illegible]
[illegible]					1 500 mL A	"	HNO3	1			✓							[illegible]
[illegible]					2 - 40 mL Vials	"	HCl	2	✓									[illegible]

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	22 NOV 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time: 1555	Printed: [illegible]	Printed:	Time:	Printed:
Company: [illegible]		Company: AAL	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 1250 Date 27 Nov 96

Page 1 of 3

Client: [illegible]

Address: [illegible]

City / State / Zip: [illegible]

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible] 3199

Samplers: *(Signature)* [illegible]

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2 1LAG	4°C	—	3		✓			✓				
[illegible]	"			"	2 1LAG	4°C	HCl	2				✓					
[illegible]	"			"	1 500mL PL	4°C	HNO3	1			✓						
[illegible]	"			"	2 40mL VOA	4°C	HCl	2	✓								
[illegible]	[illegible]	[illegible]	[illegible]	"	3 1LAG	4°C	—	3		✓			✓				
[illegible]	"	"	"	"	2 1LAG	4°C	HCl	2				✓					
[illegible]	"			"	1 500mL PL	4°C	HNO3	1		✓	✓						
[illegible]	"			"	2 40mL VOA	4°C	HCl	2	✓								

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	27 Nov 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible] JORDAN	Time	Printed: [illegible]	Printed:	Time	Printed:
Company: AAL	1355	Company: AAL	Company:		Company:
Reason: [illegible]		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CC

ID: 9611250-05E
ple ID: CA08/001-96-1126-1400

Collected: 11/26/96 14:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES /SW846 8260B						
trans-1,3-Dichloropropene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Trichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Chlorodibromomethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Ethyl Methacrylate	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
2-Chloroethylvinyl Ether	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
1,1,2-Trichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Benzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
cis-1,3-Dichloropropene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Bromoform	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Tetrachloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,2-Dibromoethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
2-Hexanone (MBK)	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Toluene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Ethylbenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,4-Dichloro-2-Butene	ND	ug/L	10	1.0	12/06/96	WMSVOA500
Styrene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
P/M Xylene	ND	ug/L	2.0	1.0	12/06/96	WMSVOA500
O-Xylene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,2,3-Trichloropropane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
[illegible]yl-tert Butyl Ether	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
[illegible]chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
[illegible]chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
[illegible]chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500

Lab ID: 9611250-06A
Sample ID: CA57/001-96-1126-1040

Collected: 11/26/96 10:40:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CANCELLED SAMPLE	n/a	N/A				

Lab ID: 9611250-06B
Sample ID: CA57/001-96-1126-1040

Collected: 11/26/96 10:40:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/11/96	WFLASH200
pH/EPA 150.1						
pH	8.3	pH Units	0.10	1.0	12/03/96	WPH446
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96116
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/18/96	W96116

ID: 9611250-06C
ple ID: CA57/001-96-1126-1040

Collected: 11/26/96 10:40:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TRPH/EPA 418.1						
Total Petroleum HCs	1900	mg/L	0.10	1000	12/03/96	W9695

Lab ID: 9611250-06D
Sample ID: CA57/001-96-1126-1040

Collected: 11/26/96 10:40:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/EPA 245.1	12/03/96	N/A				
MERCURY (CVAA)/EPA 245.1						
Mercury	ND	mg/L	0.00020	1.0	12/04/96	M96182
Metals-(ICP)DIG SW846 3005	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND		0.020	1.0	12/03/96	M96175
Aluminum, Al	NT		0.50			M96175
Arsenic, As	ND		0.060	1.0	12/03/96	M96175
Barium, Ba	0.74		0.010	1.0	12/03/96	M96175
Beryllium, Be	NT		0.0010			M96175
Calcium, Ca	NT		0.30			M96175
Cadmium, Cd	0.077		0.0040	1.0	12/03/96	M96175
', Co	NT		0.010			M96175
ium, Cr	0.15		0.020	1.0	12/03/96	M96175
r, Cu	NT		0.010			M96175
Fe	NT		0.30			M96175
Potassium, K	NT		0.20			M96175
Magnesium, Mg	NT		0.20			M96175
Manganese, Mn	NT		0.0050			M96175
Sodium, Na	NT		0.30			M96175
Nickel, Ni	0.09		0.040	1.0	12/03/96	M96175
Lead, Pb	1.07		0.040	1.0	12/03/96	M96175
Antimony, Sb	NT		0.030			M96175
Selenium, Se	ND		0.050	1.0	12/03/96	M96175
Thallium, Tl	NT		0.40			M96175
Vanadium, V	NT		0.0030			M96175
Zinc, Zn	NT		0.10			M96175

Lab ID: 9611250-06E
Sample ID: CA57/001-96-1126-1040

Collected: 11/26/96 10:40:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES /SW846 8260B						
Dichlorodifluoromethane	ND	ug/L	10	1.0	12/06/96	WMSVOA500
Chloromethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Iodomethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Acetone	430	ug/L	5.0	10	12/06/96	WMSVOA500
Bromomethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Vinyl Chloride	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Chloroethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
Chlorofluoromethane	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
113	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
n Disulfide	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
in	ND	ug/L	20	1.0	12/06/96	WMSVOA500
ylene Chloride	ND	ug/L	10	1.0	12/06/96	WMSVOA500

ID: 9611250-06E **Collected:** 11/26/96 10:40:00
ple ID: CA57/001-96-1126-1040 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES /SW846 8260B						
1,1-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,1-Dichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Acrylonitrile	ND	ug/L	20	1.0	12/06/96	WMSVOA500
trans-1,2-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Chloroform	5.2	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,2-Dichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Vinyl Acetate	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
cis-1,2-Dichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
2-Butanone (MEK)	75	ug/L	5.0	1.0	12/06/96	WMSVOA500
1,1,1-Trichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Carbon Tetrachloride	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Bromodichloromethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,2-Dichloropropane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Dibromomethane	1.8	ug/L	1.0	1.0	12/06/96	WMSVOA500
trans-1,3-Dichloropropene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Trichloroethene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Chlorodibromomethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Ethyl Methacrylate	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
2-Chloroethylvinyl Ether	ND	ug/L	5.0	1.0	12/06/96	WMSVOA500
1,1,2-Trichloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Benzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
cis-1,3-Dichloropropene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Bromoform	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
thyl-2-Pentanone (MIBK)	6.1	ug/L	5.0	1.0	12/06/96	WMSVOA500
hloroethene	1.9	ug/L	1.0	1.0	12/06/96	WMSVOA500
2-Tetrachloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
ibromoethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
anone (MBK)	6.1	ug/L	5.0	1.0	12/06/96	WMSVOA500
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Toluene	13	ug/L	1.0	1.0	12/06/96	WMSVOA500
Chlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Ethylbenzene	39	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,4-Dichloro-2-Butene	ND	ug/L	10	1.0	12/06/96	WMSVOA500
Styrene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
P/M Xylene	200	ug/L	2.0	1.0	12/06/96	WMSVOA500
O-Xylene	51	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,2,3-Trichloropropane	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
Methyl-tert Butyl Ether	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,2-Dichlorobenzene	2.2	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,3-Dichlorobenzene	ND	ug/L	1.0	1.0	12/06/96	WMSVOA500
1,4-Dichlorobenzene	39	ug/L	1.0	1.0	12/06/96	WMSVOA500

Lab ID: 9611250-06F **Collected:** 11/26/96 10:40:00
Sample ID: CA57/001-96-1126-1040 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER/SW846 8270B						
n-Nitrosodimethylamine	ND	ug/L	10	40	12/27/96	WMSSVOA176
Pyridine	ND	ug/L	10	40	12/27/96	WMSSVOA176
Aniline	ND	ug/L	10	40	12/27/96	WMSSVOA176
bis(2-Chloroethyl) Ether	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
2-Chlorophenol	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
ichlorobenzene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
ichlorobenzene	62	ug/L	1.0	40	12/27/96	WMSSVOA176
	960	ug/L	10	40	12/27/96	WMSSVOA176
chlorobenzene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Benzyl Alcohol	ND	ug/L	50	40	12/27/96	WMSSVOA176

D: 9611250-06F **Collected:** 11/26/96 10:40:00
ple ID: CA57/001-96-1126-1040 **Matrix:** WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
SVOA WATER/SW846 8270B						
bis(2-Chloroisopropyl) Ether	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
2-Methylphenol / O-Cresol	41	ug/L	1.0	40	12/27/96	WMSSVOA176
Hexachloroethane	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
n-Nitroso-di-n-propylamine	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Nitrobenzene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
3/4 Methylphenol / M/P-Cresol	620	ug/L	1.0	40	12/27/96	WMSSVOA176
Isophorone	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
2-Nitrophenol	ND	ug/L	10	40	12/27/96	WMSSVOA176
bis(2-Chloroethoxy) Methane	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
2,4-Dimethylphenol	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
1,2,4-Trichlorobenzene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Naphthalene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Benzoic Acid	ND	ug/L	100	40	12/27/96	WMSSVOA176
2,4-Dichlorophenol	ND	ug/L	10	40	12/27/96	WMSSVOA176
4-Chloroaniline	ND	ug/L	10	40	12/27/96	WMSSVOA176
Hexachlorobutadiene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
2-Methylnaphthalene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
4-Chloro-3-methylphenol	ND	ug/L	10	40	12/27/96	WMSSVOA176
Hexachlorocyclopentadiene	ND	ug/L	50	40	12/27/96	WMSSVOA176
2,4,6-Trichlorophenol	ND	ug/L	10	40	12/27/96	WMSSVOA176
2,4,5-Trichlorophenol	ND	ug/L	10	40	12/27/96	WMSSVOA176
2-Chloronaphthalene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
2-Nitroaniline	ND	ug/L	10	40	12/27/96	WMSSVOA176
aphthylene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
ıylphthalate	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
ınitrotoluene	ND	ug/L	10	40	12/27/96	WMSSVOA176
phthene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
oaniline	ND	ug/L	10	40	12/27/96	WMSSVOA176
Dibenzofuran	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
2,4-Dinitrotoluene	ND	ug/L	10	40	12/27/96	WMSSVOA176
Fluorene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
4-Chlorophenyl-phenylether	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Diethylphthalate	53	ug/L	1.0	40	12/27/96	WMSSVOA176
4-Nitrophenol	ND	ug/L	20	40	12/27/96	WMSSVOA176
4,6-Dinitro-2-methylphenol	ND	ug/L	10	40	12/27/96	WMSSVOA176
n-Nitrosodiphenylamine	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
4-Nitroaniline	ND	ug/L	10	40	12/27/96	WMSSVOA176
4-Bromophenyl-phenylether	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Hexachlorobenzene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Pentachlorophenol	ND	ug/L	20	40	12/27/96	WMSSVOA176
2,4-Dinitrophenol	ND	ug/L	50	40	12/27/96	WMSSVOA176
Phenanthrene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Anthracene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Di-n-butylphthalate	ND	ug/L	10	40	12/27/96	WMSSVOA176
Fluoranthene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Pyrene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Butylbenzylphthalate	41	ug/L	1.0	40	12/27/96	WMSSVOA176
Benzo(a)anthracene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Chrysene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
3,3'-Dichlorobenzidine	ND	ug/L	10	40	12/27/96	WMSSVOA176
bis(2-Ethylhexyl)phthalate	420	ug/L	10	40	12/27/96	WMSSVOA176
Di-n-octyl phthalate	ND	ug/L	10	40	12/27/96	WMSSVOA176
Benzo(b)+(k)fluoranthene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
1-Methylnaphthalene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Benzo(a)pyrene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
Indeno(1,2,3-cd)pyrene	ND	ug/L	10	40	12/27/96	WMSSVOA176
Benzo(g,h,i)perylene	ND	ug/L	10	40	12/27/96	WMSSVOA176
2,3,4,6-Tetrachlorophenol	ND	ug/L	50	40	12/27/96	WMSSVOA176
nzene	ND	ug/L	1.0	40	12/27/96	WMSSVOA176
(a,h)anthracene	ND	ug/L	10	40	12/27/96	WMSSVOA176
T/SW846 3520	12/02/96	N/A				

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 11250 Date: 27 Nov 96

Page 1 of 3

Client: USACE

Address: 1 Jefferson Pl NE

City / State / Zip: Albuquerque NM 87109

Project Name / Number: Common Gas

Contract / Purchase Order / Quote:

Project Manager / Contact: Sean Gant

Telephone No.: 505-342-3497

Fax No.: 505-342-3497

Samplers: (Signature)

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp	Preservation Chemical	No. of Containers	Analysis Required									Remarks
01A	CA00[illegible]	[illegible]	[illegible]	[illegible]	1 qt jar	4°C	—	1	✓									
01B,C	"	"	"	"	2 qt jars	4°C	—	2		✓	✓	✓	✓					
02A	CA00[illegible]	"	[illegible]	"	1 qt jar	4°C	—	1	✓									
02B,C	"	"	"	"	2 qt jars	4°C	—	2		✓	✓	✓	✓					
03A	CA00[illegible]	"	[illegible]	"	1 qt jar	4°C	—	1	✓									
03B,C	"	"	"	"	2 qt jars	4°C	—	2		✓	✓	✓	✓					
04A	CA00[illegible]	"	[illegible]		1 qt jar	4°C	—	1	✓									
04B,C	"	"	"		2 qt jars	4°C	—	2		✓	✓	✓	✓					
05A	CA00[illegible]	[illegible]	[illegible]		1 qt jar	4°C	—	1	✓									
05B,C	"		"		2 qt jars	4°C	—	2		✓	✓	✓	✓					
06A	CA00[illegible]	[illegible]	[illegible]	"	3-1L AG	4°C	—	3			✓		✓					
06B	"	"	"		2-1L AG	4°C	HCl	2				✓						
06C	"	"	"		1-250mL HDPE	4°C	NaOH	1				✓						
06D	"				2-40ml VOA	4°C	HCl	2	✓									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	27 Nov 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time: 1555	Printed: [illegible]	Printed:	Time:	Printed:
Company: AAL		Company: AAL	Company:		Company:
Reason: Analysis		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
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EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: [illegible] Date: 24 Nov 96

Page 2 of 3

Client: [illegible]

Address: 1401 Jefferson N.E.

City / State / Zip: [illegible] NM 87109

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible]

Samplers: *(Signature)*

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers										Remarks
[illegible]	CA5-[illegible]	[illegible]	1145	Grab	3 - 1 LAG	4C	—	3		✓			✓					
[illegible]					2 - 1 LAG	"	HCl	2				✓						
[illegible]					1 - 250mL PP	"	NaOH	1			✓							
[illegible]					2 - 40mL Vials	"	HCl	2	✓									
[illegible]	[illegible]	"	[illegible]		3 - 1 LAG	"	—	3		✓			✓					
[illegible]		"	"		2 - 1 LAG	"	HCl	2				✓						
[illegible]		"	"		1 - 250mL PP	"	NaOH	1			✓							
[illegible]		"	"		2 - 40mL Vials	"	HCl	2	✓									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	24 Nov 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time: 1355	Printed: [illegible]	Printed:	Time:	Printed:
Company: ISAGE ANALYTIC		Company: AAL	Company:		Company:
Reason:		Reason:	Reason:		Reason:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

Comments:

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

Lab job no.: 1250 Date 27 Nov 96

Page 3 of 3

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Client: [illegible]

Address: [illegible]

City / State / Zip: [illegible]

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible] 3199

Samplers: (Signature) [illegible]

Analysis Required

AAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
[illegible]	[illegible]	[illegible]	0915	Grab	2-1LAG	4°C	—	3		✓			✓				
[illegible]					2-1LAG	4°C	HCl	2			✓						
[illegible]					1-500mL PP	4°C	HNO3	1			✓						
[illegible]					2-40mL Vials	4°C	HCl	2	✓								
[illegible]	[illegible]	[illegible]	[illegible]		2-1LAG	4°C	—	2		✓			✓				
[illegible]					2-1LAG	4°C	HCl	2			✓						
[illegible]					1-500mL PP	4°C	HNO3	1		✓	✓						
[illegible]					2-40mL Vials	4°C	HCl	2	✓								

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	27 Nov 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time	Printed: [illegible]	Printed:	Time	Printed:
Company: [illegible]	1355	Company: AAL	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CC

D: 9701020-04A
Sample ID: CA57/002-96-1126-1535

Collected: 11/26/97
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	50.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	01/09/97	N/A				
TCLP EXTRACTION/TCLP 1311	01/07/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	01/10/97	M9714

Fred L. Shore, Ph.D.
VP of Laboratory Operations

ID: 9611250-10A
Sample ID: CA57/002-96-1126-1535

Collected: 11/26/96 15:35:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
VOLATILES/SW846 8260						
Dichlorodifluoromethane	ND	mg/Kg	0.010	480	12/10/96	SMSVOA410
Chloromethane	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Iodomethane	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Acetone	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Bromomethane	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Vinyl Chloride	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Chloroethane	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Trichlorofluoromethane	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Freon 113	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Carbon Disulfide	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Acrolein	ND	mg/Kg	0.020	480	12/10/96	SMSVOA410
Methylene Chloride	ND	mg/Kg	0.010	480	12/10/96	SMSVOA410
1,1-Dichloroethene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,1-Dichloroethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Acrylonitrile	ND	mg/Kg	0.020	480	12/10/96	SMSVOA410
trans-1,2-Dichloroethene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Chloroform	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,2-Dichloroethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Vinyl Acetate	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
cis-1,2-Dichloroethene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
2-Butanone (MEK)	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
1,1,1-Trichloroethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Carbon Tetrachloride	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
[illegible]odichloromethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
[illegible]chloropropane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
[illegible]momethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,3-Dichloropropene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
[illegible]hloroethene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Chlorodibromomethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Ethyl Methacrylate	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
2-Chloroethylvinyl Ether	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
1,1,2-Trichloroethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Benzene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
cis-1,3-Dichloropropene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Bromoform	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
4-Methyl-2-Pentanone (MIBK)	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
Tetrachloroethene	1.0	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,1,2,2-Tetrachloroethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,2-Dibromoethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
2-Hexanone (MBK)	ND	mg/Kg	0.0050	480	12/10/96	SMSVOA410
1,1,1,2-Tetrachloroethane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Toluene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Chlorobenzene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Ethylbenzene	0.80	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,4-Dichloro-2-Butene	ND	mg/Kg	0.010	480	12/10/96	SMSVOA410
Styrene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
P/M Xylene	3.4	mg/Kg	0.0020	480	12/10/96	SMSVOA410
O-Xylene	1.0	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,2,3-Trichloropropane	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
Methyl-tert Butyl Ether	ND	mg/Kg	0.010	480	12/10/96	SMSVOA410
1,2-Dichlorobenzene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,3-Dichlorobenzene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410
1,4-Dichlorobenzene	ND	mg/Kg	0.0010	480	12/10/96	SMSVOA410

ID: 9611250-10B
Sample ID: CA57/002-96-1126-1535

Collected: 11/26/96 15:35:00
Matrix: SLUDGE

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CVAA Hg XT/SW846 7471	12/05/96	N/A				
FLASH POINT/SW846 1010						
Flash Point	>60	Deg Centigrade	20	1.0	12/10/96	SFLASH215
MERCURY (CVAA)/SW846 7471						
Mercury	ND	mg/Kg	0.15	1.0	12/06/96	M96195
Metal(ICP) DIG /SW846 3050	12/02/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND	mg/Kg	1.0	1.0	12/03/96	M96176
Aluminum, Al	NT	mg/Kg	25			M96176
Arsenic, As	ND	mg/Kg	3.0	1.0	12/03/96	M96176
Barium, Ba	244	mg/Kg	0.50	1.0	12/03/96	M96176
Beryllium, Be	NT	mg/Kg	0.50			M96176
Calcium, Ca	NT	mg/Kg	15			M96176
Cadmium, Cd	15.9	mg/Kg	0.20	1.0	12/03/96	M96176
Cobalt, Co	NT	mg/Kg	0.50			M96176
Chromium, Cr	37.3	mg/Kg	1.0	1.0	12/03/96	M96176
Copper, Cu	NT	mg/Kg	0.50			M96176
Iron, Fe	NT	mg/Kg	15			M96176
Potassium, K	NT	mg/Kg	10			M96176
Magnesium, Mg	NT	mg/Kg	10			M96176
Manganese, Mn	NT	mg/Kg	0.25			M96176
Sodium, Na	NT	mg/Kg	15			M96176
Nickel, Ni	13.3	mg/Kg	2.0	1.0	12/03/96	M96176
Lead, Pb	337	mg/Kg	2.0	1.0	12/03/96	M96176
[illegible]ony, Sb	NT	mg/Kg	1.5			M96176
[illegible]m, Se	ND	mg/Kg	2.5	1.0	12/03/96	M96176
[illegible]ium, V	NT	mg/Kg	0.15			M96176
[illegible]Zn	NT	mg/Kg	5.0			M96176
pH/[illegible]W846 9045B						
pH	9.4	pH Units	0.10	1.0	12/09/96	SPH247
REACTIVITY/SW846 7-3						
Sulfide	NON-REACT	mg/Kg of Waste	500	1.0	12/18/96	W96117
Cyanide	NON-REACT	mg/Kg of Waste	250	1.0	12/17/96	W96117
SVOA(SOX) Soil/SW846 8270B	12/03/96	N/A				
n-Nitrosodimethylamine	ND	mg/Kg	1.0	100	12/14/96	SMSSVOA131
Pyridine	ND	mg/Kg	10	100	12/14/96	SMSSVOA131
Aniline	ND	mg/Kg	10	100	12/14/96	SMSSVOA131
bis(2-Chloroethyl) Ether	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
2-Chlorophenol	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
1,3-Dichlorobenzene	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
1,4-Dichlorobenzene	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
Phenol	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
1,2-Dichlorobenzene	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
Benzyl Alcohol	ND	mg/Kg	10	100	12/14/96	SMSSVOA131
bis(2-Chloroisopropyl) Ether	ND	mg/Kg	1.0	100	12/14/96	SMSSVOA131
2-Methylphenol / O-Cresol	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
Hexachloroethane	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
n-Nitroso-di-n-propylamine	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
Nitrobenzene	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
3/4 Methylphenol / M/P-Cresol	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
Isophorone	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
2-Nitrophenol	ND	mg/Kg	1.0	100	12/14/96	SMSSVOA131
bis(2-Chloroethoxy) Methane	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
2,4-Dimethylphenol	ND	mg/Kg	1.0	100	12/14/96	SMSSVOA131
1,2,4-Trichlorobenzene	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
Naphthalene	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
Benzoic Acid	ND	mg/Kg	10	100	12/14/96	SMSSVOA131
2,4-Dichlorophenol	ND	mg/Kg	1.0	100	12/14/96	SMSSVOA131
4-Chloroaniline	ND	mg/Kg	10	100	12/14/96	SMSSVOA131
[illegible]hlorobutadiene	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
[illegible]ylnaphthalene	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
[illegible]ro-3-methylphenol	ND	mg/Kg	0.50	100	12/14/96	SMSSVOA131
[illegible]achlorocyclopentadiene	ND	mg/Kg	10	100	12/14/96	SMSSVOA131
2,4,6-Trichlorophenol	ND	mg/Kg	1.0	100	12/14/96	SMSSVOA131

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 1150 Date: 22 Nov 96

Page 1 of 3

Client: USACE

Address: 4101 Jefferson Plaza

City / State / Zip: Albuquerque NM 87109

Project Name / Number: Cerro Grande

Contract / Purchase Order / Quote:

Project Manager / Contact: Susan Goat

Telephone No.: 505-342-3497

Fax No.: 505-342-3497

Samplers: (Signature)

Analysis Required: 8260 / 8270 / 8310 / TCLP METALS / TRPH / 8021 / 8015

AAI Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	8260	8270	8310	TCLP METALS	TRPH	8021	8015			Remarks
01	CA00162-96-[illegible]	21 Nov 96	[illegible]	[illegible]	1 4oz Jar	4°C	—	1	✓									
01 C	"				2 4oz Jars	4°C	—	2		✓	✓	✓	✓					
02	CA00162-96-[illegible]	"	1400	"	1 4oz Jar	4°C	—	1	✓									
02 C	"	"		"	2 4oz Jars	4°C	—	2		✓	✓	✓	✓					
03	CA00162-96-[illegible]	"	1515	"	1 4oz Jar	4°C	—	1	✓									
03 C	"	"	"		2 4oz Jars	4°C	—	2		✓	✓	✓	✓					
04	CA00162-96-[illegible]	21 Nov 96	1600	"	1 4oz Jar	4°C	—	1	✓									
04 C	"	"	"	"	1 4oz Jar	4°C	—	2		✓	✓	✓	✓					
05 A	CA00162-96-1126-[illegible]	21 Nov 96	1400	"	3 - 1L AG	4°C	—	3			✓			✓				
05 C	"	"	"		2 - 1L AG	4°C	HCl	2				✓						
05 D	"	"	"		1 - [illegible]	4°C	HNO3	1				✓						
05 E	"				1 - [illegible]	4°C	[illegible]	2	✓									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	22 Nov 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time: 1055	Printed: [illegible]	Printed:	Time:	Printed:
Company: AAI		Company: AAI	Company:		Company:
Reason: [illegible]		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

Chain of Custody Record

SAIGAI ANALYTICAL LABORATORIES

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3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 11290 Date 27 Nov 96

Page 2 of 2

Client: ASAE

Address: 4101 Jefferson N.E.

City / State / Zip: Albuquerque NM 87109

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible]

Samplers: (Signature) [illegible]

LAL Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required								Remarks
[illegible]	CAS/Ion-96-26-[illegible]	[illegible]	[illegible]	Grab	3-1L AG	4°C	—	3		✓		✓					
					2-1L AG		HCl	2			✓						
					1-500mL PL		HNO3	1			✓						
					2-40mL Vials		HCl	2	✓								
[illegible]	CAS/Ion-96-26-[illegible]	"	[illegible]	"	3-1L AG		—	3		✓		✓					
	"	"	"		2-1L AG	"	HCl	2			✓						
	"	"	"	"	1-500mL PL	"	HNO3	1			✓						
[illegible]	"	"	"	"	2-40mL Vials	"	HCl	2	✓								

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	27 Nov 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time: 1255	Printed: [illegible]	Printed:	Time:	Printed:
Company: ASAE		Company: LAL	Company:		Company:
Reason: [illegible]		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
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EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
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(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 11250 Date 27 Nov 96

Page 3 of 3

Client: [illegible]

Address: [illegible]

City / State / Zip: [illegible]

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible] 3199

Samplers: (Signature) [illegible]

Analysis Required

Lab Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2-1 L AG	4°C	—	3		✓			✓				
[illegible]					2-1 L AG	4°C	HCl	2				✓					
[illegible]					1-500 mL PP	4°C	HNO3	1			✓						
[illegible]					2-40 mL vials	4°C	HCl	2	✓								
[illegible]	[illegible]	[illegible]	[illegible]		3-1 L AG	4°C	—	3		✓			✓				
[illegible]					2-1 L AG	4°C	HCl	2				✓					
[illegible]					1-500 mL PP	4°C	HNO3	1			✓						
[illegible]					2-40 mL vials	4°C	HCl	2	✓								

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	27 Nov 96	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time	Printed: [illegible]	Printed:	Time	Printed:
Company: [illegible]	1315	Company: [illegible]	Company:		Company:
Reason: [illegible]		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CC

LNS ENVIRONMENTAL SERVICES, INC.

903 North Bowser, Suite 230
Richardson, Texas 75081
(214) 699-3772
Toll Free: 1-800-LNS-9950
Environmental Specialist
Fax: 214-669-3575

ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris [redacted]

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-1
DATE ANALYZED: 09/12,13/96
ANALYST: DKB,GDB

SAMPLE ID: SWMV 61-A
SAMPLE DATE: 09/09/96 08:00 SEDIMENT

TCLP EXTRACT METALS LIST

PARAMETERS	EPA HW NUM	PREPARA-TION METHOD	METHOD	REGULATORY LEVEL mg/l	DETECTION LIMIT mg/l	RESULTS mg/l
Arsenic	D004	3005	6010	5.0	0.10	<0.10
Barium	D005	3005	6010	100.0	0.01	2.84
Cadmium	D006	3005	6010	1.0	0.01	<0.01
Chromium	D007	3005	6010	5.0	0.01	<0.01
Lead	D008	3005	6010	5.0	0.10	<0.10
Mercury	D009	7470	7470	0.2	0.0002	<0.0002
Selenium	D010	3005	6010	1.0	0.10	<0.10
Silver	D011	3005	6010	5.0	0.01	<0.01

EXTRACTION METHOD: 1311

Niranjan Shah
LNS ENVIRONMENTAL SERVICES, INC.

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Environmental Specialist
Fax: 214-669-3575

ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-1
DATE ANALYZED: 09/17/96
ANALYST: GK

SAMPLE ID: SWMV 61-A
SAMPLE DATE: 09/09/96 08:00 SEDIMENT

TCLP EXTRACT BNA LIST

PARAMETERS	EPA HW NUM	PREPARA-TION METHOD	METHOD	REGULATORY LEVEL mg/l	DETECTION LIMIT mg/l	RESULTS mg/l
2-Methylphenol(o-Cresol)	D023	3510	8270	200.0	0.010	<0.010
3 & 4-Methylphenol (meta & para Cresol)	D024 D025	3510	8270	200.0	0.010	<0.010
Cresol	D026	3510	8270	200.0	0.010	<0.010
1,4-Dichlorobenzene	D027	3510	8270	7.5	0.010	<0.010
2,4-Dinitrotoluene	D030	3510	8270	0.13	0.010	<0.010
Hexachlorobenzene	D032	3510	8270	0.13	0.010	<0.010
Hexachloro-1,3 butadiene	D033	3510	8270	0.5	0.010	<0.010
Hexachloroethane	D034	3510	8270	3.0	0.010	<0.010
Nitrobenzene	D036	3510	8270	2.0	0.005	<0.005
Pentachlorophenol	D037	3510	8270	100.0	0.050	<0.050
Pyridine	D038	3510	8270	5.0	0.005	<0.005
2,4,5-Trichlorophenol	D041	3510	8270	400.0	0.010	<0.010
2,4,6-Trichlorophenol	D042	3510	8270	2.0	0.010	<0.010

EXTRACTION METHOD: 1311

ranjan Shah
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Fax: 214-669-3575

ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-1
DATE ANALYZED: 09/18/96
ANALYST: GK

SAMPLE ID: SWMV-61-A
SAMPLE DATE: 09/09/96 08:00 SEDIMENT

TCLP EXTRACT VOA LIST

PARAMETERS	EPA HW NUM	PREPARA-TION METHOD	METHOD	REGULATORY LEVEL mg/l	DETECTION LIMIT mg/l	RESULTS mg/l
Benzene	D018	8240	8240	0.5	0.005	<0.005
Carbon Tetrachloride	D019	8240	8240	0.5	0.005	<0.005
Chlorobenzene	D021	8240	8240	100.0	0.005	<0.005
Chloroform	D022	8240	8240	6.0	0.005	<0.005
1,2-Dichloroethane	D028	8240	8240	0.5	0.005	<0.005
1,1-Dichloroethylene	D029	8240	8240	0.7	0.005	<0.005
Methyl ethyl ketone	D035	8240	8240	200.0	0.005	<0.005
Trichloroethylene	D040	8240	8240	0.5	0.005	<0.005
Tetrachloroethylene	D039	8240	8240	0.7	0.005	<0.005
Vinyl chloride	D043	8240	8240	0.2	0.005	<0.005

EXTRACTION METHOD: 1311

Niranjan Shah
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LNS ENVIRONMENTAL SERVICES, INC.

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ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-1
DATE ANALYZED: 09/16/96
ANALYST: JSP

SAMPLE ID: SWMV61-A
SAMPLE DATE: 09/09/96 08:00 SEDIMENT

TCLP EXTRACT PEST/HERB LIST

PARAMETERS	EPA HW NUM	PREPARATION METHOD	METHOD	REGULATORY LEVEL mg/l	DETECTION LIMIT mg/l	RESULTS mg/l
Chlordane	D020	3510	8080	0.03	0.0005	<0.0005
2,4-D	D016	8150	8150	10.0	0.0001	<0.0001
Endrin	D012	3510	8080	0.02	0.001	<0.001
Heptachlor (& its epoxide)	D031	3510	8080	0.008	0.00005	<0.00005
Lindane	D013	3510	8080	0.4	0.0001	<0.0001
Methoxychlor	D014	3510	8080	10.0	0.00005	<0.00005
Toxaphene	D015	3510	8080	0.5	0.001	<0.001
2,4,5-TP (Silvex)	D017	8150	8150	1.0	0.0001	<0.0001

EXTRACTION METHOD: 1311

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ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-2
DATE ANALYZED: 09/12,13/96
ANALYST: DKB,GDB

SAMPLE ID: SWMV-61-B
SAMPLE DATE: 09/09/96 08:30 LIQUID

TCLP EXTRACT METALS LIST

PARAMETERS	EPA HW NUM	PREPARA-TION METHOD	METHOD	REGULATORY LEVEL mg/l	DETECTION LIMIT mg/l	RESULTS mg/l
Arsenic	D004	3005	6010	5.0	0.10	<0.10
Barium	D005	3005	6010	100.0	0.01	0.21
Cadmium	D006	3005	6010	1.0	0.01	<0.01
Chromium	D007	3005	6010	5.0	0.01	<0.01
Lead	D008	3005	6010	5.0	0.10	<0.10
Mercury	D009	7470	7470	0.2	0.0002	<0.0002
Selenium	D010	3005	6010	1.0	0.10	<0.10
Silver	D011	3005	6010	5.0	0.01	<0.01

EXTRACTION METHOD: 1311

Niranjan Shah
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Environmental Specialist
Fax: 214-669-3575

ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-2
DATE ANALYZED: 09/17/96
ANALYST: GK

SAMPLE ID: SWMV-61-B
SAMPLE DATE: 09/09/96 08:30 LIQUID

TCLP EXTRACT BNA LIST

PARAMETERS	EPA HW NUM	PREPARA-TION METHOD	METHOD	REGULATORY LEVEL mg/l	DETECTION LIMIT mg/l	RESULTS mg/l
2-Methylphenol(o-Cresol)	D023	3510	8270	200.0	0.010	<0.010
3 & 4-Methylphenol (meta & para Cresol)	D024 D025	3510	8270	200.0	0.010	0.217
Cresol	D026	3510	8270	200.0	0.010	0.217
1,4-Dichlorobenzene	D027	3510	8270	7.5	0.010	<0.010
2,4-Dinitrotoluene	D030	3510	8270	0.13	0.010	<0.010
Hexachlorobenzene	D032	3510	8270	0.13	0.010	<0.010
Hexachloro-1,3 butadiene	D033	3510	8270	0.5	0.010	<0.010
Hexachloroethane	D034	3510	8270	3.0	0.010	<0.010
Nitrobenzene	D036	3510	8270	2.0	0.005	<0.005
Pentachlorophenol	D037	3510	8270	100.0	0.050	<0.050
Pyridine	D038	3510	8270	5.0	0.005	<0.005
2,4,5-Trichlorophenol	D041	3510	8270	400.0	0.010	<0.010
2,4,6-Trichlorophenol	D042	3510	8270	2.0	0.010	<0.010

EXTRACTION METHOD: 1311

Niranjan Shah
LNS ENVIRONMENTAL SERVICES, INC

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Environmental Specialist
Fax: 214-669-3575

ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-2
DATE ANALYZED: 09/18/96
ANALYST: GK

SAMPLE ID: SWMV-61-B
SAMPLE DATE: 09/09/96 08:30 LIQUID

TCLP EXTRACT VOA LIST

PARAMETERS	EPA HW NUM	PREPARA-TION METHOD	METHOD	REGULATORY LEVEL mg/l	DETECTION LIMIT mg/l	RESULTS mg/l
Benzene	D018	8240	8240	0.5	0.005	<0.005
Carbon Tetrachloride	D019	8240	8240	0.5	0.005	<0.005
Chlorobenzene	D021	8240	8240	100.0	0.005	<0.005
Chloroform	D022	8240	8240	6.0	0.005	<0.005
1,2-Dichloroethane	D028	8240	8240	0.5	0.005	<0.005
1,1-Dichloroethylene	D029	8240	8240	0.7	0.005	<0.005
Methyl ethyl ketone	D035	8240	8240	200.0	0.005	<0.005
Trichloroethylene	D040	8240	8240	0.5	0.005	<0.005
Tetrachloroethylene	D039	8240	8240	0.7	0.005	<0.005
Vinyl chloride	D043	8240	8240	0.2	0.005	<0.005

EXTRACTION METHOD: 1311

Niranjan Shah
LNS ENVIRONMENTAL SERVICES, INC.

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LNS ENVIRONMENTAL SERVICES, INC.

903 North Bowser, Suite 230
Richardson, Texas 75081
(214) 699-3772
Toll Free: 1-800-LNS-9950
Environmental Specialist
Fax: 214-669-3575

ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-2
DATE ANALYZED: 09/16/96
ANALYST: JSP

SAMPLE ID: SWMV-61-B
SAMPLE DATE: 09/09/96 08:30 LIQUID

TCLP EXTRACT PEST/HERB LIST

PARAMETERS	EPA HW NUM	PREPARATION METHOD	METHOD	REGULATORY LEVEL mg/l	DETECTION LIMIT mg/l	RESULTS mg/l
Chlordane	D020	3510	8080	0.03	0.0005	<0.0005
2,4-D	D016	8150	8150	10.0	0.0001	<0.0001
Endrin	D012	3510	8080	0.02	0.001	<0.001
Heptachlor (& its epoxide)	D031	3510	8080	0.008	0.00005	<0.00005
Lindane	D013	3510	8080	0.4	0.0001	<0.0001
Methoxychlor	D014	3510	8080	10.0	0.00005	<0.00005
Toxaphene	D015	3510	8080	0.5	0.001	<0.001
2,4,5-TP (Silvex)	D017	8150	8150	1.0	0.0001	<0.0001

EXTRACTION METHOD: 1311

Niranjan Shah
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ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-1,2

WET CHEMISTRY

SAMPLE ID: SWMV-61-A
SAMPLE DATE: 09/09/96 08:00 SEDIMENT
REPORT NUMBER: 1259-1

PARAMETERS	METHOD	RESULTS	ANALYST	DATE ANALYZED
Ignitability	SW 1010	>140° F Nonignitable	KL	09/13/96
Corrosivity	SW 9040	pH 7.59 Noncorrosive	DKB	09/13/96

Reactivity

PARAMETERS	METHOD	DETECTION LIMIT mg/kg	RESULTS mg/kg	ANALYST	DATE ANALYZED
Sulfide	EPA 7.3.3.2	10.00	<10.00	KL	09/13/96
Cyanide	EPA 7.3.3.2	0.1	<0.1	KL	09/13/96

SAMPLE ID: SWMV-61-B
SAMPLE DATE: 09/09/96 08:30 LIQUID
REPORT NUMBER: 1259-2

PARAMETERS	METHOD	RESULTS	ANALYST	DATE ANALYZED
Ignitability	SW 1010	>140° F Nonignitable	KL	09/13/96
Corrosivity	SW 9040	pH 7.07 Noncorrosive	DKB	09/13/96

Reactivity

PARAMETERS	METHOD	DETECTION LIMIT mg/l	RESULTS mg/l	ANALYST	DATE ANALYZED
Sulfide	EPA 7.3.3.2	5.00	<5.00	KL	09/13/96
Cyanide	EPA 7.3.3.2	0.01	<0.01	KL	09/13/96

Niranjan Shah
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ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-QC

QUALITY CONTROL REPORT

ANALYSIS:	Arsenic	METHOD: EPA 6010
ANALYST:	DKB	DUPLICATE; DEVIATION: 3%
DATE:	09/12/96	SPIKE RECOVERY: 108%
ANALYSIS:	Barium	METHOD: EPA 6010
ANALYST:	DKB	DUPLICATE; DEVIATION: 1%
DATE:	09/12/96	SPIKE RECOVERY: 100%
ANALYSIS:	Cadmium	METHOD: EPA 6010
ANALYST:	DKB	DUPLICATE; DEVIATION: 2%
DATE:	09/12/96	SPIKE RECOVERY: 107%
ANALYSIS:	Chromium	METHOD: EPA 6010
ANALYST:	DKB	DUPLICATE; DEVIATION:<1%
DATE:	09/12/96	SPIKE RECOVERY: 103%
ANALYSIS:	Lead	METHOD: EPA 6010
ANALYST:	DKB	DUPLICATE; DEVIATION:1%
DATE:	09/12/96	SPIKE RECOVERY: 108%
ANALYSIS:	Mercury	METHOD: EPA 7470
ANALYST:	GDB	DUPLICATE; DEVIATION:<1%
DATE:	09/13/96	SPIKE RECOVERY: 98.4%
ANALYSIS:	Selenium	METHOD: EPA 6010
ANALYST:	DKB	DUPLICATE; DEVIATION: 1%
DATE:	09/12/96	SPIKE RECOVERY: 103%
ANALYSIS:	Silver	METHOD: EPA 6010
ANALYST:	DKB	DUPLICATE; DEVIATION:2%
DATE:	09/12/96	SPIKE RECOVERY: 104%
ANALYSIS:	Ignitability	METHOD: EPA 1010
ANALYST:	KL	DUPLICATE; DEVIATION:<1%
DATE:	09/13/96	SPIKE RECOVERY: 104%
ANALYSIS:	Cyanide, Reac.	METHOD: EPA 7.3.3.2
ANALYST:	KL	DUPLICATE; DEVIATION:1%
DATE:	09/13/96	SPIKE RECOVERY: 98%
ALYSIS:	Sulfide, Reac.	METHOD: EPA 7.3.3.2
ANALYST:	KL	DUPLICATE; DEVIATION:1%
DATE:	09/13/96	

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ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-QC

VOLATILE SPIKE/MATRIX 09/18/96

VOLATILE SPIKE COMPOUND	MS% REC	MSD% REC	RPD
1,1-DICHLORETHENE	88	78	12
TRICHLOROETHENE	106	102	4
CHLOROBENZENE	106	106	0
TOLUENE	112	104	7
BENZENE	108	104	4

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ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-QC

PESTICIDES MATRIX SPIKE/MATRIX DUPLICATE RECOVERY 09/16/96

PESTICIDES SPIKE COMPOUND	MS% REC	MSD% REC	RPD
LINDANE	103	110	7
HEPTACHLOR	93	102	8
HEPTACHLOR EPOXIDE	101	108	7
ENDRIN	97	106	9

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ENVIROSOLVE SOUTHWEST, INC.
5338 Williams St. SE
Albuquerque, NM 87105
ATTN: Tom Morris

DATE RECEIVED: 09/11/96
DATE REPORTED: 09/19/96
REPORT NUMBER: 1259-QC

BASE NEUTRAL ACIDS MATRIX SPIKE/MATRIX DUPLICATE RECOVERY 09/18/96

BASE/NEUTRAL SPIKE COMPOUND	MS% REC	MSD% REC	RPD
TRICHLOROBENZENE, 1,2,4-	73	72	1
ACENAPHTHENE	68	66	3
DINITROTOLUENE,2,4-	75	76	1
DI-N-DUTYLPHTHALATE	88	86	2
PYRENE	92	83	10
N-NITROSO-DI-N-PROPYLAMINE	92	82	4
DICHLOROBENZENE, 1,4-	76	74	3
ACIDS			
PENTACHLORPHENOL	78	81	4
PHENOL	65	63	3
CHLOROPHENOL, 2-	79	76	4
CHLORO-4-METHYL, 3-	71	69	3
NITROPHENOL, 4-	35	41	16

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ENVIROSOLVE
Providing Waste Management Solutions
5... Williams St. S.E.
A...que, NM 87105
505-...3-0964
Fax: 505-873-0965
Pager: 505-880-4018
E-Mail: ENVIROSW@RT66.COM

Corporate:
2131 S. Rosedale Ave.
Tulsa, OK 74107
918-587-9664
Fax: 918-587-5817

...MENTAL SERVICES, INC.
Environmental Specialist
Toll Free: 1-800-929-1276
Fax: 214-669-3575

CHAIN OF CUSTODY

1259-1:6

NEW CLIENT #

COMPANY NAME: Envirosolve Southwest, Inc.

ADDRESS: 5338 Williams SE

CITY/STATE/ZIP: ABQ, NM 87105

TELEPHONE: 505-873-0964

CONTACT: Tom Morris

INVOICE (SAME) OR TO:

P.O. AMOUNT:

P.O. NUMBER: CAFB

LAB REPORT #

CONDITION ON RECEIPT

SAMPLES LEAKING?	Y	N/A	(N)
RECEIVED REFRIGERATED?	(Y)	N/A	N
CONTAINER OK?	(Y)	N/A	N
TEMPERATURE:	4°C		
COMMENTS:			

ORIGINAL REPORT TO:
Army Corp of Engrs.
Report To: SUSAN GANT
RE: CAFB OWS/SWMU DRUMS

ADD'L COPY OF REPORT YES (CIRCLE)
FAX RESULTS (YES) (CIRCLE)
FAX NUMBER: 505-873-0965

...I	TIME	CLIENT SAMPLE ID	WATER, SOIL, OR OIL	ANALYSIS REQ'D INCLUDE METHOD NUMBER	TURN-AROUND TIME	REMARKS
9/9/96	0800	SWMU 61-A	SEDIMENT	RCI/FULL TCLP's		Composite from
9/9/96	0830	SWMU 61-B	LIQUID	RCI/FULL TCLP's		55 gal Drums
9/9/96	0845	SWMU 62-A	SEDIMENT	RCI/FULL TCLP's		
9/9/96	0900	SWMU 62-B	LIQUID	RCI/FULL TCLP's		
9/9/96	0915	SWMU 63-A	SEDIMENT	RCI/FULL TCLP		
9/9/96	0930	SWMU 63-B	LIQUID	RCI/FULL TCLP		

SAMPLES COLLECTED BY: Tom Morris DATE: 9/9/96 TIME: 1000AM

SAMPLES SHIPPED TO LAB BY: FED-EX. DATE: 9/9/96 TIME: 1800

SAMPLES RELINQUISHED TO LAB BY: B. M Walker DATE: 9-11-96 TIME: 1125

SAMPLES RECEIVED AT LAB BY: S. Elliott DATE: 9/11/96 TIME: 11:25

(ADDITIONAL SAMPLES MAY BE LISTED ON THE REVERSE SIDE)

Hall Environmental Analysis Laboratory

Client:	Envirosolve Southwest, In	**Project:**	Army Corp. CAFB
Address:	5338 Williams St. SE	**Project Number:**	
	Albuquerque, NM 87105	**Project Manager:**	Tom Morris
		Date Collected:	9/10/96
		Date Received:	9/11/96
Report Date:	9/17/96	**Sample Matrix:**	Soil
Analysis Date:	9/13/96	**Extraction Date**	9/13/96

Analytical Results - 8015 Modified

Final volume of DCM used (ml)	10
Sample weight (g)	10

HEAL ID	Client ID	Diesel Range (mg/kg)	Dilution	%DNOP
9609013-1	61-A	<5.0	1	84
9609013-3	62-A	<5.0	1	107
9609013-5	63-A	<5.0	1	118

QA/QC

Ext Blk 9/13	N/A	<5.0	1	83

Sample ID	Sample Amount	Spike	Recovery	% Rec	Dup	% Dup	RPD
BS/BSD 9/10	<5.0	51	38	75	45	88	17

Sincerely:

Jerry Richardson
Semi-Volatiles Supervisor

Scott Hallenbeck
Laboratory Manager

4901 Hawkins NE, Suite C Albuquerque, NM 87109
Voice (505) 345-3975, Fax (505) 345-4107

Hall Environmental Analysis Laboratory

Client:	Envirosolve Southwest, In	**Project:**	Army Corp. CAFB
Address:	5338 Williams St. SE	**Project Number:**	
	Albuquerque, NM 87105	**Project Manager:**	Tom Morris
		Date Collected:	9/10/96
		Date Received:	9/11/96
Report Date:	9/17/96	**Sample Matrix:**	Aqueous
Analysis Date:	9/16/96	**Extraction Date**	9/16/96

Analytical Results - 8015 Modified

Final volume of DCM used (ml)	3
Sample volume (ml)	30

HEAL ID	Client ID	Diesel Range(mg/l)	Dilution	% DNOP
9609013-2	61-B	<0.5*	1	135
9609013-4	62-B	<0.5	1	129
9609013-6	63-B	<0.5	1	115

* 9609013-2 Contained gasoline and motor oil range hydrocarbons below detection level.

QA/QC

Ext Blk 4/1	N/A	<0.5	1	112

Sample ID	Sample Amount	Spike	Recovery	% Rec	Dup	% Dup	RPD
BS/BSD 3/27	<0.5	5.1	4.6	92	4.9	98	6

Sincerely:

'erry Richardson
Semi-Volatiles Supervisor

Scott Hallenbeck
Laboratory Manager

4901 Hawkins NE, Suite C Albuquerque, NM 87109
Voice (505) 345-3975, Fax (505) 345-4107

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite C
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107

Client: Envirosolve Southwest, Inc.

Address:

Phone #: 873-0964

Fax #:

Project Name: Army Corp. CAFB

Project #:

Project Manager: Tom Morris

Sampler: Tom Morris

Samples Cold? ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative Other	HEAL No.	BTEX + MTBE (602/8020)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015 MOD (Gas/Diesel)	THP (Method 418.1)	8010/8020 Volatiles	EDB (Method 504)	EDC	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	Basic Soil Test (PH, EC, SAR, PSA)	8080 Pesticides / PCB's				Air Bubbles (Y or N)
9-10-96	0900	Soil	61-A	40mL	X			9609013-1			X														
		Water	61-B					-2			X														N
		Soil	62-A					-3			X														N
		Water	62-B					-4			X														N
		Soil	63-A					-5			X														N
		Water	63-B					-6			X														N

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
9/11/96	11:35	[signature]	Vincent Speshock
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

Sand Trap

Lab ID: 9610112-03A
Sample ID: CA70/14-96-1009-1400

Collected: 10/09/96 14:00:00
Matrix: SOIL

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
METALS-ICP/SW846 6010						
Cobalt, Co	NT	mg/Kg	0.50			M9632
Chromium, Cr	6.7	mg/Kg	1.0	1.0	10/16/96	M9632
Copper, Cu	NT	mg/Kg	0.50			M9632
Iron, Fe	NT	mg/Kg	15			M9632
Potassium, K	NT	mg/Kg	10			M9632
Magnesium, Mg	NT	mg/Kg	10			M9632
Manganese, Mn	NT	mg/Kg	0.25			M9632
Sodium, Na	NT	mg/Kg	15			M9632
Nickel, Ni	5.5	mg/Kg	2.0	1.0	10/16/96	M9632
Lead, Pb	18.5	mg/Kg	2.0	1.0	10/16/96	M9632
Antimony, Sb	NT	mg/Kg	1.5			M9632
Selenium, Se	ND	mg/Kg	2.5	1.0	10/16/96	M9632
Thallium, Tl		mg/Kg				M9632
Vanadium, V	NT	mg/Kg	0.15			M9632
Zinc, Zn	NT	mg/Kg	5.0			M9632
TCLP (ICP) DIG/1311/3005	10/16/96	N/A				
TCLP EXTRACTION/TCLP 1311	10/15/96	N/A				
TCLP METALS/1311/SW8466010						
Arsenic, As	ND	mg/L	0.40	1.0	10/17/96	M9641,M9645
Barium, Ba	1.5	mg/L	0.50	1.0	10/17/96	M9641,M9645
Cadmium, Cd	ND	mg/L	0.0050	1.0	10/17/96	M9641,M9645
Chromium, Cr	ND	mg/L	0.020	1.0	10/17/96	M9641,M9645
Lead, Pb	ND	mg/L	0.050	1.0	10/17/96	M9641,M9645
M[illegible]y, Hg	ND	mg/L	0.0020	1.0	10/18/96	M9641,M9645
[illegible]i, Se	ND	mg/L	0.050	1.0	10/17/96	M9641,M9645
S[illegible] Ag	ND	mg/L	0.040	1.0	10/17/96	M9641,M9645
TCLP(CVAA)Hg XT/SW846 7471	10/17/96	N/A				

OWS

Lab ID: 9610112-04A
Sample ID: CA70/15-96-1009-1401

Collected: 10/09/96 14:04:00
Matrix: SOIL

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	100.00	% (Percent)				
CVAA Hg XT/SW846 7471	10/15/96	N/A				
MERCURY (CVAA)/SW846 7471						
Mercury	ND	mg/Kg	0.15	1.0	10/16/96	M9636
Metal(ICP) DIG /SW846 3050	10/15/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND	mg/Kg	1.0	1.0	10/16/96	M9632
Aluminum, Al	NT	mg/Kg	25			M9632
Arsenic, As	42.6	mg/Kg	3.0	1.0	10/16/96	M9632
Barium, Ba	572	mg/Kg	0.50	1.0	10/16/96	M9632
Beryllium, Be	NT	mg/Kg	0.50			M9632
Calcium, Ca	NT	mg/Kg	15			M9632
Cadmium, Cd	1.53	mg/Kg	0.20	1.0	10/16/96	M9632
Cobalt, Co	NT	mg/Kg	0.50			M9632
Chromium, Cr	194	mg/Kg	1.0	1.0	10/16/96	M9632
Copper, Cu	NT	mg/Kg	0.50			M9632
Iron, Fe	NT	mg/Kg	15			M9632
Potassium, K	NT	mg/Kg	10			M9632
Magnesium, Mg	NT	mg/Kg	10			M9632
M[illegible]nese, Mn	NT	mg/Kg	0.25			M9632
[illegible] Na	NT	mg/Kg	15			M9632
[illegible] Ni	7.8	mg/Kg	2.0	1.0	10/16/96	M9632
Lead, Pb	1400	mg/Kg	2.0	1.0	10/16/96	M9632
Antimony, Sb	NT	mg/Kg	1.5			M9632
Selenium, Se	ND	mg/Kg	2.5	1.0	10/16/96	M9632

Lab ID: 9610112-04A
Sample ID: CA70/15-96-1009-1401

Collected: 10/09/96 14:04:00
Matrix: SOIL

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
METALS-ICP/SW846 6010						
Thallium, Tl		mg/Kg				M9632
Vanadium, V	NT	mg/Kg	0.15			M9632
Zinc, Zn	NT	mg/Kg	5.0			M9632
TCLP (ICP) DIG/1311/3005	10/16/96	N/A				
TCLP EXTRACTION/TCLP 1311	10/15/96	N/A				
TCLP METALS/1311/SW8466010						
Arsenic, As	ND	mg/L	0.40	1.0	10/17/96	M9641,M9645
Barium, Ba	1.0	mg/L	0.50	1.0	10/17/96	M9641,M9645
Cadmium, Cd	0.017	mg/L	0.0050	1.0	10/17/96	M9641,M9645
Chromium, Cr	ND	mg/L	0.020	1.0	10/17/96	M9641,M9645
Lead, Pb	0.15	mg/L	0.050	1.0	10/17/96	M9641,M9645
Mercury, Hg	ND	mg/L	0.0020	1.0	10/18/96	M9641,M9645
Selenium, Se	ND	mg/L	0.050	1.0	10/17/96	M9641,M9645
Silver, Ag	ND	mg/L	0.040	1.0	10/17/96	M9641,M9645
TCLP(CVAA)Hg XT/SW846 7471	10/17/96	N/A				

Lab ID: 9610112-05A
Sample ID: CA112/12-96-1009-1434

Collected: 10/09/96 14:34:00
Matrix: SOIL

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	100.00	% (Percent)				
CVAA Hg XT/SW846 7471	10/15/96	N/A				
MERCURY (CVAA)/SW846 7471						
Mercury	ND	mg/Kg	0.15	1.0	10/16/96	M9636
Metal(ICP) DIG /SW846 3050	10/15/96	N/A				
METALS-ICP/SW846 6010						
Silver, Ag	ND	mg/Kg	1.0	1.0	10/16/96	M9632
Aluminum, Al	NT	mg/Kg	25			M9632
Arsenic, As	ND	mg/Kg	3.0	1.0	10/16/96	M9632
Barium, Ba	492	mg/Kg	0.50	1.0	10/16/96	M9632
Beryllium, Be	NT	mg/Kg	0.50			M9632
Calcium, Ca	NT	mg/Kg	15			M9632
Cadmium, Cd	ND	mg/Kg	0.20	1.0	10/16/96	M9632
Cobalt, Co	NT	mg/Kg	0.50			M9632
Chromium, Cr	9.6	mg/Kg	1.0	1.0	10/16/96	M9632
Copper, Cu	NT	mg/Kg	0.50			M9632
Iron, Fe	NT	mg/Kg	15			M9632
Potassium, K	NT	mg/Kg	10			M9632
Magnesium, Mg	NT	mg/Kg	10			M9632
Manganese, Mn	NT	mg/Kg	0.25			M9632
Sodium, Na	NT	mg/Kg	15			M9632
Nickel, Ni	7.9	mg/Kg	2.0	1.0	10/16/96	M9632
Lead, Pb	13.5	mg/Kg	2.0	1.0	10/16/96	M9632
Antimony, Sb	NT	mg/Kg	1.5			M9632
Selenium, Se	ND	mg/Kg	2.5	1.0	10/16/96	M9632
Thallium, Tl		mg/Kg				M9632
Vanadium, V	NT	mg/Kg	0.15			M9632
Zinc, Zn	NT	mg/Kg	5.0			M9632
TCLP (ICP) DIG/1311/3005	10/16/96	N/A				
TCLP EXTRACTION/TCLP 1311	10/15/96	N/A				
TCLP METALS/1311/SW8466010						
Arsenic, As	ND	mg/L	0.40	1.0	10/17/96	M9641,M9645
Barium, Ba	3.5	mg/L	0.50	1.0	10/17/96	M9641,M9645
Cadmium, Cd	ND	mg/L	0.0050	1.0	10/17/96	M9641,M9645
Chromium, Cr	ND	mg/L	0.020	1.0	10/17/96	M9641,M9645
Lead, Pb	0.05	mg/L	0.050	1.0	10/17/96	M9641,M9645
Mercury, Hg	ND	mg/L	0.0020	1.0	10/18/96	M9641,M9645

ANALYTICA
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USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-093
Date: 09/30/96 20:26
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/14/96
Date Completed: 09/30/96

SAMPLE IDENTIFICATION

Sample Number	Client Description	Sample Number	Client Description
01	CA11/002-96-0912-0945	06	Trip Blank
02	CA92/002-96-0912-1045	07	CA112/001-96-0911-1355
03	CA07/001-96-0911-1535	08	CA33B/001-96-0911-1450
04	CA11/001-96-0912-09:40	09	CA07/002-96-0911-1540
05	CA92/001-96-0912-10:40	10	Trip Blank

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- o Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]
- o Solid and waste samples are reported on a "dry weight" basis, i.e. correction is made for moisture content.

Problems encountered with the analyses are discussed in the following narrative.

Sample CA92/002-96-0912-1044 is reported with a surrogate standard recovery outside quality control limits for the 8260 analysis. The internal standard area recoveries were also below QC limits. This is due to sample matrix and was verified in a secondary analysis.

The 8270 semivolatile analyses for the following samples are reported with internal standard area recoveries below the QC limits:

CA11/002-96-0911
CA7/001-96-0911
CA92/001-96-0912-10:40
CA112/001-96-0911-1355

These results are due to sample matrix and were verified in secondary analyses.

The 8270 semivolatile analyses for the following samples are reported with surrogate standard recoveries outside QC limits:

CA11/002-96-0912-0945 (one base/neutral surrogate)
CA07/001-96-0911-1535 (two acid surrogates and one base/neutral suurogate)

Analytica's quality assurance plan allows for one acid surrogate and one base/neutral surrogate standard to be outside quality control windows and still be of acceptable quality control. This emulates the EPA CLP quality assurance guidelines. These results were verified in secondary analyses.

The 8270 matrix spike/matrix spike duplicate results for samples CA92/001-96-0912-10:40 and CA112/001-96-0911-1355 are reported with some of the spike compound recoveries below QC limits. These results were also confirmed in secondary analyses and are attributable to sample matrix. The associated method blank spike recoveries are all within acceptance limits.

The 8270 soil method blank is reported with target analyte Di-n-butylphthalate above reporting limit. This is due to laboratory contamination in the method 3540 soxhlet extraction process. Mr. Brian Jordan of the USACE has been notified of this problem for prior projects where this extraction method was requested. Analytica is actively pursuing the source of this contamination. The reported phthalate ester target compounds should be looked at as possible laboratory contamination sources.

Sample: **05AQ CA92/001-96-0912-10:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	09/25/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/26/96
pH	EPA 150.1	7.5		0.10	pH units	09/18/96

Sample: **05BQ CA92/001-96-0912-10:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	09/23/96
Chloromethane		ND		10	ug/L	09/23/96
Vinyl Chloride		ND		2.0	ug/L	09/23/96
Bromomethane		ND		10	ug/L	09/23/96
Chloroethane		ND		10	ug/L	09/23/96
Trichlorofluoromethane		ND		10	ug/L	09/23/96
1,1-Dichloroethene		ND		5.0	ug/L	09/23/96
Trichlorotrifluoroethane		ND		3.0	ug/L	09/23/96
Methylene Chloride		ND		10	ug/L	09/23/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	09/23/96
1,1-Dichloroethane		ND		5.0	ug/L	09/23/96
2,2-Dichloropropane		ND		5.0	ug/L	09/23/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	09/23/96
Bromochloromethane		ND		5.0	ug/L	09/23/96
Chloroform		ND		3.0	ug/L	09/23/96
1,1,1-Trichloroethane		ND		5.0	ug/L	09/23/96
Carbon Tetrachloride		ND		10	ug/L	09/23/96
1,1-Dichloropropene		ND		5.0	ug/L	09/23/96
Benzene		ND		1.0	ug/L	09/23/96
1,2-Dichloroethane		ND		5.0	ug/L	09/23/96
Trichloroethene		ND		3.0	ug/L	09/23/96
1,2-Dichloropropane		ND		3.0	ug/L	09/23/96
Dibromomethane		ND		3.0	ug/L	09/23/96
Bromodichloromethane		ND		3.0	ug/L	09/23/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	09/23/96
Toluene		ND		1.0	ug/L	09/23/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	09/23/96
1,1,2-Trichloroethane		ND		3.0	ug/L	09/23/96
Tetrachloroethene		ND		3.0	ug/L	09/23/96
1,3-Dichloropropane		ND		3.0	ug/L	09/23/96
Dibromochloromethane		ND		3.0	ug/L	09/23/96
1,2-Dibromoethane		ND		3.0	ug/L	09/23/96
Chlorobenzene		ND		3.0	ug/L	09/23/96
Ethylbenzene		ND		1.0	ug/L	09/23/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	09/23/96
m,p-Xylenes		ND		1.0	ug/L	09/23/96
o-Xylene		ND		1.0	ug/L	09/23/96
Styrene		ND		3.0	ug/L	09/23/96
Bromoform		ND		5.0	ug/L	09/23/96
Isopropylbenzene		ND		2.0	ug/L	09/23/96
Bromobenzene		ND		3.0	ug/L	09/23/96
n-Propylbenzene		ND		5.0	ug/L	09/23/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	09/23/96
1,2,3-Trichloropropane		ND		3.0	ug/L	09/23/96
2-Chlorotoluene		ND		1.0	ug/L	09/23/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	09/23/96
4-Chlorotoluene		ND		1.0	ug/L	09/23/96

Sample: **05BQ CA92/001-96-0912-10:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		5.0	ug/L	09/23/96
1,2,4-Trimethylbenzene		ND		5.0	ug/L	09/23/96
sec-Butylbenzene		ND		5.0	ug/L	09/23/96
4-Isopropyltoluene		ND		5.0	ug/L	09/23/96
1,3-Dichlorobenzene		ND		2.0	ug/L	09/23/96
1,4-Dichlorobenzene		ND		2.0	ug/L	09/23/96
n-Butylbenzene		ND		5.0	ug/L	09/23/96
1,2-Dichlorobenzene		ND		5.0	ug/L	09/23/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L	09/23/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L	09/23/96
Hexachlorobutadiene		ND		5.0	ug/L	09/23/96
Napthalene		ND		5.0	ug/L	09/23/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L	09/23/96
Acetone		ND		50	ug/L	09/23/96
Acrylonitrile		ND		10	ug/L	09/23/96
2-Butanone		ND		50	ug/L	09/23/96
Carbon Disulfide		ND		5.0	ug/L	09/23/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L	09/23/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L	09/23/96
2-Hexanone		ND		20	ug/L	09/23/96
Iodomethane		ND		5.0	ug/L	09/23/96
4-Methyl-2-pentanone		ND		20	ug/L	09/23/96
Vinyl Acetate		ND		5.0	ug/L	09/23/96
tert-Butyl methyl ether		ND		5.0	ug/L	09/23/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		106		Min: 80	Max: 120	
Toluene d-8		106		Min: 88	Max: 110	
p-Bromofluorobenzene		102		Min: 86	Max: 115	

Sample: **05DQ CA92/001-96-0912-10:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		10	ug/L	09/25/96
bis(2-Chloroethyl) ether		ND		10	ug/L	09/25/96
2-Chlorophenol		ND		10	ug/L	09/25/96
1,3-Dichlorobenzene		ND		10	ug/L	09/25/96
1,4-Dichlorobenzene		ND		10	ug/L	09/25/96
Benzyl alcohol		ND		20	ug/L	09/25/96
1,2-Dichlorobenzene		ND		10	ug/L	09/25/96
2-Methylphenol		ND		10	ug/L	09/25/96
bis(2-Chloroisopropyl) ether		ND		10	ug/L	09/25/96
4-Methylphenol		ND		10	ug/L	09/25/96
n-Nitroso-di-n-propylamine		ND		10	ug/L	09/25/96
Hexachloroethane		ND		10	ug/L	09/25/96
Nitrobenzene		ND		10	ug/L	09/25/96
Isophorone		ND		10	ug/L	09/25/96
2-Nitrophenol		ND		10	ug/L	09/25/96
2,4-Dimethylphenol		ND		10	ug/L	09/25/96
Benzoic acid		ND		50	ug/L	09/25/96
bis(2-Chloroethoxy)methane		ND		10	ug/L	09/25/96
2,4-Dichlorophenol		ND		10	ug/L	09/25/96
1,2,4-Trichlorobenzene		ND		10	ug/L	09/25/96
Naphthalene		ND		10	ug/L	09/25/96
4-Chloroaniline		ND		10	ug/L	09/25/96
Hexachlorobutadiene		ND		10	ug/L	09/25/96
4-Chloro-3-methylphenol		ND		10	ug/L	09/25/96
2-Methylnaphthalene		ND		10	ug/L	09/25/96
Hexachlorocyclopentadiene		ND		10	ug/L	09/25/96
2,4,6-Trichlorophenol		ND		10	ug/L	09/25/96
2,4,5-Trichlorophenol		ND		50	ug/L	09/25/96
2-Chloronaphthalene		ND		10	ug/L	09/25/96
2-Nitroaniline		ND		50	ug/L	09/25/96
Dimethylphthalate		ND		10	ug/L	09/25/96
Acenaphthylene		ND		10	ug/L	09/25/96
3-Nitroaniline		ND		50	ug/L	09/25/96
Acenaphthene		ND		10	ug/L	09/25/96
2,4-Dinitrophenol		ND		50	ug/L	09/25/96
4-Nitrophenol		ND		50	ug/L	09/25/96
Dibenzofuran		ND		10	ug/L	09/25/96
2,6-Dinitrotoluene		ND		10	ug/L	09/25/96
2,4-Dinitrotoluene		ND		10	ug/L	09/25/96
Diethylphthalate		ND		10	ug/L	09/25/96
4-Chlorophenyl-phenylether		ND		10	ug/L	09/25/96
Fluorene		ND		10	ug/L	09/25/96
4-Nitroaniline		ND		10	ug/L	09/25/96
4,6-Dinitro-2-methylphenol		ND		50	ug/L	09/25/96
n-Nitrosodiphenylamine		ND		10	ug/L	09/25/96
4-Bromophenyl-phenylether		ND		10	ug/L	09/25/96

Sample: **05DQ CA92/001-96-0912-10:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		10	ug/L	09/25/96
Pentachlorophenol		ND		50	ug/L	09/25/96
Phenanthrene		ND		10	ug/L	09/25/96
Anthracene		ND		10	ug/L	09/25/96
Di-n-butylphthalate		ND		10	ug/L	09/25/96
Fluoranthene		ND		10	ug/L	09/25/96
Pyrene		ND		10	ug/L	09/25/96
Butylbenzylphthalate		ND		10	ug/L	09/25/96
3,3'-Dichlorobenzidine		ND		20	ug/L	09/25/96
Benzo(a)Anthracene		ND		10	ug/L	09/25/96
Chrysene		ND		10	ug/L	09/25/96
Bis(2-Ethylhexyl)phthalate		ND		10	ug/L	09/25/96
Di-n-octylphthalate		ND		10	ug/L	09/25/96
Benzo(b)fluoranthene		ND		10	ug/L	09/25/96
Benzo(k)fluoranthene		ND		10	ug/L	09/25/96
Benzo(a)pyrene		ND		10	ug/L	09/25/96
Indeno(1,2,3-cd)pyrene		ND		10	ug/L	09/25/96
Dibenz(a,h)anthracene		ND		10	ug/L	09/25/96
Benzo(g,h,i)perylene		ND		10	ug/L	09/25/96
SURROGATES, % Recovery						
2-Fluorophenol		64.7		Min: 21	Max: 100	
d5-Phenol		73.3		Min: 10	Max: 94	
d5-Nitrobenzene		74.0		Min: 35	Max: 114	
2-Fluorobiphenyl		86.0		Min: 43	Max: 116	
2,4,6-Tribromophenol		86.7		Min: 10	Max: 123	
d14-Terphenyl		81.0		Min: 33	Max: 141	

Sample: **05EQ CA92/001-96-0912-10:40** Collected: **09/12/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/24/96
Barium		0.14		0.020	mg/L	09/24/96
Cadmium		ND		0.0050	mg/L	09/24/96
Chromium		ND		0.010	mg/L	09/24/96
Lead		ND		0.050	mg/L	09/24/96
Selenium		ND		0.10	mg/L	09/24/96
Silver		ND		0.010	mg/L	09/24/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/24/96

Sample: **02A** **CA92/002-96-0912-1045** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Percent Moisture	ASTM D2216	55.3		0.1	WT%	09/19/96
Semivolatile Organics	SW 8270A					
Phenol		ND		7500	ug/Kg-DRY	09/29/96
bis(2-Chloroethyl) ether		ND		7500	ug/Kg-DRY	09/29/96
2-Chlorophenol		ND		7500	ug/Kg-DRY	09/29/96
1,3-Dichlorobenzene		ND		7500	ug/Kg-DRY	09/29/96
1,4-Dichlorobenzene		ND		7500	ug/Kg-DRY	09/29/96
Benzyl alcohol		ND		15000	ug/Kg-DRY	09/29/96
1,2-Dichlorobenzene		ND		7500	ug/Kg-DRY	09/29/96
2-Methylphenol		ND		7500	ug/Kg-DRY	09/29/96
bis(2-Chloroisopropyl) ether		ND		7500	ug/Kg-DRY	09/29/96
4-Methylphenol		ND		7500	ug/Kg-DRY	09/29/96
n-Nitroso-di-n-propylamine		ND		7500	ug/Kg-DRY	09/29/96
Hexachloroethane		ND		7500	ug/Kg-DRY	09/29/96
Nitrobenzene		ND		7500	ug/Kg-DRY	09/29/96
Isophorone		ND		7500	ug/Kg-DRY	09/29/96
2-Nitrophenol		ND		7500	ug/Kg-DRY	09/29/96
2,4-Dimethylphenol		ND		7500	ug/Kg-DRY	09/29/96
Benzoic acid		ND		37000	ug/Kg-DRY	09/29/96
bis(2-Chloroethoxy)methane		ND		7500	ug/Kg-DRY	09/29/96
2,4-Dichlorophenol		ND		7500	ug/Kg-DRY	09/29/96
1,2,4-Trichlorobenzene		ND		7500	ug/Kg-DRY	09/29/96
Naphthalene		ND		7500	ug/Kg-DRY	09/29/96
4-Chloroaniline		ND		7500	ug/Kg-DRY	09/29/96
Hexachlorobutadiene		ND		7500	ug/Kg-DRY	09/29/96
4-Chloro-3-methylphenol		ND		15000	ug/Kg-DRY	09/29/96
2-Methylnaphthalene		ND		7500	ug/Kg-DRY	09/29/96
Hexachlorocyclopentadiene		ND		7500	ug/Kg-DRY	09/29/96
2,4,6-Trichlorophenol		ND		7500	ug/Kg-DRY	09/29/96
2,4,5-Trichlorophenol		ND		37000	ug/Kg-DRY	09/29/96
2-Chloronaphthalene		ND		7500	ug/Kg-DRY	09/29/96
2-Nitroaniline		ND		37000	ug/Kg-DRY	09/29/96
Dimethylphthalate		ND		7500	ug/Kg-DRY	09/29/96
Acenaphthylene		ND		7500	ug/Kg-DRY	09/29/96
3-Nitroaniline		ND		37000	ug/Kg-DRY	09/29/96
Acenaphthene		ND		7500	ug/Kg-DRY	09/29/96
2,4-Dinitrophenol		ND		37000	ug/Kg-DRY	09/29/96
4-Nitrophenol		ND		37000	ug/Kg-DRY	09/29/96
Dibenzofuran		ND		7500	ug/Kg-DRY	09/29/96
2,6-Dinitrotoluene		ND		7500	ug/Kg-DRY	09/29/96
2,4-Dinitrotoluene		ND		7500	ug/Kg-DRY	09/29/96
Diethylphthalate		ND		7500	ug/Kg-DRY	09/29/96
4-Chlorophenyl-phenylether		ND		7500	ug/Kg-DRY	09/29/96
Fluorene		ND		7500	ug/Kg-DRY	09/29/96
4-Nitroaniline		ND		37000	ug/Kg-DRY	09/29/96
4,6-Dinitro-2-methylphenol		ND		37000	ug/Kg-DRY	09/29/96
n-Nitrosodiphenylamine		ND		7500	ug/Kg-DRY	09/29/96
4-Bromophenyl-phenylether		ND		7500	ug/Kg-DRY	09/29/96

Sample: **02A** **CA92/002-96-0912-1045** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		7500	ug/Kg-DRY	09/29/96
Pentachlorophenol		ND		37000	ug/Kg-DRY	09/29/96
Phenanthrene		4600	DJ	7500	ug/Kg-DRY	09/29/96
Anthracene		760	DJ	7500	ug/Kg-DRY	09/29/96
Di-n-butylphthalate		13000	DB	7500	ug/Kg-DRY	09/29/96
Fluoranthene		15000	D	7500	ug/Kg-DRY	09/29/96
Pyrene		11000	D	7500	ug/Kg-DRY	09/29/96
Butylbenzylphthalate		890	DJ	7500	ug/Kg-DRY	09/29/96
3,3'-Dichlorobenzidine		ND		15000	ug/Kg-DRY	09/29/96
Benzo(a)Anthracene		ND		7500	ug/Kg-DRY	09/29/96
Chrysene		5800	DJ	7500	ug/Kg-DRY	09/29/96
Bis(2-Ethylhexyl)phthalate		7100	DJ	7500	ug/Kg-DRY	09/29/96
Di-n-octylphthalate		ND		7500	ug/Kg-DRY	09/29/96
Benzo(b)fluoranthene		7000	DJ	7500	ug/Kg-DRY	09/29/96
Benzo(k)fluoranthene		2200	DJ	7500	ug/Kg-DRY	09/29/96
Benzo(a)pyrene		4100	DJ	7500	ug/Kg-DRY	09/29/96
Indeno(1,2,3-cd)pyrene		2600	DJ	7500	ug/Kg-DRY	09/29/96
Dibenz(a,h)anthracene		ND		7500	ug/Kg-DRY	09/29/96
Benzo(g,h,i)perylene		3100	DJ	7500	ug/Kg-DRY	09/29/96
SURROGATES, % Recovery						
2-Fluorophenol		69.1		Min:	25	Max: 121
d5-Phenol		70.0		Min:	24	Max: 113
d5-Nitrobenzene		89.3		Min:	23	Max: 120
2-Fluorobiphenyl		90.7		Min:	30	Max: 115
2,4,6-Tribromophenol		100		Min:	19	Max: 122
d14-Terphenyl		107		Min:	18	Max: 137

Sample: **02A** **CA92/002-96-0912-1045** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		22	ug/Kg-DRY	09/25/96
Chloromethane		ND		22	ug/Kg-DRY	09/25/96
Vinyl Chloride		ND		4.5	ug/Kg-DRY	09/25/96
Bromomethane		ND		22	ug/Kg-DRY	09/25/96
Chloroethane		ND		22	ug/Kg-DRY	09/25/96
Trichlorofluoromethane		ND		22	ug/Kg-DRY	09/25/96
1,1-Dichloroethene		ND		11	ug/Kg-DRY	09/25/96
Trichlorotrifluoroethane		ND		6.7	ug/Kg-DRY	09/25/96
Methylene Chloride		ND		22	ug/Kg-DRY	09/25/96
trans-1,2-Dichloroethene		ND		6.7	ug/Kg-DRY	09/25/96
1,1-Dichloroethane		ND		11	ug/Kg-DRY	09/25/96
2,2-Dichloropropane		ND		11	ug/Kg-DRY	09/25/96
cis-1,2-Dichloroethene		ND		6.7	ug/Kg-DRY	09/25/96
Bromochloromethane		ND		11	ug/Kg-DRY	09/25/96
Chloroform		ND		6.7	ug/Kg-DRY	09/25/96
1,1,1-Trichloroethane		ND		11	ug/Kg-DRY	09/25/96
Carbon Tetrachloride		ND		22	ug/Kg-DRY	09/25/96
1,1-Dichloropropene		ND		11	ug/Kg-DRY	09/25/96
Benzene		ND		2.2	ug/Kg-DRY	09/25/96
1,2-Dichloroethane		ND		11	ug/Kg-DRY	09/25/96
Trichloroethene		ND		6.7	ug/Kg-DRY	09/25/96
1,2-Dichloropropane		ND		6.7	ug/Kg-DRY	09/25/96
Dibromomethane		ND		6.7	ug/Kg-DRY	09/25/96
Bromodichloromethane		ND		6.7	ug/Kg-DRY	09/25/96
cis-1,3-Dichloropropene		ND		6.7	ug/Kg-DRY	09/25/96
Toluene		ND		2.2	ug/Kg-DRY	09/25/96
trans-1,3-Dichloropropene		ND		11	ug/Kg-DRY	09/25/96
1,1,2-Trichloroethane		ND		6.7	ug/Kg-DRY	09/25/96
Tetrachloroethene		ND		6.7	ug/Kg-DRY	09/25/96
1,3-Dichloropropane		ND		6.7	ug/Kg-DRY	09/25/96
Dibromochloromethane		ND		6.7	ug/Kg-DRY	09/25/96
1,2-Dibromoethane		ND		6.7	ug/Kg-DRY	09/25/96
Chlorobenzene		ND		6.7	ug/Kg-DRY	09/25/96
Ethylbenzene		ND		2.2	ug/Kg-DRY	09/25/96
1,1,1,2-Tetrachloroethane		ND		6.7	ug/Kg-DRY	09/25/96
m,p-Xylenes		ND		2.2	ug/Kg-DRY	09/25/96
o-Xylene		ND		2.2	ug/Kg-DRY	09/25/96
Styrene		ND		6.7	ug/Kg-DRY	09/25/96
Bromoform		ND		11	ug/Kg-DRY	09/25/96
Isopropylbenzene		ND		4.5	ug/Kg-DRY	09/25/96
Bromobenzene		ND		6.7	ug/Kg-DRY	09/25/96
n-Propylbenzene		ND		11	ug/Kg-DRY	09/25/96
1,1,2,2-Tetrachlorethane		ND		11	ug/Kg-DRY	09/25/96
1,2,3-Trichloropropane		ND		6.7	ug/Kg-DRY	09/25/96
2-Chlorotoluene		ND		2.2	ug/Kg-DRY	09/25/96
1,3,5-Trimethylbenzene		ND		11	ug/Kg-DRY	09/25/96
4-Chlorotoluene		ND		2.2	ug/Kg-DRY	09/25/96

Sample: **02A** **CA92/002-96-0912-1045** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		11	ug/Kg-DRY	09/25/96
1,2,4-Trimethylbenzene		ND		11	ug/Kg-DRY	09/25/96
sec-Butylbenzene		ND		11	ug/Kg-DRY	09/25/96
4-Isopropyltoluene		ND		11	ug/Kg-DRY	09/25/96
1,3-Dichlorobenzene		ND		4.5	ug/Kg-DRY	09/25/96
1,4-Dichlorobenzene		ND		4.5	ug/Kg-DRY	09/25/96
n-Butylbenzene		ND		11	ug/Kg-DRY	09/25/96
1,2-Dichlorobenzene		ND		11	ug/Kg-DRY	09/25/96
1,2-Dibromo-3-chloropropane		ND		22	ug/Kg-DRY	09/25/96
1,2,4-Trichlorobenzene		ND		11	ug/Kg-DRY	09/25/96
Hexachlorobutadiene		ND		11	ug/Kg-DRY	09/25/96
Napthalene		ND		11	ug/Kg-DRY	09/25/96
1,2,3-Trichlorobenzene		ND		11	ug/Kg-DRY	09/25/96
Acetone		170		110	ug/Kg-DRY	09/25/96
Acrylonitrile		ND		22	ug/Kg-DRY	09/25/96
2-Butanone		87	J	110	ug/Kg-DRY	09/25/96
Carbon Disulfide		ND		11	ug/Kg-DRY	09/25/96
trans-1,4-Dichloro-2-butene		ND		22	ug/Kg-DRY	09/25/96
2-Chloroethyl Vinyl Ether		ND		22	ug/Kg-DRY	09/25/96
2-Hexanone		ND		45	ug/Kg-DRY	09/25/96
Iodomethane		ND		11	ug/Kg-DRY	09/25/96
4-Methyl-2-pentanone		ND		45	ug/Kg-DRY	09/25/96
Vinyl Acetate		ND		11	ug/Kg-DRY	09/25/96
tert-Butyl methyl ether		ND		11	ug/Kg-DRY	09/25/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		100		Min: 80	Max: 120	
Toluene d-8		109		Min: 81	Max: 117	
p-Bromofluorobenzene		136		Min: 74	Max: 121	

Sample: **02B** **CA92/002-96-0912-1045** Collected: **09/12/96** Matrix: **SLUDGE**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/24/96
Barium		0.91		0.020	mg/L	09/24/96
Cadmium		ND		0.0050	mg/L	09/24/96
Chromium		ND		0.010	mg/L	09/24/96
Lead		ND		0.050	mg/L	09/24/96
Selenium		ND		0.10	mg/L	09/24/96
Silver		ND		0.010	mg/L	09/24/96
Ignitability	EPA 1010	>200		47	Deg F/1atm	09/25/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/24/96
Sulfide, Reactive	SW 7.3.4.2	24		16	mg/Kg	09/26/96
pH	EPA 9045A	7.7		0.10	pH units	09/18/96

Analytica, Incorporated

SAMPLE RECEIVING CHECKLIST

Client:	USACE NM	Matrix:	Sludge/Water
CSN #:	607172	# Samples rcvd:	3 7
W/O #:	9609093	# Bottles Rcvd:	38
Date Recvd:	9-14-96	Analytica B/O:	4

Cooler Temp:	*	* temp blanks were at 5°C & ~ 4°C.
Custody seal present & intact:	YES / NO	
Chain in cooler:	YES / NO	
Chain Matches sample ID's:	YES / NO	
Trip blank presented:	YES / NO	
Samples w. LT 5 days HT:	YES / NO	pH Holding times expired prior to receipt @ AZ.
Critical samples & tests:	YES / NO	
Samples preserved properly:	YES / NO	
		corrosivity has longer holding time

Project Definition

Complete @ login:	YES / NO	
Further Definition:		

Discrepencies:	Trip Blank not on COC for samples taken 9/12. it was Received.
Corrective Actions:	
Comments:	

	Date/time	Initials
ogin completed:	9/16/96 1345	KI
Def completed:	9/16/96 1535	[illegible]

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkw ite 200
Broomfield, Color 021
(303) 469-8868 or 1-8 73-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

ANALYTICA USE ONLY: № 002800

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-3540/8270	TCLP&RCRA 1311/6010
12Sept96	0945	CA11/002-96-0912-0945	3				
12Sept96	1045	CA92/002-96-0912-1045	3				

Temp Blanks bath @ 50°C. KI

COMMENTS: Soxhlet Extraction for SVOC-BNA extraction

MEANS OF DELIVERY:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1530	Fed Ex		Fed X	9/14/96 1120 hrs		9/14/96 1130 hrs

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Colora 021
(303) 469-8868 or 1-800-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.

8 RCRA Metals

ANALYTICA USE ONLY: № 002797

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity/pH/Ignit	VOC - 8260	SVOC - 3540/8270	TCLP Met/1311/7470/7471/7740/7910	Combined Jars							
11Sept96	1535	CA07/001-96-0911-1535	3	1	1	1	1								

TESTS REQUESTED

Temp Blanks @~4.0°C
KI

COMMENTS

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13Sept96 1545	Fed EX	9/14/96 ~~11:30 hrs~~ 11:30 hrs	Fed X	~~9/14/96~~ ~~11:30 hrs~~		9/14/96 11:30 hrs

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Color 021
(303) 469-8868 or 1-800-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE
Alb. NM 87109

TELEPHONE: 505-342-3472

FAX: 505-342-3497

PROJECT ID/DESCRIPTION: Cannon OWS

P. O. NO.:

ANALYTICA USE ONLY
№ 002801

CSN 607172
LGN 9609093
LOC Walkin C3
QC Corp 3
PM Jim Robinson
DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity pH IGN	VOC-8260	SVOC-8270	TCLP SRCRA MET
12Sept96	0940	CA11/001-96-0912-0940	5	1	2	1	1
12Sept96	1040	CA92/001-96-0912-1040	6	1	2	2	1

Temp Blanks both @ 5.0°C.
KC

COMMENTS: SVOC (QC) taken @ CA92/001-96-0912-1040

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13 Sept 96 1545	Fed Ex		Fed X	9/14/96 11 Beh		9/14/96 1130

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Color. 021
(303) 469-8868 or 1-8 73-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.

8 RCRA

ANALYTICA USE ONLY: № 002798

CSN 607172

LGN 9609093

LOC Walkin C3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, TSN	VOC-8260	SVOC-8270	TCLP MET 1311/7470/6010	7060 7471
11Sept96	1355	CA112/001-96-0911-1355	6	1	2	2	1	
11Sept96	1450	CA33B/001-96-0911-1450	5	1	2	1	1	
11Sept96	1540	CA07/002-96-0911-1540	5	1	2	1	1	
11Sept96	—	Trip Blank	1		1			

Temp Blanks @ ~4.0° C.
KI

COMMENTS: Liquid/Liquid extraction for 8270
SVOC (QC) taken @ CA112/001-96-0911-1355

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1545	Fed Ex	9/14/96 1120 hr				9/14/96 1130 hr

003-0294

ASSAIGAI ANALYTICAL LABORATORIES, INC.
7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

US ARMY CORP OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NM 87109

Attn: SUSAN GANT

Purchase Order: DACW47-96-P-0338
Invoice Number: 929480

Order #: 97-01-224
Date: 07/01/97 14:07
Work ID: CANNON OWS
Date Received: 01/29/97
Date Completed: 02/26/97

Client Code: USA01

SAMPLE IDENTIFICATION

Sample Number	Sample Description
01	CA32A/001-1600-012897
02	CA32A/002-1615-012897
03	CA32A/003-1630-012897
04	CA08/002-1430-012897
05	CA94B/001-0945-012897
06	CA94A/001-0900-012897
07	CA94A/002-0915-012897
08	CA94B/002-1000-012897
09	CA09/003-1505-012897

ND = None Detected D_F = Dilution Factor NT = Not Tested
B = Analyte was present in the blank
E = Estimated Value or Result exceeds calibration range
MULTIPLY THE LIMIT(= AAL'S DETECTION LIMIT) BY DILUTION FACTOR

Wm. P. Biava
Certified By
WILLIAM P. BIAVA

Member: American Council of Independent Laboratories, Inc.

REPRODUCTION OF THIS REPORT IN LESS THAN FULL REQUIRES THE WRITTEN CONSENT OF AAL
THIS REPORT MAY NOT BE USED IN ANY MANNER BY THE CLIENT OR ANY OTHER THIRD PARTY TO CLAIM
PRODUCT ENDORSEMENT BY THE NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM.

D: 9702215-03A
Sample ID: CA94A/002-0915-012897

Collected: 01/28/97 09:15:00
Matrix: SOLID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	60.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	03/05/97	N/A				
TCLP EXTRACTION/TCLP 1311	03/03/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	ND	mg/L	0.10	1.0	03/06/97	M97167

Lab ID: 9702215-04A
Sample ID: CA09/003-1505-012897

Collected: 01/28/97 15:05:00
Matrix: SOLID

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
% SOLIDS(TCLP XT)EPA 160.3	62.00	% (Percent)				
TCLP (FAA) DIG/1311/3005	03/05/97	N/A				
TCLP CADMIUM(FA)/1311/7130						
Cadmium, Cd	0.010	mg/L	0.0030	1.0	03/12/97	M97167
TCLP CHROMIUM(F)/1311/7190						
Chromium, Cr	0.20	mg/L	0.020	1.0	03/06/97	M97167
TCLP EXTRACTION/TCLP 1311	03/03/97	N/A				
TCLP LEAD(FAA)/1311/7420						
Lead, Pb	0.2	mg/L	0.10	1.0	03/06/97	M97167

Fred L. Shore, Ph.D.
VP of Laboratory Operations

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/001-0900-012897 FRACTION 06E TEST CODE W6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	0.020	1.0	02/03/97	02/03/97
Arsenic, As	ND	0.060	1.0	02/03/97	02/03/97
Barium, Ba	0.14	0.010	1.0	02/03/97	02/03/97
Cadmium, Cd	ND	0.0040	1.0	01/30/97	01/31/97
Chromium, Cr	ND	0.020	1.0	01/30/97	01/31/97
Lead, Pb	NT	0.040			
Selenium, Se	ND	0.050	1.0	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/L

BATCH_ID M9782,M9788

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/001-0900-012897 FRACTION 06A TEST CODE W8260 NAME VOLATILES /SW846 8260B

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	10	1.0	02/04/97
Chloromethane	ND	5.0	1.0	02/04/97
Iodomethane	ND	5.0	1.0	02/04/97
Acetone	12	5.0	1.0	02/04/97
Bromomethane	ND	5.0	1.0	02/04/97
Vinyl Chloride	ND	5.0	1.0	02/04/97
Chloroethane	ND	5.0	1.0	02/04/97
Trichlorofluoromethane	ND	5.0	1.0	02/04/97
Freon 113	ND	5.0	1.0	02/04/97
Carbon Disulfide	ND	5.0	1.0	02/04/97
Acrolein	ND	20	1.0	02/04/97
Methylene Chloride	ND	10	1.0	02/04/97
1,1-Dichloroethene	ND	1.0	1.0	02/04/97
1,1-Dichloroethane	ND	1.0	1.0	02/04/97
Acrylonitrile	ND	20	1.0	02/04/97
trans-1,2-Dichloroethene	ND	1.0	1.0	02/04/97
Chloroform	ND	1.0	1.0	02/04/97
1,2-Dichloroethane	ND	1.0	1.0	02/04/97
Vinyl Acetate	ND	5.0	1.0	02/04/97
cis-1,2-Dichloroethene	ND	1.0	1.0	02/04/97
2-Butanone (MEK)	ND	5.0	1.0	02/04/97
1,1,1-Trichloroethane	ND	1.0	1.0	02/04/97
Carbon Tetrachloride	ND	1.0	1.0	02/04/97
Bromodichloromethane	ND	1.0	1.0	02/04/97
1,2-Dichloropropane	ND	1.0	1.0	02/04/97
Dibromomethane	ND	1.0	1.0	02/04/97
trans-1,3-Dichloropropene	ND	1.0	1.0	02/04/97
Trichloroethene	ND	1.0	1.0	02/04/97
Chlorodibromomethane	ND	1.0	1.0	02/04/97
Ethyl Methacrylate	ND	5.0	1.0	02/04/97
2-Chloroethylvinyl Ether	ND	5.0	1.0	02/04/97
1,1,2-Trichloroethane	ND	1.0	1.0	02/04/97
Benzene	ND	1.0	1.0	02/04/97
cis-1,3-Dichloropropene	ND	1.0	1.0	02/04/97
Bromoform	ND	1.0	1.0	02/04/97
4-Methyl-2-Pentanone (MIBK)	ND	5.0	1.0	02/04/97
Tetrachloroethene	ND	1.0	1.0	02/04/97
1,1,2,2-Tetrachloroethane	ND	1.0	1.0	02/04/97
1,2-Dibromoethane	ND	1.0	1.0	02/04/97
2-Hexanone (MBK)	ND	5.0	1.0	02/04/97
1,1,1,2-Tetrachloroethane	ND	1.0	1.0	02/04/97
Toluene	ND	1.0	1.0	02/04/97
Chlorobenzene	ND	1.0	1.0	02/04/97
Ethylbenzene	ND	1.0	1.0	02/04/97
1,4-Dichloro-2-Butene	ND	10	1.0	02/04/97
Styrene	ND	1.0	1.0	02/04/97
P/M Xylene	ND	2.0	1.0	02/04/97
O-Xylene	ND	1.0	1.0	02/04/97
1,2,3-Trichloropropane	ND	1.0	1.0	02/04/97
Methyl-tert Butyl Ether	ND	1.0	1.0	02/04/97

SAMPLE ID CA94A/001-0900-012897 FRACTION 06A TEST CODE W8260 NAME VOLATILES /SW846 8260B
Date & Time Collected 01/28/97 09:00:00 Category WATER

1,2-Dichlorobenzene	ND	1.0	1.0	02/04/97
1,3-Dichlorobenzene	ND	1.0	1.0	02/04/97
1,4-Dichlorobenzene	ND	1.0	1.0	02/04/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST LT
FILE ID MSV0335.D
UNITS ug/L
BATCH_ID WMSVOA511
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/001-0900-012897 FRACTION 06C TEST CODE W8270 NAME SVOA WATER/SW846 8270B

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	10	1.7	02/04/97
Pyridine	ND	10	1.7	02/04/97
Aniline	ND	10	1.7	02/04/97
bis(2-Chloroethyl) Ether	ND	1.0	1.7	02/04/97
2-Chlorophenol	ND	1.0	1.7	02/04/97
1,3-Dichlorobenzene	ND	1.0	1.7	02/04/97
1,4-Dichlorobenzene	ND	1.0	1.7	02/04/97
Phenol	ND	10	1.7	02/04/97
1,2-Dichlorobenzene	ND	1.0	1.7	02/04/97
Benzyl Alcohol	ND	50	1.7	02/04/97
bis(2-Chloroisopropyl) Ether	ND	1.0	1.7	02/04/97
2-Methylphenol / O-Cresol	ND	1.0	1.7	02/04/97
Hexachloroethane	ND	1.0	1.7	02/04/97
n-Nitroso-di-n-propylamine	ND	1.0	1.7	02/04/97
Nitrobenzene	ND	1.0	1.7	02/04/97
3/4 Methylphenol / M/P-Cresol	54	1.0	1.7	02/04/97
Isophorone	ND	1.0	1.7	02/04/97
2-Nitrophenol	ND	10	1.7	02/04/97
bis(2-Chloroethoxy) Methane	ND	1.0	1.7	02/04/97
2,4-Dimethylphenol	ND	1.0	1.7	02/04/97
1,2,4-Trichlorobenzene	ND	1.0	1.7	02/04/97
Naphthalene	ND	1.0	1.7	02/04/97
Benzoic Acid	ND	100	1.7	02/04/97
2,4-Dichlorophenol	ND	10	1.7	02/04/97
4-Chloroaniline	ND	10	1.7	02/04/97
Hexachlorobutadiene	ND	1.0	1.7	02/04/97
2-Methylnaphthalene	ND	1.0	1.7	02/04/97
4-Chloro-3-methylphenol	ND	10	1.7	02/04/97
Hexachlorocyclopentadiene	ND	50	1.7	02/04/97
2,4,6-Trichlorophenol	ND	10	1.7	02/04/97
2,4,5-Trichlorophenol	ND	10	1.7	02/04/97
2-Chloronaphthalene	ND	1.0	1.7	02/04/97
2-Nitroaniline	ND	10	1.7	02/04/97
Acenaphthylene	ND	1.0	1.7	02/04/97
Dimethylphthalate	ND	1.0	1.7	02/04/97
2,6-Dinitrotoluene	ND	10	1.7	02/04/97
Acenaphthene	ND	1.0	1.7	02/04/97
3-Nitroaniline	ND	10	1.7	02/04/97
Dibenzofuran	ND	1.0	1.7	02/04/97
2,4-Dinitrotoluene	ND	10	1.7	02/04/97
Fluorene	ND	1.0	1.7	02/04/97
4-Chlorophenyl-phenylether	ND	1.0	1.7	02/04/97
Diethylphthalate	ND	1.0	1.7	02/04/97
4-Nitrophenol	ND	20	1.7	02/04/97
4,6-Dinitro-2-methylphenol	ND	10	1.7	02/04/97
n-Nitrosodiphenylamine	ND	1.0	1.7	02/04/97
4-Nitroaniline	ND	10	1.7	02/04/97
4-Bromophenyl-phenylether	ND	1.0	1.7	02/04/97
Hexachlorobenzene	ND	1.0	1.7	02/04/97
Pentachlorophenol	ND	20	1.7	02/04/97

REPORT
Results by Sample

Work Order # 97-01-224
Continued From Above

SAMPLE ID CA94A/001-0900-012897 FRACTION 06C TEST CODE W8270 NAME SVOA WATER/SW846 8270B
Date & Time Collected 01/28/97 09:00:00 Category WATER

2,4-Dinitrophenol	ND	50	1.7	02/04/97
Phenanthrene	ND	1.0	1.7	02/04/97
Anthracene	ND	1.0	1.7	02/04/97
Di-n-butylphthalate	ND	10	1.7	02/04/97
Fluoranthene	ND	1.0	1.7	02/04/97
Pyrene	ND	1.0	1.7	02/04/97
Butylbenzylphthalate	5.5	1.0	1.7	02/04/97
Benzo(a)anthracene	ND	1.0	1.7	02/04/97
Chrysene	ND	1.0	1.7	02/04/97
3,3'-Dichlorobenzidine	ND	10	1.7	02/04/97
bis(2-Ethylhexyl)phthalate	17	10	1.7	02/04/97
Di-n-octyl phthalate	ND	10	1.7	02/04/97
Benzo(b)+(k)fluoranthene	ND	1.0	1.7	02/04/97
1-Methylnaphthalene	ND	1.0	1.7	02/04/97
Benzo(a)pyrene	ND	1.0	1.7	02/04/97
Indeno(1,2,3-cd)pyrene	ND	10	1.7	02/04/97
Benzo(g,h,i)perylene	ND	10	1.7	02/04/97
2,3,4,6-Tetrachlorophenol	ND	50	1.7	02/04/97
Azobenzene	ND	1.0	1.7	02/04/97
Dibenz(a,h)anthracene	ND	10	1.7	02/04/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0155.D
UNITS ug/L
BATCH_ID WMSSVOA180
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/001-0900-012897 FRACTION 06E TEST CODE WCVHG NAME MERCURY (CVAA)/EPA 245.1

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.00020	1.0	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/L

BATCH_ID M9784

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/001-0900-012897 FRACTION 06E TEST CODE WFAAPB NAME LEAD (FAA)/EPA 239.1

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Lead, Pb	ND	0.10	1.0	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/L

BATCH_ID M9782

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/001-0900-012897 FRACTION 06B TEST CODE WFLASH NAME FLASH POINT/SW846 1010

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Flash Point	> 60	20	1.0	02/26/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS Deg Centigrade

BATCH_ID WFLASH203

COMMENTS

Received: 01/29/97

Results by Sample

SAMPLE ID CA94A/001-0900-012897 FRACTION 06C TEST CODE WPH NAME pH/EPA 150.1

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
pH	7.2*	0.10	1.0	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS pH Units

BATCH_ID WPH472

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/001-0900-012897 FRACTION 06B TEST CODE WREACT NAME REACTIVITY/SW846 7-3

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Sulfide	NON REACT	500	1.0	02/25/97
Cyanide	NON-REACT	250	1.0	02/25/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS mg/Kg of Waste

BATCH_ID W9787

COMMENTS

Received: 01/29/97

Results by Sample

SAMPLE ID CA94A/001-0900-012897 FRACTION 06D TEST CODE WTRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 09:00:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	0.4E*	0.10	1.0	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/L

BATCH_ID W9783

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/002-0915-012897 FRACTION 07C TEST CODE 8260 NAME VOLATILES/SW846 8260

Date & Time Collected 01/28/97 09:15:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	0.010	100	02/10/97
Chloromethane	ND	0.0050	100	02/10/97
Iodomethane	ND	0.0050	100	02/10/97
Acetone	ND	0.0050	100	02/10/97
Bromomethane	ND	0.0050	100	02/10/97
Vinyl Chloride	ND	0.0050	100	02/10/97
Chloroethane	ND	0.0050	100	02/10/97
Trichlorofluoromethane	ND	0.0050	100	02/10/97
Freon 113	ND	0.0050	100	02/10/97
Carbon Disulfide	ND	0.0050	100	02/10/97
Acrolein	ND	0.020	100	02/10/97
Methylene Chloride	ND	0.010	100	02/10/97
1,1-Dichloroethene	ND	0.0010	100	02/10/97
1,1-Dichloroethane	ND	0.0010	100	02/10/97
Acrylonitrile	ND	0.020	100	02/10/97
trans-1,2-Dichloroethene	ND	0.0010	100	02/10/97
Chloroform	ND	0.0010	100	02/10/97
1,2-Dichloroethane	ND	0.0010	100	02/10/97
Vinyl Acetate	ND	0.0050	100	02/10/97
cis-1,2-Dichloroethene	ND	0.0010	100	02/10/97
2-Butanone (MEK)	ND	0.0050	100	02/10/97
1,1,1-Trichloroethane	ND	0.0010	100	02/10/97
Carbon Tetrachloride	ND	0.0010	100	02/10/97
Bromodichloromethane	ND	0.0010	100	02/10/97
1,2-Dichloropropane	ND	0.0010	100	02/10/97
Dibromomethane	ND	0.0010	100	02/10/97
trans-1,3-Dichloropropene	ND	0.0010	100	02/10/97
Trichloroethene	ND	0.0010	100	02/10/97
Chlorodibromomethane	ND	0.0010	100	02/10/97
Ethyl Methacrylate	ND	0.0050	100	02/10/97
2-Chloroethylvinyl Ether	ND	0.0050	100	02/10/97
1,1,2-Trichloroethane	ND	0.0010	100	02/10/97
Benzene	ND	0.0010	100	02/10/97
cis-1,3-Dichloropropene	ND	0.0010	100	02/10/97
Bromoform	ND	0.0010	100	02/10/97
4-Methyl-2-Pentanone (MIBK)	ND	0.0050	100	02/10/97
Tetrachloroethene	ND	0.0010	100	02/10/97
1,1,2,2-Tetrachloroethane	ND	0.0010	100	02/10/97
1,2-Dibromoethane	ND	0.0010	100	02/10/97
2-Hexanone (MBK)	ND	0.0050	100	02/10/97
1,1,1,2-Tetrachloroethane	ND	0.0010	100	02/10/97
Toluene	ND	0.0010	100	02/10/97
Chlorobenzene	ND	0.0010	100	02/10/97
Ethylbenzene	ND	0.0010	100	02/10/97
1,4-Dichloro-2-Butene	ND	0.010	100	02/10/97
Styrene	ND	0.0010	100	02/10/97
P/M Xylene	ND	0.0020	100	02/10/97
O-Xylene	ND	0.0010	100	02/10/97
1,2,3-Trichloropropane	ND	0.0010	100	02/10/97
Methyl-tert Butyl Ether	ND	0.010	100	02/10/97

REPORT
Results by Sample

Work Order # 97-01-224
Continued From Above

SAMPLE ID CA94A/002-0915-012897 FRACTION 07C TEST CODE 8260 NAME VOLATILES/SW846 8260
Date & Time Collected 01/28/97 09:15:00 Category SOLID

1,2-Dichlorobenzene	ND	0.0010	100	02/10/97
1,3-Dichlorobenzene	ND	0.0010	100	02/10/97
1,4-Dichlorobenzene	ND	0.0010	100	02/10/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST LT
FILE ID MSV0402.D
UNITS mg/Kg
BATCH_ID SMSVOA427
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/002-0915-012897 FRACTION 07A TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B

Date & Time Collected 01/28/97 09:15:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	1.0	1.6	02/11/97
Pyridine	ND	10	1.6	02/11/97
Aniline	ND	10	1.6	02/11/97
bis(2-Chloroethyl) Ether	ND	0.50	1.6	02/11/97
2-Chlorophenol	ND	0.50	1.6	02/11/97
1,3-Dichlorobenzene	ND	0.50	1.6	02/11/97
1,4-Dichlorobenzene	ND	0.50	1.6	02/11/97
Phenol	ND	0.50	1.6	02/11/97
1,2-Dichlorobenzene	ND	0.50	1.6	02/11/97
Benzyl Alcohol	ND	10	1.6	02/11/97
bis(2-Chloroisopropyl) Ether	ND	1.0	1.6	02/11/97
2-Methylphenol / O-Cresol	ND	0.50	1.6	02/11/97
Hexachloroethane	ND	0.50	1.6	02/11/97
n-Nitroso-di-n-propylamine	ND	0.50	1.6	02/11/97
Nitrobenzene	ND	0.50	1.6	02/11/97
3/4 Methylphenol / M/P-Cresol	ND	0.50	1.6	02/11/97
Isophorone	ND	0.50	1.6	02/11/97
2-Nitrophenol	ND	1.0	1.6	02/11/97
bis(2-Chloroethoxy) Methane	ND	0.50	1.6	02/11/97
2,4-Dimethylphenol	ND	1.0	1.6	02/11/97
1,2,4-Trichlorobenzene	ND	0.50	1.6	02/11/97
Naphthalene	ND	0.50	1.6	02/11/97
Benzoic Acid	ND	10	1.6	02/11/97
2,4-Dichlorophenol	ND	1.0	1.6	02/11/97
4-Chloroaniline	ND	10	1.6	02/11/97
Hexachlorobutadiene	ND	0.50	1.6	02/11/97
2-Methylnaphthalene	ND	0.50	1.6	02/11/97
4-Chloro-3-methylphenol	ND	0.50	1.6	02/11/97
Hexachlorocyclopentadiene	ND	10	1.6	02/11/97
2,4,6-Trichlorophenol	ND	1.0	1.6	02/11/97
2,4,5-Trichlorophenol	ND	1.0	1.6	02/11/97
2-Chloronaphthalene	ND	0.50	1.6	02/11/97
2-Nitroaniline	ND	1.0	1.6	02/11/97
Acenaphthylene	ND	0.50	1.6	02/11/97
Dimethylphthalate	ND	0.50	1.6	02/11/97
2,6-Dinitrotoluene	ND	1.0	1.6	02/11/97
Acenaphthene	ND	0.50	1.6	02/11/97
3-Nitroaniline	ND	10	1.6	02/11/97
Dibenzofuran	ND	0.50	1.6	02/11/97
2,4-Dinitrotoluene	ND	2.5	1.6	02/11/97
Fluorene	ND	0.50	1.6	02/11/97
4-Chlorophenyl-phenylether	ND	0.50	1.6	02/11/97
Diethylphthalate	ND	0.50	1.6	02/11/97
4-Nitrophenol	ND	10	1.6	02/11/97
4,6-Dinitro-2-methylphenol	ND	10	1.6	02/11/97
n-Nitrosodiphenylamine	ND	0.50	1.6	02/11/97
4-Nitroaniline	ND	10	1.6	02/11/97
4-Bromophenyl-phenylether	ND	0.50	1.6	02/11/97
Hexachlorobenzene	ND	0.50	1.6	02/11/97
Pentachlorophenol	ND	10	1.6	02/11/97

SAMPLE ID CA94A/002-0915-012897 FRACTION 07A TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B
Date & Time Collected 01/28/97 09:15:00 Category SOLID

2,4-Dinitrophenol	ND	10	1.6	02/11/97
Phenanthrene	ND	0.50	1.6	02/11/97
Anthracene	ND	0.50	1.6	02/11/97
Di-n-butylphthalate	9.2B	5.0	1.6	02/11/97
Fluoranthene	0.82	0.50	1.6	02/11/97
Pyrene	ND	0.50	1.6	02/11/97
Butylbenzylphthalate	ND	0.50	1.6	02/11/97
Benzo(a)anthracene	ND	0.50	1.6	02/11/97
Chrysene	ND	0.50	1.6	02/11/97
3,3'-Dichlorobenzidine	ND	10	1.6	02/11/97
bis(2-Ethylhexyl)phthalate	ND	2.5	1.6	02/11/97
Di-n-octyl phthalate	ND	0.50	1.6	02/11/97
Benzo(b)+(k)fluoranthene	ND	0.50	1.6	02/11/97
1-Methylnaphthalene	ND	1.0	1.6	02/11/97
Benzo(a)pyrene	ND	0.50	1.6	02/11/97
Indeno(1,2,3-cd)pyrene	ND	1.0	1.6	02/11/97
Benzo(g,h,i)perylene	ND	1.0	1.6	02/11/97
2,3,4,6-Tetrachlorophenol	ND	2.5	1.6	02/11/97
Azobenzene	ND	1.0	1.6	02/11/97
Dibenz(a,h)anthracene	ND	1.0	1.6	02/11/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0246.D
UNITS mg/Kg
BATCH_ID SMSSVOA141
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/002-0915-012897 FRACTION 07B TEST CODE S6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 09:15:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	01/31/97	01/31/97
Arsenic, As	ND	3.0	1.0	01/31/97	01/31/97
Barium, Ba	183	0.50	1.0	01/31/97	01/31/97
Cadmium, Cd	1.42	0.20	1.0	01/31/97	01/31/97
Chromium, Cr	50.5	1.0	1.0	01/31/97	01/31/97
Lead, Pb	278	2.0	1.0	01/31/97	01/31/97
Selenium, Se	ND	2.5	1.0	01/31/97	01/31/97

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/Kg

BATCH_ID M9785

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/002-0915-012897 FRACTION 07B TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471

Date & Time Collected 01/28/97 09:15:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.15	1.0	02/06/97	02/06/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M97100

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/002-0915-012897 FRACTION 07B TEST CODE SFLASH NAME FLASH POINT/SW846 1010

Date & Time Collected 01/28/97 09:15:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Flash Point	>60	20	1.0	02/05/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST BP

UNITS Deg Centigrade

BATCH_ID SFLASH218

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/002-0915-012897 FRACTION 07B TEST CODE SPH NAME pH/SW846 9045B

Date & Time Collected 01/28/97 09:15:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
pH	7.4	0.10	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS pH Units

BATCH_ID SPH252

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/002-0915-012897 FRACTION 07B TEST CODE SREACT NAME REACTIVITY/SW846 7-3

Date & Time Collected 01/28/97 09:15:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Sulfide	NON-REACT	500	1.0	02/13/97
Cyanide	NON-REACT	250	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS mg/Kg of Waste

BATCH_ID W9766

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94A/002-0915-012897 FRACTION 07D TEST CODE STRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 09:15:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	1080E*	5.0	50	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/Kg

BATCH_ID W9776

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05E TEST CODE W6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	0.020	1.0	02/03/97	02/03/97
Arsenic, As	ND	0.060	1.0	01/30/97	01/31/97
Barium, Ba	0.02	0.010	1.0	02/03/97	02/03/97
Cadmium, Cd	ND	0.0040	1.0	01/30/97	01/31/97
Chromium, Cr	ND	0.020	1.0	02/03/97	02/03/97
Lead, Pb	NT	0.040	1.0		
Selenium, Se	ND	0.050	1.0	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/L

BATCH_ID M9782,M9788

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05A TEST CODE W8260 NAME VOLATILES /SW846 8260B

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	10	1.0	02/04/97
Chloromethane	ND	5.0	1.0	02/04/97
Iodomethane	ND	5.0	1.0	02/04/97
Acetone	65	5.0	1.0	02/04/97
Bromomethane	ND	5.0	1.0	02/04/97
Vinyl Chloride	ND	5.0	1.0	02/04/97
Chloroethane	ND	5.0	1.0	02/04/97
Trichlorofluoromethane	ND	5.0	1.0	02/04/97
Freon 113	ND	5.0	1.0	02/04/97
Carbon Disulfide	9.9	5.0	1.0	02/04/97
Acrolein	ND	20	1.0	02/04/97
Methylene Chloride	ND	10	1.0	02/04/97
1,1-Dichloroethene	ND	1.0	1.0	02/04/97
1,1-Dichloroethane	ND	1.0	1.0	02/04/97
Acrylonitrile	ND	20	1.0	02/04/97
trans-1,2-Dichloroethene	ND	1.0	1.0	02/04/97
Chloroform	ND	1.0	1.0	02/04/97
1,2-Dichloroethane	ND	1.0	1.0	02/04/97
Vinyl Acetate	ND	5.0	1.0	02/04/97
cis-1,2-Dichloroethene	ND	1.0	1.0	02/04/97
2-Butanone (MEK)	ND	5.0	1.0	02/04/97
1,1,1-Trichloroethane	ND	1.0	1.0	02/04/97
Carbon Tetrachloride	ND	1.0	1.0	02/04/97
Bromodichloromethane	ND	1.0	1.0	02/04/97
1,2-Dichloropropane	ND	1.0	1.0	02/04/97
Dibromomethane	1.1	1.0	1.0	02/04/97
trans-1,3-Dichloropropene	ND	1.0	1.0	02/04/97
Trichloroethene	ND	1.0	1.0	02/04/97
Chlorodibromomethane	1.1	1.0	1.0	02/04/97
Ethyl Methacrylate	ND	5.0	1.0	02/04/97
2-Chloroethylvinyl Ether	ND	5.0	1.0	02/04/97
1,1,2-Trichloroethane	ND	1.0	1.0	02/04/97
Benzene	ND	1.0	1.0	02/04/97
cis-1,3-Dichloropropene	ND	1.0	1.0	02/04/97
Bromoform	4.9	1.0	1.0	02/04/97
4-Methyl-2-Pentanone (MIBK)	ND	5.0	1.0	02/04/97
Tetrachloroethene	ND	1.0	1.0	02/04/97
1,1,2,2-Tetrachloroethane	ND	1.0	1.0	02/04/97
1,2-Dibromoethane	ND	1.0	1.0	02/04/97
2-Hexanone (MBK)	ND	5.0	1.0	02/04/97
1,1,1,2-Tetrachloroethane	ND	1.0	1.0	02/04/97
Toluene	2.2	1.0	1.0	02/04/97
Chlorobenzene	ND	1.0	1.0	02/04/97
Ethylbenzene	ND	1.0	1.0	02/04/97
1,4-Dichloro-2-Butene	ND	10	1.0	02/04/97
Styrene	ND	1.0	1.0	02/04/97
P/M Xylene	3.4	2.0	1.0	02/04/97
O-Xylene	2.0	1.0	1.0	02/04/97
1,2,3-Trichloropropane	ND	1.0	1.0	02/04/97
Methyl-tert Butyl Ether	ND	1.0	1.0	02/04/97

REPORT
Results by Sample

Work Order # 97-01-224
Continued From Above

SAMPLE ID CA94B/001-0945-012897 FRACTION 05A TEST CODE W8260 NAME VOLATILES /SW846 8260B
Date & Time Collected 01/28/97 09:45:00 Category WATER

1,2-Dichlorobenzene	ND	1.0	1.0	02/04/97
1,3-Dichlorobenzene	ND	1.0	1.0	02/04/97
1,4-Dichlorobenzene	2.8	1.0	1.0	02/04/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST LT
FILE ID MSV0336.D
UNITS ug/L
BATCH_ID WMSVOA511
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05C TEST CODE W8270 NAME SVOA WATER/SW846 8270B

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	10	1.7	02/04/97
Pyridine	ND	10	1.7	02/04/97
Aniline	ND	10	1.7	02/04/97
bis(2-Chloroethyl) Ether	ND	1.0	1.7	02/04/97
2-Chlorophenol	ND	1.0	1.7	02/04/97
1,3-Dichlorobenzene	ND	1.0	1.7	02/04/97
1,4-Dichlorobenzene	ND	1.0	1.7	02/04/97
Phenol	ND	10	1.7	02/04/97
1,2-Dichlorobenzene	ND	1.0	1.7	02/04/97
Benzyl Alcohol	ND	50	1.7	02/04/97
bis(2-Chloroisopropyl) Ether	ND	1.0	1.7	02/04/97
2-Methylphenol / O-Cresol	ND	1.0	1.7	02/04/97
Hexachloroethane	ND	1.0	1.7	02/04/97
n-Nitroso-di-n-propylamine	ND	1.0	1.7	02/04/97
Nitrobenzene	ND	1.0	1.7	02/04/97
3/4 Methylphenol / M/P-Cresol	ND	1.0	1.7	02/04/97
Isophorone	ND	1.0	1.7	02/04/97
2-Nitrophenol	ND	10	1.7	02/04/97
bis(2-Chloroethoxy) Methane	ND	1.0	1.7	02/04/97
2,4-Dimethylphenol	ND	1.0	1.7	02/04/97
1,2,4-Trichlorobenzene	ND	1.0	1.7	02/04/97
Naphthalene	ND	1.0	1.7	02/04/97
Benzoic Acid	ND	100	1.7	02/04/97
2,4-Dichlorophenol	ND	10	1.7	02/04/97
4-Chloroaniline	ND	10	1.7	02/04/97
Hexachlorobutadiene	ND	1.0	1.7	02/04/97
2-Methylnaphthalene	ND	1.0	1.7	02/04/97
4-Chloro-3-methylphenol	ND	10	1.7	02/04/97
Hexachlorocyclopentadiene	ND	50	1.7	02/04/97
2,4,6-Trichlorophenol	ND	10	1.7	02/04/97
2,4,5-Trichlorophenol	ND	10	1.7	02/04/97
2-Chloronaphthalene	ND	1.0	1.7	02/04/97
2-Nitroaniline	ND	10	1.7	02/04/97
Acenaphthylene	ND	1.0	1.7	02/04/97
Dimethylphthalate	ND	1.0	1.7	02/04/97
2,6-Dinitrotoluene	ND	10	1.7	02/04/97
Acenaphthene	ND	1.0	1.7	02/04/97
3-Nitroaniline	ND	10	1.7	02/04/97
Dibenzofuran	ND	1.0	1.7	02/04/97
2,4-Dinitrotoluene	ND	10	1.7	02/04/97
Fluorene	ND	1.0	1.7	02/04/97
4-Chlorophenyl-phenylether	ND	1.0	1.7	02/04/97
Diethylphthalate	ND	1.0	1.7	02/04/97
4-Nitrophenol	ND	20	1.7	02/04/97
4,6-Dinitro-2-methylphenol	ND	10	1.7	02/04/97
n-Nitrosodiphenylamine	ND	1.0	1.7	02/04/97
4-Nitroaniline	ND	10	1.7	02/04/97
4-Bromophenyl-phenylether	ND	1.0	1.7	02/04/97
Hexachlorobenzene	ND	1.0	1.7	02/04/97
Pentachlorophenol	ND	20	1.7	02/04/97

SAMPLE ID CA94B/001-0945-012897 FRACTION 05C TEST CODE W8270 NAME SVOA WATER/SW846 8270B
Date & Time Collected 01/28/97 09:45:00 Category WATER

2,4-Dinitrophenol	ND	50	1.7	02/04/97
Phenanthrene	ND	1.0	1.7	02/04/97
Anthracene	ND	1.0	1.7	02/04/97
Di-n-butylphthalate	ND	10	1.7	02/04/97
Fluoranthene	ND	1.0	1.7	02/04/97
Pyrene	ND	1.0	1.7	02/04/97
Butylbenzylphthalate	ND	1.0	1.7	02/04/97
Benzo(a)anthracene	ND	1.0	1.7	02/04/97
Chrysene	ND	1.0	1.7	02/04/97
3,3'-Dichlorobenzidine	ND	10	1.7	02/04/97
bis(2-Ethylhexyl)phthalate	ND	10	1.7	02/04/97
Di-n-octyl phthalate	ND	10	1.7	02/04/97
Benzo(b)+(k)fluoranthene	ND	1.0	1.7	02/04/97
1-Methylnaphthalene	ND	1.0	1.7	02/04/97
Benzo(a)pyrene	ND	1.0	1.7	02/04/97
Indeno(1,2,3-cd)pyrene	ND	10	1.7	02/04/97
Benzo(g,h,i)perylene	ND	10	1.7	02/04/97
2,3,4,6-Tetrachlorophenol	ND	50	1.7	02/04/97
Azobenzene	ND	1.0	1.7	02/04/97
Dibenz(a,h)anthracene	ND	10	1.7	02/04/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0154.D
UNITS ug/L
BATCH_ID WMSSVOA180
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05E TEST CODE WCVHG NAME MERCURY (CVAA)/EPA 245.1

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.00020	1.0	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/L

BATCH_ID M9784

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05E TEST CODE WFAAPB NAME LEAD (FAA)/EPA 239.1

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Lead, Pb	ND	0.10	1.0	01/30/97	01/31/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/L

BATCH_ID M9782

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05B TEST CODE WFLASH NAME FLASH POINT/SW846 1010

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Flash Point	>60	20	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS Deg Centigrade

BATCH_ID WFLASH202

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05B TEST CODE WPH NAME pH/EPA 150.1

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
pH	7.7*	0.10	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS pH Units

BATCH_ID WPH470

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05B TEST CODE WREACT NAME REACTIVITY/SW846 7-3

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Sulfide	NON-REACT	500	1.0	02/13/97
Cyanide	NON-REACT	250	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS mg/Kg of Waste

BATCH_ID W9766

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/001-0945-012897 FRACTION 05A TEST CODE WTRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 09:45:00 Category WATER

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	13.1E*	0.10	15	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/L

BATCH_ID W9783

COMMENTS

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/002-1000-012897 FRACTION 08C TEST CODE 8260 NAME VOLATILES/SW846 8260

Date & Time Collected 01/28/97 10:00:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE
Dichlorodifluoromethane	ND	0.010	50	02/10/97
Chloromethane	ND	0.0050	50	02/10/97
Iodomethane	ND	0.0050	50	02/10/97
Acetone	ND	0.0050	50	02/10/97
Bromomethane	ND	0.0050	50	02/10/97
Vinyl Chloride	ND	0.0050	50	02/10/97
Chloroethane	ND	0.0050	50	02/10/97
Trichlorofluoromethane	ND	0.0050	50	02/10/97
Freon 113	ND	0.0050	50	02/10/97
Carbon Disulfide	ND	0.0050	50	02/10/97
Acrolein	ND	0.020	50	02/10/97
Methylene Chloride	ND	0.010	50	02/10/97
1,1-Dichloroethene	ND	0.0010	50	02/10/97
1,1-Dichloroethane	ND	0.0010	50	02/10/97
Acrylonitrile	ND	0.020	50	02/10/97
trans-1,2-Dichloroethene	ND	0.0010	50	02/10/97
Chloroform	ND	0.0010	50	02/10/97
1,2-Dichloroethane	ND	0.0010	50	02/10/97
Vinyl Acetate	ND	0.0050	50	02/10/97
cis-1,2-Dichloroethene	ND	0.0010	50	02/10/97
2-Butanone (MEK)	ND	0.0050	50	02/10/97
1,1,1-Trichloroethane	ND	0.0010	50	02/10/97
Carbon Tetrachloride	ND	0.0010	50	02/10/97
Bromodichloromethane	ND	0.0010	50	02/10/97
1,2-Dichloropropane	ND	0.0010	50	02/10/97
Dibromomethane	ND	0.0010	50	02/10/97
trans-1,3-Dichloropropene	ND	0.0010	50	02/10/97
Trichloroethene	ND	0.0010	50	02/10/97
Chlorodibromomethane	ND	0.0010	50	02/10/97
Ethyl Methacrylate	ND	0.0050	50	02/10/97
2-Chloroethylvinyl Ether	ND	0.0050	50	02/10/97
1,1,2-Trichloroethane	ND	0.0010	50	02/10/97
Benzene	ND	0.0010	50	02/10/97
cis-1,3-Dichloropropene	ND	0.0010	50	02/10/97
Bromoform	ND	0.0010	50	02/10/97
4-Methyl-2-Pentanone (MIBK)	ND	0.0050	50	02/10/97
Tetrachloroethene	ND	0.0010	50	02/10/97
1,1,2,2-Tetrachloroethane	ND	0.0010	50	02/10/97
1,2-Dibromoethane	ND	0.0010	50	02/10/97
2-Hexanone (MBK)	ND	0.0050	50	02/10/97
1,1,1,2-Tetrachloroethane	ND	0.0010	50	02/10/97
Toluene	ND	0.0010	50	02/10/97
Chlorobenzene	ND	0.0010	50	02/10/97
Ethylbenzene	ND	0.0010	50	02/10/97
1,4-Dichloro-2-Butene	ND	0.010	50	02/10/97
Styrene	ND	0.0010	50	02/10/97
P/M Xylene	ND	0.0020	50	02/10/97
O-Xylene	ND	0.0010	50	02/10/97
1,2,3-Trichloropropane	ND	0.0010	50	02/10/97
Methyl-tert Butyl Ether	ND	0.010	50	02/10/97

SAMPLE ID CA94B/002-1000-012897 FRACTION 08C TEST CODE 8260 NAME VOLATILES/SW846 8260
Date & Time Collected 01/28/97 10:00:00 Category SOLID

1,2-Dichlorobenzene	ND	0.0010	50	02/10/97
1,3-Dichlorobenzene	ND	0.0010	50	02/10/97
1,4-Dichlorobenzene	ND	0.0010	50	02/10/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST LT
FILE ID MSV0403.D
UNITS mg/Kg
BATCH_ID SMSVOA427
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/002-1000-012897 FRACTION 08A TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B

Date & Time Collected 01/28/97 10:00:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
n-Nitrosodimethylamine	ND	1.0	9.2	02/08/97
Pyridine	ND	10	9.2	02/08/97
Aniline	ND	10	9.2	02/08/97
bis(2-Chloroethyl) Ether	ND	0.50	9.2	02/08/97
2-Chlorophenol	ND	0.50	9.2	02/08/97
1,3-Dichlorobenzene	ND	0.50	9.2	02/08/97
1,4-Dichlorobenzene	ND	0.50	9.2	02/08/97
Phenol	ND	0.50	9.2	02/08/97
1,2-Dichlorobenzene	ND	0.50	9.2	02/08/97
Benzyl Alcohol	ND	10	9.2	02/08/97
bis(2-Chloroisopropyl) Ether	ND	1.0	9.2	02/08/97
2-Methylphenol / O-Cresol	ND	0.50	9.2	02/08/97
Hexachloroethane	ND	0.50	9.2	02/08/97
n-Nitroso-di-n-propylamine	ND	0.50	9.2	02/08/97
Nitrobenzene	ND	0.50	9.2	02/08/97
3/4 Methylphenol / M/P-Cresol	ND	0.50	9.2	02/08/97
Isophorone	ND	0.50	9.2	02/08/97
2-Nitrophenol	ND	1.0	9.2	02/08/97
bis(2-Chloroethoxy) Methane	ND	0.50	9.2	02/08/97
2,4-Dimethylphenol	ND	1.0	9.2	02/08/97
1,2,4-Trichlorobenzene	ND	0.50	9.2	02/08/97
Naphthalene	ND	0.50	9.2	02/08/97
Benzoic Acid	ND	10	9.2	02/08/97
2,4-Dichlorophenol	ND	1.0	9.2	02/08/97
4-Chloroaniline	ND	10	9.2	02/08/97
Hexachlorobutadiene	ND	0.50	9.2	02/08/97
2-Methylnaphthalene	ND	0.50	9.2	02/08/97
4-Chloro-3-methylphenol	ND	0.50	9.2	02/08/97
Hexachlorocyclopentadiene	ND	10	9.2	02/08/97
2,4,6-Trichlorophenol	ND	1.0	9.2	02/08/97
2,4,5-Trichlorophenol	ND	1.0	9.2	02/08/97
2-Chloronaphthalene	ND	0.50	9.2	02/08/97
2-Nitroaniline	ND	1.0	9.2	02/08/97
Acenaphthylene	ND	0.50	9.2	02/08/97
Dimethylphthalate	ND	0.50	9.2	02/08/97
2,6-Dinitrotoluene	ND	1.0	9.2	02/08/97
Acenaphthene	ND	0.50	9.2	02/08/97
3-Nitroaniline	ND	10	9.2	02/08/97
Dibenzofuran	ND	0.50	9.2	02/08/97
2,4-Dinitrotoluene	ND	2.5	9.2	02/08/97
Fluorene	ND	0.50	9.2	02/08/97
4-Chlorophenyl-phenylether	ND	0.50	9.2	02/08/97
Diethylphthalate	ND	0.50	9.2	02/08/97
4-Nitrophenol	ND	10	9.2	02/08/97
4,6-Dinitro-2-methylphenol	ND	10	9.2	02/08/97
n-Nitrosodiphenylamine	ND	0.50	9.2	02/08/97
4-Nitroaniline	ND	10	9.2	02/08/97
4-Bromophenyl-phenylether	ND	0.50	9.2	02/08/97
Hexachlorobenzene	ND	0.50	9.2	02/08/97
Pentachlorophenol	ND	10	9.2	02/08/97

REPORT
Results by Sample

Work Order # 97-01-224
Continued From Above

SAMPLE ID CA94B/002-1000-012897 FRACTION 08A TEST CODE 827SOX NAME SVOA(SOX) Soil/SW846 8270B
Date & Time Collected 01/28/97 10:00:00 Category SOLID

2,4-Dinitrophenol	ND	10	9.2	02/08/97
Phenanthrene	ND	0.50	9.2	02/08/97
Anthracene	ND	0.50	9.2	02/08/97
Di-n-butylphthalate	ND	5.0	9.2	02/08/97
Fluoranthene	ND	0.50	9.2	02/08/97
Pyrene	ND	0.50	9.2	02/08/97
Butylbenzylphthalate	6.4	0.50	9.2	02/08/97
Benzo(a)anthracene	ND	0.50	9.2	02/08/97
Chrysene	ND	0.50	9.2	02/08/97
3,3'-Dichlorobenzidine	ND	10	9.2	02/08/97
bis(2-Ethylhexyl)phthalate	ND	2.5	9.2	02/08/97
Di-n-octyl phthalate	ND	0.50	9.2	02/08/97
Benzo(b)+(k)fluoranthene	ND	0.50	9.2	02/08/97
1-Methylnaphthalene	ND	1.0	9.2	02/08/97
Benzo(a)pyrene	ND	0.50	9.2	02/08/97
Indeno(1,2,3-cd)pyrene	ND	1.0	9.2	02/08/97
Benzo(g,h,i)perylene	ND	1.0	9.2	02/08/97
2,3,4,6-Tetrachlorophenol	ND	2.5	9.2	02/08/97
Azobenzene	ND	1.0	9.2	02/08/97
Dibenz(a,h)anthracene	ND	1.0	9.2	02/08/97

Notes and Definitions for this Report:

EXTRACTED
ANALYST DH
FILE ID MSS0231.D
UNITS mg/Kg
BATCH_ID SMSSVOA141
PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/002-1000-012897 FRACTION 08B TEST CODE S6010R NAME RCRA METALS-ICP/SW846 6010

Date & Time Collected 01/28/97 10:00:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	01/31/97	01/31/97
Arsenic, As	ND	3.0	1.0	01/31/97	01/31/97
Barium, Ba	103	0.50	1.0	01/31/97	01/31/97
Cadmium, Cd	ND	0.20	1.0	01/31/97	01/31/97
Chromium, Cr	16.6	1.0	1.0	01/31/97	01/31/97
Lead, Pb	38.8	2.0	1.0	01/31/97	01/31/97
Selenium, Se	ND	2.5	1.0	01/31/97	01/31/97

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/Kg

BATCH_ID M9785

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/002-1000-012897 FRACTION 08B TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471

Date & Time Collected 01/28/97 10:00:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	ND	0.15	1.0	02/06/97	02/06/97

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M97100

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/002-1000-012897 FRACTION 08B TEST CODE SFLASH NAME FLASH POINT/SW846 1010

Date & Time Collected 01/28/97 10:00:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Flash Point	>60	20	1.0	02/05/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST BP

UNITS Deg Centigrade

BATCH_ID SFLASH218

PRCNT_MOIST

Received: 01/29/97

REPORT

Results by Sample

Work Order # 97-01-224

SAMPLE ID CA94B/002-1000-012897 FRACTION 08B TEST CODE SPH NAME pH/SW846 9045B

Date & Time Collected 01/28/97 10:00:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
pH	8.3	0.10	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS pH Units

BATCH_ID SPH252

COMMENTS

Received: 01/29/97

Results by Sample

SAMPLE ID CA94B/002-1000-012897 FRACTION 08B TEST CODE SREACT NAME REACTIVITY/SW846 7-3

Date & Time Collected 01/28/97 10:00:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Sulfide	NON-REACT	500	1.0	02/13/97
Cyanide	NON-REACT	250	1.0	02/13/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST CJ

UNITS mg/Kg of Waste

BATCH_ID W9766

COMMENTS

Received: 01/29/97 Results by Sample

SAMPLE ID CA94B/002-1000-012897 FRACTION 08D TEST CODE STRPH NAME TRPH/EPA 418.1

Date & Time Collected 01/28/97 10:00:00 Category SOLID

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Total Petroleum HCs	11500E*	5.0	250	02/18/97

Notes and Definitions for this Report:

EXTRACTED

ANALYST MV

UNITS mg/Kg

BATCH_ID W9776

PRCNT_MOIST

ASSAIGAI ANALYTICAL LABORATORIES

Chain of Custody Record

7300 JEFFERSON, N.E.
ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab Job no.: 1624 Date [illegible]

Page 1 of 2

Client: USACE

Address: 4101 Jefferson NE

City / State / Zip: Alb NM 87109

Project Name / Number: [illegible]

Contract / Purchase Order / Quote:

Project Manager / Contact: [illegible]

Telephone No.: [illegible]

Fax No.: [illegible]

Samplers: (Signature) [illegible]

Analysis Required

A.A.L. Fraction Number	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
5A	CA[illegible]	[illegible]	[illegible]	[illegible]	2 [illegible]	[illegible]	[illegible]	2	1									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3 [illegible] Amber	[illegible]	—	3		1			1	1				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 TC Amber	[illegible]	[illegible]	1										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 [illegible]	[illegible]	[illegible]	1			1							
[illegible]	CA[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	1									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] 16 Amber	4C	—	3										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] Amber	[illegible]	[illegible]	1										
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1-500 [illegible]	4C	[illegible]	1			1							
7A	CA[illegible]	[illegible]	1115	[illegible]	2 Poly Jars	4C	—	2		1	1		1					
[illegible]	CA[illegible]	[illegible]	1115	[illegible]	2 Poly Jar	4C	—	2	1			1						
[illegible]	CA[illegible]	[illegible]	[illegible]	[illegible]	2 Poly Jar	4C	[illegible]	2		1	1		1					
[illegible]	CA[illegible]	[illegible]	[illegible]	[illegible]	2 [illegible]	4C	[illegible]	2	1									

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	[illegible]	Signature: [illegible]	Signature:		Signature:
Printed: TRINA JORDAN	Time: 1540	Printed:	Printed:	Time:	Printed:
Company: USACE		Company: [illegible]	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.:

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

[illegible]

ASSAIGAI ANALYTICAL LABORATORIES

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(505) 345-8964

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(915) 570-1116

MELQUIADES ALANIS
6411 LOCAL UNO
CIUDAD JUAREZ, CHIHUAHUA MEXICO 32320

Lab job no.: 1224 Date

Page 2 of 2

Client: [illegible]

Project Manager / Contact: [illegible]

Address: 4101 Jefferson Pl [illegible]

Telephone No.: [illegible]

City / State / Zip: [illegible]

Fax No.: [illegible]

Project Name / Number: [illegible]

Samplers: *(Signature)* [illegible]

Contract / Purchase Order / Quote

Analysis Required

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers										Remarks
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]										
[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]										

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature: [illegible]	[illegible]	Signature: [illegible]	Signature:		Signature:
Printed: [illegible]	Time	Printed:	Printed:	Time	Printed:
Company: [illegible]	1540	Company: [illegible]	Company:		Company:
Reason: ANALYSIS		Reason:	Reason:		Reason:

Method of Shipment:

Shipment No.

Special Instructions:

Comments:

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

CUSTOMER

12

ANALYTICA
ENVIRONMENTAL
LABORATORIES
an Analytica Group company

325 Interlocken Parkway
Suite 200
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(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

USAED, Albuquerque
Attn: ENGR-PLNG Division
4101 Jefferson Plaza NE.
Albuquerque, NM 87109-3435
Attn: Brian Jordan

Order #: 96-09-093
Date: 09/30/96 20:26
Work ID: Cannon OWS DACW47-96-P-0246
Date Received: 09/14/96
Date Completed: 09/30/96

SAMPLE IDENTIFICATION

Sample Number	Client Description
01	CA11/002-96-0912-0945
02	CA92/002-96-0912-1045
03	CA07/001-96-0911-1535
04	CA11/001-96-0912-09:40
05	CA92/001-96-0912-10:40
06	Trip Blank
07	CA112/001-96-0911-1355
08	CA33B/001-96-0911-1450
09	CA07/002-96-0911-1540
10	Trip Blank

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. A listing of data qualifiers and analytical codes is located on the TEST METHODOLOGIES page at the end of the report.

If you have any questions regarding the analyses, please feel free to call.

Sincerely,

J. D. Robinson
Project Manager

Samples were prepared and analyzed according to methods outlined in the following references:

- o Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publications SW-846 [Third Edition (September, 1986), as amended by Revision 3 (January, 1995)]
- o Solid and waste samples are reported on a "dry weight" basis, i.e. correction is made for moisture content.

Problems encountered with the analyses are discussed in the following narrative.

Sample CA92/002-96-0912-1044 is reported with a surrogate standard recovery outside quality control limits for the 8260 analysis. The internal standard area recoveries were also below QC limits. This is due to sample matrix and was verified in a secondary analysis.

The 8270 semivolatile analyses for the following samples are reported with internal standard area recoveries below the QC limits:

CA11/002-96-0911
CA7/001-96-0911
CA92/001-96-0912-10:40
CA112/001-96-0911-1355

These results are due to sample matrix and were verified in secondary analyses.

The 8270 semivolatile analyses for the following samples are reported with surrogate standard recoveries outside QC limits:

CA11/002-96-0912-0945 (one base/neutral surrogate)
CA07/001-96-0911-1535 (two acid surrogates and one base/neutral suurogate)

Analytica's quality assurance plan allows for one acid surrogate and one base/neutral surrogate standard to be outside quality control windows and still be of acceptable quality control. This emulates the EPA CLP quality assurance guidelines. These results were verified in secondary analyses.

The 8270 matrix spike/matrix spike duplicate results for samples CA92/001-96-0912-10:40 and CA112/001-96-0911-1355 are reported with some of the spike compound recoveries below QC limits. These results were also confirmed in secondary analyses and are attributable to sample matrix. The associated method blank spike recoveries are all within acceptance limits.

The 8270 soil method blank is reported with target analyte Di-n-butylphthalate above reporting limit. This is due to laboratory contamination in the method 3540 soxhlet extraction process. Mr. Brian Jordan of the USACE has been notified of this problem for prior projects where this extraction method was requested. Analytica is actively pursuing the source of this contamination. The reported phthalate ester target compounds should be looked at as possible laboratory contamination sources.

Sample: **07A** **CA112/001-96-0911-1355** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Cyanide, Reactive	SW 7.3.3.2	ND		0.050	mg/Kg	09/26/96
Ignitability	EPA 1010	>200		35	Deg F/1atm	09/25/96
Sulfide, Reactive	SW 7.3.4.2	ND		16	mg/Kg	09/26/96
pH	EPA 150.1	7.8		0.10	pH units	09/18/96

Sample: 07B CA112/001-96-0911-1355 Collected: 09/11/96 Matrix: WATER

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260					
Dichlorodifluoromethane		ND		10	ug/L	09/24/96
Chloromethane		ND		10	ug/L	09/24/96
Vinyl Chloride		ND		2.0	ug/L	09/24/96
Bromomethane		ND		10	ug/L	09/24/96
Chloroethane		ND		10	ug/L	09/24/96
Trichlorofluoromethane		ND		10	ug/L	09/24/96
1,1-Dichloroethene		ND		5.0	ug/L	09/24/96
Trichlorotrifluoroethane		ND		3.0	ug/L	09/24/96
Methylene Chloride		ND		10	ug/L	09/24/96
trans-1,2-Dichloroethene		ND		3.0	ug/L	09/24/96
1,1-Dichloroethane		ND		5.0	ug/L	09/24/96
2,2-Dichloropropane		ND		5.0	ug/L	09/24/96
cis-1,2-Dichloroethene		ND		3.0	ug/L	09/24/96
Bromochloromethane		ND		5.0	ug/L	09/24/96
Chloroform		ND		3.0	ug/L	09/24/96
1,1,1-Trichloroethane		ND		5.0	ug/L	09/24/96
Carbon Tetrachloride		ND		10	ug/L	09/24/96
1,1-Dichloropropene		ND		5.0	ug/L	09/24/96
Benzene		ND		1.0	ug/L	09/24/96
1,2-Dichloroethane		ND		5.0	ug/L	09/24/96
Trichloroethene		ND		3.0	ug/L	09/24/96
1,2-Dichloropropane		ND		3.0	ug/L	09/24/96
Dibromomethane		ND		3.0	ug/L	09/24/96
Bromodichloromethane		ND		3.0	ug/L	09/24/96
cis-1,3-Dichloropropene		ND		3.0	ug/L	09/24/96
Toluene		ND		1.0	ug/L	09/24/96
trans-1,3-Dichloropropene		ND		5.0	ug/L	09/24/96
1,1,2-Trichloroethane		ND		3.0	ug/L	09/24/96
Tetrachloroethene		ND		3.0	ug/L	09/24/96
1,3-Dichloropropane		ND		3.0	ug/L	09/24/96
Dibromochloromethane		ND		3.0	ug/L	09/24/96
1,2-Dibromoethane		ND		3.0	ug/L	09/24/96
Chlorobenzene		ND		3.0	ug/L	09/24/96
Ethylbenzene		ND		1.0	ug/L	09/24/96
1,1,1,2-Tetrachloroethane		ND		3.0	ug/L	09/24/96
m,p-Xylenes		ND		1.0	ug/L	09/24/96
o-Xylene		ND		1.0	ug/L	09/24/96
Styrene		ND		3.0	ug/L	09/24/96
Bromoform		ND		5.0	ug/L	09/24/96
Isopropylbenzene		ND		2.0	ug/L	09/24/96
Bromobenzene		ND		3.0	ug/L	09/24/96
n-Propylbenzene		ND		5.0	ug/L	09/24/96
1,1,2,2-Tetrachloroethane		ND		5.0	ug/L	09/24/96
1,2,3-Trichloropropane		ND		3.0	ug/L	09/24/96
2-Chlorotoluene		ND		1.0	ug/L	09/24/96
1,3,5-Trimethylbenzene		ND		5.0	ug/L	09/24/96
4-Chlorotoluene		ND		1.0	ug/L	09/24/96

Sample: **07B** **CA112/001-96-0911-1355** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Volatiles by GC/MS	SW 8260	(continued from previous page)				
tert-Butylbenzene		ND		5.0	ug/L	09/24/96
1,2,4-Trimethylbenzene		ND		5.0	ug/L	09/24/96
sec-Butylbenzene		ND		5.0	ug/L	09/24/96
4-Isopropyltoluene		ND		5.0	ug/L	09/24/96
1,3-Dichlorobenzene		ND		2.0	ug/L	09/24/96
1,4-Dichlorobenzene		ND		2.0	ug/L	09/24/96
n-Butylbenzene		ND		5.0	ug/L	09/24/96
1,2-Dichlorobenzene		ND		5.0	ug/L	09/24/96
1,2-Dibromo-3-chloropropane		ND		10	ug/L	09/24/96
1,2,4-Trichlorobenzene		ND		5.0	ug/L	09/24/96
Hexachlorobutadiene		ND		5.0	ug/L	09/24/96
Napthalene		ND		5.0	ug/L	09/24/96
1,2,3-Trichlorobenzene		ND		5.0	ug/L	09/24/96
Acetone		ND		50	ug/L	09/24/96
Acrylonitrile		ND		10	ug/L	09/24/96
2-Butanone		ND		50	ug/L	09/24/96
Carbon Disulfide		ND		5.0	ug/L	09/24/96
trans-1,4-Dichloro-2-butene		ND		10	ug/L	09/24/96
2-Chloroethyl Vinyl Ether		ND		10	ug/L	09/24/96
2-Hexanone		ND		20	ug/L	09/24/96
Iodomethane		ND		5.0	ug/L	09/24/96
4-Methyl-2-pentanone		ND		20	ug/L	09/24/96
Vinyl Acetate		ND		5.0	ug/L	09/24/96
tert-Butyl methyl ether		ND		5.0	ug/L	09/24/96
SURROGATES, % Recovery						
1,2-Dichloroethane-d4		84.0		Min:	80	Max: 120
Toluene d-8		110		Min:	88	Max: 110
p-Bromofluorobenzene		102		Min:	86	Max: 115

Sample: **07DQ CA112/001-96-0911-1355** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A					
Phenol		ND		50	ug/L	09/26/96
bis(2-Chloroethyl) ether		ND		50	ug/L	09/26/96
2-Chlorophenol		ND		50	ug/L	09/26/96
1,3-Dichlorobenzene		ND		50	ug/L	09/26/96
1,4-Dichlorobenzene		ND		50	ug/L	09/26/96
Benzyl alcohol		ND		100	ug/L	09/26/96
1,2-Dichlorobenzene		ND		50	ug/L	09/26/96
2-Methylphenol		ND		50	ug/L	09/26/96
bis(2-Chloroisopropyl) ether		ND		50	ug/L	09/26/96
4-Methylphenol		ND		50	ug/L	09/26/96
n-Nitroso-di-n-propylamine		ND		50	ug/L	09/26/96
Hexachloroethane		ND		50	ug/L	09/26/96
Nitrobenzene		ND		50	ug/L	09/26/96
Isophorone		ND		50	ug/L	09/26/96
2-Nitrophenol		ND		50	ug/L	09/26/96
2,4-Dimethylphenol		ND		50	ug/L	09/26/96
Benzoic acid		ND		250	ug/L	09/26/96
bis(2-Chloroethoxy)methane		ND		50	ug/L	09/26/96
2,4-Dichlorophenol		ND		50	ug/L	09/26/96
1,2,4-Trichlorobenzene		ND		50	ug/L	09/26/96
Naphthalene		ND		50	ug/L	09/26/96
4-Chloroaniline		ND		50	ug/L	09/26/96
Hexachlorobutadiene		ND		50	ug/L	09/26/96
4-Chloro-3-methylphenol		ND		50	ug/L	09/26/96
2-Methylnaphthalene		ND		50	ug/L	09/26/96
Hexachlorocyclopentadiene		ND		50	ug/L	09/26/96
2,4,6-Trichlorophenol		ND		50	ug/L	09/26/96
2,4,5-Trichlorophenol		ND		250	ug/L	09/26/96
2-Chloronaphthalene		ND		50	ug/L	09/26/96
2-Nitroaniline		ND		250	ug/L	09/26/96
Dimethylphthalate		ND		50	ug/L	09/26/96
Acenaphthylene		ND		50	ug/L	09/26/96
3-Nitroaniline		ND		250	ug/L	09/26/96
Acenaphthene		ND		50	ug/L	09/26/96
2,4-Dinitrophenol		ND		250	ug/L	09/26/96
4-Nitrophenol		ND		250	ug/L	09/26/96
Dibenzofuran		ND		50	ug/L	09/26/96
2,6-Dinitrotoluene		ND		50	ug/L	09/26/96
2,4-Dinitrotoluene		ND		50	ug/L	09/26/96
Diethylphthalate		ND		50	ug/L	09/26/96
4-Chlorophenyl-phenylether		ND		50	ug/L	09/26/96
Fluorene		ND		50	ug/L	09/26/96
4-Nitroaniline		ND		50	ug/L	09/26/96
4,6-Dinitro-2-methylphenol		ND		250	ug/L	09/26/96
n-Nitrosodiphenylamine		ND		50	ug/L	09/26/96
4-Bromophenyl-phenylether		ND		50	ug/L	09/26/96

Sample: **07DQ** **CA112/001-96-0911-1355** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
Semivolatile Organics	SW 8270A	(continued from previous page)				
Hexachlorobenzene		ND		50	ug/L	09/26/96
Pentachlorophenol		ND		250	ug/L	09/26/96
Phenanthrene		ND		50	ug/L	09/26/96
Anthracene		ND		50	ug/L	09/26/96
Di-n-butylphthalate		ND		50	ug/L	09/26/96
Fluoranthene		ND		50	ug/L	09/26/96
Pyrene		ND		50	ug/L	09/26/96
Butylbenzylphthalate		ND		50	ug/L	09/26/96
3,3'-Dichlorobenzidine		ND		100	ug/L	09/26/96
Benzo(a)Anthracene		ND		50	ug/L	09/26/96
Chrysene		ND		50	ug/L	09/26/96
Bis(2-Ethylhexyl)phthalate		ND		50	ug/L	09/26/96
Di-n-octylphthalate		ND		50	ug/L	09/26/96
Benzo(b)fluoranthene		ND		50	ug/L	09/26/96
Benzo(k)fluoranthene		ND		50	ug/L	09/26/96
Benzo(a)pyrene		ND		50	ug/L	09/26/96
Indeno(1,2,3-cd)pyrene		ND		50	ug/L	09/26/96
Dibenz(a,h)anthracene		ND		50	ug/L	09/26/96
Benzo(g,h,i)perylene		ND		50	ug/L	09/26/96
SURROGATES, % Recovery						
2-Fluorophenol		34.7		Min: 21	Max: 100	
d5-Phenol		17.3		Min: 10	Max: 94	
d5-Nitrobenzene		68.0		Min: 35	Max: 114	
2-Fluorobiphenyl		82.0		Min: 43	Max: 116	
2,4,6-Tribromophenol		93.3		Min: 10	Max: 123	
d14-Terphenyl		42.0		Min: 33	Max: 141	

Sample: **07E** **CA112/001-96-0911-1355** Collected: **09/11/96** Matrix: **WATER**

Test Description	Method	Result	Q	Limit	Units	Analyzed
ICP Metals, TCLP Extracted	SW 3010/6010					
Arsenic		ND		0.050	mg/L	09/24/96
Barium		0.11		0.020	mg/L	09/24/96
Cadmium		ND		0.0050	mg/L	09/24/96
Chromium		ND		0.010	mg/L	09/24/96
Lead		ND		0.050	mg/L	09/24/96
Selenium		ND		0.10	mg/L	09/24/96
Silver		ND		0.010	mg/L	09/24/96
Mercury, TCLP Extracted	SW 7470	ND		0.0020	mg/L	09/24/96

Analytica, Incorporated

SAMPLE RECEIVING CHECKLIST

Client:	USACE NM	Matrix:	Sludge/Water
CSN #:	607172	# Samples rcvd:	3 7
W/O #:	9609093	# Bottles Rcvd:	38
Date Recvd:	9-14-96	Analytica B/O:	4

Cooler Temp:	*	* temp blanks were at 5°C & ~ 4°C.
Custody seal present & intact:	YES / NO	
Chain in cooler:	YES / NO	
Chain Matches sample ID's:	YES / NO	
Trip blank presented:	YES / NO	
Samples w. LT 5 days HT:	YES / NO	pH Holding times expired prior to receipt @ AZ.
Critical samples & tests:	YES / NO	
Samples preserved properly:	YES / NO	

CORROSIVITY Has longer Holding Time etc.

Project Definition Complete @ login:	YES / NO	
Further Definition:		

Discrepencies:	Trip Blank not on COC for samples taken 9/12. it was Received.
Corrective Actions:	
Comments:	

	Date/time	Initials
' ogin completed:	9/16/96 1345	KI
Def completed:	9-16-96 1535	(C)

ANALYTICA ENVIRONMENTAL LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Color 021
(303) 469-8868 or 1-8 73-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Alb. NM 87109

TELEPHONE: 505-342-3472

FAX: 505-342-3497

PROJECT ID/DESCRIPTION: Cannon OWS

P. O. NO.:

ANALYTICA USE ONLY: № 002800

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-3540/8270	TCLP&RCRA 1311/6010
12Sept96	0945	CA11/002-96-0912-0945	3				
12Sept96	1045	CA92/002-96-0912-1045	3				

Temp Blanks bath @ 5.0°C. KI

COMMENTS: Soxhlet Extraction for SVOC-BNA extraction

MEANS OF DELIVERY:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1530	Fed Ex		Fed X	9/14/96 1120 hrs		9/14/96 1130 hrs

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Color 021
(303) 469-8868 or 1-8 73-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.

8 RCRA Metals

ANALYTICA USE ONLY

№ 002797

CSN 607172

LGN 9609093

LOC Homer 3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity/pH/TCN	VOC - 8260	SVOC - 3540/8270	TCLP Met/311/7470/7471/7740/7910	Combined Jars
11Sept96	1535	CA07/001-96-0911-1535	3	1	1	1	1	

Temp Blanks @~4.0°C
KI

COMMENTS

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13Sept96 1545	Fed EX	~~9/14/96~~ ~~11:30 hrs~~ 9/14/96 11:30 hrs	Fed X	~~9/14/96~~ ~~11:30 hrs~~		9/14/96 11:30 hrs

003-0294

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Parkv ite 200
Broomfield, Color. 021
(303) 469-8868 or 1-8[illegible]-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE
Alb. NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.:

ANALYTICA USE ONLY: № 002801

CSN 607172
LGN 96091093
LOC walkin C3
QC Corp 3
PM Jim Robinson
DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, IGN	VOC-8260	SVOC-8270	TCLP 8RCRA MET
12Sept96	0940	CA11/001-96-0912-0940	5	1	2	1	1
12Sept96	1040	CA92/001-96-0912-1040	6	1	2	2	1

Temp Blanks both @ 5.0°C.
KC

COMMENTS: SVOC (QC) taken @ CA92/001-96-0912-1040

MEANS OF DELIVERY:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	13 Sept96 1545	Fed Ex		Fed X	9/14/96 11 [illegible]	[illegible]	9/14/96 1130 [illegible]

ANALYTICA
ENVIRONMENTAL
LABORATORIES

325 Interlocken Park[illegible] ite 200
Broomfield, Color[illegible] 021
(303) 469-8868 or 1-8[illegible]-873-8707
FAX: (303) 469-5254

CHAIN OF CUSTODY RECORD

CLIENT NAME: USACE

CLIENT CONTACT: BRIAN JORDAN

CLIENT ADDRESS: 4101 Jefferson Pl. NE, Albuquerque NM 87109

PROJECT ID/DESCRIPTION: Cannon OWS

TELEPHONE: 505-342-3472

FAX: 505-342-3497

P. O. NO.

8 RCRA

ANALYTICA USE ONLY: № 002798

CSN 607172

LGN 9609093

LOC Walkin C3

QC Corp 3

PM Jim Robinson

DUE

Sample Matrix (circle one)
WATER SOIL OIL SLUDGE
OTHER (specify)
(NOTE: use one Chain of Custody per matrix)

TESTS REQUESTED

DATE	TIME	CLIENT ID	NO. OF BOTTLES	Reactivity, pH, TSN	VOC-8260	SVOC-8270	TCLP MET 1311/7470/7471/7060/7740/6010
11Sept96	1355	CA112/001-96-0911-1355	6	1	2	2	1
11Sept96	1450	CA33B/001-96-0911-1450	5	1	2	1	1
11Sept96	1540	CA07/002-96-0911-1540	5	1	2	1	1
11Sept96	—	Trip Blank	1		1		

Temp Blanks @ ~4.0° C.
KI

COMMENTS: Liquid/Liquid extraction for 8270
SVOC (QC) taken @ CA112/001-96-0911-1355

MEANS OF DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
BRIAN JORDAN	12Sept96 1545	Fed Ex	9/14/96 1120 hr				9/14/96 1130 hr

003-0294