# UNDERGROUND STORAGE TANK SYSTEMS CLOSURE AND REMEDIAL ACTIVITIES

**Fuel Farm Area**
**Laredo International Airport**
**Laredo, Texas**
**Texas Water Commission LPST I.D. NO. 104866**
**Contract No. DACA 63-93-C0006**

**Prepared for:**

**UNITED STATES ARMY CORPS OF ENGINEERS**
**Fort Worth District**

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# UNDERGROUND STORAGE TANK SYSTEMS CLOSURE AND REMEDIAL ACTIVITIES

Fuel Farm Area
Laredo International Airport
Laredo, Texas
LPST ID No. 104868

## 1.0 INTRODUCTION

SWL Environmental Services (SWL) was retained by United States Army Corps of Engineers (COE) to direct and supervise contracted activities and to perform containment verification sampling during the removal of non-beneficial use underground storage tank (UST) systems located at the former Webb Air Force Base (now known as Laredo International Airport) in Laredo, Texas. The project site discussed in this report is known as the Fuel Farm Area. The removals were performed in accordance with the requirements of "Plans and Specifications for, Remove Underground Storage Tanks, Laredo International Airport, Laredo, Texas," U.S. Army Corps of Engineers, dated February 28, 1992 and four amendments thereto dated May 12(2), June 5, and August 3, 1992, respectively. Federal, state, county, and city regulations were satisfied during the UST closures.

The UST systems located at 518 Flightline, are registered with the Texas Water Commission (TWC) under Facility ID No. 0009940 by the City of Laredo. A U.S.G.S. topographic map illustrating the site in relation to the surrounding area is presented in Figure 1-1.

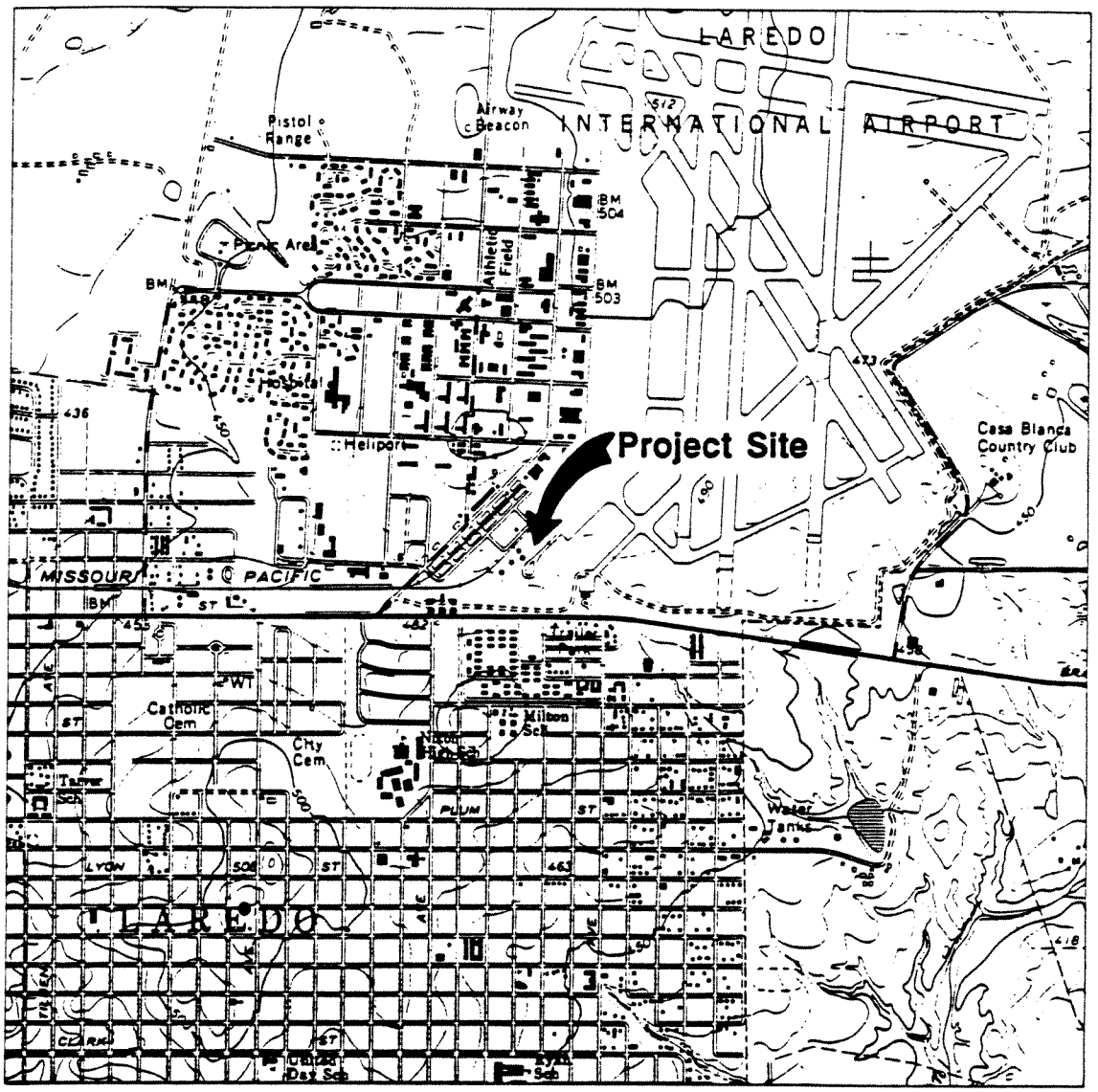


**FIGURE 1-1**
**VICINITY MAP**
**Fuel Farm Area**
**Laredo International Airport**
**U. S. Army Corps of Engineers**
**Laredo, Texas**

N

**SWL Reference No. 505893-130.5**

Approximate Scale in feet

0 1,000 2,000 4,000

Based on:
USGS 7.5 Minute Topographic Quad.: Laredo East, Texas
Contour Interval: 10 feet
Scale: 1" = 2,000'

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## 2.0 SITE DESCRIPTION

The Laredo International Airport is located on the northeast edge of the City of Laredo which is bordered by the Rio Grande River and the Republic of Mexico. U.S. Highway 59 forms the southern border of the airport and Casa Blanca Lake is immediately to the east.

The site was initially used by the U.S. Air Force's Air Training Command as a student pilot training base, known as Webb Air Force Base. The Air Force turned the facility over to the City of Laredo in the 1970's during a period of base closings following the Vietnam war. The City of Laredo has operated the facility as the Laredo International Airport.

This project consists of the removal of 11 out-of-service, steel USTs from the Fuel Farm Area of the former Base. Table 2-1 lists each of the UST's SWL and COE identification, construction material, capacity, current and former use, and installation data.

The former Webb Air Force Base Fuel Farm Area was assigned Leaking Petroleum Storage Tank (LPST) I.D. 104866 following the TWC receipt of analytical data from the site investigation performed at the adjacent active fuel storage system (LPST I.D. 95021). The active system, located north of the fuel farm, is operated by the City of Laredo. East/southeast of the area is an active aboveground storage tank (AST) system operated by Barker Aeromotive. The TWC District 11 Office has documentation that a release of hydrocarbons has occurred to the subsurface from the adjacent AST system. Due west of the fuel farm is the former Webb Air Force Base Waste Oil Area. The Waste Oil Area nonbeneficial use USTs were removed as a part of the referenced contract between SWL and COE. The Waste Oil Area was assigned LPST I.D. 106165 when phase separated hydrocarbons (PSH) were encountered during the removal activities. A site map indicating the adjacent site storage systems is presented in Figure 2-2.

## Table 2-1

## UST SUMMARY
Fuel Farm Area
Laredo International Airport
Laredo, Texas

| SWL TANK I.D. | COE TANK I.D. | EST. GALLON CAPACITY | FORMER USE | CONTENT UPON REMOVAL | CONSTRUCTION MATERIAL | INSTALL DATE |
|---|---|---|---|---|---|---|
| T-1 | T-1372 | 25,000 | AV JET | Water | Steel | 1963 |
| T-2 | T-1373 | 25,000 | AV JET | Water | Steel | 1952 |
| T-3 | T-1374 | 25,000 | AV JET | Water | Steel | 1952 |
| T-4 | T-1375 | 25,000 | AV JET | Water | Steel | 1952 |
| T-5 | T-1356A | 25,000 | AV GAS | Sand/Water | Steel | 1949 |
| T-6 | T-1356B | 25,000 | AV GAS | Sand/Water | Steel | 1949 |
| T-7 | T-1356C | 25,000 | AV GAS | Sand/Water | Steel | 1949 |
| T-8 | T-1356D | 25,000 | AV GAS | Sand/Water | Steel | 1949 |
| T-9 | T-1356E | 25,000 | AV GAS | Sand/Water | Steel | 1949 |
| T-10 | T-1356F | 25,000 | AV GAS | Sand/Water | Steel | 1949 |
| T-11 | T-1376 | 5,000 | AV JET (Strainer) | Water | Steel | 1962 |

COE - U.S. Army Corps of Engineers
AV JET - Aviation Jet Fuel (JP-4)
AV GAS - Aviation Gasoline

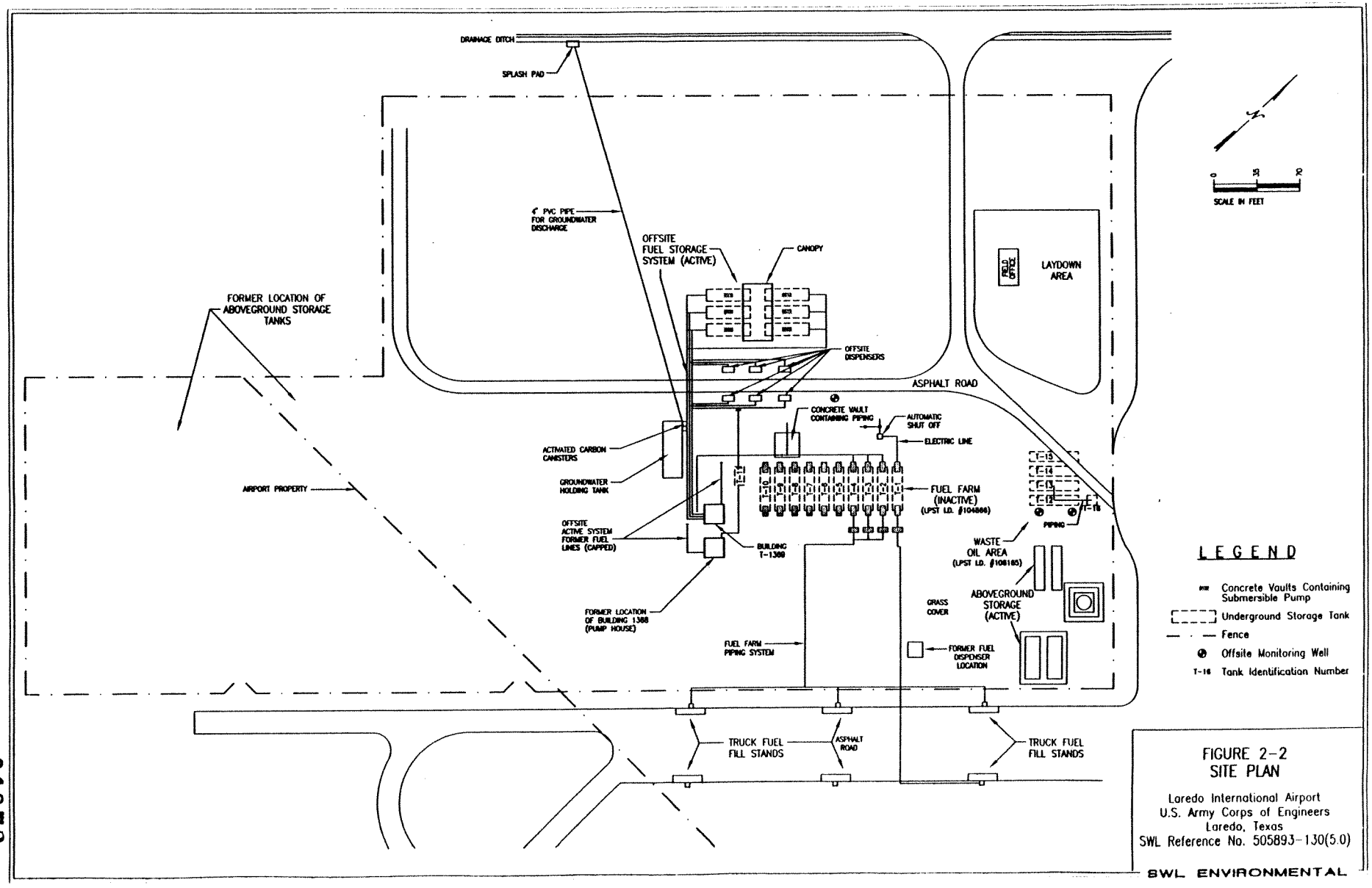


FIGURE 2-2
SITE PLAN

Laredo International Airport
U.S. Army Corps of Engineers
Laredo, Texas
SWL Reference No. 505893-130(5.0)

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# 3.0 TANK SYSTEMS REMOVAL AND SOIL EXCAVATIONS

## 3.1 Systems Excavation and Removal

### 3.1.1 Tank Excavation and Removal

The TWC construction notification and request for waiver was submitted to the TWC District 11 Office by SWL on January 11, 1993, documenting closure activities to be performed at the subject site. A summary of the project scope of work was requested by Mr. Bill Morris of the TWC District 11 Office and submitted by SWL on February 25, 1993. A copy of the notification form and correspondence to the District 11 Office can be found in Appendix A.

Twenty-four hour notification was given by SWL to the TWC, City of Laredo, and Fire Marshall Officials prior to the initiation of excavation and UST removal activities. All airport utilities, noted on the specifications, were located and decommissioned in the general vicinity of the UST systems. The SWL Quality Systems Manager was continually onsite to supervise subcontracted activities, record daily construction quality control reports and testing, and develop monthly reports of operations and activities as specified by COE. Portions of the UST systems removal activities were observed by Mr. Morris of the TWC District 11 Field Office.

Excavation of soils and removal of the USTs were conducted by CCC Group, Inc. personnel licensed with the TWC (Contractor Registration No. CRP000919). Site activities were initiated by the removal of the product piping on January 19, 1993.

The excavated pipe trench soils were initially screened for the presence of petroleum hydrocarbons using a Photoionization Detector TEI Model 580A organic vapor meter (OVM) with a 10.2 electron volt lamp, calibrated to isobutylene. Equipment calibration was recorded daily on the Quality Control Operation and Test Record form. Headspace analysis techniques were performed by allowing samples to settle in the sealed sample container for approximately five minutes. Headspace was then checked using the OVM. Readings were recorded on the Sample Data Log. Hydrocarbon vapors were recorded from nondetect to one part per million (ppm) in the piping soils. The piping excavation depth was approximately four to five feet. A

total of approximately 3,600 feet of piping was removed from the site. The removed piping was observed to be in fair condition.

The six pump island removals were initiated on January 21, 1993. The islands were formed of concrete approximately four feet thick by four feet wide by six feet long. Using headspace analysis techniques, OVM readings ranged from non-detect in the area of pump island numbers one, two and three, and greater than 9,999 ppm in the soils of pump island numbers four, five, and six.

Submersible pumps were housed in concrete vaults located at the ends of each of the tanks (except T-11) and at the product piping junction to the tanks. The concrete vaults were approximately four feet by four feet by five feet deep. A larger vault (approximately ten feet by ten feet by five feet deep) located on the north side of the tankhold housed only piping. All of the concrete vaults were removed during the excavation process.

Groundwater recharge into the UST tankhold was observed after removal of the vaults and backfill covering. Groundwater was removed from the tankhold daily to complete the excavation and removals. A frac tank was placed onsite as a means of storing the tankhold water following treatment during the removal activities. (Refer to Section 4.1.3 for discussion regarding Groundwater Storage and Discharge).

Eleven corrugated steel USTs (of single wall construction) were removed on January 22, 23, and 24, 1993. Prior to removal, each UST was sheared to allow for removal of the sand contained in the USTs. The shearing operations were monitored using a Mine Safety Appliance (MSA) Company Model 2A Explosimeter. The explosimeter was used to ensure the atmosphere in each tank measured less than 15% of the lower explosive limit (LEL) prior to removal. Each UST was visually inspected during and after removal from the tankhold. All of the USTs were noted to have severe corrosion along the welded seams and obvious rust holes.

During the tank removals, the excavated soils were initially screened for the presence of petroleum hydrocarbons as previously described. Using the headspace analysis technique, OVM reading were recorded between 30 and 2,973 ppm in the moist dark brown, sandy clay from the tankhold confirmation samples. All readings were recorded on the Sample Data Log. The tankhold excavation measured approximately 130 feet by 50 feet by 15 feet deep.

Following receipt of analytical data, the TWC was unable to establish site clean up levels. Currently, when directed by the TWC, risk based standards for clean up levels are determined following the performance of a Limited Site Assessment (LSA). The COE directed overexcavation of the north and south walls of the tankhold and pump island numbers one and four in an effort to save cost while excavations were open. At this time, the TWC requested correspondence from the COE stating funds from the Petroleum Storage Tank Reimbursement (PSTR) Fund would not be pursued for the work performed as the COE was not directed by the TWC to pursue the overexcavation activities. Correspondence by the COE, confirming the COE would not request PSTR Funds, can be found in Appendix A.

Figure 3-3 is a site map indicating the tank and piping removal excavation and soil overexcavations. Procedures for stockpiling the soil are presented in Section 3.1.2. Photographs documenting the UST removals are located in Appendix B.

Following the removal of the UST systems, overexcavations, and stockpiling of soils, contaminant verification samples were collected and submitted for chemical analysis. Details on sample collection procedures as well as results of the chemical analysis are presented in Section 3.2 and 3.3, respectively.

### 3.1.2 Stockpiled Soils Containment and Treatment

Due to the elevated headspace analysis results and preliminary analytical results, SWL directed and supervised the construction of two soil containment cells. A berm was constructed of clean soil to completely enclose the area prior to placement of the stockpiled soils. Plastic, of 20 mil

thickness, was then placed across the area to prevent vertical migration of hydrocarbon constituents into the subsurface and to ensure that any rainwater runoff from the treated soils remained inside the containment cells. The excavated soils were placed directly onto the plastic and spread out approximately two feet in thickness.

EmTech Environmental Services, Inc. was subcontracted by CCC Group, Inc. to provide a bacterial slurry and nutrients to enhance the natural biodegradation of the hydrocarbon constituents. The hydrocarbon degrading bacteria applied to the stockpiled soils was a mixed strain of Pseudomonas species bacteria. The nutrient composition was a special blend of nitrogen, phosphorous, and potassium mixed especially for the soils encountered at the project site. Volumes were based on a sampling of original indigenous nutrients amounts and calculation of the mean values.

The liquid bacteria was applied at a rate of 5.40 pounds per cubic yard. Nutrients were applied at a rate of 3.61 pounds per cubic yard. Moisture was added to the containment cell by accessing the City of Laredo fire hydrant connections. The soils were occasionally tilled to provide oxygen to promote the treatment process. Approximately 3,000 cubic yards of soil were treated in containment cell numbers one and two. Discussion of the chemical analysis is presented in Section 3.3.

### 3.1.3 Groundwater Storage and Disposal

A 20,000-gallon frac tank, supplied by CCC Group, Inc. was placed onsite to store tankhold water. SWL personnel utilized a centrifugal pump to transfer accumulated groundwater into the frac tank.

Samples were collected and analyzed from the tankhold water and after treatment of the water through a water purification system. The water purification system, consisting of activated carbon canisters in series, was supplied by Aqua-Scrub™. (Collection procedure and analytical results are discussed in Section 3.2 and 3.3). Approval to perform the surface water discharge

under Texas Administrative Code (TAC), Chapter 321, Subchapter H was attained from the TWC and the City of Laredo officials.

On January 29, 1993, the TWC assigned discharge registration number DR-L-104866 to the facility for acknowledgement of receipt and reporting purposes. Discharges totalling approximately 170,000 gallons of treated groundwater occurred the weeks of February 1 and 8, and April 12, 1993. The registration, Petroleum Fuels Contaminated Waters Report forms, and City of Laredo correspondence can be found in Appendix A.

## 3.2 Sample Collection Procedures

### 3.2.1 Soil Sampling Methodology

Seventy confirmation soil samples were collected from the tankhold side walls and floor of tanks T-1, T-2, T-3, and T-4. Three subsamples were collected and combined to make each of the tank floor composite samples. Confirmation composite floor samples were not collected from beneath tanks T-5 through T-11 due to the presence of groundwater in the tankhold. Sample collection adhered to the TWC site directive (found in Appendix A) and COE specifications.

For characterization purposes, 85 four-part composite soil samples were collected from the excavated backfill material. Composite samples were collected from the stockpiled soils in the containment cells and assumed clean stockpiled soils to document original hydrocarbon constituent levels. Where it was determined elevated concentrations existed, additional samples were collected following treatment of the soils.

Stockpile sampling locations were selected by dividing the stockpile into an imaginary grid to promote even distribution for collection of random representative samples as recommended in the Environmental Protection Agency (EPA) Solid Waste (SW) 846 Field Manual. Soil sampling locations are indicated on the site sample location maps (Figure 3-3 and 3-4).

The soil samples were collected using a decontaminated stainless steel trowel. Personnel handling the samples wore clean, disposable Latex™ surgical gloves throughout the collection process. Prior to and after sampling, decontamination included using a non-phosphate detergent solution followed by a rinsing with deionized water. All decontaminated sampling equipment was handled in such a manner as to prevent cross-contamination between sampling points. After collecting each sample, the soil sample was removed and transferred directly into 4- or 8-ounce precleaned glass containers sealed with Teflon™-lined lids.

### 3.2.2 Water Sampling Methodology

Ten samples were collected from the water contained in the tankhold. Following treatment of the water, two samples were collected to confirm fulfillment of discharge requirements. The tankhold and treated water samples were collected using a new disposable hand bailer. The samples were transferred with minimal headspace from the bailer to the appropriate sample containers furnished by the analytical laboratory. The water samples collected for total petroleum hydrocarbon (TPH) analysis were placed in one-liter amber glass bottles with hydrochloric acid preservative. Forty-milliliter glass vials were used for the water samples collected for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX). One-liter plastic bottles with nitric acid preservative were used for the water samples collected for total lead. Amber glass bottles were used for water samples collected for total organic halogens. Plastic bottles of 500 milliliter capacity were used for water samples collected for pH and total dissolved solids (TDS).

### 3.2.3 Quality Control and Quality Assurance

All Quality Control and Quality Assurance (QA/QC) collected samples adhered to COE specifications. QA/QC samples consisted of the following:

- Rinsate blanks which consisted of reagent water collected from a final rinse of sampling equipment after the decontamination procedure was performed. One rinsate blank was collected for each 20 confirmation samples;

- Quality Control Replicates consisted of a portion of a composite sample from each sample group. Replicate samples were collected for each sample group or one in ten confirmation samples; and

- Quality Assurance samples which were collected and analyzed by the COE to ensure the SWL quality control program.

#### 3.2.4 Sample Preservation and Shipment to the Laboratory

At the time of collection, sample jars were marked for identification including unique sample number, name of collector, date and time of collection, sample location, and the preservation method employed. This included placing the samples on ice in a sample shuttle cooled to approximately four degrees Celsius. Accompanied by the full chain of custody record, prepared at the time of collection, samples were immediately transported to the SWL analytical laboratory in Houston, Texas.

Soil and tankhold water samples were submitted to the laboratory for TPH analyses using EPA method 418.1 and BTEX analyses using EPA method 8020. The excavated backfill material was additionally analyzed for toxicity characteristic leaching procedure (TCLP) benzene, by EPA Method 8020/602. Percent moisture was performed by gravimetric procedures for each soil sample. Tankhold water samples included analysis for total organic halogens and total lead by EPA 600/4/84 and EPA 7420, respectively. Total dissolved solids (by Method 160.1) and pH (by Method 150.1) were also performed on analysis of tankhold water samples. Analytical results are discussed in Section 3.3.

### 3.3 Laboratory Analysis

The results of the laboratory analyses of the soil confirmation samples are presented in Table 3-1. Analytical results for tankhold and treated water samples are presented in Table 3-2. Results of the stockpiled soils laboratory analysis are shown in Table 3-3. (See Appendix C for QA\QC results, laboratory results, and chain of custody documents).

The laboratory results indicate elevated levels of TPH constituents remain in the in situ soils of the tankhold walls. Samples collected from the sidewalls and floor of tanks T-1 and T-2 document TPH levels of less than 120 milligrams per kilogram (mg/kg). Concentrations of BTEX were initially documented on the south of tank T-2. After overexcavation, BTEX levels were documented below detection limits in tank confirmation wall (TCW)-6A sample. Tanks T-3 and T-4 confirmation floor samples (TCF-3 and TCF-4) documented 201 mg/kg and 152 mg/kg of TPH. Benzene and ethylbenzene totaled 11.64 mg/kg and 0.211 mg/kg for samples TCF-3 and TCF-4, respectively.

The tankhold sidewall, extending from tank T-3 to T-9, was overexcavated approximately six feet to the south. Samples TCW-8A and TCW-10A, collected after overexcavation, documented 578 mg/kg and 145 mg/kg of TPH, respectively. Concentrations of 153 mg/kg, 357 mg/kg, 765 mg/kg, 39.4 mg/kg and 511 mg/kg for TPH were documented from east to west in the south tank confirmation wall samples TCW-12A, TCW-14A, TCW-16A, TCW-18A, and TCW-20A, respectively. BTEX constituents of samples TCW-10A, and TCW-20A were documented to total 21.36 mg/kg and 19.13 mg/kg, respectively after overexcavation. All other south tank confirmation wall samples were below detection limits for BTEX. South wall TPH constituents are shown to rapidly decrease to the south as shown in the below detection limit results of piping confirmation sample P-XIII.

After overexcavation of approximately six feet to the north, the north wall of the tankhold (adjacent to tanks T-4 and T-5) documented levels of TPH from 161 mg/kg and 597 mg/kg in samples TCW-9A and TCW-11A, respectively. Samples TCW-9A and TCW-11A documented BTEX constituents of below the detection limit and 208.67 mg/kg, respectively. Sample TCW-13 collected from the north wall documented TPH of 274 mg/kg and BTEX of 1.137 mg/kg.

Northeastern wall samples documented TPH concentration of 705 mg/kg, 1,080 mg/kg and 326 mg/kg, and BTEX concentrations of 105.99 mg/kg, 5.767 mg/kg and 0.814 mg/kg in samples TCW-15, TCW-17 and TCW-19, respectively. The eastern tankhold wall documented levels

of TPH from 13,400 mg/kg (sample TWC-24) and 3,760 mg/kg (sample TCW-25). Ethylbenzene concentrations ranged from 8.18 mg/kg and 3.16 mg/kg in samples TCW-25 and TCW-23, respectively. Benzene was documented at 2.15 mg/kg in sample TCW-24. Toluene, xylene, and benzene levels were non-detectable for all other eastern tankhold sample results. The northeastern and eastern walls of the tankhold were not able to be overexcavated due to collapsing side walls. Samples TCW-20 and TCW-21, to be located at of the end of tank T-10, were not collected due to collapsing walls. Overexcavation was also limited to the east/northeast due to the close proximity of the adjacent active piping system. Groundwater in the tankhold prevented the collection of floor samples from underneath tanks T-5 through T-11.

Piping confirmation samples documented low levels of TPH ranging from 118 mg/kg to as low as non-detect. However, in the most southwestern portion of the piping system (adjacent to pump island (PI-3) elevated levels of TPH and BTEX were overexcavated to non-detect as documented in sample P-I-I. All other confirmation piping samples were non-detect for BTEX.

Pump island confirmation samples (PI-1,-2, and -3) were non-detect for TPH and BTEX. TPH levels of 23.6 mg/kg and BTEX constituents of non-detect were documented in sample PI-5. The area surrounding sample PI-4 was overexcavated to 771 mg/kg TPH and non-detect BTEX as shown in samples PI-4A and PI-4, respectively. Sample PI-6 documented TPH of 14,500 mg/kg and ethylbenzene of 5.77 mg/kg. The documented soil TPH levels, specifically to the east/northeast of the tankhold and pump island (PI-6), are above TWC action guidelines. But more significantly, an impact has occurred to groundwater at the facility.

Levels of BTEX [ranging from non-detect to 2.520 milligrams per liter (mg/L)] were documented in the tankhold water samples T-1, T-4, T-6, T-9 (all non-detect) and T-5, 2.52 mg/L. Levels of TPH in the tankhold water ranged from 4.79 mg/L (sample T-1) to as low as non-detect (samples T-8 and T-9). Water samples analyzed for TDS were documented as high as 11,300 mg/L. The treated groundwater sample (EWW-6) documented levels of BTEX below detection limits and TPH of 0.08 mg/L. The treated groundwater sample EWW was non-detect

for all constituents but total organic halogens of 0.19 mg/L. Discharged groundwater was below TWC requirements as presented on the TWC Petroleum Fuels Contaminated Waters Report form in Appendix A.

The samples collected from the soils stockpiled were found to contain levels of TPH. During the excavation process, if soils (by headspace analysis) documented levels less than 10 ppm they were immediately segregated as clean tank soil (CLTS) or clean pipe soils (CLPS) and confirmation samples were collected for laboratory analysis. Dirty soil non-waste oil (DSN) (soils greater than 10 ppm by headspace analysis) were placed in containment cells one or two. However, upon receipt of analytical results, samples CLTS 4, 25, 28, 29, 31, 33, 34, 55, and 56 (which TPH concentrations ranged from 53,500 mg/kg to 392 mg/kg) were transferred to containment cell one or two for treatment. Samples DSN-7 and DSN-9 were documented at 522 mg/kg (the highest TPH) and 11.1 mg/kg (the lowest TPH) for soil in the containment cells initial stockpile sampling. Low levels of BTEX (0.866 mg/kg and 0.527 mg/kg) were documented in DSN-9 and DSN-10, respectively. The average of the four most elevated initial samples (DSN-2,4,6, and 7) placed in the containment cells was calculated to approximately 336 mg/kg for TPH concentrations. The re-sampling of those four containment cell samples (DSN-2-2, 4-2, 6-2, and 7-2) showed approximately 16 percent average reduction in TPH concentrations following treatment. Upon receipt of all confirmation analytical data, results were immediately facsimiled to the TWC District 11 Office in Austin.

Quality control replicate samples R-1 through R-7, R-1-A, and P-IC were collected from a portion of confirmation soil samples TCW-3,5,7,10,20,25, PC-18, TCW-9A, and P-III, respectively. The quality control replicate samples represent an average difference in BTEX analysis of 12 percent. The average difference in the percent moisture analysis of the confirmation samples and the replicate samples was approximately two percent. TPH results indicate an average difference of approximately 59 percent in the replicate samples and the confirmation samples. The difference in TPH results may be attributed to an organic matrix

interference which will give a false elevated TPH value or non-homogeneity of the sample (i.e. hot spots within the sample matrix).

Nine rinsate blank samples (RB-1 through RB-7, RB-1-A, and P-IA/B) were collected during the confirmation soil sampling activities. Sample RB-2, RB-3, and RB-7 identified TPH concentrations of 6.9 mg/kg, 0.5/mg/kg, and 1.30 mg/kg, respectively. All other TPH results and all BTEX results were non-detect.

### 3.4 Tankhold Backfilling and Turfing

The excavation was initially filled with approximately 800 tons of granular fill material. According to COE specifications, a 20 mil liner was placed in the excavation due to remaining contaminant levels at the facility. Backfill material was placed in the tankhold, following verbal confirmation with the TWC District 11 Office. The granular fill and backfill material was placed in two-foot lifts then smoothed and compacted with the backhoe before placement of the next layer. Approximately 200 cubic yards of clean fill material was placed into the excavations to bring the site to grade. Compaction requirements by the COE included field in-place compaction and density testing prior to placement of each lift of backfill material. Trinity Testing Laboratories, Inc. was subcontracted by CCC Group, In.c to provide field compaction testing. Field compaction test reports are included in Appendix E. The area was then graded, smoothed, and turfed with Bermuda™ grass seed.

# TABLE 3-1

## SUMMARY OF ANALYTICAL RESULTS
Soil Confirmation Samples
Fuel Farm Area
Laredo International Airport
Laredo, Texas

| SAMPLE ID | DATE COLLECTED | SAMPLE DEPTH | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | TCLP BENZENE mg/l (ppm) |
|---|---|---|---|---|---|---|---|---|
| TCF-1 | 2/09/93 | 16 ft. | 107 | BDL | BDL | BDL | BDL | NA |
| TCF-2 | 2/12/93 | 16 ft. | BDL | BDL | BDL | 0.031 | BDL | NA |
| TCF-3 | 2/13/93 | 16 ft. | 201 | 2.22 | BDL | 9.42 | BDL | NA |
| TCF-4 | 2/15/93 | 16 ft. | 152 | 0.075 | BDL | 0.136 | BDL | NA |
| TCW-1 | 2/09/93 | 12 ft. | 30.0 | BDL | BDL | BDL | BDL | NA |
| TCW-2 | 2/09/93 | 12 ft. | 29.7 | BDL | BDL | BDL | BDL | NA |
| TCW-3 | 2/09/93 | 12 ft. | 120 | BDL | BDL | BDL | BDL | NA |
| TCW-4 | 2/09/93 | 12 ft. | 19.1 | BDL | BDL | BDL | BDL | NA |
| TCW-5 | 2/12/93 | 12 ft. | 88.4 | BDL | BDL | 0.041 | BDL | NA |
| TCW-6 | 2/12/93 | 12 ft. | 46.7 | 19.97 | BDL | 20.46 | BDL | NA |
| TCW-6A | 3/22/93 | 12 ft. | NA | BDL | BDL | BDL | BDL | NA |
| TCW-7 | 2/13/93 | 12 ft. | 26.1 | BDL | BDL | BDL | BDL | NA |
| TCW-8 | 2/13/93 | 12 ft. | 486 | 12.65 | BDL | 13.39 | BDL | NA |
| TCW-8A | 3/22/93 | 12 ft. | 518 | BDL | BDL | BDL | BDL | NA |
| TCW-9 | 2/15/93 | 12 ft. | 144 | 1.78 | BDL | 3.28 | 2.99 | NA |
| TWC-9A | 3/22/93 | 12 ft. | 161 | BDL | BDL | BDL | BDL | NA |
| TCW-10 | 2/15/93 | 12 ft. | 145 | 2.57 | BDL | 6.59 | BDL | NA |
| TCW-10A | 3/22/93 | 12 ft. | NA | 4.24 | 1.36 | 12.06 | 3.70 | NA |
| TCW-11 | 2/17/93 | 12 ft. | 1570 | 18.62 | BDL | 31.00 | 1.88 | NA |
| TCW-11A | 3/22/93 | 12 ft. | 597 | 5.79 | 10.94 | 66.31 | 125.63 | NA |
| TCW-12 | 2/17/93 | 12 ft. | 3330 | 63.33 | BDL | 32.74 | 84.14 | NA |
| TCW-12A | 3/22/93 | 12 ft. | 153 | BDL | BDL | BDL | BDL | NA |
| TCW-13 | 2/17/93 | 12 ft. | 274 | 0.425 | 0.271 | 0.131 | 0.310 | NA |

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## TABLE 3-1, Continued

## SUMMARY OF ANALYTICAL RESULTS
Soil Confirmation Samples
Fuel Farm Area
Laredo International Airport
Laredo, Texas

| SAMPLE ID | DATE COLLECTED | SAMPLE DEPTH | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | TCLP BENZENE mg/l (ppm) |
|---|---|---|---|---|---|---|---|---|
| TCW-14 | 2/17/93 | 12 ft. | 1,040 | 28.64 | BDL | 21.62 | 48.43 | NA |
| TCW-14A | 3/22/93 | 12 ft. | 357 | BDL | BDL | BDL | BDL | NA |
| TCW-15 | 2/17/93 | 12 ft. | 705 | 8.66 | 36.12 | 9.65 | 51.56 | NA |
| TCW-16 | 2/17/93 | 12 ft. | 320 | 1.139 | 0.242 | 1.059 | 1.228 | NA |
| TCW-16A | 3/22/93 | 12 ft. | 765 | BDL | BDL | BDL | BDL | NA |
| TCW-17 | 2/17/93 | 12 ft. | 1080 | 1.827 | BDL | 3.940 | BDL | NA |
| TCW-18 | 2/17/93 | 12 ft. | 39.4 | 0.666 | 0.082 | 0.561 | 0.590 | NA |
| TCW-18A | 3/22/93 | 12 ft. | NA | BDL | BDL | BDL | BDL | NA |
| TCW-19 | 2/17/93 | 12 ft. | 326 | BDL | BDL | 0.442 | 0.372 | NA |
| TCW-20 | 2/17/93 | 12 ft. | 326 | 0.986 | BDL | 1.159 | 0.295 | NA |
| TCW-20A | 2/17/93 | 12 ft. | 511 | 3.41 | BDL | 11.51 | 4.21 | NA |
| TCW-21 | SN | | NA | NA | NA | NA | NA | NA |
| TCW-22 | SN | | NA | NA | NA | NA | NA | NA |
| TCW-23 | 2/18/93 | 12 ft. | 9,500 | BDL | BDL | 3.16 | BDL | NA |
| TCW-24 | 2/18/93 | 12 ft. | 13,400 | 2.15 | BDL | 4.38 | BDL | NA |
| TCW-25 | 2/18/93 | 12 ft. | 3,760 | BDL | BDL | 8.18 | BDL | NA |
| TCW-26 | 2/18/93 | 12 ft. | 7,910 | BDL | BDL | 4.12 | BDL | NA |
| PI-1 | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| PI-2 | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| PI-3 | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| PI-4 | 3/3/93 | 4 ft. | 1,170 | BDL | BDL | BDL | BDL | NA |
| PI-4A | 3/22/93 | 8 ft. | 771 | NA | NA | NA | NA | NA |
| PI-5 | 3/3/93 | 4 ft. | 23.6 | BDL | BDL | BDL | BDL | NA |

## TABLE 3-1, Continued

## SUMMARY OF ANALYTICAL RESULTS
Soil Confirmation Samples
Fuel Farm Area
Laredo International Airport
Laredo, Texas

| SAMPLE ID | DATE COLLECTED | SAMPLE DEPTH | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | TCLP BENZENE mg/l (ppm) |
|---|---|---|---|---|---|---|---|---|
| PI-6 | 3/3/93 | 4 ft. | 14,500 | BDL | BDL | 5.77 | BDL | NA |
| P-I | 1/20/93 | 5 ft. | 7,130 | 81.8 | 133.5 | 39.5 | 203.9 | NA |
| P-I-I | 1/27/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | BDL |
| P-II | 1/20/93 | 5 ft. | 38.8 | BDL | BDL | BDL | BDL | NA |
| P-III | 1/20/93 | 5 ft. | 79.6 | BDL | BDL | BDL | BDL | NA |
| P-IV | 1/20/93 | 5 ft. | 25.2 | BDL | BDL | BDL | BDL | NA |
| P-V | 1/20/93 | 5 ft. | 21.7 | BDL | BDL | BDL | BDL | NA |
| P-VI | 1/20/93 | 5 ft. | 7.0 | BDL | BDL | BDL | BDL | NA |
| P-VII | 1/20/93 | 5 ft. | 39.2 | BDL | BDL | BDL | BDL | NA |
| P-VIII | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| P-IX | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| P-X | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| P-XI | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| P-XII | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| P-XIII | 1/21/93 | 5 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| PC-14 | 4/15/93 | 4 ft. | 118 | BDL | BDL | BDL | BDL | NA |
| PC-15 | 4/15/93 | 4 ft. | 28.7 | BDL | BDL | BDL | BDL | NA |
| PC-16 | 4/15/93 | 4 ft. | 14.0 | BDL | BDL | BDL | BDL | NA |
| PC-17 | 4/15/93 | 4 ft. | 18.3 | BDL | BDL | BDL | BDL | NA |
| PC-18 | 4/15/93 | 4 ft. | 24.6 | BDL | BDL | BDL | BDL | NA |
| PC-19 | 4/15/93 | 4 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| PC-20 | 4/15/93 | 4 ft. | BDL | BDL | BDL | BDL | BDL | NA |
| PC-21 | 4/15/93 | 4 ft. | 22.4 | BDL | BDL | BDL | BDL | NA |
| PC-22 | 4/15/93 | 4 ft. | 58.4 | BDL | BDL | BDL | BDL | NA |

## TABLE 3-1, Continued

## SUMMARY OF ANALYTICAL RESULTS
Soil Confirmation Samples
Fuel Farm Area
Laredo International Airport
Laredo, Texas

| SAMPLE ID | DATE COLLECTED | SAMPLE DEPTH | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | TCLP BENZENE mg/l (ppm) |
|---|---|---|---|---|---|---|---|---|
| PC-23 | 4/15/93 | 4 ft. | 57.8 | BDL | BDL | BDL | BDL | NA |
| PC-24 | 4/15/93 | 4 ft. | 73.4 | BDL | BDL | BDL | BDL | NA |

*NOTES:*

*mg/kg - milligrams per kilogram*
*TCLP - Toxicity Characteristic Leaching Procedure*
*BDL - parameter below the detection limit for the utilized analytical method*
*PC - Pipe Chase*
*TCF - Tank Confirmation Floor*
*Ft. - Feet*
*NA - Not analyzed*

*ppm - parts per million*
*TPH - Total Petroleum Hydrocarbons*
*TCW - Tank Confirmation Wall*
*TCW-6A - Tank Confirmation Wall-After Over Excavation*
*P - Piping*
*PI - Pump Island*
*PI-4A - Pump Island - After Overexcavation*
*SN - Sample not collected*

*Method detection limits are included on the analytical reports in Appendix C.*

# TABLE 3-2

## SUMMARY OF ANALYTICAL RESULTS
Tankhold and Treated Water Samples
Fuel Farm Area
Laredo International Airport
Laredo, Texas

| SAMPLE ID | DATE COLLECTED | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | LEAD mg/l (ppm) | pH (pH Units) | TDS mg/l (ppm) | TCLP Benzene mg/l (ppm) | TOX mg/l (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| T-1 | 1/27/93 | 4.79 | BDL | BDL | BDL | BDL | BDL | 7.83 | 11,300 | BDL | NA |
| T-2 | 1/27/93 | 0.73 | BDL | 0.0306 | 0.0055 | 0.0432 | BDL | 8.96 | 4,420 | BDL | NA |
| T-3 | 1/27/93 | 0.76 | BDL | BDL | BDL | BDL | BDL | 8.34 | 2,420 | BDL | NA |
| T-4(A) | 1/27/93 (2/01/93) | 0.60 | BDL | BDL | BDL | BDL | BDL | 8.01 | 2,530 | BDL | NA |
| T-5 | 1/27/93 | 1.99 | 2.520 | BDL | BDL | BDL | BDL | 7.42 | 1,360 | 2.520 | NA |
| T-6 | 1/28/93 | 1.04 | BDL | BDL | BDL | BDL | 0.10 | 7.44 | 1,720 | BDL | NA |
| T-7(A) | 1/28/93 (2/01/93) | 1.70 | 1.886 | BDL | 0.369 | BDL | BDL | 8.05 | 1,800 | 1.886 | NA |
| [illegible] | 1/28/93 | BDL | 0.0166 | BDL | BDL | BDL | BDL | 8.07 | 2,000 | 0.017 | NA |
| [illegible]-9 | 1/28/93 | BDL | BDL | BDL | BDL | BDL | BDL | 7.88 | 1,330 | BDL | NA |
| T-10(A) | 1/28/93 (2/01/93) | 2.50 | 0.2954 | BDL | 0.2169 | BDL | BDL | 7.99 | 1,030 | 0.295 | NA |
| EWW-6 | 2/23/93 | 0.80 | BDL | BDL | BDL | BDL | NA | NA | NA | NA | NA |
| EWW | 4/6/93 | BDL | BDL | BDL | BDL | BDL | BDL | 7.51 | 655 | NA | 0.19 |

*NOTES:*

*mg/l - milligram per liter*
*BDL - parameter below the detection limit for the utilized analytical method*
*ppm - parts per million*
*EWW - Excavation Water Waste Oil (Treated)*
*TCLP - Toxicity Characteristic Leaching Procedure*
*(A) - Analyzed after recollection of sample due to breakage in shipping*
*NA - parameter not analyzed*
*EWW - excavation water waste oil area*
*TOX - Total Organic Halogens*
*TDS - Total Dissolved Solids*
*TPH - Total Petroleum Hydrocarbons*
*T-9 - Tank Identification*
*NA - Not Analyzed*

*Method detection limits are included on the analytical reports in Appendix C.*

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# TABLE 3-3

## SUMMARY OF ANALYTICAL RESULTS

Stockpile Soil Samples
Fuel Farm Area
Laredo International Airport
Laredo, Texas

| SAMPLE ID | DATE COLLECTED | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | TCLP BENZENE mg/L (ppm) |
|---|---|---|---|---|---|---|---|
| CLPS-I | 1/27/93 | 52.7 | BDL | BDL | BDL | BDL | BDL |
| CLPS-II | 1/27/93 | 64.5 | BDL | BDL | BDL | BDL | BDL |
| CLPS-III | 1/27/93 | 17.3 | BDL | BDL | BDL | BDL | BDL |
| CLPS-IV | 1/27/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLPS-V | 1/27/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLPS-VI | 1/27/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-1 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-2 | 1/25/93 | 182 | BDL | BDL | BDL | BDL | BDL |
| CLTS-3 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-4 | 1/25/93 | 53,500 | BDL | BDL | BDL | BDL | BDL |
| CLTS-5 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-6 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-7 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-8 | 1/25/93 | 7.6 | BDL | BDL | BDL | BDL | BDL |
| CLTS-9 | 1/25/93 | 44.5 | BDL | BDL | BDL | BDL | BDL |
| CLTS-10 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-11 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-12 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-13 | 1/25/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-14 | 1/25/93 | 19.8 | BDL | BDL | BDL | BDL | BDL |
| CLTS-15 | 1/28/93 | 10.7 | BDL | BDL | BDL | BDL | BDL |
| CLTS-16 | 1/28/93 | 16.2 | BDL | BDL | BDL | BDL | BDL |
| CLTS-17 | 1/28/93 | 8.1 | BDL | BDL | BDL | BDL | BDL |
| CLTS-18 | 1/28/93 | 22.4 | BDL | BDL | BDL | BDL | BDL |
| CLTS-19 | 1/28/93 | 31.9 | BDL | BDL | BDL | BDL | BDL |

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## TABLE 3-3, Continued

## SUMMARY OF ANALYTICAL RESULTS
Stockpile Soil Samples
Fuel Farm Area
Laredo International Airport
Laredo Texas

| SAMPLE ID | DATE COLLECTED | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | TCLP BENZENE mg/L (ppm) |
|---|---|---|---|---|---|---|---|
| CLTS-20 | 1/28/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-21 | 1/28/93 | 27.9 | BDL | BDL | BDL | BDL | BDL |
| CLTS-22 | 1/28/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-23 | 1/28/93 | 23.1 | BDL | BDL | BDL | BDL | BDL |
| CLTS-24 | 1/28/93 | 27.7 | BDL | BDL | BDL | BDL | BDL |
| CLTS-25 | 1/28/93 | 743 | BDL | BDL | BDL | BDL | BDL |
| CLTS-26 | 1/28/93 | 8.7 | BDL | BDL | BDL | BDL | BDL |
| CLTS-27 | 1/28/93 | 6.3 | BDL | BDL | BDL | BDL | BDL |
| CLTS-28 | 1/28/93 | 756 | BDL | BDL | BDL | BDL | BDL |
| CLTS-29 | 1/28/93 | 444 | BDL | BDL | BDL | BDL | BDL |
| CLTS-30 | 1/28/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-31 | 1/28/93 | 518 | BDL | BDL | BDL | BDL | BDL |
| CLTS-32 | 1/28/93 | 11.0 | BDL | BDL | BDL | BDL | BDL |
| CLTS-33 | 1/28/93 | 14,800 | BDL | BDL | BDL | BDL | BDL |
| CLTS-34 | 1/28/93 | 413 | BDL | BDL | BDL | BDL | BDL |
| CLTS-35 | 1/28/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-36 | 1/28/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-37 | 1/28/93 | 30.4 | BDL | BDL | BDL | BDL | BDL |
| CLTS-38 | 1/28/93 | BDL | BDL | BDL | BDL | BDL | BDL |
| CLTS-39 | 1/28/93 | 27.2 | BDL | BDL | BDL | BDL | BDL |
| CLTS-40 | 1/28/93 | 11.6 | BDL | BDL | BDL | BDL | BDL |
| CLTS-41 | 1/28/93 | 33.2 | BDL | BDL | BDL | BDL | BDL |
| CLTS-42 | 1/28/93 | 32.3 | BDL | BDL | BDL | BDL | BDL |
| CLTS-43 | 1/28/93 | 47.4 | BDL | BDL | BDL | BDL | BDL |
| CLTS-44 | 1/28/93 | 25.6 | BDL | BDL | BDL | BDL | BDL |

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## TABLE 3-3, Continued

## SUMMARY OF ANALYTICAL RESULTS
Stockpile Soil Samples
Fuel Farm Area
Laredo International Airport
Laredo Texas

| SAMPLE ID | DATE COLLECTED | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | TCLP BENZENE mg/L (ppm) |
|---|---|---|---|---|---|---|---|
| CLTS-45 | 1/28/93 | 29.2 | BDL | BDL | BDL | BDL | BDL |
| CLTS-46 | 1/28/93 | 29.5 | BDL | BDL | BDL | BDL | BDL |
| CLTS-47 | 1/28/93 | 33.1 | BDL | BDL | BDL | BDL | BDL |
| CLTS-48 | 1/29/93 | 48.3 | BDL | BDL | BDL | BDL | BDL |
| CLTS-49 | 1/29/93 | 29.7 | BDL | BDL | BDL | BDL | BDL |
| CLTS-50 | 1/29/93 | 37.0 | BDL | BDL | BDL | BDL | BDL |
| CLTS-51 | 1/29/93 | 61.5 | BDL | BDL | BDL | BDL | BDL |
| CLTS-52 | 1/29/93 | 69.4 | BDL | BDL | BDL | BDL | BDL |
| CLTS-53 | 1/29/93 | 23.3 | BDL | BDL | BDL | BDL | BDL |
| CLTS-54 | 1/29/93 | 38.1 | BDL | BDL | BDL | BDL | BDL |
| CLTS-55 | 1/29/93 | 392 | BDL | BDL | BDL | BDL | BDL |
| CLTS-56 | 1/29/93 | 487 | BDL | BDL | BDL | BDL | BDL |
| CLTS-57 | 1/29/93 | 34.4 | BDL | BDL | BDL | BDL | BDL |
| CLTS-58 | 1/29/93 | 49.4 | BDL | BDL | BDL | BDL | BDL |
| CLTS-59 | 1/29/93 | 61.4 | BDL | BDL | BDL | BDL | BDL |
| DSN-1 | 2/2/93 | 35.6 | BDL | BDL | BDL | BDL | BDL |
| DSN-2 | 2/2/93 | 219 | BDL | BDL | BDL | BDL | BDL |
| DSN-3 | 2/2/93 | 21.4 | BDL | BDL | BDL | BDL | BDL |
| DSN-4 | 2/2/93 | 145 | BDL | BDL | BDL | BDL | BDL |
| DSN-5 | 2/2/93 | 79.2 | BDL | BDL | BDL | BDL | BDL |
| DSN-6 | 2/2/93 | 459 | BDL | BDL | BDL | BDL | BDL |
| DSN-7 | 2/2/93 | 522 | BDL | BDL | BDL | BDL | BDL |
| DSN-8 | 2/2/93 | 70.2 | BDL | BDL | BDL | BDL | BDL |
| DSN-9 | 2/2/93 | 11.1 | 0.113 | BDL | 0.766 | BDL | BDL |
| DSN-10 | 2/2/93 | 61.9 | 0.261 | BDL | 0.311 | BDL | BDL |

*ESI\1993\USCORP\93130_5\051793FF.MS*

## TABLE 3-3, Continued

## SUMMARY OF ANALYTICAL RESULTS
Stockpile Soil Samples
Fuel Farm Area
Laredo International Airport
Laredo Texas

| SAMPLE ID | DATE COLLECTED | TPH mg/kg (ppm) | BENZENE mg/kg (ppm) | TOLUENE mg/kg (ppm) | ETHYL-BENZENE mg/kg (ppm) | XYLENES mg/kg (ppm) | TCLP BENZENE mg/L (ppm) |
|---|---|---|---|---|---|---|---|
| DSN-11 | 4/5/93 | 56.0 | BDL | BDL | BDL | BDL | BDL |
| DSN-12 | 4/5/93 | 21.9 | BDL | BDL | BDL | BDL | BDL |
| DSN-13 | 4/5/93 | 44.2 | BDL | BDL | BDL | BDL | BDL |
| DSN-14 | 4/5/93 | 17.2 | BDL | BDL | BDL | BDL | BDL |
| DSN-15 | 4/5/93 | 47.9 | BDL | BDL | BDL | BDL | BDL |
| DSN-16 | 4/5/93 | 89.5 | BDL | BDL | BDL | BDL | BDL |
| DSN-2-2 | 3/10/93 | 41.2 | NA | NA | NA | NA | NA |
| DSN-4-2 | 3/10/93 | 41.5 | NA | NA | NA | NA | NA |
| SN-6-2 | 3/10/93 | 60.4 | NA | NA | NA | NA | NA |
| SN-7-2 | 3/10/93 | 78.6 | NA | NA | NA | NA | NA |

*NOTES:*
*mg/kg - milligrams per kilogram*
*TCLP - toxicity characteristic leaching procedure*
*BDL - parameter below the detection limit for the utilized analytical method*
*mg/l - milligrams per liter*
*ppm - parts per million*
*TPH - total petroleum hydrocarbons*
*DSN - Dirty Soil Non-Waste Oil Area*
*CLTS - clean tank soils*
*NA - not analyzed*

*Method detection limits are included on the analytical reports in Appendix C.*

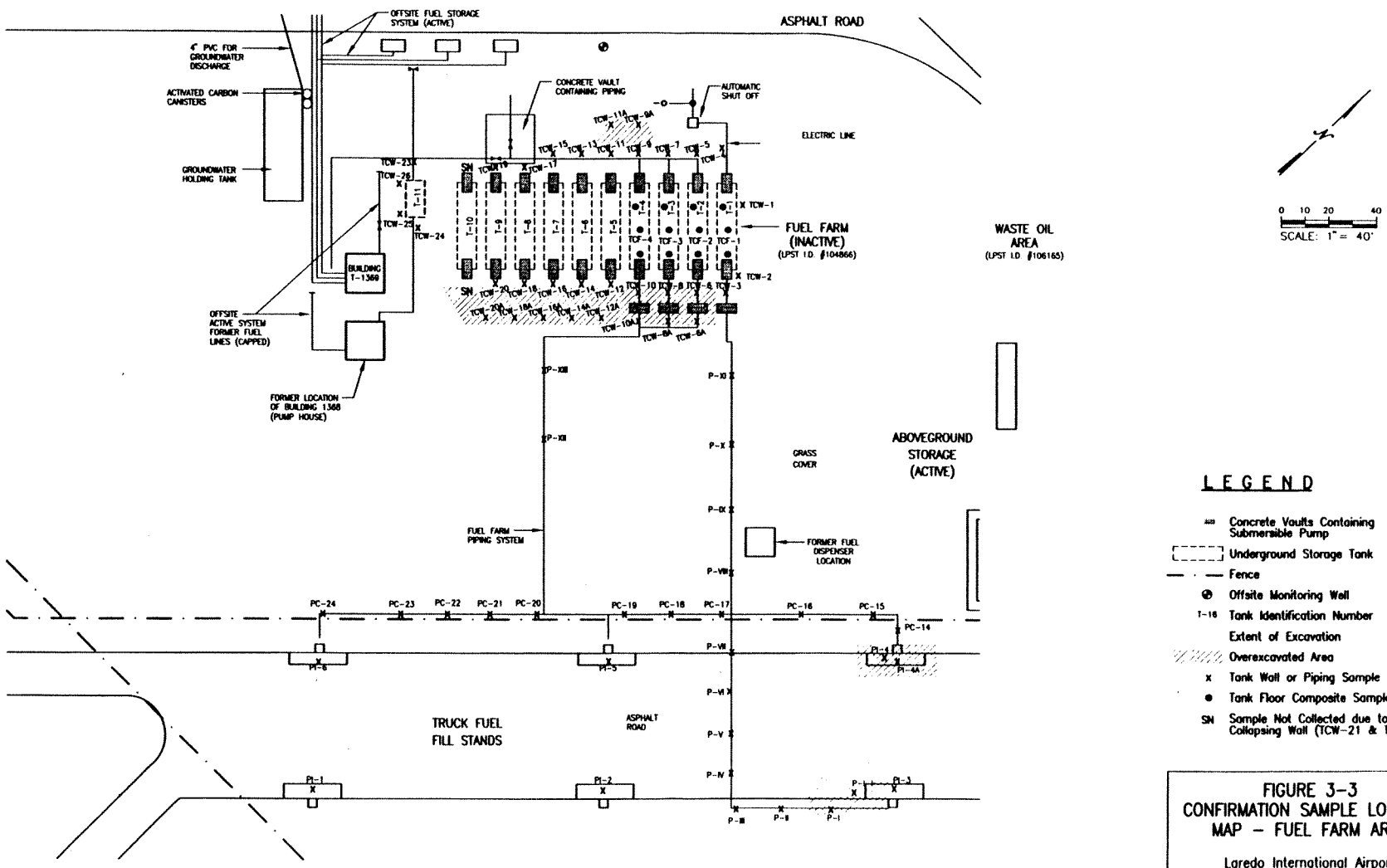


FIGURE 3-3
CONFIRMATION SAMPLE LOCATION MAP – FUEL FARM AREA

Laredo International Airport
U.S. Army Corps of Engineers
Laredo, Texas
SWL Reference No. 505893-130(5.0)

SWL ENVIRONMENTAL

01293

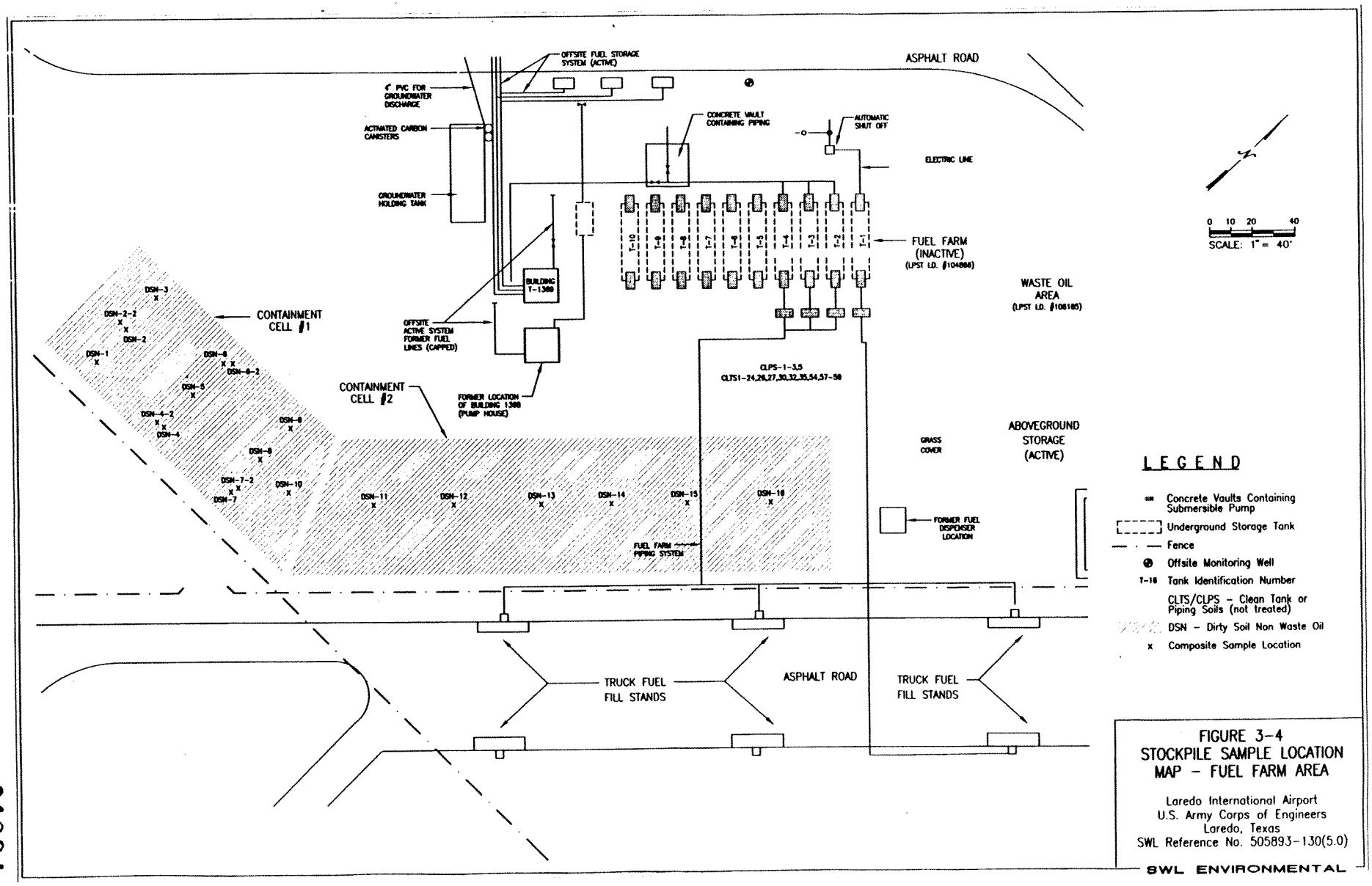


FIGURE 3-4
STOCKPILE SAMPLE LOCATION MAP - FUEL FARM AREA

Laredo International Airport
U.S. Army Corps of Engineers
Laredo, Texas
SWL Reference No. 505893-130(5.0)

SWL ENVIRONMENTAL

01294

# 4.0 DISPOSITION OF THE TANK SYSTEMS AND CONCRETE RUBBLE

## 4.1 Tanks and Piping

The tanks and piping were transported offsite by Hale Brothers Trucking and CCC Group, Inc. The tanks tested as inert and were properly placarded prior to transport. Hale Brothers Trucking transported four 25,000 gallon USTs to Commercial Metals, Inc. in Corpus Christi, Texas. CCC Group, Inc. transported all remaining tanks and piping to Wilkinson Iron and Metals, Inc. in Laredo, Texas. All tanks and piping were processed for scrap metal recycling. Correspondence by CCC, Group Inc. documenting the disposal of the tanks is provided in Appendix D.

## 4.2 Concrete Rubble

All concrete rubble was transported offsite by CCC Group, Inc. The rubble was placed in the Leyendecker pit in Laredo, Texas.

## 5.0 CONCLUSIONS

Following removal of the 11 UST systems, the in situ soils were documented to have concentrations of TPH ranging from 39.4 mg/kg to 756 mg/kg on the south tankhold wall. BTEX levels on the south tankhold wall ranged from non-detect to 21.36 mg/kg. Concentrations of TPH remaining in the in situ soils of the northern tankhold wall ranged from 26.1 mg/kg to 1,080 mg/kg. In situ BTEX contaminants on the north wall ranged form non-detect to 208.67 mg/kg. The west tankhold in situ samples documented TPH results ranging from 3,760 mg/kg to 13,400 mg/kg. BTEX constituents of the western tankhold wall totaled 3.16 mg/kg to 8.18 mg/kg.

Soil confirmation samples were not collected from beneath tank T-5 through tank T-11 due to the presence of groundwater in the tankhold. Approximately 170,000 gallons of treated groundwater was discharged to surface storm drainage waters. Approval for the discharges were obtained from the TWC and City of Laredo officials.

Piping confirmation samples ranged from TPH levels of non-detect to 118 mg/kg. BTEX levels in piping confirmation samples were all non-detect.

Pump island in situ soils were documented to contain concentrations of TPH ranging from non-detect to 14,500 mg/kg. BTEX concentrations of pump island in situ soils ranged from non-detect to 5.77 mg.kg.

Stockpiled soils were documented to contain levels of TPH as high as 14,800 mg/kg. Treatment of the stockpiled soils by enhanced biodegradation reduced TPH levels by approximately 16 percent on average. Following TWC guidance, stockpiled soils were returned to the tankhold and properly compacted.

# APPENDIX A

# TWC CORRESPONDENCE AND DOCUMENTATION

SWL
ENVIRONMENTAL SERVICES

4150 Friedrich Lane
P.O. Box 17365
Austin, Texas 78760
Phone: (512) 447-9081
Fax: (512) 443-3442

January 11, 1993

Mr. Bill Morris
Texas Water Commission
District 11 Office
813 East Pike Blvd.
Weslaco, Texas 78596-4935

Re: Construction Notification - 30 Day Waiver
Laredo International Airport (LIA) Transmittal No. 007

Dear Mr. Morris:

Please find attached the Construction Notification for the removal of twenty out of service underground storage tanks (USTs) located at the referenced facility. Removal activities are being coordinated and funded by the United States Army Corps of Engineers in coordination with the City of Laredo. Table 1 provides a summary of the UST removals. A site plan is also included indicating the location of the USTs at the LIA facility.

Due to the magnitude and intricacies of the project as well as the adjacent facilities remediation programs, SWL Environmental Services (SWL), on behalf of the U.S. Army Corps of Engineers, requests a wavier of the 30-day notification. SWL proposes a construction start date of Thursday, January 21, 1993. A complete schedule of activities will be forwarded to your office immediately upon completion.

SWL



Your attention to the waiver request is greatly appreciated. Should you have any questions regarding any of the enclosed information as well as authorization to proceed with the cited activities, please contact me at (512) 447-9081.

Sincerely,

SWL ENVIRONMENTAL SERVICES

Lee W. Forbes

Lee Forbes
Project Manager

LF/dm
Enclosures

cc: w/Enclosures

Mr. Allen Martinets, P.E., TWC, PST Division
Mr. David Soltesz, U.S. Army Corps of Engineers
Mr. Buzz Hafer, CCC Group, Inc.
Mr. Jose Flores, City of Laredo - Laredo International Airport
Mr. Luis Perez-Garcia, P.E., City of Laredo

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TWC WATER COMMISSION
UNDERGROUND STORAGE TANK (UST) CONSTRUCTION NOTIFICATION FORM

This form is provided to assist UST owners in complying with the construction notification requirements of TWC Rules, 31 TAC Chapter 334. The completion and filing of this form within the prescribed time should satisfy these requirements.

1. TYPE OF CONSTRUCTION: (Indicate all that apply.)
___ Installation ___ Addition (x) Removal ___ Other (Specify) 93
___ Replacement ___ Improvement ___ Abandonment

2. FACILITY LOCATION INFORMATION:
Facility Name: Laredo Internt'l Airport
Address/Location: 518 Flightline
Laredo
County: Webb
UST Facility No. (If known) Reg. # Pend.
Telephone: (512) 722-4933

3. OWNER INFORMATION:
Owner: City of Laredo
Representative: Jose Flores
Title: Airport Manager
Address: 518 Flightline, Bldg 132
City/State/Zip: Laredo, TX 78041
Telephone: (512) 722-4933

4. UST CONSULTANT INFORMATION:
Company: SWL Environmental Services
Representative: Lee Forbes
Address: P.O. Box 17366
City/State/Zip: Austin, Texas 78760
Telephone: 512-447-9081

5. UST CONTRACTOR INFORMATION:
Company: CCC Group, Inc.
Representative: Buzz Hafer
Address: 5797 Dietrich Road
City/State/Zip: San Antonio, TX
Telephone: (512) 661-4251

3a. REMOVAL COORDINATION:
U.S. Army Corp of Engineers
Representative: Mr. David Soltesz
Title: Project Coordinator
Address: 5430 Fredericksburg Road
City/State/Zip: San Antonio, TX
Phone: (210) 921-0961

6. GENERAL DESCRIPTION OF PROPOSED UST ACTIVITY: (Describe all new or replacement tanks and other UST system components. Include closure procedures for UST abandonments or removals. Attach additional information as appropriate.)
*In addition to the 30-day written notification required by 334.6(b)(2), the owner shall contact the appropriate district office 24-72 hours prior to the start of construction activity 334.6(b)(2)(C).

See attached Table and Site Plans.

7. SCHEDULE/DATES FOR PROPOSED CONSTRUCTION:

January 21, 1993 Initiation of piping removal in the fuel farm area.

RECEIVED JAN 27 1993 DISTRICT 11

8. SUBMITTED BY: Lee Forbes DATE: January 11, 1993

Title & Company: Project Manager, SWL Environmental Services Lone Star: 1280341

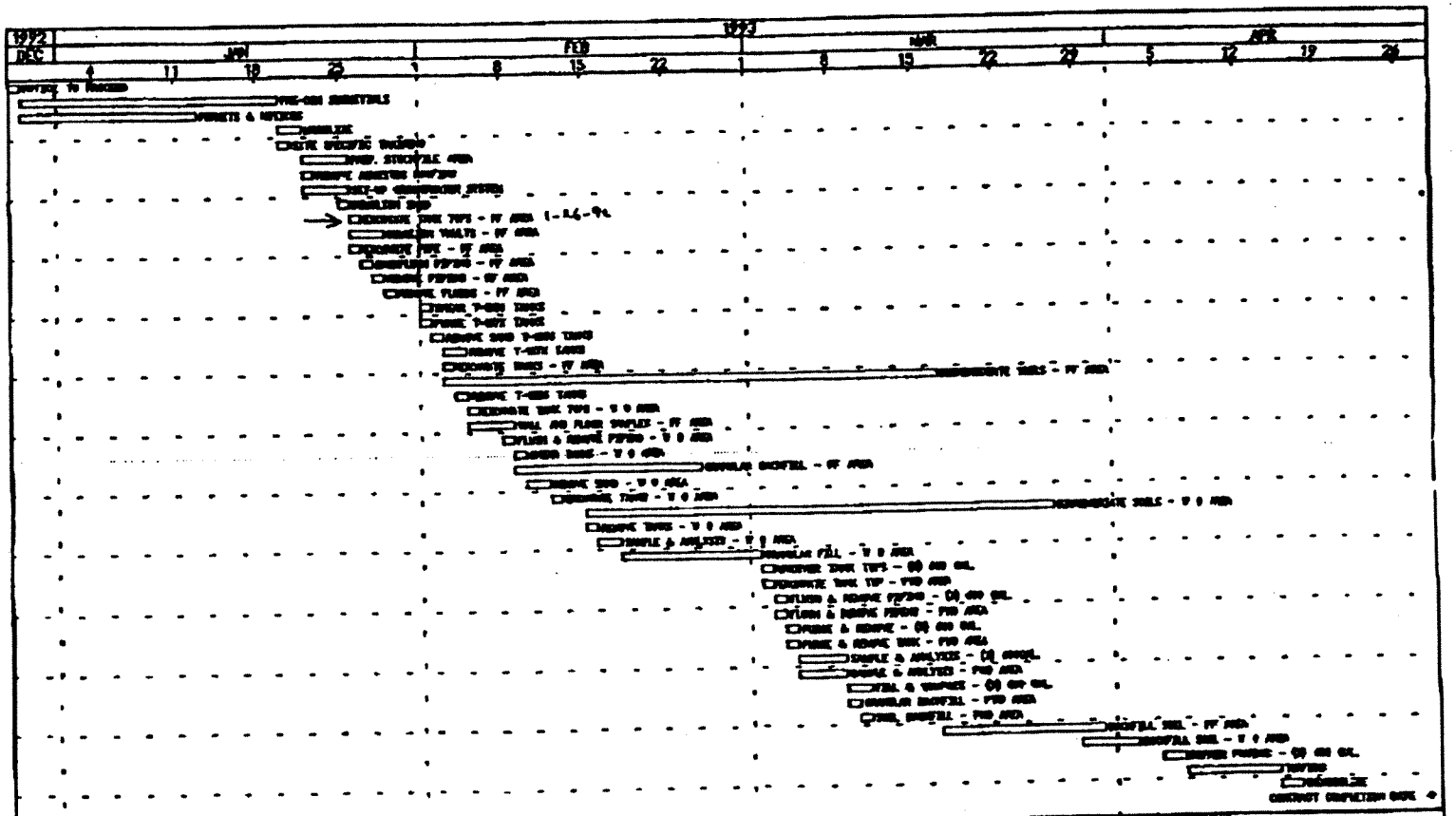
9. MAIL COMPLETED FORM TO:

Texas Water Commission
Petroleum Storage Tank
Division
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

FOR TWC STAFF USE ONLY
Date Rec'd: 1-13 Type Notice: ___
District: 11 Dist. Rep. ___
Remarks: REM/LATE
930113027
Logged by: [illegible] Date: ___

01300

01301




Plot Date 14JAN93
Data Date 28DEC92
Project Start 14DEC92
Project Finish 27APR93

(c) Primavera Systems, Inc.

U. S. ARMY CORPS OF ENGINEERS
LAREDO INTNL AIRPORT UST REMOVAL
PROJECT SCHEDULE DACA63-93-C-0006

TARGET SCHEDULE

| Date | Revision | Checked | Approved |
|---|---|---|---|
| | | | |

SWL
ENVIRONMENTAL SERVICES

4150 Friedrich Lane
P.O. Box 17366
Austin, Texas 78760
Phone: (512) 447-9081
Fax: (512) 443-3442

February 25, 1993

Mr. Bill Morris
Texas Water Commission, District 11
813 East Pike Blvd.
Weslaco, TX 78596-4935

Re: Summary of Project Scope, Laredo International Airport, Laredo, Texas, for U.S. Army Corps of Engineers, UST Removal Project at the following locations: Fuel Farm (FF), LPST I.D. No. 104866, Waste Oil (WO) LPST I.D. No. 106165, Plane Wash Down (PWD), and the Three Isolated 600-Gallon USTs

Dear Bill,

As requested by you in our conversation at the Laredo project site on February 3, 1993, this letter serves to notify your office of the scope of work to be performed by SWL Environmental Services (SWL) and our tank removal and remediation subcontractor, CCC Group, Inc., for the above-referenced project at the Laredo International Airport. The project is being performed under contract to the U.S. Army Corps of Engineers (Corps), Fort Worth District. As also discussed with our office, Ms. Ann Miller of the Texas Water Commission (TWC) Petroleum Storage Tanks (PST) Division Central Office in Austin, Texas is the coordinator for the referenced Leaking Petroleum Storage Tank (LPST) sites. It is our understanding that the TWC Central Office will be coordinating future assessment and site remediation, if necessary, and that your office will continue as the field contact for removal activities and notification of contamination. A revision of the scheduled activities is enclosed for your reference and a copy has been forwarded for the TWC central office files. The contents of this letter are based on our proposed scope of work for the project, and your LPST I.D. No. 104866 Site Directive for the fuel farm area, dated February 3, 1993.

SWL will be closing, by excavation, removal, and offsite disposal, 20 underground storage tanks (USTs) at the sites. Site activities for the project began in mid-January and are expected to conclude at the end of April. A tank description table, vicinity map, site plan, and project schedule have been previously submitted to you in the TWC Construction Notification - 30 Day

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Waiver, dated January 11, 1993 and subsequent addenda. The tanks will be removed from the ground and transported offsite for disposal at a metal recycle facility.

SWL intends to operate a temporary Class D Facility at the site, as described under Subchapter K of Title 31 of the TAC, Sections 334.481-.506 to facilitate the cleanup of petroleum contaminated soils associated with the removal of the tanks. The facility will be a temporary, lined soil treatment cell at the site in which contaminated soils will be bioremediated to current hydrocarbon levels acceptable for landfilling, or onsite backfilling of the excavated tankholds in accordance with TWC regulations. The facility will be operated under the guidelines of Title 31, TAC Section 334, Subchapter K pertaining to Class D facilities.

SWL will also be discharging excavation water to the local stormwater collection system after treatment via activated carbon canisters and testing. The discharging will be conducted under the guidelines of Subchapter H of Title 31 of the TAC, Sections 321.131-.138 for each LPST site.

SWL will continue to maintain communication with you in this project through myself or Ms. Monica Scott in our Austin office, and through Mr. Larry Collins, the SWL site supervisor. If you have any questions or require additional information in this regard, please do not hesitate to contact me at 512/447-9081.

Sincerely,

SWL ENVIRONMENTAL SERVICES

Lee W. Forbes

Lee W. Forbes, P.E.
Project Manager

LWF/dm
Attachment

cc: Ms. Ann Miller, Texas Water Commission (w/ attachment)
Mr. David Soltesz, Army Corps of Engineers
Mr. Luis Perez-Garcia, City of Laredo
Mr. Jose Flores, Laredo International Airport

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Commission Use Only (9/19/91 Ver)

Texas Water Commission
Attn: Charles Eanes
Watershed Management Division
P.O. Box 13087
Austin, Texas 78711-3087
(512) 463-8245

* Date Received: _____ *
* Registration No. _____ *
* County: _____ *
* District Office: _____ *
* Telephone( ) _____ *

APPLICATION FOR REGISTRATION OF DISCHARGE PURSUANT TO 31 TAC CHAPTER 321 (SUBCHAPTER H)
(Discharge to Surface Waters from Treatment of Petroleum Fuel Contaminated Waters)

1. Applicant (Responsible Party): UNITED STATES ARMY CORPS OF ENGINEERS

   Individual to Contact: MR. DAVID SOLTESZ

   Mailing Address: 5430 FREDRICKSBURG ROAD

   City: SAN ANTONIO State: TX Zip: 78229 Telephone: (210 ) 921-0961

2. Consultant: (Company Name, Individual to Contact, Mailing Address & Telephone No.)
   SwL ENVIRONMENTAL SERVICES
   MR. LEE FORBES (512) 447-9081
   4150-B FREIDRICH LANE
   AUSTIN, TEXAS 78760

3. Leaking Petroleum Storage Tank (LPST) ID No.: 104866 County: WEBB
   (Location of Discharge)

4. The water to be discharged was not contaminated as a result of a spill but is:
   ( )groundwater, ( ) stormwater or (X) both groundwater and stormwater.
   (Check a block in each of the three columns below)

| Contaminated By | Released From An | And Will Be Disposed of by |
|---|---|---|
| (X) Gasoline | ( ) Above Ground Tank | ( ) Discharge to a watercourse(Describe). |
| ( ) Diesel Fuel | (X) Underground Tank | (X) Discharge to stormwater collection system with owner's approval. |
| ( ) Fuel Oil | ( ) Pipeline | ( ) On-site land application with no runoff. |
| ( ) Kerosene | | |
| (X) Jet Fuel | | |

5. (a) Site located within city of LAREDO Address LAREDO INT'L AIRPORT.
   (b) Provide a map locating the site where no street address is available.

6. Was lead or lead compounds detected in the groundwater? YES( ) NO(X)
   If yes, lead must be monitored throughout the period of discharge.

7. Can discharge limits be attained without providing treatment? YES( ) NO(X)
   If no, provide a description of the treatment system which will be utilized.
   Frac tank holding w/discharge through activated carbon cannisters

8. a. Estimated date for Discharge: 1 FEB 1993 b. Estimated Duration: 90 (Days/Months)

I, LEE W. FORBES, PROJECT MANAGER
(Typed or Printed Name of Registrant or Agent) (Title)
attest that the discharge will be conducted in accordance with the requirements of 31 TAC Sections 321.131-.138.

Signature: Lee W. Forbes Date: 26 JAN 1993
(NOTE-A FACSIMILE WILL NOT BE PROCESSED & AN ORIGINAL SIGNATURE IS REQUIRED)

01304

## ACKNOWLEDGMENT OF REGISTRATION AND REPORT FORM

Texas Water Commission
Attn: Charles Eanes
Watershed Management Div.
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

**Note:** Please check applicable block.
( ) FINAL REPORT: DISCHARGE HAS BEEN COMPLETED
( ) Discharge has not been completed.
( ) Discharge did not occur this reporting period_____, 19____
(Month)

RE: DR L 104866 Process Date: February 5, 1993

On or about January 29, 1993, **U.S. Army Corps of Engineers**, individually or through its representative filed an application to discharge pursuant to Title 31 TAC Section 321.131-.138 for a site located at 518 flightline, Laredo, Texas.

This acknowledgment also serves as a report form, which is to be reproduced as necessary, for the purpose of compliance with the Commission's reporting requirements. Regardless of whether a discharge occurred within a month, a report is due to the Commission by the 20th day of the following month. Your initial report is due March 20, 1993. A 24-Hour advance notice of discharge shall be provided the District 11 of the Commission at (512) 968-3165. Return this form as shown in upper left corner.

INSTRUCTIONS: Enter the actual date of discharge for a one time event in the first column or for discharges occurring one or more weeks during the month, enter the period covered in appropriate columns. Please note to record the date the sample was collected at the bottom of each column. **RECORD RESULTS FROM LABORATORY REPORT(S) BELOW.** (PLEASE DO NOT ATTACH LAB REPORTS).

| Parameter | Limitation | Week of Discharge | Week of Discharge | Week of Discharge | Week of Discharge | Week of Discharge |
|---|---|---|---|---|---|---|
| 1. Total Petroleum Hydrocarbons | 15 mg/l | | | | | |
| 2. Lead | 0.25 mg/l | NOT REQUIRED PER TITLE 31 TAC 321.135(2)(B). | | | | |
| 3. Benzene | 50 ppb | | | | | |
| 4. Total BTEX** | 500 ppb | | | | | |
| 5. pH (Standard Unit) | 6.0-9.0 | MONITOR PER TWC REQUIREMENTS/MAINTAIN RECORDS TO DEMONSTRATE COMPLIANCE. | | | | |
| **Enter Date Sample Was Collected For the Day/Week of Discharge** | | | | | | |

Note: **Any excursion from discharge limitations requires the submission of a report of noncompliance. The report must address when the excursion was first noted, identified cause of the excursion, and corrective action taken to prevent a further reoccurrence.**

I,_____,_____
(Print or Type Name) (Telephone Number)
attest that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete and accurate.

Signature:_____ Date:_____

SWL
ENVIRONMENTAL SERVICES

4150 Friedrich Lane
P.O. Box 17366
Austin, Texas 78760
Phone: (512) 447-9081
Fax: (512) 443-3442

January 29, 1993

Mr. Raj Guntnur
Environmental Engineer
City of Laredo
1110 Houston Street
Laredo, Texas 78042

Re: Notice of Intent to Discharge to City of Laredo Stormwater Collection System, UST Removal Project, Laredo International Airport, Laredo, Texas, for U.S. Army Corps of Engineers

Dear Mr. Guntnur:

As discussed in our January 28 telephone conversation, this letter serves to notify your office of our intent to discharge treated waters collected during the above-referenced UST removal project at the Laredo International Airport to the city's stormwater collection system. SWL Environmental Services, under contract to the U.S. Army Corps of Engineers, plans to discharge approximately 1,002,000 gallons to the City's stormwater collection system over the life of the project (90 days). In our conversation you verbally approved the discharges for the project under the following conditions:

- Collected groundwater and run-on stormwater from the UST excavations as well as decontamination water from excavation equipment cleanup will be treated to meet the Texas Water Commission's (TWC) requirements for discharge under the Texas Administrative Code (TAC) Section 321.131 -.138, which deals with discharge of water contaminated as a result of a release associated with above ground and/or underground petroleum fuel tank systems or pipelines. A copy of the general guidelines and effluent treatment requirements and the TWC notification and discharge monitoring forms are attached;

- Waters removed from within the tanks which do not contain enough free product for use as recycle material will be treated to below detectable limits (BDL) for the parameters total benzene, toluene, ethylbenzene, and xylenes (BTEX), total petroleum

hydrocarbons, and lead, and to Ph levels between 6.0 to 9.0 standard units. These waters will also be discharged to the city's stormwater collection system;

- All collected waters subject to discharge will be treated using multiple 20,000 gallon portable holding tanks, a granular activated carbon treatment system, and a splash plate aerator prior to discharge to the city's stormwater collection system. A schematic diagram of the treatment system is attached;

- Any collected waters which cannot meet the above mentioned requirements will be disposed of properly offsite.

As you requested, copies of all TWC discharge notification forms, monitoring forms, and analytical data will be provided to your office as the project progresses. This will include estimated volumes of waters discharged for each period. The TWC requires notification 24 hours prior to any discharge from a leaking petroleum storage tank (LPST) site and the analysis of discharged waters on a weekly basis after initial analyses have indicated that the treatment process is functioning properly. The tabulated results are then submitted to the TWC on a monthly basis. SWL will likewise provide all information collected to your office on a monthly basis after initial notification.

At present only one LPST number has been assigned to the project. Based on the locations and groupings of the 20 USTs to be removed at the site, it is possible that five additional LPST numbers will be assigned to the project by the TWC. Discharge notification and monitoring forms will be submitted for each LPST number for the project. If you have any questions or require additional information in this regard, please do not hesitate to contact me at 512/447-9081.

Sincerely,

SWL ENVIRONMENTAL SERVICES

Lee W. Forbes

Lee W. Forbes, P.E.
Project Manager

LF/mjj
Attachment

1993\USCORP\93130-1\LT012893.LF

GUIDELINE FOR THE DISCHARGE OF PETROLEUM FUEL CONTAMINATED WATERS
31 Texas Administrative Code Section 321.131-.138

DISCLAIMER: The following is an abbreviated summary of requirements for discharge under the Rules of the Commission. This summary does include omissions and brevity has been applied to the discussion of requirements, however, this does not relieve the registrant from having full and complete knowledge of all requirements for a surface discharge pursuant to the Rule.

DEFINITIONS:
1. Free Product--Gasoline, diesel fuel, fuel oil, kerosene, & jet fuel which is floating on top of groundwater.
2. Groundwater remediation--Treatment of contaminated groundwater to remove free product & to reduce or eliminate groundwater contamination.
3. Petroleum fuel--Gasoline, diesel fuel, fuel oil, kerosene & jet fuel.

APPLICABILITY: Regulate by rule the surface discharge of water contaminated as a result of a release associated with above ground and/or underground petroleum fuel tank systems or pipelines. Surface discharge of water which was contaminated as a result of releases of petroleum fuel can occur during groundwater pump tests, and/or other activities including the removal of petroleum fuel contaminated water from groundwater recovery wells, excavations & utility vaults.

GENERAL REQUIREMENTS: A registration form bearing an original signature, as provided by the Executive Director, must be submitted to the TWC Austin office prior to discharge. Submittal of the form is sufficient notice to initiate discharge in accordance with the Rules of the Commission. If contamination resulted from a spill, the Hazardous & Solid Water Division of the Commission must be contacted for cleanup requirements.

1. Notify TWC district office at least 24 hrs. prior to initiating discharge.
2. There shall be no discharge of free product.
3. Solid waste disposal will be in accordance with Solid Waste Disposal Act.
4. Discharge shall not cause nuisance conditions to downstream land owners.
5. Take all steps necessary to prevent any adverse effect to human health or safety or to the environment.
6. Concentrations of taste and odor producing substances shall not interfere with the production of potable water, etc.

SPECIFIC REQUIREMENTS:
1. All discharges shall be to a splash pad to aerate the treated water and the rate of discharge shall be controlled to prevent flooding and erosion.
2. The following maximum effluent limitations & monitoring requirements apply:

| Parameter | Limitation | Sample Type | Monitoring Frequency |
|---|---|---|---|
| Total Petroleum Hydrocarbons | 15 mg/l | Grab | 1/week |
| Lead | 0.25 mg/l | Grab | 1/week |
| Benzene | 50 ppb | Grab | 1/week |
| Total BTEX | 500 ppb | Grab | 1/week |
| pH | 6.0-9.0SU | Grab | 1/week |

Note: Special conditions apply to Telephone Utilities, this rule does not covey property rights of any sort and does not grant any exclusive privilege and separate authorizations may be required by other municipalities or agencies for discharges to sewage plants, stormwater sewers, or for air emissions.

Commission Use Only (9/19/91 Ver)

| | |
|---|---|
| Date Received: | |
| Registration No. | |
| County: | |
| District Office: | |
| Telephone( ) | |

Texas Water Commission
Attn: Charles Eanes
Watershed Management Division
P.O. Box 13087
Austin, Texas 78711-3087
(512) 463-8245

APPLICATION FOR REGISTRATION OF DISCHARGE PURSUANT TO 31 TAC CHAPTER 321 (SUBCHAPTER H)
(Discharge to Surface Waters from Treatment of Petroleum Fuel Contaminated Waters)

1. Applicant (Responsible Party):_____

   Individual to Contact:_____

   Mailing Address:_____

   City:_____State:_____Zip:_____Telephone:( )_____

2. Consultant:(Company Name, Individual to Contact, Mailing Address & Telephone No.)

3. Leaking Petroleum Storage Tank (LPST) ID No.:_____County:_____
   (Location of Discharge)

4. The water to be discharged was not contaminated as a result of a spill but is:
   ( )groundwater, ( ) stormwater or ( ) both groundwater and stormwater.
   (Check a block in each of the three columns below)

| Contaminated By | Released From An | And Will Be Disposed of by |
|---|---|---|
| ( ) Gasoline | ( ) Above Ground Tank | ( ) Discharge to a watercourse(Describe). |
| ( ) Diesel Fuel | ( ) Underground Tank | ( ) Discharge to stormwater collection system with owner's approval. |
| ( ) Fuel Oil | ( ) Pipeline | ( ) On-site land application with no runoff. |
| ( ) Kerosene | | |
| ( ) Jet Fuel | | |

5. (a) Site located within city of_____Address_____.
   (b) Provide a map locating the site where no street address is available.

6. Was lead or lead compounds detected in the groundwater? YES( ) NO( )
   If yes, lead must be monitored throughout the period of discharge.

7. Can discharge limits be attained without providing treatment? YES( ) NO( )
   If no, provide a description of the treatment system which will be utilized.

8. a. Estimated date for Discharge:_____ b. Estimated Duration:_____
   (Days/Months)

I,_____,_____
(Typed or Printed Name of Registrant or Agent) (Title)
attest that the discharge will be conducted in accordance with the requirements of 31 TAC Sections 321.131-.138.

Signature:_____Date:_____
(NOTE-A FACSIMILE WILL NOT BE PROCESSED & AN ORIGINAL SIGNATURE IS REQUIRED)

# ACKNOWLEDGEMENT OF REGISTRATION AND REPORT FORM

Texas Water Commission
Charles Eanes
Watershed Management Div.
P.O. Box 13087, Capitol Station

Note: Please check applicable block.
(x) FINAL REPORT: DISCHARGE HAS BEEN COMPLETED
( ) Discharge has not been completed.
( ) Discharge did not occur this reporting period
_____, 19____.
(Month)

PETROLEUM FUEL CONTAMINATED WATERS REPORT FORM FOR FEBRUARY 2-26, 1993
DUE THE 20TH DAY OF THE MONTH IN WHICH THE SAMPLE WAS COLLECTED

Registrant: U.S. Army Corps of Engineers

Registration Number: DRL 104866 Site: 518 Flightline, Laredo, Texas

Regardless of whether a discharge occurred within a month, a report is due to the Commission by the 20th day of the following month. Your initial report is due March 20, 1993. A 24-hour advance notice of discharge shall be provided by the District 11 of the Commission at (512) 968-3165. Return this form as shown in upper left corner.

INSTRUCTIONS:
Enter the actual date of discharge for a one time event in the first column or for discharges occurring one or more weeks during the month. Enter the period covered in appropriate columns. Please note to record the date the sample was collected at the bottom of each column. RECORD RESULTS FROM LABORATORY REPORT(S) BELOW. (PLEASE DO NOT ATTACH LAB REPORTS).

| | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE |
|---|---|---|---|---|---|
| | 2/2/93 | 2/3/93 | 2/6/93 | 2/7/93 | 2/12/93 |
| Sample Identification | T-1, T-2, T-3 | T-3 | T-4, T-5 | T-6 | T-7, T-8 |
| Before/After Treatment | Before | Before | Before | Before | Before |
| Volume (Gallons) | 49,900 | 18,980 | 20,720 | 26,006 | 13,110 |
| Parameter Limitation | | | | | |
| 1. TPH 15 mg/l | 4.79, 0.73, 0.76 | 0.76 | 0.60, 1.99 | 1.04 | 1.70, <0.50 |
| 2. Lead 0.25 mg/l | <0.10, <0.10, <0.10 | <0.10 | <0.10, <0.10 | 0.10 | <0.10, <0.10 |
| 3. Benzene 50 ppb | <4, <4, <4 | <4 | <4, 2,520 | <4 | 1,886, 16.60 |
| 4. Total BTEX** 500 ppb | <4, 31, <4 | 31 | <4, 2,520 | <4 | 2,255, 16.60 |
| 5. pH (Standard Unit) 6.0-9.0 | 7.83, 8.96, 8.34 | 8.34 | 8.01, 7.42 | 7.44 | 8.05, 8.07 |
| Enter date sample was collected for the Day/Week of Discharge | 1/27/93 | 1/27/93 | 1/27/93, 2/1/93 | 1/27/93 | 1/27/93, 2/1/93 |

Note: Any excursion from discharge limitations requires the submission of a report of noncompliance. The report must address when the excursion was first noted, identified cause of the excursion, and corrective action taken to prevent a further reoccurrence.

I, Lee Forbes of SWL Environmental Services, (512) 447-9081 attest that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete and accurate.

Signature: _____ Date: 3/12/93

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## ACKNOWLEDGEMENT OF REGISTRATION AND REPORT FORM

Water Commission
Charles Eanes
Watershed Management Div.
P.O. Box 13087, Capitol Station

Note: Please check applicable block.
(x) FINAL REPORT: DISCHARGE HAS BEEN COMPLETED
( ) Discharge has not been completed.
( ) Discharge did not occur this reporting period
_____, 19____.
(Month)

PETROLEUM FUEL CONTAMINATED WATERS REPORT FORM FOR FEBRUARY 2-26, 1993
DUE THE 20TH DAY OF THE MONTH IN WHICH THE SAMPLE WAS COLLECTED

Registrant: U.S. Army Corps of Engineers

Registration Number: DRL 104866 Site: 518 Flightline, Laredo, Texas

Regardless of whether a discharge occurred within a month, a report is due to the Commission by the 20th day of the following month. Your initial report is due March 20, 1993. A 24-hour advance notice of discharge shall be provided by the District 11 of the Commission at (512) 968-3165. Return this form as shown in upper left corner.

INSTRUCTIONS:
Enter the actual date of discharge for a one time event in the first column or for discharges occurring one or more weeks during the month. enter the period covered in appropriate columns. Please note to record the date the sample was collected at the bottom of each column. RECORD RESULTS FROM LABORATORY REPORT(S) BELOW. (PLEASE DO NOT ATTACH LAB REPORTS).

| | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE |
|---|---|---|---|---|---|
| | 2/13/93 | 2/13/93 | | | |
| **Sample Identification** | T-9 | T-10 | EWW-6 | | |
| **Before/After Treatment** | Before | Before | After | | |
| **Volume (Gallons)** | 8.514 | 22.732 | | | |
| **Parameter Limitation** | | | | | |
| 1. TPH 15 mg/l | <0.50 | 2.50 | 0.81 | | |
| 2. Lead 0.25 mg/l | <0.10 | <0.10 | Not required | | |
| 3. Benzene 50 ppb | <4 | 295.4 | <0.0040 | | |
| 4. Total BTEX** 500 ppb | <4 | 512.3 | <0.0040 | | |
| 5. pH (Standard Unit) 6.0-9.0 | 7.38 | 7.99 | | | |
| **Enter date sample was collected for the Day/Week of Discharge** | 1/28/93 | 1/28/93, 2/1/93 | 2/23/93 | | |

Note: Any excursion from discharge limitations requires the submission of a report of noncompliance. The report must address when the excursion was first noted, identified cause of the excursion, and corrective action taken to prevent a further reoccurrence.

I, Lee Forbes of SWL Environmental Services, (512) 447-9081 attest that I am familiar with the information contained in this report and hat to the best of my knowledge and belief such information is true, complete and accurate.

ature: Lee W. Forbes Date: 3/12/93

EST\1993\USCORP\93130-1\031293LE.MS

SWL
ENVIRONMENTAL SERVICES

4150 Friedrich Lane
P.O. Box 17366
Austin, Texas 78760
Phone: (512) 447-9081
Fax: (512) 443-3442

April 14, 1993

Mr. Charles Eanes
Texas Water Commission
Water Quality Division
P.O. Box 13087
Capitol Station
Austin, Texas 78711

Re: Subchapter H Discharge Report Form
Laredo International Airport, Laredo, Texas
LPST I.D. No. 104866

Dear Charles,

Please find enclosed Subchapter H Discharge report form for the aforementioned facility. All discharges were completed following treatment of water through carbon canisters and a splash pad. Sample I.D. EWW provides proof of system efficiency.

The previous discharge report stated all discharges were completed at this LPST site; however, due to groundwater seepage into the tankhold an additional discharge was necessary prior to backfilling the tankhold.

Should you have any questions or require additional information, please do not hesitate to call me at (512) 447-9081.

Sincerely,

**SWL ENVIRONMENTAL SERVICES**

Monica Scott
Project Geologist

Enclosure

cc: Mr. Bill Morris - TWC, District 11 Office
Ms. Ann Miller - TWC, PST Division
Mr. Raj Guntner - City of Laredo

ES\1993\USCORP\93130-1\041493LE.MS2

# ACKNOWLEDGEMENT OF REGISTRATION AND REPORT FORM

s Water Commission
...n: Charles Eanes
Watershed Management Div.
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

Note: Please check applicable block.
(x) FINAL REPORT: DISCHARGE HAS BEEN COMPLETED
( ) Discharge has not been completed.
( ) Discharge did not occur this reporting period
_____, 19____.
(Month)

PETROLEUM FUEL CONTAMINATED WATERS REPORT FORM FOR FEBRUARY 2-26, 1993
DUE THE 20TH DAY OF THE MONTH IN WHICH THE SAMPLE WAS COLLECTED

Registrant: U.S. Army Corps of Engineers

Registration Number: DRL-104866 Site: 518 Flightline, Laredo, Texas

Regardless of whether a discharge occurred within a month, a report is due to the Commission by the 20th day of the following month. Your initial report is due March 20, 1993. A 24-hour advance notice of discharge shall be provided by the District 11 of the Commission at (512) 968-3165. Return this form as shown in upper left corner.

INSTRUCTIONS:
Enter the actual date of discharge for a one time event in the first column or for discharges occurring one or more weeks during the month, enter the period covered in appropriate columns. Please note to record the date the sample was collected at the bottom of each column. RECORD RESULTS FROM LABORATORY REPORT(S) BELOW. (PLEASE DO NOT ATTACH LAB REPORTS).

| | | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE |
|---|---|---|---|---|---|---|
| | | 4/12/93 | | | | |
| Sample Identification | | EWW | | | | |
| Before/After Treatment | | After | | | | |
| Volume (Gallons) | | 12,108 | | | | |
| Parameter | Limitation | | | | | |
| 1. TPH | 15 mg/l | <0.50 | | | | |
| 2. Lead | 0.25 mg/l | <0.10 | | | | |
| 3. Benzene | 50 ppb | <0.0040 | | | | |
| 4. Total BTEX** | 500 ppb | <0.0040 | | | | |
| 5. pH (Standard Unit) | 6.0-9.0 | 7.51 | | | | |
| **Enter date sample was collected for the Day/Week of Discharge** | | 4/6/93 | | | | |

Note: Any excursion from discharge limitations requires the submission of a report of noncompliance. The report must address when the excursion was first noted, identified cause of the excursion, and corrective action taken to prevent a further reoccurrence.

I, Monica Scott of SWL Environmental Services, (512) 447-9081 attest that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete and accurate.

...ature: _____ Date: 4/14/93

ES\1993\USCORP\93130-1\041493LE.MS2

SWL
ENVIRONMENTAL SERVICES

4150 Friedrich Lane
P.O. Box 17366
Austin, Texas 78760
Phone: (512) 447-9081
Fax: (512) 443-3442

May 8, 1993

Mr. Bill Morris
Texas Water Commission, District 11
813 East Pike Blvd.
Weslaco, Texas 78596-4935

RE: Reimbursement from the Texas Water Commission Petroleum Storage Tank Remediation Fund, U.S. Army Corps of Engineers, Underground Storage Tank Removals and Overexcavations, Laredo International Airport, Laredo, Texas

Dear Bill,

As Monica Scott and I discussed with you in our telephone conversation today, please find attached written notice from the U.S. Army Corps of Engineers that eligible costs will not be pursued from the Texas Water commission (TWC) Petroleum Storage Tank Remediation (PSTR) Fund for removal and overexcavation activities currently being conducted at the Laredo International Airport (LIA). In order to expedite closure activities, SWL, on behalf of the U.S. Army Corps of Engineers, requests the TWC issue site directives confirming the soil cleanup levels for the project.

Should you require additional information or have any questions in this matter, do not hesitate to contact either Monica or myself at 512-447-9081.

Sincerely,

SWL ENVIRONMENTAL SERVICES

Lee W. Forbes

Lee Forbes
Project Manager

LF/mjj
Attachment
cc: w/Attachment
Ms. Ann Miller
Mr. David Soltesz, Army Corps of Engineers
Mr. Luis Perez-Garcia, City of Laredo
Mr. Jose Flores, Laredo International Airport

ES\1993\USCORP\93130_A030893LE.LF



SOUTHWESTERN LABORATORIES, INC.
A member of the HIH group of companies

5 Nov 93

TO: SWL.

FM: KELLY PROJECT OFFICE
U.S ARMY CORPS OF ENGINEERS

SUBJECT: REIMBURSEMENT

THE U.S ARMY CORPS OF ENGINEERS WILL NOT SEEK REIMBURSEMENT FOR THE WORK BEING PREFORMED AT LAREDO INT. AIRPORT

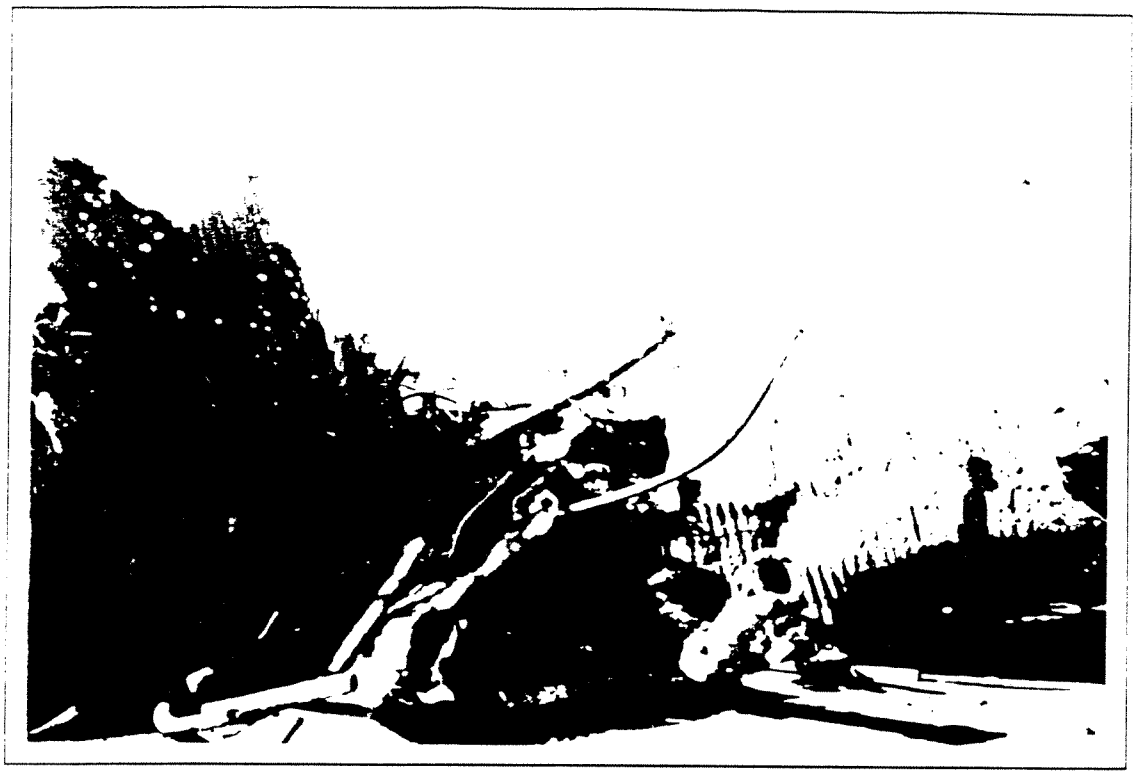
Mark Dollery
Corps of Engineers

# APPENDIX B

# SITE PHOTOGRAPHS

1. Removal of the concrete vaults containing the UST submersible pumps. The vaults were located over the 11 USTs. View is to the north/northwest.

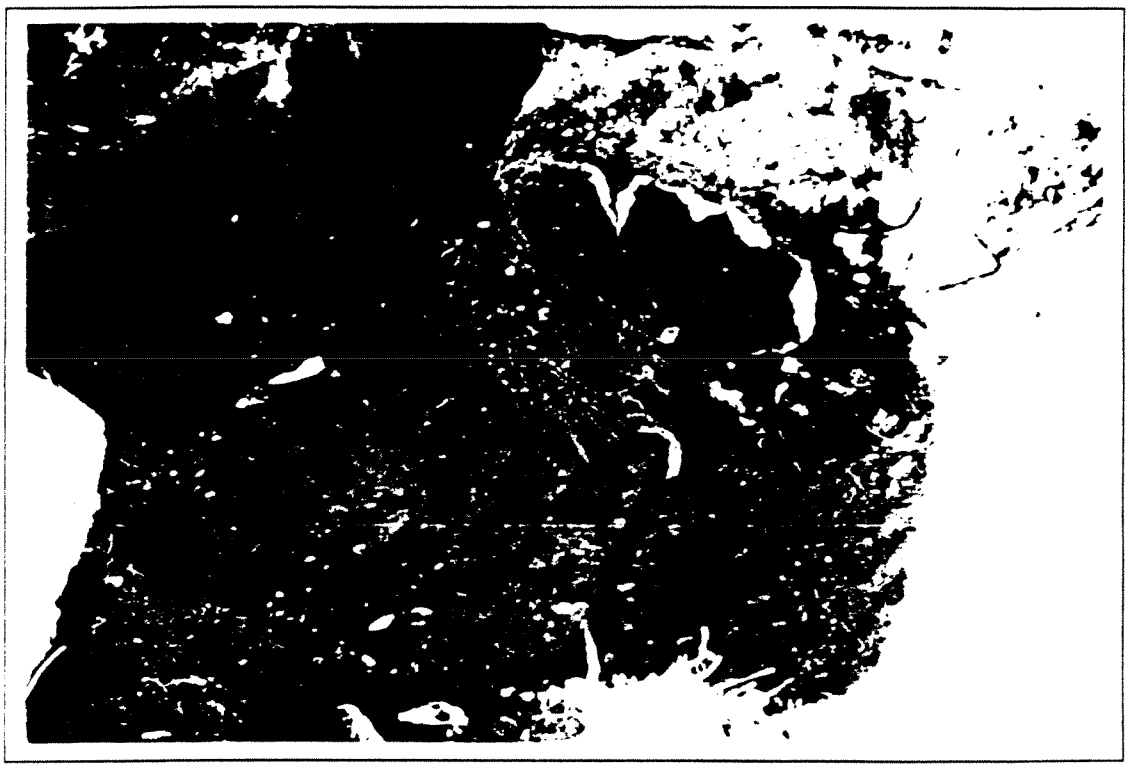
2. USTs are sheared for removal of sand contents. View is to the west/southwest.



3. Portion of corrugated steel UST and piping. Note the corrosion holes in the UST.

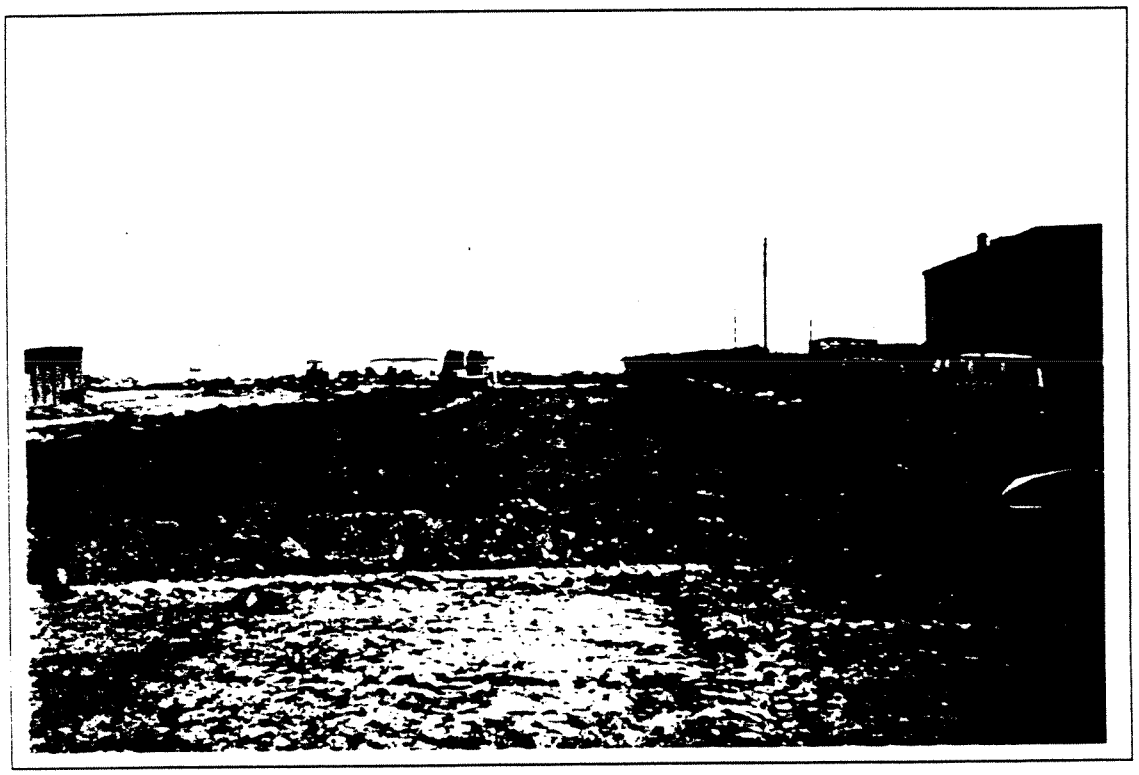
4 Stockpile of piping prior to disposal. Note the concrete rubble of removed vaults and pump islands in background.

5. Excavation following completion of UST removals. Groundwater in the tankhold is being transferred into the frac tank using a centrifugal pump.



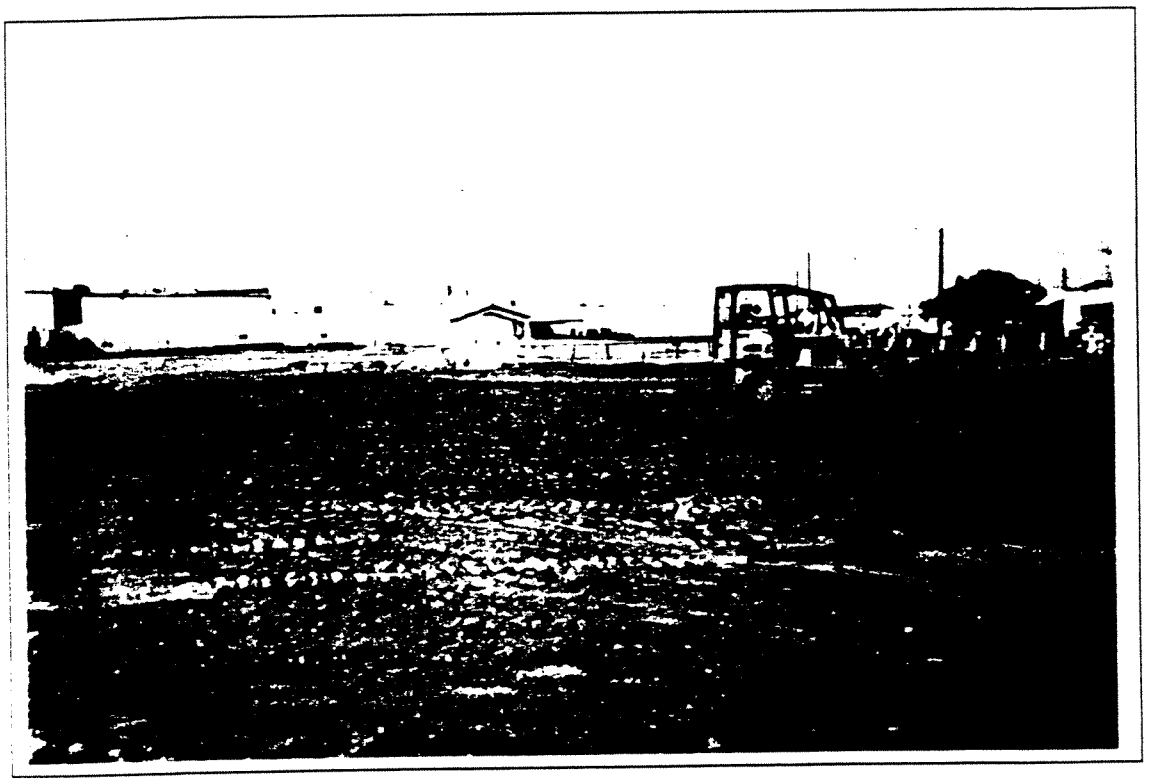
6. Visually stained soil below pump island number P4-6.

7. Activated carbon canisters for purification of stored groundwater prior to discharge.



8. Tilling of stockpiled soils to enhance biodegradation of the hydrocarbon constituents.

9 Backfilling of the tankhold. Note the granular fill material in the bottom of the excavation and 20 mil liner between fill materials.



10 Grading of the Fuel Farm Area prior to turfing with Bermuda™ grass seed.

# APPENDIX C

# LABORATORY REPORTS

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-158
Report Date 02/18/93 13:29

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/09/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by SWL-AUSTIN

P.O. # JOB# 505892-130

Date Received 02/11/93

LOCATION: LAREDO AIRPORT
REVISION #1
---

| Lab No. | Sample Identification |
|---|---|
| 93-02-158-01 | TCW -1 |
| 93-02-158-02 | TCW -2 |
| 93-02-158-03 | TCW -3 |
| 93-02-158-04 | TCW -4 |
| 93-02-158-05 | TCF -1 |
| 93-02-158-06 | R-1 |
| 93-02-158-07 | RB-1 |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A TCWI-1 Collected: 02/09/93 16:05

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.04 | % MOISTU | 0.10 | 02/12/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 30.0 | mg/kg | 5.0 | 02/12/93 | MR |

Sample: 02A TCWI-2 Collected: 02/09/93 16:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.1 | % MOISTU | 0.10 | 02/12/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 29.7 | mg/kg | 5.0 | 02/12/93 | MR |

Sample: 03A TCWI-3 Collected: 02/09/93 15:50

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.24 | % MOISTU | 0.10 | 02/12/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 120 | mg/kg | 5.0 | 02/12/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 04A TCWI-4 Collected: 02/09/93 16:10

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.97 | % MOISTU | 0.10 | 02/12/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 19.1 | mg/kg | 5.0 | 02/12/93 | MR |

Sample: 05A TCFI-1 Collected: 02/09/93 15:55

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.64 | % MOISTU | 0.10 | 02/12/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 107 | mg/kg | 5.0 | 02/12/93 | MR |

Sample: 06A R-1 Collected: 02/09/93 16:20

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 19.12 | % MOISTU | 0.10 | 02/12/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 60 | mg/kg | 5.0 | 02/12/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 07A RB-1 Collected: 02/09/93 16:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/17/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H2O | EPA 418.1 | <0.5 | mg/l | 0.50 | 02/12/93 | MR |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-02-158

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

ilent: SWL Austin

File No.:

Report No.: 93-02-158

Report Date: 2/17/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-158 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/17/93 BTEX Method 5030/8020

Analyzed by: J.B.

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

I-RSA CHROMATOPAC

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 0 | METHOD | 0483 |
| REPORT NO | 149 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 8.324 | 9209 | | 2 | | BENZENE |
| 2 | 9.499 | 2359 | V R | 1 | | INT STD |
| 3 | 11.791 | 9007 | | 3 | | TOLUENE |
| 4 | 15.281 | 6536 | | 4 | | ETHYL BEN |
| 5 | 15.599 | 8676 | V | 5 | | P-XYLENE |
| 6 | 15.866 | 12329 | SV | 6 | | M-XYLENE |
| 7 | 17.681 | 8299 | | 7 | | O-XYLENE |
| | TOTAL | 56416 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 51.2326 | 200 |
| 3 | TOLUENE | 11.7 | 0.1 | 52.3842 | 200 |
| 4 | ETHYL BEN | 15.2 | 0.1 | 72.1868 | 200 |
| 5 | P-XYLENE | 15.5 | 0.1 | 54.3824 | 200 |
| 6 | M-XYLENE | 15.8 | 0.15 | 38.2675 | 200 |
| 7 | O-XYLENE | 17.6 | 0.15 | 56.8488 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 229.963 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/17/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 51.23 | -2.3 |
| TOLUENE | 52.36 | 52.38 | -0.1 |
| ETHYL BENZ | 71.76 | 72.18 | -0.6 |
| P-XYLENE | 54.81 | 54.37 | 0.8 |
| M-XYLENE | 38.21 | 38.26 | -0.2 |
| O-XYLENE | 55.78 | 56.85 | -2 |

# MATRIX SPIKE RECOVERY

Client: SwL Avitin
Sample I.D.: TCWI-2
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-158-2
Date: 2/17/93
Analyst: J.F.G
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 207 | 104 | 82-117 |
| Toluene | 200 ug/l | | 205 | 103 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 207 | 104 | 71-121 |
| p-Xylene | 200 ug/l | | 200 | 100 | 67-124 |
| m-Xylene | 200 ug/l | | 188 | 94 | |
| o-Xylene | 200 ug/l | | 204 | 102 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: TCW I-2
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-158-2
Date: 2/17/93
Analyst: T.F.G
Parameter: BTEX

Spike Dup

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 214 | 107 | 82-117 |
| Toluene | 200 ug/l | | 213 | 107 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 217 | 109 | 71-121 |
| p-Xylene | 200 ug/l | | 201 | 101 | 67-124 |
| m-Xylene | 200 ug/l | | 205 | 103 | |
| o-Xylene | 200 ug/l | | 218 | 109 | |

Texas Water Commission
Attn: Charles Eanes
Water Quality Division
P.O. Box 13087, Capitol Station
Austin, Texas 78711-3087

Note: Please check applicable block.
( ) Discharge has not been completed.
( ) Final Report. Discharge has been completed.
( ) Discharge did not occur this reporting period.

PETROLEUM FUEL CONTAMINATED WATERS REPORT FORM FOR_____19____
DUE THE 20th DAY OF THE MONTH FOLLOWING THE MONTH IN WHICH THE SAMPLE WAS COLLECTED

Registrant:

Registration Number: Site:

A grab sample as required by Title 31 TAC Section 321.131-.138 was collected with the results recorded below. Report the highest value obtained where more than one sample was collected.

The "Week of Discharge" covers the period Monday through Sunday, therefore, record the Monday's date for each week during which two or more days of discharge occurred. If the discharge was a one time event, enter the actual date of the discharge in the first column. In either instance, enter the date the sample was collected at the bottom of each of each column.

| Parameter | Limitation | Week of Discharge | Week of Discharge | Week of Discharge | Week of Discharge | Week of Discharge |
|---|---|---|---|---|---|---|
| 1. Total Petroleum Hydrocarbons | 15 mg/l | | | | | |
| 2. Lead | 0.25 mg/l | | | | | |
| 3. Benzene | 50 ppb | | | | | |
| 4. Total BTEX** | 500 ppb | | | | | |
| 5. pH | 6.0-9.0 su | | | | | |
| Enter Date Sample Was Collected For the Day/Week of Discharge | | | | | | |

If an excursion occurred during the month and a report of noncompliance and corrective action initiated was not submitted following the excursion, attach a report at this time.

I,_____,_____
(Print or Type Name) (Telephone Number)

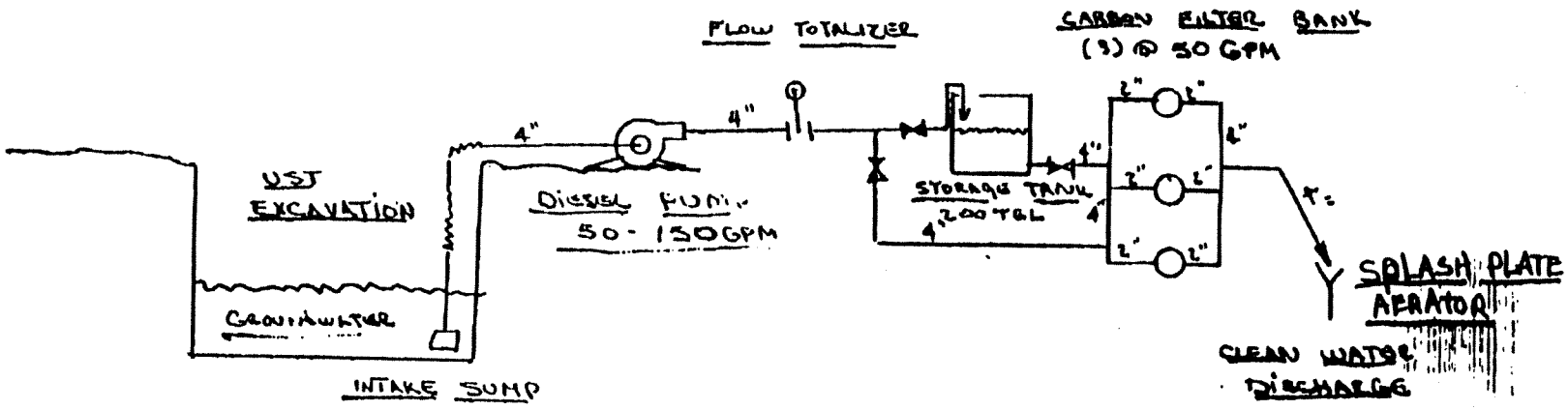
attest that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete and accurate.

Signature:_____Date:_____

01310

# WATER PURIFICATION SYSTEM

SCHEMATIC DRAWING




LAREDO INT'NL AIRPORT
UST REMOVAL
28JAN92

DWG. # FSK-1

** TOTAL PAGE.003 **

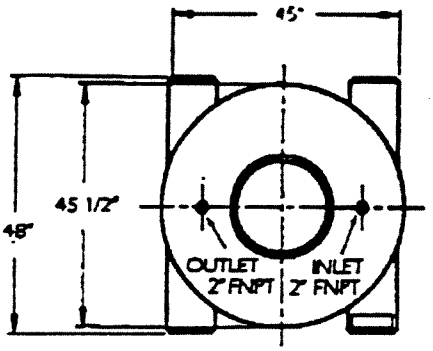
## Water Purification System

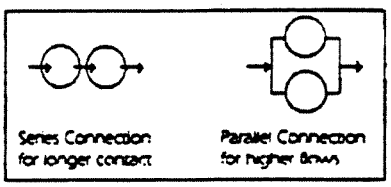
# AQUA-SCRUB™

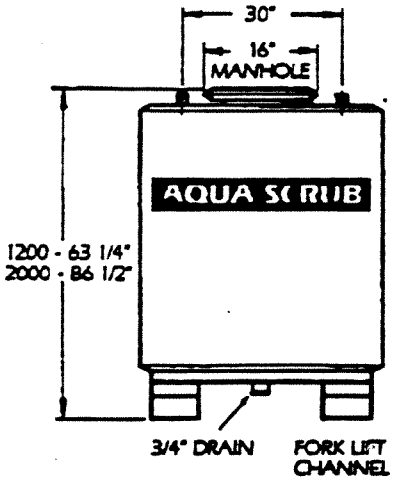
## ASC-1200 ASC-2000

### EASY TO INSTALL AND CHANGEOUT

AQUA-SCRUB™ adsorbers are designed for fast and easy installation on any hard, flat surface. The only hardware needed is properly sized pipe or flexible hose for connection to the inlet/outlet ports. It is strongly recommended that a particulate filter be installed upstream from the AQUA-SCRUB™ adsorber. Westates provides OSHA-trained personnel for field service and to changeout spent carbons as required.




### RECOMMENDED CARBON

Westates recommends the following carbons for Aqua-Scrub™ adsorbers:

**General Application**

**KG-401** 8 x 30 Mesh
Bit. Coal Granular

**Chlorinated Compounds**

**CC-601** 12 x 30 Mesh
Coconut Shell Granular

### CORROSION RESISTANCE

The combination of activated carbon and many VOC's can cause severe corrosion to metals, even stainless steel. AQUA-SCRUB™ adsorbers are designed to prevent these effects in normal service.

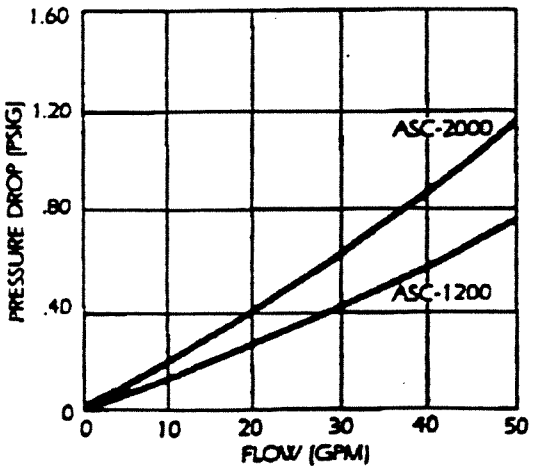
### MATERIALS OF CONSTRUCTION

Vessel 12 ga. Carbon Steel Shell
7 ga. Top/Bottom
External Coating:
Powder Coat Enamel
Internal Coating
Fusion Bonded Epoxy
Internal Distribution: PVC

### START-UP

Before beginning operation, AQUA-SCRUB™ adsorbers must be backfilled with water or liquid to be treated, and allowed to stand overnight to wet the carbon and eliminate all air (entrapped air is the most common cause of channeling). Instructions must be followed to assure proper operation.

### PRESSURE DROP




### SPECIFICATIONS

| | ASC-1200-2 | ASC-2000-2 |
|---|---|---|
| **Flow*** gpm (max) | 50 | 50 |
| **Pressure** psig (max) | 12 | 12 |
| **Temperature** deg F (max) | 120 | 120 |
| **Carbon Fill Volume** (cu. ft.) | 33 | 65 |
| **Cross Section** (sq. ft.) | 11.2 | 11.2 |
| **Shipping Weight** (lbs.) | 1600 | 2500 |

*Note: actual equipment selection should be based on required retention time.

All information presented here is believed to be reliable and in accordance with accepted engineering practice. However, Westates makes no warranties as to the completeness of the information. Users should evaluate the suitability of each product to their own particular application. In no case will Westates be liable for any special, indirect, or consequential damages arising from the sale, resale, or misuse of its products.

WESTATES CARBON SYSTEMS
A Westates Technologies Company
WESTATES CARBON, INC.
2130 Lee Ave., Los Angeles, CA 90040
PHONE: (213) 722-7500
FAX: (213) 722-6207

JAN 28 '93 17:09 FROM CCC GROUP INC. PAGE.003

SWL
ENVIRONMENTAL SERVICES

4150 Friedrich Lane
P.O. Box 17366
Austin, Texas 78760
Phone: (512) 447-9081
Fax: (512) 443-3442

February 17, 1993

Mr. Raj Guntnur
Environmental Engineer
City of Laredo
1110 Houston Street
Laredo, Texas 78042

Re: Update on Discharges to City of Laredo Stormwater Collection Ditches, UST Removal Project, for U.S. Army Corps of Engineers, Laredo International Airport, Laredo, Texas

Dear Mr. Guntnur:

SWL Environmental Services (SWL) is pleased to provide the following information for the above-referenced project, as you requested in our telephone conversation of February 9, 1993. Notification of our intent to discharge to the city's stormwater collection system was made by SWL in the letter to your office dated January 29, 1993. As discussed in the letter, SWL intends to discharge treated excavation water and stormwater runon from the project to the stormwater ditches system under the Texas Water Commission (TWC) Subchapter H guidelines of Title 31 Texas Administrative Code (TAC) 321.131-.138. The TWC confirmation of registration is attached for your files.

The first discharge occurred on February 2, 1993 and periodic discharges will continue until the project concludes at the end of April, 1993. It is estimated that approximately 1,002,000 gallons will be discharged over the life of the project. The location of entry to the city's stormwater collection system is indicated on the attached map.

The attached TWC monitoring form details the discharges to date, the respective analytical sample identification (ID), the analytical results, and whether the waters were treated prior to discharge.

Due to the nature of the project it is impossible to provide an exact schedule of future discharge dates, constituent concentrations, or volumes. However, it is probable that discharges will be similar in nature in each of these respects to the discharges shown in the above table. SWL will provide similar discharge information to your office, along with copies of TWC discharge

notification forms, monitoring forms, and analytical data reports on a monthly basis until the project concludes. If you have any questions or require additional information in this regard, please do not hesitate to contact me or Ms. Monica Scott, who will be handling regulatory correspondence for the project, at 512/447-9081.

Sincerely,

SWL ENVIRONMENTAL SERVICES

Lee W. Forbes

Lee W. Forbes, P.E.
Project Manager

LF/mjj/dm
Attachment

cc: Charles Eanes
Texas Water Commission

Bill Morris
Texas Water Commission

1993\USCORP\98130\021093LE.LF

# ACKNOWLEDGEMENT OF REGISTRATION AND REPORT FORM

Texas Water Commission
: Charles Eanes
Watershed Management Div.
P.O. Box 13087, Capitol Station

Note: Please check applicable block.
( ) FINAL REPORT: DISCHARGE HAS BEEN COMPLETED
( ) Discharge has not been completed.
( ) Discharge did not occur this reporting period
_____, 19____.
(Month)

DRAFT

PETROLEUM FUEL CONTAMINATED WATERS REPORT FORM FOR _____ 19____
DUE THE 20TH DAY OF THE MONTH IN WHICH THE SAMPLE WAS COLLECTED

Registrant: U.S. Army Corps of Engineers

Registration Number: DRL 104866 Site: 518 Flightline, Laredo, Texas

Regardless of whether a discharge occurred within a month, a report is due to the Commission by the 20th day of the following month. Your initial report is due March 20, 1993. A 24-hour advance notice of discharge shall be provided by the District 11 of the Commission at (512) 968-3165. Return this form as shown in upper left corner.

INSTRUCTIONS:
Enter the actual date of discharge for a one time event in the first column or for discharges occurring one or more weeks during the month, enter the period covered in appropriate columns. Please note to record the date the sample was collected at the bottom of each column. RECORD RESULTS FROM LABORATORY REPORT(S) BELOW. (PLEASE DO NOT ATTACH LAB REPORTS).

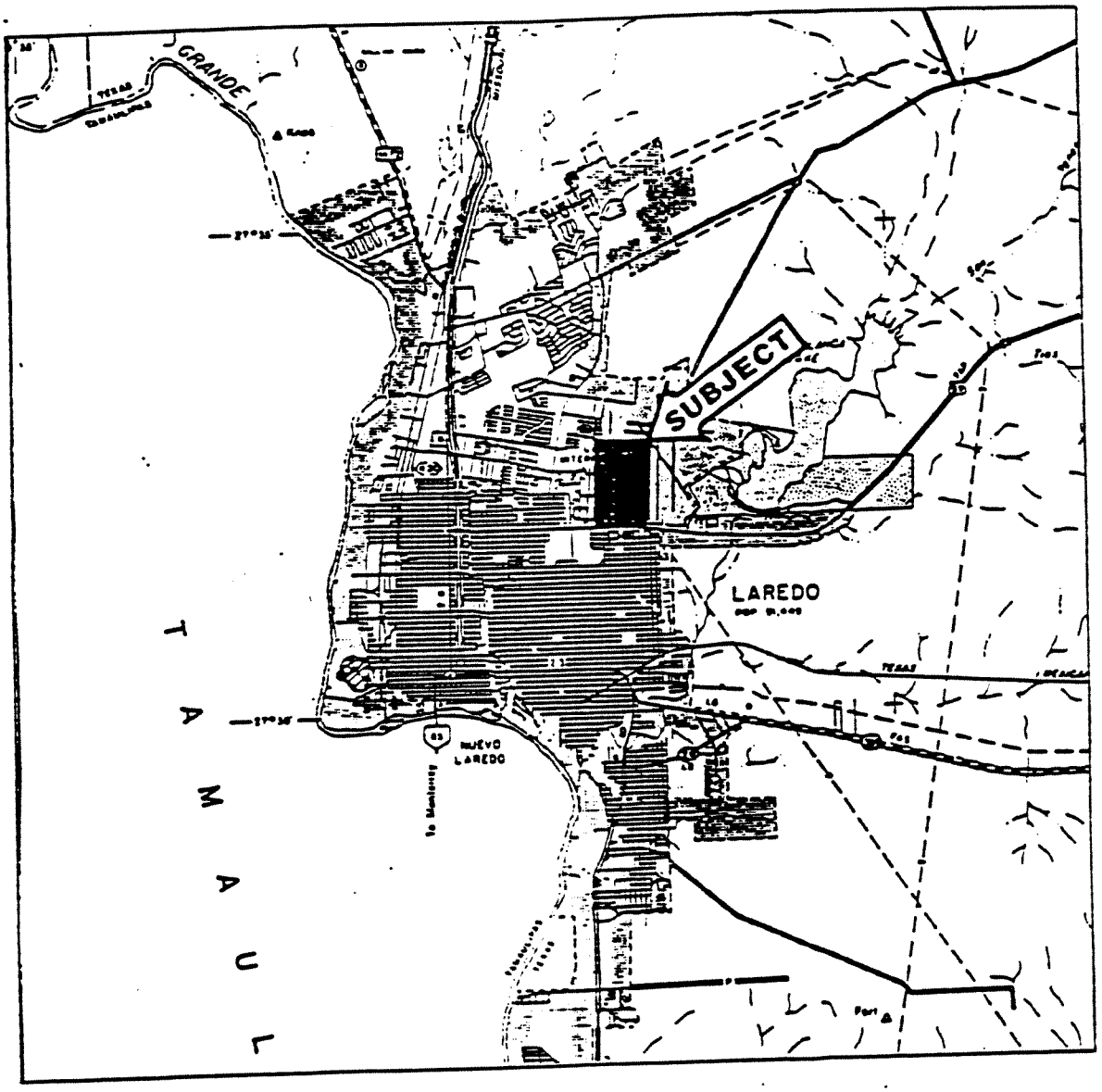
| | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE | WEEK OF DISCHARGE |
|---|---|---|---|---|---|
| | 2/2/93 | 2/3/93 | | | |
| Sample Identification | T-1, T-2, T-3 | T-3 | | | |
| Before/After Treatment | Before | Before | | | |
| Volume (Gallons) | 49,900 | 18,980 | | | |
| Parameter Limitation | | | | | |
| 1. TPH 15 mg/l | 4.79, 0.73, 0.76 | 0.76 | | | |
| 2. Lead 0.25 mg/l | <0.10, <0.10, <0.10 | <0.10 | | | |
| 3. Benzene 50 ppb | <4, <4, <4 | <4 | | | |
| 4. Total BTEX** 500 ppb | <4, 31, <4 | 31 | | | |
| 5. pH (Standard Unit) 6.0-9.0 | 7.83, 8.96, 8.34 | 8.34 | | | |
| Enter date sample was collected for the Day/Week of Discharge | 1/27/93 | 1/27/93 | | | |

Note: Any excursion from discharge limitations requires the submission of a report of noncompliance. The report must address when the excursion was first noted, identified cause of the excursion, and corrective action taken to prevent a further reoccurrence.

I, Monica Scott of SWL Environmental Services, (512) 447-9081 attest that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete and accurate.

Signature: _____ Date: _____

ESN1993\USCORP\93130-1\REG-FORM.MS




General Highway Map: Webb County, Texas
State Department of Highways and Public Transportation
Scale: 1" = .5 Miles

N

FIGURE 2-1
CITY OF LAREDO AND
SURROUNDING AREA
Laredo International Airport
Laredo, Texas

SwL Reference No. 505893-0133

SwL ENVIRONMENTAL

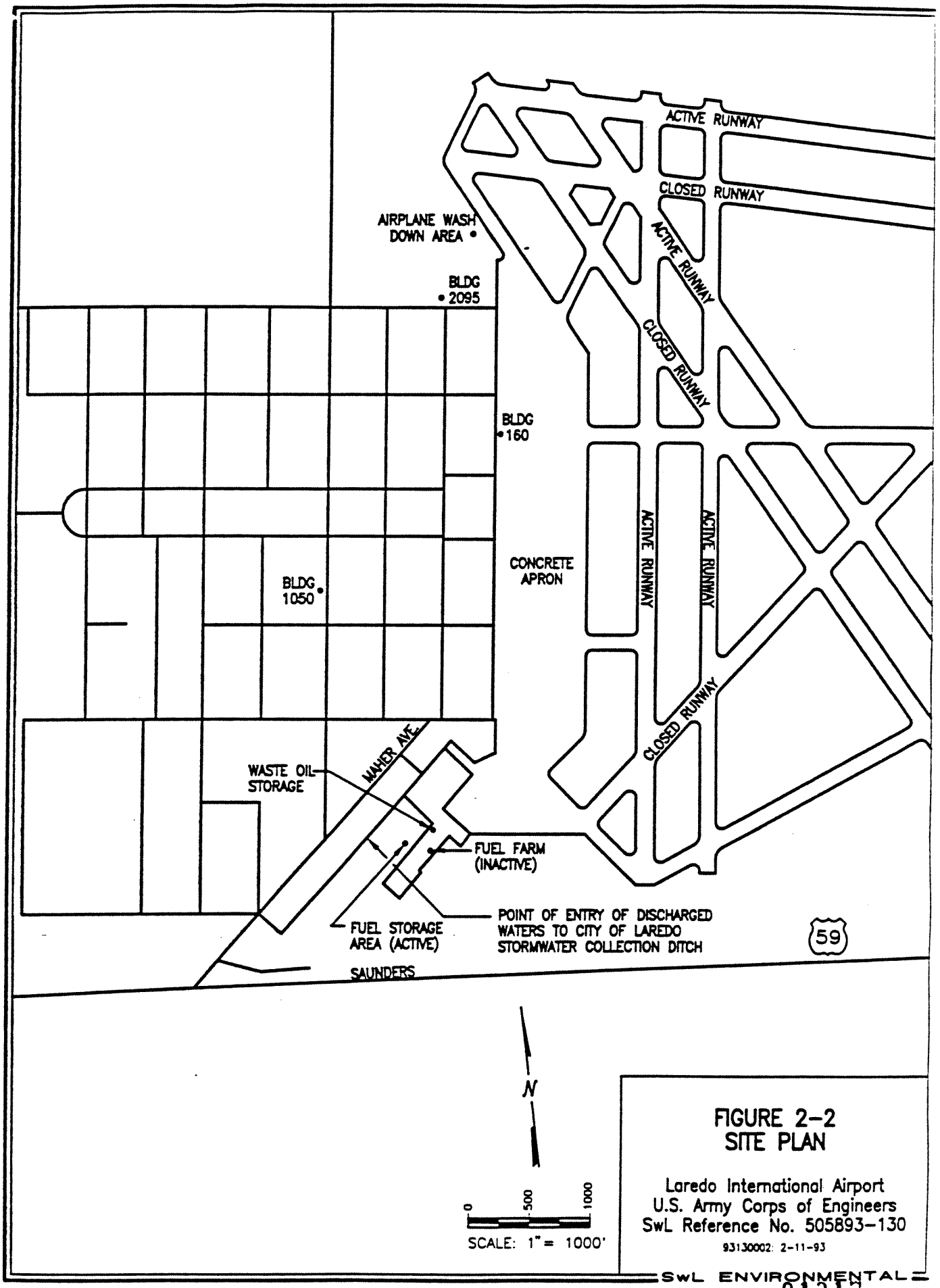



FIGURE 2-2
SITE PLAN

Laredo International Airport
U.S. Army Corps of Engineers
SwL Reference No. 505893-130

93130002: 2-11-93

SwL ENVIRONMENTAL

# TWC LPST SITE DIRECTIVE DOCUMENTATION

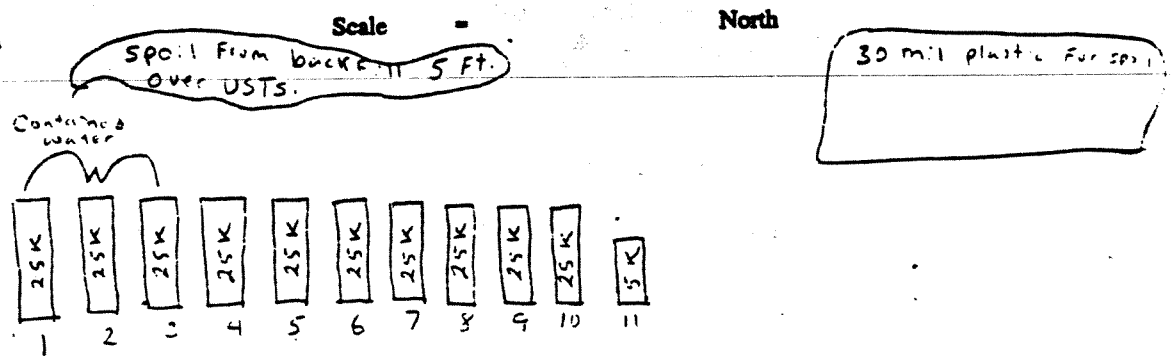
SITE NAME Laredo International Airport
SITE ADDRESS 518 Flightline, Laredo

UST ID NO.
LPST ID NO. 104866
TRACKING NO.

INSPECTION DATE 1-26-93 1-27-93
INSPECTOR William F. Morris

The purpose of this form is to document field communications made between the TWC and PST owners/operators/representatives.

SITE DIAGRAM: Scale = North




Notes: (A) 1-26-93 USTs No 1, 2 & 3 contained water only
(B) The first 5 Ft of backfill was apparently clean based on headspace readings.
(C) At approximately 5 Ft the first signs of soil discoloration was noted near tank 9
(D) Headspace readings taken at 5½ - 6 Ft showed high levels >1000 ppm.
(E) The tanks containing only water will be run thru carbon canisters and tested for parameters for surface water discharge. If all parameters were BDL, it could be discharged as water. If any levels were detected it would have to be treated at a permitted facility such as a POTW if the City would accept it or a permitted STP facility. If the UST was in such poor condition (numerous holes) and the water was outside groundwater (which may be the case since groundwater is at 7-8 Ft) it could be discharged provided it meets the criteria for surface water discharge per 31 TAC Subchapter H

Show location(s) of original (replacement) tank(s), line(s), excavation, overexcavation, boring(s), monitor/observation well(s), etc.

Soil sample collection (A) Tank hole since groundwater will be present soil samples will be collected 6"-12" above groundwater level. The total no of samples to be collected will be determined on site (B) Pipe chase 1 composite sample from each pipe chase made up of samples collected every 25'. If there is obvious contamination (discoloration, vapors) a seperate sample shall be collected (C) Service island sample collected 6"-8" below dispenser. Total no. of samples collected to be determined on site.

This site documentation is intended to identify the release response activities. Site-specific Corrective Action Directive (CAD) letters will be issued by the TWC following the reporting of a release. Regulatory guidance will be supplied by the TWC throughout the course of the project.

This document reflects the assessment of site conditions by the TWC and is not intended to limit the scope of remediation necessary. In order to be reimbursed by TWC, an owner or operator must be eligible under TWC rules and the items performed must be allowable and reasonable under the TWC rules. This document alone does not mean a person is eligible or that any costs incurred are allowable or reasonable.

William F. Morris
TWC Field Inspector

2-3-93
Date

Received by Owner/Operator/Representative

2-3-93
Date

01318

TWC-0091 (10-10-90)

# TWC LPST SITE DIRECTIVE DOCUMENTATION

SITE NAME Laredo International Airport (Site 1) UST ID NO. Pending

SITE ADDRESS 517 Flightline Bldg. 132 LPST ID NO. 104 P[illegible]

TRACKING NO. 93[illegible]027

INSPECTION DATE 2-2-1-93 INSPECTOR William F Morris

The purpose of this form is to document field communications made between the TWC and PST owners/operators/representatives.

SITE DIAGRAM: Scale = North

For site drawing see 2-22-93 inspection report.

1. All tanks except #10 & 11 have been removed.
2. A total of 154,035 gals of water have been pumped out of the tanks, treated with a carbon absorption unit then stored in a Frac tank. Laboratory results of water samples meet surface water discharge requirements (see report for test results).
3. The tank hole will be backfilled with pea gravel to tank #10 then tank #10 will be removed. Backfill to be compacted to 5 ft below ground level. Then clean backfill from the site and OFF site will be used to fill to grade (compacted in 2 ft 1 ft's).
4. 3 observation wells .01" screen will be installed for groundwater monitoring (see drawing for location)
5. A minimum amount of backfill will be removed from 5,000 gals of tank [illegible] due to numerous active lines.

Note: The U.S. Army Corps of Engineers wishes to expedite this project by removing the tanks and backfilling as soon as possible. The steps taken at this site are not directed by TWC, but concurrence with the work being done by Southwestern Laboratories.
Walls will be overexcavated to <20 mg/kg BTEX and <100 TPH (mg/kg

Show location(s) of original (replacement) tank(s), line(s), excavation, overexcavation, boring(s), monitor/observation well(s), etc.

This site documentation is intended to identify the release response activities. Site-specific Corrective Action Directive (CAD) letters will be issued by the TWC following the reporting of a release. Regulatory guidance will be supplied by the TWC throughout the course of the project.

This document reflects the assessment of site conditions by the TWC and is not intended to limit the scope of remediation necessary. In order to be reimbursed by TWC, an owner or operator must be eligible under TWC rules and the items performed must be allowable and reasonable under the TWC rules. This document alone does not mean a person is eligible or that any costs incurred are allowable or reasonable.

[signature] Quality Control

TWC Field Inspector — Received by Owner/Operator/Representative

2-2-1-93 — 2-24-93

Date — Date

01319

TWC-0091 (10-10-90)

SWL
ENVIRONMENTAL SERVICES

4150 Friedrich Lane
P.O. Box 17366
Austin, Texas 78760
Phone: (512) 447-9081
Fax: (512) 443-3442

March 12, 1993

Mr. Charles Eanes
Texas Water Commission
Water Quality Division
P.O. Box 13087
Capitol Station
Austin, Texas 78711

Re: Subchapter H Discharge Report Form
Laredo International Airport, Laredo, Texas
LPST I.D. No. 104866

Dear Mr. Eanes:

Please find enclosed Subchapter H Discharge report form for the aforementioned facility. As can be seen on the form, all discharges from this facility have been completed. All discharges were completed following treatment of water through carbon canisters and a splash pad. Sample I.D. EWW-6 provides proof of system efficiency.

Should you have any questions or require additional information, please do not hesitate to call me at 447-9081.

Sincerely,

**SWL ENVIRONMENTAL SERVICES**

Lee Forbes, P.E.
Project Manager

Enclosure

cc: Mr. Bill Morris - TWC, District 11 Office
Ms. Ann Miller - TWC, PST Division
Mr. Raj Guntner - City of Laredo

ES/1993\USCORP\93130-1\031293LE.MS

[illegible]

[illegible]

| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

[illegible]

| [illegible] | [illegible] |
|---|---|
| [illegible] | [illegible] |

| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

01343

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

DACA63-93-C-0006

Project no. 5058 92 130

Client/Project: Corps Of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TCW1-1 | 2-9-93 1605 | X | | 40z. Glass | soil | 4°C | BTEX, TPH | * |
| 2 | TCW1-2 | 2-9-93 1600 | X | | " | " | " | " " | |
| 3 | TCW1-3 | 2-9-93 1550 | X | | " | " | " | " " | |
| 4 | TCW1-4 | 2-9-93 1610 | X | | " | " | " | " " | |
| 5 | TCF1-1 | 2-9-93 1555 | | X | " | " | " | " " | |
| 6 | F-1 | 2-9-93 1620 | | X | " | " | " | " " | |
| 7 | RB-1 | 2-9-93 1630 | | X | (2) 40 ml 1 L Amber | Liquid | " | " " | |

Samplers: (Print) Larry Collins

Affiliation: SWL

Results by 2-18-93

Rush Charges Authorized: Yes ✓ No

Relinquished by: (Signature) Larry Collins — Date: 2-9-93 Time: 1655

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) R. Burnall — Date: 2-11-93 Time: 8:30

COC Seal No.

REC'D. ON ICE: Yes X No

Intact: Yes

Laboratory No. 93-02-158

Data Results To:

1. Lee Forbes Austin

2. Susan Kelly Austin

REMARKS: Need 24 Hr. results 2-18-93

Hold BTEX until further notice - per Larry Collins / *2-17-93 - BTEX's [illegible]

01344

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-191
Report Date 02/17/93 11:12

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/12/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/15/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-02-191-01 | TCW-5 |
| 93-02-191-02 | TCW-6 |
| 93-02-191-03 | TCF-2 |
| 93-02-191-04 | R-2 |
| 93-02-191-05 | RB-2 |

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A TCW-5 Collected: 02/12/93 10:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/16/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 0.041 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.96 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 88.4 | mg/kg | 5.0 | 02/16/93 | MPG |

Sample: 02A TCW-6 Collected: 02/12/93 11:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 19.97 | mg/kg | 0.40 | 02/16/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 20.46 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.57 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 46.7 | mg/kg | 5.0 | 02/16/93 | MPG |

Sample: 03A TCF-2 Collected: 02/12/93 12:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/16/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 0.031 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.64 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/16/93 | MPG |

TEST RESULTS BY SAMPLE

Sample: 04A R-2 Collected: 02/12/93 10:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/16/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.57 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 112 | mg/kg | 5.0 | 02/16/93 | MPG |

Sample: 05A RB-2 Collected: 02/12/93 12:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/16/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 6.90 | mg/l | 0.50 | 02/16/93 | MPG |

# QA/QC REPORT

Client: Solution

Report No.: 93-02-191

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-02-191

Report Date: 2/16/93

# BTEX ANALYSIS

Matrix: water

Concentration Units: (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-191 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/16/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

C-RSA CHROMATOPAC

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 0 | METHOD | 0403 |
| REPORT NO | 123 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 8.321 | 9411 | | 2 | | BENZENE |
| 2 | 9.49 | 2279 | V R | 1 | | INT STD |
| 3 | 11.777 | 8968 | | 3 | | TOLUENE |
| 4 | 15.253 | 6630 | | 4 | | ETHYL BEN |
| 5 | 15.571 | 8813 | V | 5 | | P-XYLENE |
| 6 | 15.837 | 12196 | V | 6 | | M-XYLENE |
| 7 | 17.648 | 8348 | | 7 | | O-XYLENE |
| | TOTAL | 56646 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 48.4219 | 200 |
| 3 | TOLUENE | 11.7 | 0.1 | 50.8159 | 200 |
| 4 | ETHYL BEN | 15.2 | 0.1 | 68.7347 | 200 |
| 5 | P-XYLENE | 15.5 | 0.1 | 51.7083 | 200 |
| 6 | M-XYLENE | 15.8 | 0.15 | 37.3656 | 200 |
| 7 | O-XYLENE | 17.6 | 0.15 | 54.5874 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 229.963 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/16/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 48.43 | 3.4 |
| TOLUENE | 52.36 | 50.82 | 2.9 |
| ETHYL BENZ | 71.76 | 68.74 | 4.2 |
| P-XYLENE | 54.81 | 51.71 | 5.6 |
| M-XYLENE | 38.21 | 37.37 | 2.1 |
| O-XYLENE | 55.78 | 54.59 | 2.1 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: TCF-2
Sample Matrix: Soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-191-3
Date: 2/16/93
Analyst: J.F.G
Parameter: BTEX

Spike Dup

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 224 | 112 | 82-117 |
| Toluene | 200 ug/l | N/D | 223 | 112 | 78-118 |
| Ethyl Benzene | 200 ug/l | 8.9 | 214 | 107 | 71-121 |
| p-Xylene | 200 ug/l | N/D | 212 | 106 | 67-124 |
| m-Xylene | 200 ug/l | N/D | 226 | 113 | |
| o-Xylene | 200 ug/l | N/D | 232 | 116 | |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
Sample I.D.: TCF-2
Sample Matrix: soil
Spiking Solution: SWL BTEX Spike

SwL Lab No.: 93-02-181-3
Date: 2/16/93
Analyst: J.F.G
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 217 | 109 | 82-117 |
| Toluene | 200 ug/l | N/D | 223 | 112 | 78-118 |
| Ethyl Benzene | 200 ug/l | 8.9 | 213 | 107 | 71-121 |
| p-Xylene | 200 ug/l | N/D | 206 | 103 | 67-124 |
| m-Xylene | 200 ug/l | N/D | 221 | 111 | |
| o-Xylene | 200 ug/l | N/D | 213 | 107 | |

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

DACA63-93-C-0006

Project no.: 93.130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TCW-5 | 2-12-93 10:30 | X | | 4 oz Glass | Soil | 4°C | BTEX, TPH | |
| 2 | TCW-6 | 2-12-93 11:30 | X | | " | " | " | " " | |
| 3 | TCF-2 | 2-12-93 12:20 | | | " | " | " | " " | |
| 4 | F-2 | 2-12-93 10:30 | | X | " | " | " | " " | |
| 5 | RB-2 | 2-12-93 12:30 | | X | 40 ml VOA 1L Amber | Liquid | " | " " | |

RUSH

| Samplers: (Print) | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | 2-12-93 4:45 | | | REC'D. ON ICE Yes ✓ No |
| Affiliation: SWL | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | Intact: Yes |
| | Relinquished by: (Signature) | Date: Time: | Received by Laboratory: (Signature) Kouknall | Date: 2-15-93 Time: 8:30 | Laboratory No. 9302-191 |

Results by: 48 Hrs

Rush Charges Authorized: Yes ✓ No

REMARKS: [redacted] total [redacted] analysis [redacted] [redacted] [redacted]. L.C.

Analyze All Samples

Data Results To:

1. Lee Forles Houston
2. Sean Kelly Houston

01353

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: SEAN KELLY

Client No. DACA6393C006
Report No. 93-03-384
Report Date 03/25/93 09:30

Project DACA6393C006/CORPS OF ENG.

Date Sampled 03/22/93

Sampled By L.COLLINS

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB #5058-93-130

Date Received 03/23/93

LOCATION - LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-03-384-01 | TCW-6-A |
| 93-03-384-02 | TCW-8-A |
| 93-03-384-03 | TCW-10-A |
| 93-03-384-04 | TCW-12-A |
| 93-03-384-05 | TCW-14-A |
| 93-03-384-06 | TCW-16-A |
| 93-03-384-07 | TCW-18-A |
| 93-03-384-08 | TCW-20-A |
| 93-03-384-09 | PI-4-A |
| 93-03-384-10 | TCW-9-A |
| 93-03-384-11 | TCW-11-A |
| 93-03-384-12 | R-1-A |
| 93-03-384-13 | RB-1-A |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

Order # 93-03-384
03/25/93 09:30
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: 01A TCW-6-A Collected: 03/22/93 11:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.03 | % MOISTU | 0.10 | 03/23/93 | JFG |

Sample: 02A TCW-8-A Collected: 03/22/93 11:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.33 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 518 | mg/kg | 5.0 | 03/25/93 | HC |

Sample: 03A TCW-10-A Collected: 03/22/93 11:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 4.24 | mg/kg | 0.40 | 03/23/93 | JFG |
| Toluene | SW846 8020 | 1.36 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 12.06 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | 3.70 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.19 | % MOISTU | 0.10 | 03/23/93 | JFG |

TEST RESULTS BY SAMPLE

Sample: 04A TCW-12-A Collected: 03/22/93 12:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.79 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 153 | mg/kg | 5.0 | 03/25/93 | HC |

Sample: 05A TCW-14-A Collected: 03/22/93 12:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.16 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 357 | mg/kg | 5.0 | 03/25/93 | HC |

Sample: 06A TCW-16-A Collected: 03/22/93 12:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.54 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 765 | mg/kg | 5.0 | 03/25/93 | HC |

TEST RESULTS BY SAMPLE

Sample: 07A TCW-18-A Collected: 03/22/93 12:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.11 | % MOISTU | 0.10 | 03/23/93 | JFG |

Sample: 08A TCW-20-A Collected: 03/22/93 13:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 3.41 | mg/kg | 0.40 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 11.51 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | 4.21 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 22.34 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 511 | mg/kg | 5.0 | 03/25/93 | HC |

Sample: 09A PI-4-A Collected: 03/22/93 13:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| PERCENT MOISTURE | GRAVIMETRIC | 30.10 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 771 | mg/kg | 5.0 | 03/25/93 | HC |

TEST RESULTS BY SAMPLE

Sample: 10A TCW-9-A Collected: 03/22/93 13:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.32 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 161 | mg/kg | 5.0 | 03/25/93 | HC |

Sample: 11A TCW-11-A Collected: 03/22/93 14:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 5.79 | mg/kg | 0.40 | 03/23/93 | JFG |
| Toluene | SW846 8020 | 10.94 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 66.31 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | 125.63 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 19.12 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 597 | mg/kg | 5.0 | 03/25/93 | HC |

Sample: 12A R-1-A Collected: 03/22/93 15:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 03/23/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.26 | % MOISTU | 0.10 | 03/23/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 330 | mg/kg | 5.0 | 03/25/93 | HC |

Order # 93-03-384
03/25/93 09:30
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: 13A RB-1-A Collected: 03/22/93 15:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 03/23/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | <0.50 | mg/l | 0.50 | 03/25/93 | HC |

# QA/QC REPORT

Client: SWL - Austin

Report No.: 93-3-384

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

TPH SOILS - MODIFIED EPA 418.1

MO DAY YR
Date Analyzed: 03 25 93 Created: 03/25/93 09:16
Analyst: HJ Updated: 03/25/93 09:24
Run No: 1
Logged in EBS? YES (QA Officer use only)

Standard Curve

| Concentration | Absorbance |
|---|---|
| 0.000 | 0.000 |
| 10.200 | 0.022 |
| 51.000 | 0.160 |
| 102.000 | 0.320 |
| 204.000 | 0.600 |

Regression Constant (A) 0.00214439
Regression Coefficient (B) 0.00297189
Correlation Coefficient (r) 0.99910150

| Lab Number | Class/ Subclass/ Dup/ Matrix | Soil Prep Wt.g | Soil Prep Vol.mL | DF | ABS | Test Code | Result | |
|---|---|---|---|---|---|---|---|---|
| #9303317-01A | S C S | 25.0000 | 100.0000 | | 0.510 | TPH_S | 684 | mg/kg |
| #9303370-01A | S C S | 10.0100 | 100.0000 | | 0.470 | TPH_S | 1570 | mg/kg |
| #9303384-02A | S C S | 25.1100 | 100.0000 | | 0.310 | TPH_S | 413 | mg/kg |
| #9303384-04A | S C S | 25.0000 | 100.0000 | | 0.098 | TPH_S | 129 | mg/kg |
| #9303384-04 | S C D S | 25.0800 | 100.0000 | | 0.100 | TPH_S | 131 | mg/kg |
| #9303384-04 | K M S | 24.9300 | 100.0000 | | 0.420 | TPH_S | 564 | mg/kg |
| #9303384-03A | S C S | 25.0800 | 100.0000 | | 0.220 | TPH_S | 292 | mg/kg |
| #9303384-06A | S C S | 25.2800 | 100.0000 | | 0.470 | TPH_S | 623 | mg/kg |
| #9303384-08A | S C S | 25.2300 | 100.0000 | | 0.300 | TPH_S | 397 | mg/kg |
| #9303384-09A | S C S | 15.4700 | 100.0000 | | 0.250 | TPH_S | 539 | mg/kg |
| #9303384-10A | S C S | 25.2200 | 100.0000 | | 0.098 | TPH_S | 128 | mg/kg |
| #9303384-10 | S C D S | 24.9600 | 100.0000 | | 0.110 | TPH_S | 145 | mg/kg |
| #9303384-10 | K M S | 24.9600 | 100.0000 | | 0.360 | TPH_S | 482 | mg/kg |
| #9303384-11A | S C S | 24.9400 | 100.0000 | | 0.360 | TPH_S | 483 | mg/kg |
| #9303384-12A | S C S | 25.3600 | 100.0000 | | 0.200 | TPH_S | 263 | mg/kg |
| #9303395-01A | S C S | 2.0900 | 100.0000 | | 0.086 | TPH_S | 1350 | mg/kg |
| #PB | B P S | 25.0000 | 100.0000 | | 0.006 | TPH_S | 5.2 | mg/kg |
| #ICV | T I S | 25.0000 | 100.0000 | | 0.310 | TPH_S | 414 | mg/kg |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-03-384

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-03-384

Report Date: 3/23/93

# BTEX ANALYSIS

Matrix: water

Concentration Units: (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-03-384 | Blank (2016) | < 4 | < 4 | < 4 | < 4 |

Date Analyzed: _____ BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 1 | METHOD | 3403 |
| REPORT NO | 435 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PEAK | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 8.302 | 8299 | | 2 | | BENZENE |
| 2 | 9.481 | 2055 | V R | 1 | | INT STD |
| 3 | 11.765 | 7791 | | 3 | | TOLUENE |
| 4 | 15.247 | 5817 | | 4 | | ETHYL BEN |
| 5 | 15.563 | 7379 | V | 5 | | P-XYLENE |
| 6 | 15.83 | 10853 | V | 6 | | M-XYLENE |
| 7 | 17.641 | 7374 | | 7 | | O-XYLENE |
| | TOTAL | 49573 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.4 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.2 | 0.15 | 49.5355 | 200 |
| 3 | TOLUENE | 11.7 | 0.1 | 52.7626 | 200 |
| 4 | ETHYL BEN | 15.2 | 0.1 | 70.674 | 200 |
| 5 | P-XYLENE | 15.5 | 0.1 | 55.7099 | 200 |
| 6 | M-XYLENE | 15.8 | 0.15 | 37.8598 | 200 |
| 7 | O-XYLENE | 17.6 | 0.15 | 55.747 | 200 |

DAILY BTEX CALIBRATION 3/23/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 49.52 | 1.3 |
| TOLUENE | 52.36 | 52.75 | -0.8 |
| ETHYL BENZ | 71.76 | 70.65 | 1.5 |
| P-XYLENE | 54.81 | 55.69 | -1.7 |
| M-XYLENE | 38.21 | 37.85 | 0.9 |
| O-XYLENE | 55.78 | 55.73 | 0 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-03-364-1
Sample I.D.: TCW-6-A
Date: 3/23/93
Sample Matrix: Soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 179 | 90 | 82-117 |
| Toluene | 200 ug/l | | 177 | 89 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 176 | 88 | 71-121 |
| p-Xylene | 200 ug/l | | 175 | 88 | 67-124 |
| m-Xylene | 200 ug/l | | 175 | 88 | |
| o-Xylene | 200 ug/l | | 178 | 89 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: TCW-6-A
Sample Matrix: Soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-03-384-1
Date: 3/23/93
Analyst: JFG
Parameter: BTEX

Spike Dup

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 206 | 103 | 82-117 |
| Toluene | 200 ug/l | | 202 | 101 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 199 | 100 | 71-121 |
| p-Xylene | 200 ug/l | | 199 | 100 | 67-124 |
| m-Xylene | 200 ug/l | | 201 | 101 | |
| o-Xylene | 200 ug/l | | 202 | 101 | |

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692 9151

# Analysis Request and Chain of Custody Record

Project no. 93-130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TCW-6-A | 3-22-93 11:00 | X | | 12 oz Glass | Soil | 4°C | BTEX, | |
| 2 | TCW-8-A | 3-22-93 11:30 | X | | 12 oz Glass 4 oz Glass | " | " | BTEX, TPH | |
| 3 | TCW-10-A | 3-22-93 11:45 | X | | 12 oz Glass | " | " | BTEX, | |
| 4 | TCW-12-A | 3-22-93 12:00 | X | | 12 oz Glass 4 oz Glass | " | " | BTEX, TPH | |
| 5 | TCW-14-A | 3-22-93 12:15 | X | | " | " | " | BTEX, TPH | |
| 6 | TCW-16-A | 3-22-93 12:30 | X | | " | " | " | BTEX, TPH | |
| 7 | TCW-18-A | 3-22-93 12:45 | X | | 8 oz Glass | " | " | BTEX | |
| 8 | TCW-20-A | 3-22-93 1300 | X | | 8 oz Glass 4 oz Glass | " | " | BTEX, TPH | |
| 9 | PT-4-A | 3-22-93 13:30 | | X | 4 oz Glass | " | " | TPH | |
| 10 | TCW-9-A | 3-22-93 13:45 | X | | 8 oz Glass 4 oz Glass | " | " | BTEX, TPH | |

RUSH

Samplers: (Print) Larry Collins

Affiliation: SWL

Results by 48 HRS

Rush Charges Authorized: Yes ✓ No

Relinquished by: (Signature) Larry Collins — Date: 3-22-93 Time: 16:45

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) — Date: 3/23/93 Time: 10:30

REMARKS: Need All analysis in 48 Hours.

Data Results To:

1. Larry Collins Job site

2. Monica Scott Austin

COC Seal No.

REC'D ON ICE: Yes ✓ No

Intact: Yes

Laboratory No. 93-03-384

013367

Page 2 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 93-130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | TCW-~~M~~-A | 3-22-93 1400 | X | | 8 oz Glass 4 oz Glass | Soil | 4°C | BTEX, TPH | |
| | ~~[illegible]~~ | ~~3-22-93~~ | | | | | | | |
| 12 | PI-4-A | 3-22-93 13:30 | X | | 8 oz Glass | " | 4°C | ~~BTEX~~ TPH | DUPLICATE See prev page |
| 13 | R-1-A | 3-22-93 1500 | X | | 8 oz Glass 4 oz Glass | " | " | BTEX, TPH | |
| 14 | RB-1-A | 3-22-93 1545 | | X | (2) 40 ml VOA 1 L Amber | Liquid | " | " " | |

RUSH

| Samplers: (Print) | Relinquished by: (Signature) | Date: 3-22-93 Time: 16:45 | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | | | | REC'D ON ICE Yes ✓ No |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | Intact: |
| SWL | | | Received by Laboratory: (Signature) | Date: 3-23-93 Time: 10:20 | |
| | Relinquished by: (Signature) | Date: Time: | | | Laboratory No. 93-03-384 |

Results by 48 HRS

Rush Charges Authorized Yes ✓ No

REMARKS: Need all analysis in 48 HRS.

Data Results To:
1. Larry Collins Job site
2. Sean Kelly Austin

013368

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-211
Report Date 02/18/93 15:59

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/13/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/16/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-02-211-01 | TCW-7 |
| 93-02-211-02 | TCW-8 |
| 93-02-211-03 | TCF-3 |
| 93-02-211-04 | R-3 |
| 93-02-211-05 | RB-3 |

SOUTHWESTERN LABORATORIES

Reviewed By

MARK TIPTON

TEST RESULTS BY SAMPLE

Sample: 01A TCW-7 Collected: 02/13/93 15:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/16/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.44 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 26.1 | mg/kg | 5.0 | 02/18/93 | MR |

Sample: 02A TCW-8 Collected: 02/13/93 15:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 12.65 | mg/kg | 0.40 | 02/16/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 13.39 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.29 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 486 | mg/kg | 5.0 | 02/18/93 | MR |

Sample: 03A TCF-3 Collected: 02/13/93 16:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 2.22 | mg/kg | 0.40 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 9.42 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.93 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 201 | mg/kg | 5.0 | 02/18/93 | MR |

Sample: 04A R-3 Collected: 02/13/93 15:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/16/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.17 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 13.1 | mg/kg | 5.0 | 02/18/93 | MR |

Sample: 05A RB-3 Collected: 02/13/93 16:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/16/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H2O | EPA 418.1 | 0.51 | mg/l | 0.50 | 02/18/93 | MR |

# QA/QC REPORT

Client: Sun Austin

Report No.: 93-02-211

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

CHANNEL NO 1
SAMPLE NO 8
REPORT NO 465
IS WT 1

FILE 9
METHOD 8483
SAMPLE WT 100
STANDARD 1

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 4.875 | 50307 | SV | 8 | | MTBE |
| 2 | 9.94 | 270252 | | 2 | | BENZENE |
| 3 | 11.111 | 81227 | V R | 1 | | INT STD |
| 4 | 13.584 | 238218 | SV | 3 | | TOLUENE |
| 5 | 17.061 | 162512 | V | 4 | | ETHYL BEN |
| 6 | 17.375 | 227506 | V | 5 | | P-XYLENE |
| 7 | 17.635 | 303641 | V | 6 | | M-XYLENE |
| 8 | 19.41 | 216993 | SV | 7 | | O-XYLENE |
| | TOTAL | 1550655 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 11.1 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.9 | 0.3 | 60.1124 | 200 |
| 3 | TOLUENE | 13.6 | 0.3 | 68.1958 | 200 |
| 4 | ETHYL BEN | 17.1 | 0.2 | 99.9651 | 200 |
| 5 | P-XYLENE | 17.4 | 0.15 | 71.4869 | 200 |
| 6 | M-XYLENE | 17.6 | 0.2 | 53.5023 | 200 |
| 7 | O-XYLENE | 19.4 | 0.3 | 74.8666 | 200 |
| 8 | MTBE | 4.8 | 0.2 | 322.928 | 200 |

DAILY BTEX CALIBRATION 2/16/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 60.11 | 2 |
| TOLUENE | 69.89 | 68.19 | 2.4 |
| ETHYL BENZ | 100.8 | 99.96 | 0.8 |
| P-XYLENE | 75.8 | 71.4 | 5.8 |
| M-XYLENE | 54.38 | 53.5 | 1.6 |
| O-XYLENE | 78.72 | 74.86 | 4.9 |

SOUTHWESTERN LABORATORIES

ent: SwL Austin

File No.:

Report No.: 93-02-211

Report Date: 2/16/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-211 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/16/93 BTEX Method 5030/8020

Analyzed By: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: R-3
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-211-4
Date: 2/16/93
Analyst: J.F.G
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 184 | 92 | 82-117 |
| Toluene | 200 ug/l | | 184 | 92 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 177 | 89 | 71-121 |
| p-Xylene | 200 ug/l | | 186 | 93 | 67-124 |
| m-Xylene | 200 ug/l | | 181 | 91 | |
| o-Xylene | 200 ug/l | | 181 | 91 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: R-3
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-211-4
Date: 2/16/93
Analyst: J.F.G
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 222 | 111 | 82-117 |
| Toluene | 200 ug/l | | 208 | 102 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 183 | 92 | 71-121 |
| p-Xylene | 200 ug/l | | 181 | 91 | 67-124 |
| m-Xylene | 200 ug/l | | 187 | 94 | |
| o-Xylene | 200 ug/l | | 192 | 96 | |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

[illegible]

| CALIBRATION STANDARDS BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | | | | |
| [illegible] | [illegible] | | | | |
| [illegible] | [illegible] | | | | |
| [illegible] | [illegible] | | | | |
| [illegible] | [illegible] | | | | |

SAMPLE ID NUMBERS IN THIS RUN: [illegible]

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC. | % DIFF. | SPIKE CONC. | RECOVERED CONC. | % RECOVERY |
|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

01377

01378

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

DACA6393C006

Project no. 92 130

Client/Project: Corps of Engineers / Lorenzo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TCW-7 | 2-13-93 1500 | X | | 4OZ Glass | Soil | 4°C | BTEX, TPH | |
| 2 | TCW-8 | 2-13-93 1530 | X | | " | Soil | " | " " | |
| 3 | TCF-3 | 2-13-93 1600 | X | | " | Soil | " | " " | |
| 4 | R-3 | 2-13-93 1500 | | X | " | Soil | " | " " | |
| 5 | RB-3 | 2-13-93 1630 | | X | 40 mL VOA 1L Amber | Liquid | " | " " | |

RUSH

Samplers: (Print) Larry Collins

Affiliation: SWL

Results by 48

Rush Charges Authorized: Yes ✓ No ____

Relinquished by: (Signature) Larry Collins — Date: 2-15-93 Time: 4:45

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

REMARKS: Run all analytical.

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) K Durnan — Date: 2-16-93 Time: 8:30

Data Results To:
1. Lee Forbes Austin
2. Sean Kelly Austin

COC Seal No.

REC'D. ON ICE: Yes ✓ No ____

Intact: Yes

Laboratory No. 93-02-211

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-212
Report Date 02/18/93 16:17

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/15/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/16/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-02-212-01 | TCW-9 |
| 93-02-212-02 | TCW-10 |
| 93-02-212-03 | TCF-4 |
| 93-02-212-04 | R-4 |
| 93-02-212-05 | RB-4 |

SOUTHWESTERN LABORATORIES

P.S.
Reviewed By

Mark Tipton
MARK TIPTON

Order # 93-02-212
02/18/93 16:17
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: 01A TCW-9 Collected: 02/15/93 12:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 1.78 | mg/kg | 0.40 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 3.28 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | 2.99 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.60 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 144 | mg/kg | 5.0 | 02/18/93 | MR |

Sample: 02A TCW-10 Collected: 02/15/93 12:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 2.57 | mg/kg | 0.40 | 02/16/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 6.59 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.55 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 145 | mg/kg | 5.0 | 02/18/93 | MR |

Sample: 03A TCF-4 Collected: 02/15/93 13:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 0.075 | mg/kg | 0.020 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 0.136 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.14 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 152 | mg/kg | 5.0 | 02/18/93 | MR |

Order # 93-02-212
02/18/93 16:17
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: 04A R-4 Collected: 02/15/93 12:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 1.60 | mg/kg | 0.40 | 02/17/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 4.42 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.28 | % MOISTU | 0.10 | 02/16/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 80.3 | mg/kg | 5.0 | 02/18/93 | MR |

Sample: 05A RB-4 Collected: 02/15/93 13:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/16/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | <0.50 | mg/l | 0.50 | 02/18/93 | MR |

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-02-212

Report Date: 2/16/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-212 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/16/93 BTEX Method 5030/8020

Analyzed by: G.Y.

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 0 | METHOD | 0403 |
| REPORT NO | 465 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 4.875 | 50307 | SV | 8 | | MTBE |
| 2 | 9.94 | 270252 | | 2 | | BENZENE |
| 3 | 11.111 | 81227 | V R | 1 | | INT STD |
| 4 | 13.584 | 238218 | SV | 3 | | TOLUENE |
| 5 | 17.061 | 162512 | V | 4 | | ETHYL BEN |
| 6 | 17.375 | 227506 | V | 5 | | P-XYLENE |
| 7 | 17.635 | 303641 | V | 6 | | M-XYLENE |
| 8 | 19.41 | 216993 | SV | 7 | | O-XYLENE |
| | TOTAL | 1550655 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 11.1 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.9 | 0.3 | 60.1124 | 200 |
| 3 | TOLUENE | 13.6 | 0.3 | 68.1958 | 200 |
| 4 | ETHYL BEN | 17.1 | 0.2 | 99.9651 | 200 |
| 5 | P-XYLENE | 17.4 | 0.15 | 71.4069 | 200 |
| 6 | M-XYLENE | 17.6 | 0.2 | 53.5023 | 200 |
| 7 | O-XYLENE | 19.4 | 0.3 | 74.8666 | 200 |
| 8 | MTBE | 4.8 | 0.2 | 322.928 | 200 |

DAILY BTEX CALIBRATION 2/16/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 60.11 | 2 |
| TOLUENE | 69.89 | 68.19 | 2.4 |
| ETHYL BENZ | 100.8 | 99.96 | 0.8 |
| P-XYLENE | 75.8 | 71.4 | 5.8 |
| M-XYLENE | 54.38 | 53.5 | 1.6 |
| O-XYLENE | 78.72 | 74.86 | 4.9 |

2037-01

Shimadzu

01383

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: RB-4
Sample Matrix: water
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-212-5
Date: 2/16/93
Analyst: J.F.G.
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 171 | 86 | 82-117 |
| Toluene | 200 ug/l | | 176 | 88 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 175 | 88 | 71-121 |
| p-Xylene | 200 ug/l | | 164 | 82 | 67-124 |
| m-Xylene | 200 ug/l | | 180 | 90 | |
| o-Xylene | 200 ug/l | | 172 | 86 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: BB-4
Sample Matrix: water
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-212-5
Date: 2/16/93
Analyst: J.F.G
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 218 | 109 | 82-117 |
| Toluene | 200 ug/l | | 222 | 111 | 73-118 |
| Ethyl Benzene | 200 ug/l | | 224 | 112 | 71-121 |
| p-Xylene | 200 ug/l | | 196 | 98 | 67-124 |
| m-Xylene | 200 ug/l | | 203 | 102 | |
| o-Xylene | 200 ug/l | | 201 | 101 | |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA 418.1
DATE OF TEST: 1 15 93 PARAMETER: TPH MATRIX: SOIL ANALYST: MR VOL: 5.0

| CALIBRATION STANDARDS BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| 0 | 0 | IC. | 408.4 | 401 | 98.2 |
| 10.2 | 0.046 | | | | |
| 51 | 0.12 | | | | |
| 102 | 0.26 | | | | |
| L.R. R = .99877 204 | 0.5 | | | | |

SAMPLE ID NUMBERS IN THIS RUN: 93-2-211-01A
93-2-212

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | R* % RECOVERY |
|---|---|---|---|---|---|---|
| 93-2-211-01A | 20.500 | 17.200 | 17.5066 | 400.71 | 389.5 | 97.2 |

01386

01387

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 92 130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TCW-9 | 2-15-93 1200 | X | | 4 oz Glass | Soil | 4°C | BTEX, TPH | RUSH |
| 2 | TCW-10 | 2-15-93 1230 | X | | " | " | " | " " | |
| 3 | TCF-4 | 2-15-93 1300 | X | | " | " | " | " " | |
| 4 | R-4 | 2-15-93 1230 | | X | " | " | " | " " | |
| 5 | RB-4 | 2-15-93 1318 | | X | (2) 40 mL VOA 1 L Amber | liquid | " | " " | |

Samplers: (Print) Larry Collins

Affiliation: SWL

Results by: 48 HRS

Rush Charges Authorized: Yes ✓ No ____

Relinquished by: (Signature) Larry Collins — Date: 2-15-93 Time: 4:55

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time: 2-16-93

Received by Laboratory: (Signature) N Burnall — Date: Time: 8:30

REMARKS: Perform all analysis on these confirmatory samples.

Data Results To:

1. Lee Forbes Austin /
2. Sean Kelly Austin

COC Seal No.

REC'D. ON ICE: Yes ✓ No ____ Initial: Yes

Laboratory No. 9302-212

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-252
Report Date 02/22/93 14:53

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/17/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/18/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-02-252-01 | TCW-11 |
| 93-02-252-02 | TCW-12 |
| 93-02-252-03 | TCW-13 |
| 93-02-252-04 | TCW-14 |
| 93-02-252-05 | TCW-15 |
| 93-02-252-06 | TCW-16 |
| 93-02-252-07 | TCW-17 |
| 93-02-252-08 | TCW-18 |
| 93-02-252-09 | TCW-19 |
| 93-02-252-10 | TCW-20 |
| 93-02-252-11 | R-5 |
| 93-02-252-12 | RB-5 |

Reviewed by

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A TCW-11 Collected: 02/17/93 17:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 18.62 | mg/kg | 0.40 | 02/18/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 31.00 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | 1.88 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.40 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 1570 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 02A TCW-12 Collected: 02/17/93 17:10

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 63.33 | mg/kg | 0.40 | 02/28/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 32.74 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | 84.14 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.79 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 3330 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 03A TCW-13 Collected: 02/17/93 17:20

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 0.425 | mg/kg | 0.020 | 02/19/93 | JFG |
| Toluene | SW846 8020 | 0.271 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 0.131 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | 0.310 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.76 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 274 | mg/kg | 5.0 | 02/22/93 | HC |

TEST RESULTS BY SAMPLE

Sample: 04A TCW-14 Collected: 02/17/93 17:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 28.64 | mg/kg | 0.40 | 02/18/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 21.62 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | 48.43 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.08 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 1040 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 05A TCW-15 Collected: 02/17/93 17:40

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 8.66 | mg/kg | 0.40 | 02/18/93 | JFG |
| Toluene | SW846 8020 | 36.12 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 9.65 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | 51.56 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.58 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 705 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 06A TCW-16 Collected: 02/17/93 17:50

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 1.139 | mg/kg | 0.020 | 02/16/93 | JFG |
| Toluene | SW846 8020 | 0.242 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 1.059 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | 1.228 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 19.81 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 320 | mg/kg | 5.0 | 02/22/93 | HC |

TEST RESULTS BY SAMPLE

Sample: 07A TCW-17 Collected: 02/17/93 18:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 1.827 | mg/kg | 0.020 | 02/18/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 3.940 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 22.09 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 1080 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 08A TCW-18 Collected: 02/17/93 18:10

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 0.666 | mg/kg | 0.020 | 02/18/93 | JFG |
| Toluene | SW846 8020 | 0.082 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 0.561 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | 0.590 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.48 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 39.4 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 09A TCW-19 Collected: 02/17/93 18:20

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/19/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 0.442 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | 0.372 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.60 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 326 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 10A TCW-20 Collected: 02/17/93 18:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 0.986 | mg/kg | 0.020 | 02/19/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 1.159 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | 0.295 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.36 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 326 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 11A R-5 Collected: 02/17/93 18:20

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/19/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | 0.032 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 25.12 | % MOISTU | 0.10 | 02/18/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 21.2 | mg/kg | 5.0 | 02/22/93 | HC |

Sample: 12A RB-5 Collected: 02/17/93 18:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/18/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H2O | EPA 418.1 | <0.50 | mg/l | 0.50 | 02/22/93 | HC |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-02-252

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-02-252

Report Date: 2/18/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 13-02-252 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/18/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 8 | METHOD | 8403 |
| REPORT NO | 179 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 7.735 | 3690 | | | | |
| 2 | 8.353 | 8567 | V | 2 | | BENZENE |
| 3 | 9.521 | 2073 | R | 1 | | INT STD |
| 4 | 11.813 | 8583 | | 3 | | TOLUENE |
| 5 | 12.761 | 1685 | V | | | |
| 6 | 15.294 | 6458 | | 4 | | ETHYL BEN |
| 7 | 15.611 | 8100 | V | 5 | | P-XYLENE |
| 8 | 15.872 | 11625 | V | 6 | | M-XYLENE |
| 9 | 17.687 | 7971 | | 7 | | O-XYLENE |
| 10 | 19.052 | 462 | | | | |
| | TOTAL | 59216 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 48.4015 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 48.3102 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 64.2053 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 51.1927 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 35.6692 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 52.0201 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 229.963 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 8/18/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 48.39 | 3.5 |
| TOLUENE | 52.36 | 48.3 | 7.7 |
| ETHYL BENZ | 71.76 | 64.19 | 10.5 |
| P-XYLENE | 54.81 | 51.18 | 6.6 |
| M-XYLENE | 38.21 | 35.66 | 6.6 |
| O-XYLENE | 55.78 | 52.91 | 6.7 |

Shimadzu

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-252-11
Sample I.D.: B-5
Date: 2/19/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 162 | 81 | 52-117 |
| Toluene | 200 ug/l | N/D | 162 | 81 | 78-118 |
| Ethyl Benzene | 200 ug/l | 5.1 | ~~164~~ 159 | 80 | 71-121 |
| -Xylene | 200 ug/l | N/D | 163 | 82 | 67-124 |
| m-Xylene | 200 ug/l | N/D | 165 | 83 | |
| o-Xylene | 200 ug/l | N/D | 161 | 81 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-252-11
Sample I.D.: R-5
Date: 2/15/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 192 | 96 | 82-117 |
| Toluene | 200 ug/l | N/D | 207 | 104 | 78-118 |
| Ethyl Benzene | 200 ug/l | 5.1 | 212 | 106 | 71-121 |
| p-Xylene | 200 ug/l | N/D | 206 | 103 | 67-124 |
| m-Xylene | 200 ug/l | N/D | 219 | 110 | |
| o-Xylene | 200 ug/l | N/D | 219 | 110 | |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 418.1

DATE OF TEST: [illegible] PARAMETER : TPH MATRIX: SOIL ANALYST: [illegible] MDL: .5

| CALIBRATION STANDARDS BLANKS | RESPONSE | STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | | | | |
| [illegible] | [illegible] | | | | |
| [illegible] | [illegible] | | | | |
| [illegible] = [illegible] | | | | | |

SAMPLE ID NUMBERS IN THIS RUN: [illegible]

| SAMPLE ID | SAMPLE CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | % RECOVERY |
|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

01398

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 92-130

Client/Project: Corps Of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | TCW-11 | 2-17-93 1700 | | X | 40z Glass 8 oz. Glass | Soil | 4°C | BTEX, TPH | | |
| 2 | TCW-12 | 2-17-93 1710 | | X | " | " | " | " | " | |
| 3 | TCW-13 | 2-17-93 1720 | | X | " | " | " | " | " | |
| 4 | TCW-14 | 2-17-93 1730 | | X | " | " | " | " | " | |
| 5 | TCW-15 | 2-17-93 1740 | | X | " | " | " | " | " | |
| 6 | TCW-16 | 2-17-93 1750 | | X | " | " | " | " | " | |
| 7 | TCW-17 | 2-17-93 1800 | | X | " | " | " | " | " | |
| 8 | TCW-18 | 2-17-93 1810 | | X | " | " | " | " | " | |
| 9 | TCW-19 | 2-17-93 1820 | | X | " | " | " | " | " | |
| 10 | TCW-20 | 2-17-93 1830 | | X | " | " | " | " | " | |

PRUSH

Samplers: (Print): Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 2-17-93 Time: 6:30

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) Howsnall — Date: 2-18-93 Time: 8:30

COC Seal No.

REC'D. ON ICE Yes ✓ No

Intact: Yes

Laboratory No. 93-02-252

Results by 24 Hrs

Rush Charges Authorized Yes ✓ No

REMARKS: 24 Hour Rush Turnaround on All Analysis

Data Results To:

1. Lee Forbes Austin

2.

01399

889C

Page 2 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 92 130

Client/Project Corp of Engineer / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | R-5 | 2-17-93 1820 | | X | 4 oz. Glass 8 oz " | Soil | 4°C | BTEX TPH | |
| 12 | RR-5 | 2-17-93 1830 | | X | 500 ml Pk 8 oz Glass | Liquid | " | " " | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

RUSH

| Samplers: (Print) | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | 2-17-93 6:30 | | | |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | REC'D. ON ICE Yes ✓ No |
| SWL | Relinquished by: (Signature) | Date: Time: | Received by Laboratory: (Signature) R Burnall | Date: 2-18-93 Time: 8:30 | Intact: Yes |

Results by 24 HR

Rush Charges Authorized

Yes ✓ No

REMARKS: 24 Hour Turnaround on All Analysis

Data Results To:

1. Lee Forbes Austin

2.

Laboratory No. 93-02-252

01400

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-275
Report Date 02/24/93 08:58

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/18/93

Sampled By SWL-AUSTIN

Sample Type SOIL & LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/19/93

| Lab No. | Sample Identification |
|---|---|
| 93-02-275-01 | TCW-23 |
| 93-02-275-02 | TCW-24 |
| 93-02-275-03 | TCW-25 |
| 93-02-275-04 | TCW-26 |
| 93-02-275-05 | R-6 |
| 93-02-275-06 | RB-6 |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A TCW-23 Collected: 02/18/93 14:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 02/19/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 3.16 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.71 | % MOISTU | 0.10 | 02/19/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 9500 | mg/kg | 5.0 | 02/23/93 | MR |

Sample: 02A TCW-24 Collected: 02/18/93 14:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 2.15 | mg/kg | 0.40 | 02/19/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 4.38 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.77 | % MOISTU | 0.10 | 02/19/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 13,400 | mg/kg | 5.0 | 02/23/93 | MR |

Sample: 03A TCW-25 Collected: 02/18/93 14:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 02/19/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 8.18 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.44 | % MOISTU | 0.10 | 02/19/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 3760 | mg/kg | 5.0 | 02/23/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 04A TCW-26 Collected: 02/18/93 14:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 02/19/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 4.12 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 22.22 | % MOISTU | 0.10 | 02/19/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 7910 | mg/kg | 5.0 | 02/23/93 | MR |

Sample: 05A R-6 Collected: 02/18/93 14:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 02/19/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | 2.34 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.94 | % MOISTU | 0.10 | 02/19/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 268 | mg/kg | 5.0 | 02/23/93 | MR |

Sample: 06A RB-6 Collected: 02/18/93 15:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/19/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | <0.50 | mg/l | 0.50 | 02/22/93 | MR |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-02-275

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-02-275

Report Date: 2/19/93

# BTEX ANALYSIS

Matrix: water

Concentration Units: (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-275 | Blank (2 of 6) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/19/93 BTEX Method 5030/8020

Analyzed By:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

I-R5A CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 225
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 8.273 | 8644 | | 2 | | BENZENE |
| 2 | 9.455 | 2136 | V R | 1 | | INT STD |
| 3 | 11.763 | 8521 | S | 3 | | TOLUENE |
| 4 | 15.257 | 6270 | | 4 | | ETHYL BEN |
| 5 | 15.573 | 8290 | V | 5 | | P-XYLENE |
| 6 | 15.839 | 11678 | SV | 6 | | M-XYLENE |
| 7 | 17.65 | 7954 | V | 7 | | O-XYLENE |
| | TOTAL | 53492 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | IDNO |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 49.4164 | 200 |
| 3 | TOLUENE | 11.9 | 0.1 | 56.1314 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 68.1344 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 51.5296 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 36.579 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 53.7067 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 229.963 | 200 |
| 9 | 1,3 DICHL | 36.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 37.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 38.3 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/19/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 49.42 | 1.4 |
| TOLUENE | 52.36 | 53.13 | 4.2 |
| ETHYL BEN | 71.76 | 68.13 | 5 |
| P-XYLENE | 54.91 | 51.53 | 5.9 |
| M-XYLENE | 38.21 | 36.58 | 4.2 |
| O-XYLENE | 55.79 | 53.7 | 3.7 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-275-6
Sample I.D.: RB-6
Date: 2/19/93
Sample Matrix: water
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | n/D | 166 | 83 | 82-117 |
| Toluene | 200 ug/l | | 173 | 87 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 173 | 87 | 71-121 |
| p-Xylene | 200 ug/l | | 163 | 82 | 67-124 |
| m-Xylene | 200 ug/l | | 150 | 75 | |
| o-Xylene | 200 ug/l | | 168 | 84 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: RB-6
Sample Matrix: water
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-275-6
Date: 2/19/93
Analyst: J.F.G
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 192 | 96 | 82-117 |
| Toluene | 200 ug/l | | 186 | 93 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 189 | 95 | 71-121 |
| p-Xylene | 200 ug/l | | 184 | 92 | 67-124 |
| m-Xylene | 200 ug/l | | 133 | 67 | |
| o-Xylene | 200 ug/l | | 186 | 93 | |

01410

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 92 130

Client/Project Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | TCW-23 | 2-18-93 1400 | X | | 4 oz Glass 8 oz " | Soil | 4°C | BTEX, TPH | |
| 2 | TCW-24 | 2-18-93 1415 | X | | " | " | " | " " | |
| 3 | TCW-25 | 2-18-93 1430 | X | | " | " | " | " " | |
| 4 | TCW-26 | 2-18-93 1445 | X | | " | " | " | " " | |
| 5 | R-6 | 2-18-93 1430 | X | | " | " | " | " " | |
| 6 | RB-6 | 2-18-93 1500 | | X | (2) 40 ml VOA 1L amber | Liquid | 4°C | " " | |

RUSH

Samplers: (Print) Larry Collins

Affiliation SWL

Results by 48 Hrs

Rush Charges Authorized Yes ✓ No ____

Relinquished by: (Signature) Larry Collins — Date: 2-18-93 Time: 4:45

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

REMARKS: 48 Hr. Turn Around on All Analysis.

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) — Date: 2-19-93 Time: 8:30

Data Results To:
1 Leo Forbes Austin
2

COC Seal No.

REC'D ON ICE Yes ✓ No ____

Intact: Yes

Laboratory No. 93-02-275

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-01-234
Report Date 01/25/93 16:45

Project DACA6393C006/CORPS OF ENG.

Date Sampled 01/20/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. #

Date Received 01/21/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-01-234-01 | P-I |
| 93-01-234-02 | P-II |
| 93-01-234-03 | P-III |
| 93-01-234-04 | P-IV |
| 93-01-234-05 | P-V |
| 93-01-234-06 | P-VI |
| 93-01-234-07 | P-VII |
| 93-01-234-08 | P-IA/B |
| 93-01-234-09 | P-IC |

SOUTHWESTERN LABORATORIES

P.S.
Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A P-I Collected: 01/20/93 15:25

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 81.8 | mg/kg | 2.0 | 01/22/93 | JFG |
| Toluene | SW846 8020 | 133.5 | mg/kg | 2.0 | | |
| Ethylbenzene | SW846 8020 | 39.5 | mg/kg | 2.0 | | |
| Xylenes | SW846 8020 | 203.9 | mg/kg | 2.0 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.98 | % MOISTU | 0.10 | 01/21/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 7130 | mg/kg | 5.0 | 01/25/93 | HC |

Sample: 02A P-II Collected: 01/20/93 15:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/21/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.47 | % MOISTU | 0.10 | 01/21/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 38.8 | mg/kg | 5.0 | 01/25/93 | HC |

Sample: 03A P-III Collected: 01/20/93 16:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/21/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 16.11 | % MOISTU | 0.10 | 01/21/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 79.6 | mg/kg | 5.0 | 01/25/93 | HC |

TEST RESULTS BY SAMPLE

Sample: 04A P-IV Collected: 01/20/93 16:05

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/21/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 16.79 | % MOISTU | 0.10 | 01/21/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 25.2 | mg/kg | 5.0 | 01/25/93 | HC |

Sample: 05A P-V Collected: 01/20/93 16:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/21/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.45 | % MOISTU | 0.10 | 01/21/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 21.7 | mg/kg | 5.0 | 01/25/93 | HC |

Sample: 06A P-VI Collected: 01/20/93 16:25

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/21/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.63 | % MOISTU | 0.10 | 01/21/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 7.0 | mg/kg | 5.0 | 01/25/93 | HC |

TEST RESULTS BY SAMPLE

Sample: 07A P-VII Collected: 01/20/93 16:35

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/21/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.21 | % MOISTU | 0.10 | 01/21/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 39.2 | mg/kg | 5.0 | 01/25/93 | HC |

Sample: 08A P-IA/B Collected: 01/20/93 17:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 01/21/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | <0.50 | mg/l | 0.50 | 01/25/93 | MR |

Sample: 09A P-IC Collected: 01/20/93 17:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/21/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.88 | % MOISTU | 0.10 | 01/21/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 19.4 | mg/kg | 5.0 | 01/25/93 | HC |

# QA/QC REPORT

Client: Sul Austin

Report No.: 93-01-234

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

**SOUTHWESTERN LABORATORIES**

Client: SWL Austin

File No.:

Report No.: 93-01-234

Report Date: 1/21/93

# BTEX ANALYSIS

Matrix: water

Concentration Units: (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-234 | Blank (2016) | < 4 | < 4 | < 4 | < 4 |

Date Analyzed: 1/21/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | | |
|---|---|---|---|---|
| 1 | [illegible] | [illegible] | 1 | BENZENE |
| 2 | [illegible] | [illegible] | 2 | INT STD |
| 3 | [illegible] | [illegible] | 3 | TOLUENE |
| 4 | [illegible] | [illegible] | 4 | ETHYL BEN |
| 5 | [illegible] | [illegible] | 5 | P-XYLENE |
| 6 | 15.73 | [illegible] | 6 | M-XYLENE |
| 7 | 17.549 | [illegible] | 7 | O-XYLENE |
| | TOTAL | [illegible] | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | IDNO |
|---|---|---|---|---|---|
| 1 | INT STD | 9.4 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.2 | 0.15 | 49.9095 | 200 |
| 3 | TOLUENE | 11.7 | 0.1 | 48.1111 | 200 |
| 4 | ETHYL BEN | 15.1 | 0.1 | 65.0709 | 200 |
| 5 | P-XYLENE | 15.4 | 0.1 | 49.2083 | 200 |
| 6 | M-XYLENE | 15.7 | 0.15 | 33.7142 | 200 |
| 7 | O-XYLENE | 17.5 | 0.15 | 49.5477 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 289.055 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2483 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY STEX CALIBRATION 1/21/93 ALB 2316

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 53.16 | 49.99 | 3.5 |
| TOLUENE | 52.36 | 48.1 | 8.1 |
| ETHYL BENZ | 71.76 | 65.05 | 9.3 |
| P-XYLENE | 54.81 | 49.19 | 10.2 |
| M-XYLENE | 38.21 | 33.7 | 11.8 |
| O-XYLENE | 55.78 | 49.53 | 11.2 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-234-9
Sample I.D.: D-1C
Date: 1/22/93
Sample Matrix: Soil
Analyst: J.F.G.
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 224 | 112 | 82-117 |
| Toluene | 200 ug/l | | 221 | 111 | 78-111 |
| Ethyl Benzene | 200 ug/l | | 219 | 110 | 71-121 |
| p-Xylene | 200 ug/l | | 207 | 104 | 67-124 |
| m-Xylene | 200 ug/l | | 218 | 109 | |
| o-Xylene | 200 ug/l | | 215 | 108 | |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
SwL Lab No.: 93-01-234-9
Sample I.D.: P-1C
Date: 1/22/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/A | 201 | 101 | 82-117 |
| Toluene | 200 ug/l | | 201 | 101 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 200 | 100 | 71-121 |
| p-Xylene | 200 ug/l | | 189 | 95 | 67-124 |
| m-Xylene | 200 ug/l | | 199 | 100 | |
| o-Xylene | 200 ug/l | | 195 | 98 | |

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. DACA63-93-C006

Client/Project: Corps of Engineers Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | P-I | 1-20-93 3:25/3:40 | X | | 2-4 oz/glass | Soil | Ice | BTEX, TRPH, | Moisture on soil |
| 2 | P-II | 1-20-93 3:45/3:50 | X | | " | " | " | " " | |
| 3 | P-III | 1-20-93 4:00 | X | | " | " | " | " " | |
| 4 | P-IV | 1-20-93 4:05/4:10 | X | | " | " | " | " " | |
| 5 | P-V | 1-20-93 4:15/4:20 | X | | " | " | " | " " | |
| 6 | P-VI | 1-20-93 4:25/4:30 | X | | " | " | " | " " | |
| 7 | P-VII | 1-20-93 4:35/4:45 | X | | " | " | " | " " | |
| 8 | P-IA | 1-20-93 5:00 | | X | 1L glass ~~[illegible]~~ L.C. | 1 40 ml Vol Liquid | Sulfuric Acid | BTEX | |
| | P-IB | 1-20-93 5:05 | | X | 1L glass Amber | " | " | TRPH | |
| 9 | P-IC | 1-20-93 5:15 | L.C. | X | 4 OZ Glass | Soil | Ice | BTEX TRPH | |

Samplers: (Print) Larry Collins

Affiliation: SWL Environmental

Results by 24-72

Rush Charges Authorized: Yes ✓ No ___

Relinquished by: (Signature) Larry Collins — Date: 1-20-93 Time: 8:00

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) [signature] — Date: 1-20-93 Time: 8:00

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) [signature] — Date: 1-20-93 Time: 10:00

COC Seal No.

REC'D: ON ICE Yes ✓ No ___

Intact: Yes

Laboratory No. 93-01234

REMARKS: Note: Report soil results on a dry wt. basis. Get T.S. results from GC lab.

Data Results To:
1. Larry Collins
2.

01421

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-01-260
Report Date 01/27/93 10:18

Project DACA6393C006/CORPS OF ENG

Date Sampled 01/21/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB#505893-130

Date Received 01/22/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-01-260-01 | P-VIII |
| 93-01-260-02 | P-IX |
| 93-01-260-03 | P-X |
| 93-01-260-04 | P-XI |
| 93-01-260-05 | P-XII |
| 93-01-260-06 | P-XIII |
| 93-01-260-07 | P-ID Rinsate |
| 93-01-260-08 | PI-1 |
| 93-01-260-09 | PI-2 |
| 93-01-260-10 | PI-3 |

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A P-VIII Collected: 01/21/93 07:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/25/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 22.59 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

Sample: 02A P-IX Collected: 01/21/93 07:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/25/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 26.01 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

Sample: 03A P-X Collected: 01/21/93 08:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/25/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 22.27 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 04A P-XI Collected: 01/21/93 08:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/25/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.08 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

Sample: 05A P-XII Collected: 01/21/93 08:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/26/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.31 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

Sample: 06A P-XIII Collected: 01/21/93 08:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/26/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.64 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 07A P-ID Collected: 01/21/93 10:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 01/25/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H2O | EPA 418.1 | <0.50 | mg/l | 0.50 | 01/26/93 | MR |

Sample: 08A PI-1 Collected: 01/21/93 13:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/26/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 19.13 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

Sample: 09A PI-2 Collected: 01/21/93 13:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/26/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.21 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 10A PI-3 Collected: 01/21/93 14:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/26/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.47 | % MOISTU | 0.10 | 01/25/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 01/26/93 | MR |

# QA/QC REPORT

Client: SCUL - Austin

Report No.: 93-1-260

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

# SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

MDL 2.50

METHOD OF ANALYSIS 418.1 PARAMETER TPH MATRIX water ANALYST [illegible] DATE 1/26/93 TIME

| CALIBRATION STANDARDS/BLANK | ABSORBANCE |
|---|---|
| 10.31 | .032 |
| 51.55 | .14 |
| 103.1 | .30 |
| 206.2 | .56 |
| L.R. (r) = 999296 | |

| STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|
| BLANK | <.50 | <.50 | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

01-208-1,2,3,4,5

01-260-7 & 01-207-2

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKED SAMPLE - SAMPLE ÷ THEORETICAL x 100

| LAB #-SAMPLE ID # | FIRST CONC. | DIL. FACTOR | REPL. CONC. | DIL. FACTOR | RANGE | %PRECISION | SPIKED SAMPLE CONC. | SAMPLE CONC. | THEO. CONC. | % RECOVERY |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
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| | | | | | | | | | | |

PR[illegible] FIRST [illegible] R[illegible]ATE [illegible]

01428

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-01-260

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | 9.644 | 242189 | | | 2 | 185.1837 | BENZENE |
| 3 | 10.828 | 73685 | V | R | 1 | | INT STD |
| 4 | 13.289 | 233406 | SV | | 3 | 207.0489 | TOLUENE |
| 5 | 16.766 | 165523 | V | | 4 | 222.621 | ETHYL BEN |
| 6 | 17.08 | 229530 | V | | 5 | 215.8083 | P-XYLENE |
| 7 | 17.339 | 299985 | V | | 6 | 197.0645 | M-XYLENE |
| 8 | 19.092 | 213556 | SV | | 7 | 200.0631 | O-XYLENE |
| | TOTAL | 1508736 | | | | 1391.5847 | |

CR501 CHROMATOPAC

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 0 | METHOD | 0403 |
| REPORT NO | 6 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 4.765 | 50863 | V | 8 | | MTBE |
| 2 | 9.644 | 242189 | | 2 | | BENZENE |
| 3 | 10.828 | 73685 | V R | 1 | | INT STD |
| 4 | 13.289 | 233406 | SV | 3 | | TOLUENE |
| 5 | 16.766 | 165523 | V | 4 | | ETHYL BEN |
| 6 | 17.08 | 229530 | V | 5 | | P-XYLENE |
| 7 | 17.339 | 299985 | V | 6 | | M-XYLENE |
| 8 | 19.092 | 213556 | SV | 7 | | O-XYLENE |
| | TOTAL | 1508736 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE$ 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.7 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.5 | 0.3 | 60.8488 | 200 |
| 3 | TOLUENE | 13.3 | 0.3 | 63.1385 | 200 |
| 4 | ETHYL BEN | 16.8 | 0.2 | 89.0327 | 200 |
| 5 | P-XYLENE | 17 | 0.15 | 64.2048 | 200 |
| 6 | M-XYLENE | 17.3 | 0.2 | 49.1255 | 200 |
| 7 | O-XYLENE | 19.1 | 0.3 | 69.0072 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 289.739 | 200 |

DAILY BTEX CALIBRATION 1/25/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 60.84 | 0.8 |
| TOLUENE | 69.89 | 63.13 | 9.6 |
| ETHYL BENZ | 100.8 | 89.03 | 11.6 |
| P-XYLENE | 75.8 | 64.2 | 15.3 |
| M-XYLENE | 54.38 | 49.12 | 9.6 |
| O-XYLENE | 78.72 | 69 | 12.3 |

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-01-260

Report Date: 1/25/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-260 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 1/25/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-260-10
Sample I.D.: P-I-3
Date: 1/26/93
Sample Matrix: soil
Analyst: J.F.G.
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 210 | 105 | 82-117 |
| Toluene | 200 ug/l | | 205 | 103 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 205 | 103 | 71-121 |
| p-Xylene | 200 ug/l | | 193 | 97 | 67-124 |
| m-Xylene | 200 ug/l | | 207 | 104 | |
| o-Xylene | 200 ug/l | | 204 | 102 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: P-I-3
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-01-260-10
Date: 1/26/93
Analyst: J.F.G.
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 207 | 104 | 82-117 |
| Toluene | 200 ug/l | | 202 | 101 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 199 | 100 | 71-121 |
| p-Xylene | 200 ug/l | | 187 | 94 | 67-124 |
| m-Xylene | 200 ug/l | | 199 | 100 | |
| o-Xylene | 200 ug/l | | 197 | 99 | |

8890

Page _____ of _____

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no (5893 130) DACA63-93-C006

Client/Project Corps of Engineers / Rancho Tripoli

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | P-VIII | 1-21-93 07:30 | X | | 2 4 OZ Glass | Soil | Ice | BTEX, TRPH | |
| 2 | P-IV | 1-21-93 07:45 | X | | " | " | " | " " | |
| 3 | P-V | 1-21-93 08:00 | X | | " | " | " | " " | |
| 4 | P-VI | 1-21-93 08:15 | X | | " | " | " | " " | |
| 5 | P-VII | 1-21-93 08:30 | X | | " | " | " | " " | |
| 6 | P-XIII | 1-21-93 08:45 | X | | " | " | " | " " | |
| 7 | P-ID (2) | 1-21-93 10:15 | | X | 1L/Amber 40ml/VOA | Liquid | " | " " | |
| 8 | PI-1 | 1-21-93 1300 | | X | 2 4 OZ/Glass | Soil | " | " " | |
| 9 | PI-2 | 1-21-93 13:30 | | X | " | " | " | " " | |
| 10 | PI-3 | 1-21-93 14:30 | | X | " | " | " | " " | |

Samplers: (Print) Larry Collins

Affiliation SWL

Results by 3 days Post Rush

Rush Charges Authorized Yes ✓ No ____

Relinquished by: (Signature) Larry Collins Date: 1-21-93 Time:

Relinquished by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

Received by: (Signature) [illegible] Date: Time:

Received by: (Signature) Date: Time:

Received by Laboratory: (Signature) [illegible] Date: 1-22-93 Time: 5:00

REMARKS: * Report soil results on dry weight basis, all TS results from QC lab.

Data Results to:

1.

2.

COC Seal No.

REC'D. ON ICE Yes ✓ No ____

Intact: Yes

Laboratory No. 9301-2600

014434

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: MONICA SCOTT

Client No. DACA6393C006
Report No. 93-04-243
Report Date 04/22/93 14:58

Project DACA6393C006/CORPS OF ENG.

Date Sampled 04/15/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 5058-93-130

Date Received 04/19/93

| Lab No. | Sample Identification |
|---|---|
| 93-04-243-01 | PC-14 |
| 93-04-243-02 | PC-15 |
| 93-04-243-03 | PC-16 |
| 93-04-243-04 | PC-17 |
| 93-04-243-05 | PC-18 |
| 93-04-243-06 | RB-7 |
| 93-04-243-07 | R-7 |
| 93-04-243-08 | PC-19 |
| 93-04-243-09 | PC-20 |
| 93-04-243-10 | PC-21 |
| 93-04-243-11 | PC-22 |
| 93-04-243-12 | PC-23 |
| 93-04-243-13 | PC-24 |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A PC-14 Collected: 04/15/93 10:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.81 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 118 | mg/kg | 5.0 | 04/20/93 | MR |

Sample: 02A PC-15 Collected: 04/15/93 10:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.58 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 28.7 | mg/kg | 5.0 | 04/20/93 | MR |

Sample: 03A PC-16 Collected: 04/15/93 11:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.44 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 14.0 | mg/kg | 5.0 | 04/20/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 04A PC-17 Collected: 04/15/93 11:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.83 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 18.3 | mg/kg | 5.0 | 04/20/93 | MR |

Sample: 05A PC-18 Collected: 04/15/93 11:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 24.31 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 24.6 | mg/kg | 5.0 | 04/20/93 | MR |

Sample: 06A RB-7 Collected: 04/15/93 17:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 04/20/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 1.30 | mg/l - | 1.00 | 04/21/93 | DA |

TEST RESULTS BY SAMPLE

Sample: 07A R-7 Collected: 04/15/93 11:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.64 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 58.7 | mg/kg | 5.0 | 04/20/93 | MR |

Sample: 08A PC-19 Collected: 04/15/93 14:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 25.27 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 04/20/93 | MR |

Sample: 09A PC-20 Collected: 04/15/93 15:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.95 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 04/20/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 10A PC-21 Collected: 04/15/93 15:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.09 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 22.4 | mg/kg | 5.0 | 04/20/93 | MR |

Sample: 11A PC-22 Collected: 04/15/93 15:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.37 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 58.4 | mg/kg | 5.0 | 04/20/93 | MR |

Sample: 12A PC-23 Collected: 04/15/93 16:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.68 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 57.8 | mg/kg | 5.0 | 04/20/93 | MR |

TEST RESULTS BY SAMPLE

Sample: 13A PC-24 Collected: 04/15/93 16:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/20/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.70 | % MOISTU | 0.10 | 04/20/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 73.4 | mg/kg | 5.0 | 04/20/93 | MR |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-04-243

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

.ient: SWL Austin

File No.:

Report No.: 93-04-243

Report Date: 4/20/93

# BTEX ANALYSIS

Matrix: Water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93 04-243 | Blank (2016) | < 4 | < 4 | < 4 | < 4 |

Date Analyzed: 4/20/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

C-FSA CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 1062
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 8.873 | 7917 | | 2 | | BENZENE |
| 2 | 9.498 | 2874 | B | 1 | | INT STD |
| 3 | 11.726 | 7966 | | 3 | | TOLUENE |
| 4 | 15.201 | 5981 | | 4 | | ETHYL BEN |
| 5 | 15.517 | 7625 | V | 5 | | P-XYLENE |
| 6 | 15.792 | 11524 | BV | 6 | | M-XYLENE |
| 7 | 17.6 | 7612 | | 7 | | O-XYLENE |
| | TOTAL | 50898 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | IDNO |
|---|---|---|---|---|---|
| 1 | INT STD | 9.4 | 1.15 | 1 | 1 |
| 2 | BENZENE | 8.8 | 0.15 | 57.459 | 200 |
| 3 | TOLUENE | 11.7 | 0.1 | 57.1083 | 200 |
| 4 | ETHYL BEN | 15.2 | 0.1 | 76.1518 | 200 |
| 5 | P-XYLENE | 15.5 | 0.1 | 59.66 | 200 |
| 6 | M-XYLENE | 15.8 | 0.15 | 39.4721 | 200 |
| 7 | O-XYLENE | 17.6 | 0.15 | 59.7591 | 200 |
| 8 | 1,3 DICHL | 26.5 | 0.15 | 45.5334 | 200 |
| 9 | 1,4 DICHL | 27.4 | 0.15 | 41.1602 | 200 |
| 10 | 1,2 DICHL | 28.7 | 0.15 | 50.481 | 200 |

DAILY BTEX CALIBRATION 4/20/93 ALS 8016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 58.16 | 57.44 | -14.6 |
| TOLUENE | 53.36 | 57.09 | -9.1 |
| ETHYL BEN | 71.76 | 76.94 | -6 |
| P-XYLENE | 54.91 | 59.64 | -8.9 |
| M-XYLENE | 39.21 | 39.46 | -3.3 |
| O-XYLENE | 55.73 | 59.74 | -7.1 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: PC-24
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-04-243-13
Date: 4/21/93
Analyst: JFG
Parameter: BTEX

Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | ND | 198 | 99 | 82-117 |
| Toluene | 200 ug/l | | 185 | 93 | 78-118 |
| thyl Benzene | 200 ug/l | | 183 | 92 | 71-121 |
| p-Xylene | 200 ug/l | | 180 | 90 | 67-124 |
| m-Xylene | 200 ug/l | | 174 | 87 | |
| o-Xylene | 200 ug/l | | 182 | 91 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: PC-24
Sample Matrix: Soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-04-243-13
Date: 4/21/93
Analyst: JFG
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 239 | 120 | 82-117 |
| Toluene | 200 ug/l | | 227 | 114 | 73-114 |
| Ethyl Benzene | 200 ug/l | | 225 | 115 | 71-121 |
| p-Xylene | 200 ug/l | | 221 | 111 | 67-124 |
| m-Xylene | 200 ug/l | | 220 | 110 | |
| o-Xylene | 200 ug/l | | 228 | 114 | |

# QA/QC REPORT

Client: SWL - Austin

Report No.: 93-4-243

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

CLP-SD Summary Report

Work Order: [illegible] Client: [illegible]

[illegible]

| Sel | Sample ID | Test Class Code | Matrix Sub/Sub | Pct Sol | Pct Sed | Dilution | Weight | Volume | Conc. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

| Analyte | Result | Reported Detection Limit | Blank Result | Blank Value | Matrix Overr | Blank Corr | Qualifier |
|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

[illegible]

| Sel | Sample ID | Test Class Code | Matrix Sub/Sub | Pct Sol | Pct Sed | Dilution | Weight | Volume | Conc. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

| Analyte | Result | Reported Detection Limit | Blank Result | Blank Value | Matrix Overr | Blank Corr | Qualifier |
|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

[illegible]

| Sel | Sample ID | Test Class Code | Matrix Sub/Sub | Pct Sol | Pct Sed | Dilution | Weight | Volume | Conc. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

[illegible]

| Analyte | Result | [illegible] |
|---|---|---|
| [illegible] | [illegible] | [illegible] |

[illegible]

| Sel | Sample ID | Test Class Code | Matrix Sub/Sub | Pct Sol | Pct Sed | Dilution | Weight | Volume | Conc. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

| Analyte | Result | Reported Detection Limit | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

[illegible]

| Sel | Sample ID | Test Class Code | Matrix Sub/Sub | Pct Sol | Pct Sed | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

| Analyte | Result | [illegible] |
|---|---|---|
| [illegible] | [illegible] | [illegible] |

[illegible]

| Sel | Sample ID | Test Class Code | Matrix Sub/Sub | Pct Sol | Pct Sed | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

| Analyte | Result | [illegible] |
|---|---|---|
| [illegible] | [illegible] | [illegible] |

SAMPLE

| Seq. | Sample ID | Test Code | Client Sub/Lot | Matrix Sub | Ref Std Seq | Std Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | TPH_B | [illegible] | [illegible] | | | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE

| Seq. | Sample ID | Test Code | Client Sub/Lot | Matrix Sub | Ref Std Seq | Std Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | TPH_B | [illegible] | [illegible] | | | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE

| Seq. | Sample ID | Test Code | Client Sub/Lot | Matrix Sub | Ref Std Seq | Std Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | TPH_B | [illegible] | [illegible] | | | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE

| Seq. | Sample ID | Test Code | Client Sub/Lot | Matrix Sub | Ref Std Seq | Std Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | TPH_B | [illegible] | [illegible] | | | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE

| Seq. | Sample ID | Test Code | Client Sub/Lot | Matrix Sub | Ref Std Seq | Std Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | TPH_B | [illegible] | [illegible] | | | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE

| Seq. | Sample ID | Test Code | Client Sub/Lot | Matrix Sub | Ref Std Seq | Std Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | TPH_B | [illegible] | [illegible] | | | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE

| Seq. | Sample ID | Test Code | Client Sub/Lot | Matrix Sub | Ref Std Seq | Std Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | TPH_B | [illegible] | [illegible] | | | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

GC/MS Summary Report

Work Order: [illegible] Client: [illegible]

SAMPLE

| Sample ID | Test Code | Method | Ref Dil Dec | Dec | Injection | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | TPH_B | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE DUPLICATE

| Sample ID | Test Code | Method | Ref Dil Dec | Dec | Injection | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | TPH_B | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

| Analyte | Result | Reference Detection Result | Limit | RPD | Low | High |
|---|---|---|---|---|---|---|
| TPH_B | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

SAMPLE

| Sample ID | Test Code | Method | Ref Dil Dec | Dec | Injection | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | TPH_B | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE

| Sample ID | Test Code | Method | Ref Dil Dec | Dec | Injection | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | TPH_B | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analyte | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

[illegible]

| Sample ID | Test Code | Method | Ref Dil Dec | Dec | Injection | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

[illegible]

| Analyte | Result | [illegible] | Limit | [illegible] | [illegible] |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

[illegible]

| Sample ID | Test Code | Method | Ref Dil Dec | Dec | Injection | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

[illegible]

| Analyte | Result | [illegible] | Limit | [illegible] |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

Work Order: 9304243 Client: BAL_AUSTIN

SAMPLE

| Seq. | Sample ID | Test Code | Class Sub/Dup | Matrix Sub | Ref Sep | Sbk Sep | Dilution | Weight | Volume | Conv. Factor | Pkg | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | [illegible] | TPH_W | [illegible] | W | | | [illegible] | 1000.00 | [illegible] | [illegible] | | [illegible] |

| Analytes | Result | Detection Limit | |
|---|---|---|---|
| TPH_W | 1.0 | 0.5 | 10.9 |

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 93-130

Client/Project: Corps of Engineers / Laredo Airport DACA63-93-C-0006

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | PC-14 | 4-15-93 10:30 | X | | 4 oz Glass 8 oz Glass | Soil | 4°C | BTEX, TPH | |
| 2 | PC-15 | " 10:45 | X | | " | " | " | " " | |
| 3 | PC-16 | " 11:00 | X | | " | " | " | " " | |
| 4 | PC-17 | 11:15 | X | | " | " | " | " " | |
| 5 | PC-18 | 11:30 | X | | " | " | " | " " | |
| 6 | RB-7 | 17:00 | | X | 1 Liter Amber 3) VOA | Liquid | " | " " | |
| 7 | R-7 | 11:30 | X | | " | Soil | " | " " | |
| 8 | PC-19 | 14:30 | X | | " | " | " | " " | |
| 9 | PC-20 | 1500 | X | | " | " | " | " " | |
| 10 | PC-21 | 1530 | X | | " | " | " | " " | |

RUSH

| Samplers: (Print) | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | 4-15-93 1800 | | | |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | REC'D. ON ICE Yes ✓ No ___ |
| SWL | | | Received by Laboratory: (Signature) | Date: 4/19/93 Time: 10:00 | Intact: Yes |
| Results by 72 HRS | Relinquished by: (Signature) | Date: Time: | Data Results To: | | Laboratory No. |
| Rush Charges Authorized Yes ___ No ✓ | REMARKS: Need results in Normal turnaround time. | | 1. Larry Collins Jobsite 2. Monica Scott Austin | | 93-04-243 |

01451

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 93130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | PC-22 | 4-15-93 1545 | X | | 4 oz Glass Jar " | Soil | 4°C | BTEX, TPH | |
| 12 | PC-23 | 4-15-93 1600 | X | | " | " | " | " " | |
| 13 | PC-24 | 4-15-93 1630 | X | | " | " | " | " " | |

RUSH

| Samplers: (Print) | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | 4-15-93 1800 | | | |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | REC'D. ON ICE Yes X No |
| SWL | | | Received by Laboratory: (Signature) | Date: 4/16/93 Time: 10:00 | Intact: yes |
| Results by 22 HRS | Relinquished by: (Signature) | Date: Time: | Data Results to: | | Laboratory No. |
| Rush Charges Authorized Yes ___ No ✓ | REMARKS: Normal Turnaround on all analysis | | 1. Larry Collins Job site 2. Monica Scott Austin | | 93-04-243 |

01452

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-03-058
Report Date 03/05/93 14:47

Project DACA6393C006/CORPS OF ENG.

Date Sampled 03/03/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505893-130

Date Received 03/04/93

LOCATION - LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-03-058-01 | PI-4 |
| 93-03-058-02 | PI-5 |
| 93-03-058-03 | PI-6 |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A PI-4 Collected: 03/03/93 09:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 03/04/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.50 | % MOISTU | 0.10 | 03/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 1170 | mg/kg | 5.0 | 03/05/93 | MR |

Sample: 02A PI-5 Collected: 03/03/93 09:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 03/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.17 | % MOISTU | 0.10 | 03/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 23.6 | mg/kg | 5.0 | 03/05/93 | |

Sample: 03A PI-6 Collected: 03/03/93 10:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.80 | mg/kg | 0.80 | 03/05/93 | JFG |
| Toluene | SW846 8020 | <0.80 | mg/kg | 0.80 | | |
| Ethylbenzene | SW846 8020 | 5.77 | mg/kg | 0.80 | | |
| Xylenes | SW846 8020 | <0.80 | mg/kg | 0.80 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 20.64 | % MOISTU | 0.10 | 03/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 14,500 | mg/kg | 5.0 | 03/05/93 | MR |

01455

SWL

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 93 130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | PI-4 | 3-3-93 0900 | | X | 4 oz Glass 8 oz Glass | Soil | 4°C | BTEX, TPH | |
| 2 | PI-5 | 3-3-93 0930 | | X | " | " | " | " " | |
| 3 | PI-6 | 3-3-93 10:30 | | X | " | " | " | " " | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Samplers: (Print) Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 3-3-93 Time: 16:45

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) K Bursnall — Date: 3-4-93 Time: 8:30

COC Seal No.

REC'D. ON ICE Yes X No

Intact Yes

Results by 48 Hr

Rush Charges Authorized Yes ✓ No

REMARKS: 48 Hour Turnaround on all Analysis.

Data Results To:

1. Sean Kelly Austin
2. Larry Collins Laredo

Laboratory No. 93-03-058

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-01-356
Report Date 02/04/93 15:01

Project DACA6393C006/CORPS OF ENG.

Date Sampled 01/27/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 01/28/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-01-356-01 | CLPS-I |
| 93-01-356-02 | CLPS-II |
| 93-01-356-03 | CLPS-III |
| 93-01-356-04 | CLPS-IV |
| 93-01-356-05 | CLPS-V |
| 93-01-356-06 | CLPS-VI |
| 93-01-356-07 | P-I-I |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A CLPS-I Collected: 01/27/93 13:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/30/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 16.39 | % MOISTU | 0.10 | 01/29/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/02/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 52.7 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |

Sample: 02A CLPS-II Collected: 01/27/93 13:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/30/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.84 | % MOISTU | 0.10 | 01/29/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/02/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 64.5 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |

Sample: 03A CLPS-III Collected: 01/27/93 13:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/30/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.73 | % MOISTU | 0.10 | 01/29/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/02/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 17.3 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 04A CLPS-IV Collected: 01/27/93 14:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/30/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 19.52 | % MOISTU | 0.10 | 01/29/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/02/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |

Sample: 05A CLPS-V Collected: 01/27/93 14:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/30/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.12 | % MOISTU | 0.10 | 01/29/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/02/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |

Sample: 06A CLPS-VI Collected: 01/27/93 14:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/30/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.67 | % MOISTU | 0.10 | 01/29/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/02/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 07A P-I-I Collected: 01/27/93 15:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/30/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.92 | % MOISTU | 0.10 | 01/29/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/02/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-01-356

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

lient: SWL Austin

File No.:

Report No.: 93-01-356

Report Date: 1/29/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-356 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 1/29/93 BTEX Method 5030/8020

Analyzed By: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | |
|---|---|---|---|
| 9 | 17.655 | 7764 | O-XYLENE |
| | TITLE | 54796 | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 98

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 9.3 | 0.15 | 49.0546 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 52.8832 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 71.8711 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 57.1591 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 37.7072 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 57.0093 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 386.629 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 1/29/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 49.05 | 2.2 |
| TOLUENE | 52.36 | 52.87 | -1 |
| ETHYL BENZ | 71.76 | 71.86 | -0.2 |
| P-XYLENE | 54.81 | 57.15 | -4.3 |
| M-XYLENE | 38.21 | 37.7 | 1.3 |
| O-XYLENE | 55.78 | 57 | -2.2 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-3056-7
Sample I.D.: P-I-I
Date: 1/30/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 205 | 104 | 82-117 |
| Toluene | 200 ug/l | | 212 | 106 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 211 | 106 | 71-121 |
| p-Xylene | 200 ug/l | | 223 | 112 | 67-124 |
| m-Xylene | 200 ug/l | | 208 | 104 | |
| o-Xylene | 200 ug/l | | 216 | 108 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: P-T-T
Sample Matrix: Soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-01-356-7
Date: 1/20/93
Analyst: J.F.G.
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 169 | 85 | 82-117 |
| Toluene | 200 ug/l | | 175 | 88 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 174 | 87 | 71-121 |
| p-Xylene | 200 ug/l | | 184 | 92 | 67-124 |
| m-Xylene | 200 ug/l | | 170 | 85 | |
| o-Xylene | 200 ug/l | | 173 | 87 | |

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-01-356

Report Date: 2/2/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-356 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/2/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

CONCENTRATION MADE IN IDENTIFICATION FILE 9

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 48.3316 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 49.4638 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 68.9252 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 51.8606 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 36.3649 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 53.0693 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 386.629 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/2/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 48.33 | 3.6 |
| TOLUENE | 52.36 | 49.46 | 5.5 |
| ETHYL BENZ | 71.76 | 68.93 | 3.9 |
| P-XYLENE | 54.81 | 51.86 | 5.3 |
| M-XYLENE | 38.21 | 36.36 | 4.8 |
| O-XYLENE | 55.78 | 53.07 | 4.8 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-356-7
Sample I.D.: P-I-T
Date: 2/2/93
Sample Matrix: TCLP-
Analyst: I.F. 6
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 213 | 107 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
Sample I.D.: D-I-I
Sample Matrix: TCLP
Spiking Solution: SWL BTEX Spike

SwL Lab No.: 93-01-356-7
Date: 2/2/93
Analyst: T.F.G
Parameter: BTEX

Spiked Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 191 | 96 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 416.1
DATE OF TEST: 2/3/93 PARAMETER : TPH MATRIX: SOIL ANALYST: MR MDL: 5.0

| CALIBRATION STANDARDS/BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| | 0 | 0 | | | |
| | 10.2 | 0.07 | | | |
| | 51 | 0.16 | | | |
| | 102 | 0.32 | | | |
| L.R.(A) = .999635 | 204 | 0.62 | | | |

SAMPLE ID NUMBERS IN THIS RUN: [illegible]

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | P% (% RECOVERY) |
|---|---|---|---|---|---|---|
| [illegible] | 44,100 | 41,700 | 5.59440 | 406.9 | 423.9 | 104.2 |

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 92-130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | | | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CLPS-I | 1-27-93 13:00 | | X | 4oz Glass | Soil | Ice | BTEX, | TCLP Bz, | TRPH | |
| 2 | CLPS-II | 1-27-93 13:15 | | X | " | " | " | " | " | " | |
| 3 | CLPS-III | 1-27-93 13:30 | | X | " | " | " | " | " | " | |
| 4 | CLPS-IV | 1-27-93 14:00 | | X | " | " | " | " | " | " | |
| 5 | CLPS-V | 1-27-93 14:15 | | X | " | " | " | " | " | " | |
| 6 | CLPS-VI | 1-27-93 14:30 | | X | " | " | " | " | " | " | |
| 7 | P-I-I | 1-27-93 1500 | | X | " | " | " | " | " | " | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Samplers: (Print): Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 1-27-93 Time: 1655

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) — Date: 1-28-93 Time: 2:30

COC Seal No.

REC'D. ON ICE Yes X No

Intact: Yes

Laboratory No. 93-01-356

Results by

Rush Charges Authorized Yes No

REMARKS: Report results on a dry weight basis. Get TS results from client.

Data Results To:

1. Lee Forbes Austin

2.

01470

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-01-293
Report Date 02/01/93 16:33

Project DACA6393C006/CORPS OF ENG.

Date Sampled 01/25/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB#5058-93-130

Date Received 01/26/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-01-293-01 | CLTS-1 |
| 93-01-293-02 | CLTS-2 |
| 93-01-293-03 | CLTS-3 |
| 93-01-293-04 | CLTS-4 |
| 93-01-293-05 | CLTS-5 |
| 93-01-293-06 | CLTS-6 |
| 93-01-293-07 | CLTS-7 |
| 93-01-293-08 | CLTS-8 |
| 93-01-293-09 | CLTS-9 |
| 93-01-293-10 | CLTS-10 |
| 93-01-293-11 | CLTS-11 |
| 93-01-293-12 | CLTS-12 |
| 93-01-293-13 | CLTS-13 |
| 93-01-293-14 | CLTS-14 |

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A CLTS-1 Collected: 01/25/93 10:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.32 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/28/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/27/93 | DATE | | 01/27/93 | CJG |

Sample: 02A CLTS-2 Collected: 01/25/93 10:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 01/28/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.69 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/28/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 182 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/27/93 | DATE | | 01/27/93 | CJG |

Sample: 03A CLTS-3 Collected: 01/25/93 11:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.21 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/28/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/27/93 | DATE | | 01/27/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 04A CLTS-4 Collected: 01/25/93 11:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/28/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.94 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 53,500 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/27/93 | DATE | | 01/27/93 | CJG |

Sample: 05A CLTS-5 Collected: 01/25/93 12:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 16.05 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/28/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/27/93 | DATE | | 01/27/93 | CJG |

Sample: 06A CLTS-6 Collected: 01/25/93 13:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 9.32 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/27/93 | DATE | | 01/27/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 07A CLTS-7 Collected: 01/25/93 13:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.68 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/27/93 | DATE | | 01/27/93 | CJG |

Sample: 08A CLTS-8 Collected: 01/25/93 14:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.37 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 7.6 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/27/93 | DATE | | 01/27/93 | CJG |

Sample: 09A CLTS-9 Collected: 01/25/93 14:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/28/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.65 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 44.5 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/28/93 | DATE | | 01/28/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 10A CLTS-10 Collected: 01/25/93 15:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.17 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/28/93 | DATE | | 01/28/93 | CJG |

Sample: 11A CLTS-11 Collected: 01/25/93 15:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 26.49 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/28/93 | DATE | | 01/28/93 | CJG |

Sample: 12A CLTS-12 Collected: 01/25/93 16:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/27/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.63 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/28/93 | DATE | | 01/28/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 13A CLTS-13 Collected: 01/25/93 16:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/28/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.17 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/28/93 | DATE | | 01/28/93 | CJG |

Sample: 14A CLTS-14 Collected: 01/25/93 17:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 01/28/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.38 | % MOISTU | 0.10 | 01/27/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 19.8 | mg/kg | 5.0 | 02/01/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/28/93 | DATE | | 01/28/93 | CJG |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-01-293

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 92-01-293

Report Date: 1/27/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 92-01-293 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 1/22/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 8.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 9.3 | 0.15 | 44.7464 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 46.0476 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 64.4601 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 49.4153 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 35.0282 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 51.0785 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 339.963 | 200 |
| 9 | 1,3 DICHL | 36.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 37.5 | 0.15 | 52.3489 | 200 |
| 11 | 1,2 DICHL | 38.8 | 0.15 | 62.5022 | 200 |

DAILY BTEX CALIBRATION 1/27/93 ALS 8016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 44.74 | 10.8 |
| TOLUENE | 52.36 | 46.04 | 12 |
| ETHYL BEN | 71.76 | 64.46 | 10.1 |
| P-XYLENE | 54.91 | 49.41 | 10.6 |
| M-XYLENE | 38.81 | 35.02 | 9.3 |
| O-XYLENE | 55.78 | 51.07 | 8.4 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-293-14
Sample I.D.: CLTS-14
Date: 1/28/93
Sample Matrix: soil
Analyst: J.F.G.
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 219 | 110 | 82-117 |
| Toluene | 200 ug/l | | 211 | 106 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 213 | 107 | 71-121 |
| p-Xylene | 200 ug/l | | 200 | 100 | 67-124 |
| m-Xylene | 200 ug/l | | 211 | 106 | |
| o-Xylene | 200 ug/l | | 210 | 105 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-293-14
Sample I.D.: CLTS-14
Date: 1/28/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 216 | 108 | 82-117 |
| Toluene | 200 ug/l | | 217 | 109 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 214 | 107 | 71-121 |
| p-Xylene | 200 ug/l | | 201 | 101 | |
| m-Xylene | 200 ug/l | | 216 | 108 | 67-124 |
| o-Xylene | 200 ug/l | | 216 | 108 | |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-01-293

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

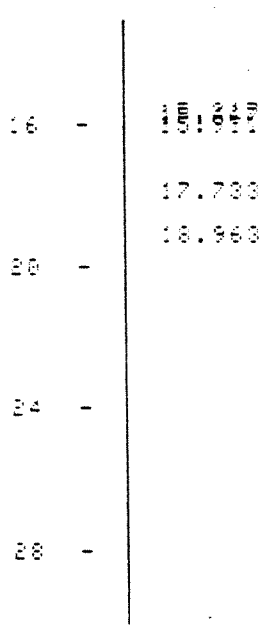
| | | | | | |
|---|---|---|---|---|---|
| 4 | 15.263 | 6421 | | 4 | ETHYL BEN |
| 5 | 15.581 | 8490 | V | 5 | P-XYLENE |
| 6 | 15.845 | 12001 | SV | 6 | M-XYLENE |
| 7 | 17.655 | 8169 | V | 7 | O-XYLENE |
| 8 | 29.4 | 113 | V | | |
| | TOTAL | 55053 | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE$ 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 46.4404 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 47.6436 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 65.0777 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 49.22 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 34.8201 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 51.1512 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 229.963 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 1/28/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 46.43 | 7.4 |
| TOLUENE | 52.36 | 47.63 | 9 |
| ETHYL BENZ | 71.76 | 65.06 | 9.3 |
| P-XYLENE | 54.81 | 49.21 | 10.2 |
| M-XYLENE | 38.21 | 34.81 | 8.8 |
| O-XYLENE | 55.78 | 51.14 | 8.3 |



SOUTHWESTERN LABORATORIES

ient: SwL Austin

File No.:

Report No.: 93-01-293

Report Date: 1/28/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-293 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 1/28/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-293-14
Sample I.D.: CLTS-14
Date: 1/28/93
Sample Matrix: soil
Analyst: J.F.G.
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 207 | 104 | 82-117 |
| Toluene | 200 ug/l | | 208 | 104 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 208 | 104 | 71-121 |
| p-Xylene | 200 ug/l | | 197 | 99 | 67-124 |
| m-Xylene | 200 ug/l | | 197 | 99 | |
| o-Xylene | 200 ug/l | | 200 | 100 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: CLTS-14
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-01-273-14
Date: 1/28/93
Analyst: J.F.G
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 212 | 106 | 82-117 |
| Toluene | 200 ug/l | | 213 | 107 | 78-115 |
| Ethyl Benzene | 200 ug/l | | 210 | 105 | 71-121 |
| p-Xylene | 200 ug/l | | 198 | 99 | 67-124 |
| m-Xylene | 200 ug/l | | 208 | 104 | |
| o-Xylene | 200 ug/l | | 206 | 103 | |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-01-293

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-01-293

Report Date: 1/29/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-293 | Blank (2.0L) | <4 | <4 | <4 | <4 |

Date Analyzed: 1/29/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | | |
|---|---|---|---|---|
| 9 | 17.655 | 7764 | 7 | O-XYLENE |
| | TOTAL | 54798 | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 49.0546 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 58.8832 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 71.8711 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 57.1591 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 37.7072 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 57.0093 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 386.629 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 1/29/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 49.05 | 2.2 |
| TOLUENE | 52.36 | 52.87 | -1 |
| ETHYL BENZ | 71.76 | 71.86 | -0.2 |
| P-XYLENE | 54.81 | 57.15 | -4.3 |
| M-XYLENE | 38.21 | 37.7 | 1.3 |
| O-XYLENE | 55.78 | 57 | -2.2 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-293-9
Sample I.D.: CLTS-9
Date: 1/29/93
Sample Matrix: TCLP - (Liquid)
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 163 | 82 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-293-9
Sample I.D.: CLTS-9
Date: 1/29/93
Sample Matrix: TCLP-- (Liquid)
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 202 | 101 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 5892130

Client/Project: Corp of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | CL TS - 1 | 1-25-93 10:00 | | X | 8 oz Glass | Soil | Ice | BTEX, TRPH, TCLP Bz | |
| 2 | CL TS - 2 | 1-25-93 10:30 | | X | " | " | " | " " " | |
| 3 | CL TS - 3 | 1-25-93 11:00 | | X | " | " | " | " " " | |
| 4 | CL TS - 4 | 1-25-93 11:30 | | X | " | " | " | " " " | |
| 5 | CL TS - 5 | 1-25-93 12:30 | | X | " | " | " | " " " | |
| 6 | CL TS - 6 | 1-25-93 13:00 | | X | " | " | " | " " " | |
| 7 | CL TS - 7 | 1-25-93 13:30 | | X | " | " | " | " " " | |
| 8 | CL TS - 8 | 1-25-93 14:00 | | X | " | " | " | " " " | |
| 9 | CL TS - 9 | 1-25-93 14:30 | | X | " | " | " | " " " | |
| 10 | CL TS - 10 | 1-25-93 15:00 | | X | " | " | " | " " " | |

| Samplers: (Print) | Relinquished by: (Signature) | Date: 1-25-93 Time: 16:45 | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | | | | |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | REC'D. ON ICE Yes X No |
| SWL Enviromental | Relinquished by: (Signature) | Date: Time: | Received by Laboratory: (Signature) | Date: 1-26-93 Time: 11:15 | Intact Yes |

Results by _____

Rush Charges Authorized Yes ✓ No ____

REMARKS: * Report soil results on a dry weight basis, get TS results from GC lab.

Data Results To: 1. 2.

Laboratory No. 93-01-293

01492

889071



**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 58 92 130

Client/Project: Corp. of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | CLTS - 11 | 1-25-93 15:30 | | X | 8oZ Glass | Soil | Ice | BTEX, TRPH, TCLP Ba | |
| 12 | CLTS - 12 | 1-25-93 16:00 | | X | " | " | " | " " " | |
| 13 | CLTS - 13 | 1-25-93 16:30 | | X | " | " | " | " " " | |
| 14 | CLTS - 14 | 1-25-93 17:00 | | X | " | " | " | " " " | |

Samplers: (Print): Larry Collins

Affiliation: SWL Envio.

Results by _____

Rush Charges Authorized: Yes ✓ No ____

Relinquished by: (Signature) Larry Collins — Date: 1-25-93 Time: 16:45

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

REMARKS:

Received by: (Signature) [illegible] — Date: Time:

Received by: (Signature) [illegible] — Date: Time: 1-26-93

Received by Laboratory: (Signature) [illegible] — Date: Time: 11:15

Data Results To:

1.

2.

COC Seal No.

REC'D. ON ICE: Yes ✓ No ____

Intact: yes

Laboratory No. 93-01-293

01493

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-01-380
Report Date 02/08/93 09:32

Project DACA6393C006/CORPS OF ENG.

Date Sampled 01/28/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB#505892-130

Date Received 01/29/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-01-380-01 | CLTS-15 |
| 93-01-380-02 | CLTS-16 |
| 93-01-380-03 | CLTS-17 |
| 93-01-380-04 | CLTS-18 |
| 93-01-380-05 | CLTS-19 |
| 93-01-380-06 | CLTS-20 |
| 93-01-380-07 | CLTS-21 |
| 93-01-380-08 | CLTS-22 |
| 93-01-380-09 | CLTS-23 |
| 93-01-380-10 | CLTS-24 |
| 93-01-380-11 | CLTS-25 |
| 93-01-380-12 | CLTS-26 |
| 93-01-380-13 | CLTS-27 |

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A CLTS-15 Collected: 01/28/93 09:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.12 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/05/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 10.7 | mg/kg | 5.0 | 02/04/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/04/93 | DATE | | 02/04/93 | CJG |

Sample: 02A CLTS-16 Collected: 01/28/93 09:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.53 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/05/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 16.2 | mg/kg | 5.0 | 02/04/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/04/93 | DATE | | 02/04/93 | CJG |

Sample: 03A CLTS-17 Collected: 01/28/93 10:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.70 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/05/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 8.1 | mg/kg | 5.0 | 02/04/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/04/93 | DATE | | 02/04/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 04A CLTS-18 Collected: 01/28/93 10:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.52 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/05/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 22.4 | mg/kg | 5.0 | 02/04/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/04/93 | DATE | | 02/04/93 | CJG |

Sample: 05A CLTS-19 Collected: 01/28/93 10:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.09 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 31.9 | mg/kg | 5.0 | 02/04/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/05/93 | DATE | | 02/05/93 | CJG |

Sample: 06A CLTS-20 Collected: 01/28/93 10:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.74 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/04/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/05/93 | DATE | | 02/05/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 07A CLTS-21 Collected: 01/28/93 11:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.83 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 27.9 | mg/kg | 5.0 | 02/04/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/05/93 | DATE | | 02/05/93 | CJG |

Sample: 08A CLTS-22 Collected: 01/28/93 11:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.21 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/04/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/05/93 | DATE | | 02/05/93 | CJG |

Sample: 09A CLTS-23 Collected: 01/28/93 11:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.83 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 23.1 | mg/kg | 5.0 | 02/05/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/05/93 | DATE | | 02/05/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 10A CLTS-24 Collected: 01/28/93 11:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 7.65 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 27.7 | mg/kg | 5.0 | 02/05/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/05/93 | DATE | | 02/05/93 | CJG |

Sample: 11A CLTS-25 Collected: 01/28/93 12:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.68 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 743 | mg/kg | 5.0 | 02/05/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/05/93 | DATE | | 02/05/93 | CJG |

Sample: 12A CLTS-26 Collected: 01/28/93 12:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.67 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 8.7 | mg/kg | 5.0 | 02/05/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/05/93 | DATE | | 02/05/93 | CJG |

Order # 93-01-380
02/08/93 09:32
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: 13A CLTS-27 Collected: 01/28/93 12:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.99 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 6.3 | mg/kg | 5.0 | 02/05/93 | HC |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/06/93 | DATE | | 02/06/93 | CJG |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-01-380

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

lient: SWL Austin

File No.:

Report No.: 93-01-380

Report Date: 2/1/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-380 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed 2/1/93 BTEX Method 5030/8020

Analyzed By:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

TMS

01501

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TOTAL 53697

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 46.2032 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 47.9063 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 67.2657 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 53.7075 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 36.3433 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 53.4983 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 386.629 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/1/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 46.21 | 7.8 |
| TOLUENE | 52.36 | 47.91 | 8.4 |
| ETHYL BENZ | 71.76 | 67.28 | 6.2 |
| P-XYLENE | 54.81 | 53.72 | 1.9 |
| M-XYLENE | 38.21 | 36.34 | 4.8 |
| O-XYLENE | 55.78 | 53.51 | 4 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin

SwL Lab No.: 93-01-380-13

Sample I.D.: CLTS-27

Date: 2/2/93

Sample Matrix: soil

Analyst: J.F.G

Spiking Solution: SwL BTEX Spike

Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 208 | 104 | 82-117 |
| Toluene | 200 ug/l | | 208 | 104 | 75-115 |
| Ethyl Benzene | 200 ug/l | | 209 | 105 | 71-121 |
| p-Xylene | 200 ug/l | | 210 | 105 | 67-124 |
| m-Xylene | 200 ug/l | | 211 | 106 | |
| o-Xylene | 200 ug/l | | 215 | 105 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-380-13
Sample I.D.: CLTS-27
Date: 2/2/93
Sample Matrix: soil
Analyst: J.F.G.
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 196 | 98 | 82-117 |
| Toluene | 200 ug/l | | 195 | 98 | 78-115 |
| Ethyl Benzene | 200 ug/l | | 197 | 99 | 71-121 |
| p-Xylene | 200 ug/l | | 195 | 98 | 67-124 |
| m-Xylene | 200 ug/l | | 194 | 97 | |
| o-Xylene | 200 ug/l | | 193 | 97 | |

01504

TMS

**SOUTHWESTERN LABORATORIES**

Client: SWL Austin

File No.:

Report No.: 93-01-380

Report Date: 2/7/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SWL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-380 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/7/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | | | | |
|---|---|---|---|---|---|---|
| | 15.55 | 8469 | V | 5 | 185.0954 | P-XYLENE |
| 6 | 15.814 | 12852 | SV | 6 | 177.3536 | M-XYLENE |
| 7 | 17.634 | 8484 | V | 7 | 185.0213 | O-XYLENE |
| | TOTAL | 57461 | | | 1103.3942 | |

C-R5A CHROMATOPAC

CHANNEL NO 1
SAMPLE NO 0
REPORT NO 5
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 8.271 | 9435 | | 2 | | BENZENE |
| 2 | 9.447 | 2344 | V R | 1 | | INT STD |
| 3 | 11.738 | 9142 | | 3 | | TOLUENE |
| 4 | 15.227 | 6736 | | 4 | | ETHYL BEN |
| 5 | 15.55 | 8469 | V | 5 | | P-XYLENE |
| 6 | 15.814 | 12852 | SV | 6 | | M-XYLENE |
| 7 | 17.634 | 8484 | V | 7 | | O-XYLENE |
| | TOTAL | 57461 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 49.6803 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 51.2702 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 69.5843 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 55.3459 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 36.472 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 55.2485 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 229.963 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/7/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 49.68 | 0.9 |
| TOLUENE | 52.36 | 51.27 | 2 |
| ETHYL BENZ | 71.76 | 69.59 | 3 |
| P-XYLENE | 54.81 | 55.35 | -1 |
| M-XYLENE | 38.21 | 36.47 | 4.5 |
| O-XYLENE | 55.78 | 55.25 | 0.9 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: CLTS-27
Sample Matrix: TCLP-B water
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-01-381-13
Date: 2/7/93
Analyst: J.F.G.
Parameter: BTEX

TCLP-B Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 206 | 103 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-380-13
Sample I.D.: CLTS-27
Date: 2/7/93
Sample Matrix: TCLP-B
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 211 | 106 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 418.1
DATE OF TEST: 2/4/90 PARAMETER: TPH MATRIX: SOIL ANALYST: MR MDL: 5.0

| CALIBRATION STANDARDS/BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| | 0 | 0 | | | |
| | 10.2 | 0.035 | | | |
| | 51 | 0.174 | | | |
| | 101 | 0.32 | | | |
| L.F.(R) = .99974 | 204 | 0.64 | | | |

SAMPLE ID NUMBERS IN THIS RUN: [illegible]
[illegible]

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC. | % DIFF. | SPIKE CONC. | RECOVERED CONC. | % RECOVERY |
|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

01509

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 92-130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| | T-4 | 1-27-93 16:00 | | X | 500ml Plast 1L Amber (2) 40ml VOA | Liquid | Ice | Total BTEX, TCLP Ba, PH, TPH, Lead, TDS | |
| | T-5 | 1-27-93 16:15 | | X | " | " | " | " " " " " " | |
| | T-6 | 1-28-93 0800 | | X | " | " | " | " " " " " " | |
| | T-7 | 1-28-93 0830 | | X | " | " | " | " " " " " " | |
| | T-8 | 1-28-93 0900 | | X | 5 " | " | " | " " " " " " | |
| | T-9 | 1-28-93 0930 | | X | " | " | " | " " " " " " | |
| | T-10 | 1-28-93 1000 | | X | " | " | " | " " " " " " | |
| 1 | CLTS-15 | 1-28-93 0930 | | X | 4oz Glass | Soil | " | BTEX, TCLP Ba, TPH | |
| 2 | CLTS-16 | 1-28-93 0945 | | X | " | " | " | " " " | |
| 3 | CLTS-17 | 1-28-93 1000 | | X | " | " | " | " " " | |

Samplers: (Print): Larry Collins

Affiliation: Sun Environment

Relinquished by: (Signature) Larry Collins — Date: 1-28-93 Time:

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) — Date: 1-29-93 Time: 1:30

COC Seal No.

REC'D. ON ICE Yes ✓ No

Intact Yes

Laboratory No. 93-0-380

Results by

Rush Charges Authorized Yes No

REMARKS: Rapid Turnaround on all liquid samples. (T-4) - (T-

Data Results To:
1.
2.

01510

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 92-130

Client/Project: Corp of Engineer / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 4 | CLTS-18 | 1-28-93 10:15 | | x | 4oz Glass | Soil | Ice | BTEX, TCLP Bc, TPH | |
| 5 | CLTS-19 | 1-28-93 10:30 | | x | " | " | " | " " " | |
| 6 | CLTS-20 | 1-28-93 10:45 | | x | " | " | " | " " " | |
| 7 | CLTS-21 | 1-28-93 11:00 | | x | " | " | " | " " " | |
| 8 | CLTS-22 | 1-28-93 11:15 | | x | " | " | " | " " " | |
| 9 | CLTS-23 | 1-28-93 11:30 | | x | " | " | " | " " " | |
| 10 | CLTS-24 | 1-28-93 11:45 | | x | " | " | " | " " " | |
| 11 | CLTS-25 | 1-28-93 12:00 | | x | " | " | " | " " " | |
| 12 | CLTS-26 | 1-28-93 12:15 | | x | " | " | " | " " " | |
| 13 | CLTS-27 | 1-28-93 12:30 | | x | " | " | " | " " " | |

Samplers: (Print) Larry Collins

Affiliation: Swl Enviro.

Results by _____

Rush Charges Authorized

Yes _____ No _____

Relinquished by: (Signature) Larry Collins — Date: 1-28-93 Time:

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

REMARKS:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) — Date: 1-29-93 Time: 1:30

Data Results To:

1.

2.

COC Seal No.

REC'D. ON ICE Yes X No _____

Intact

Laboratory No. 930-380

01511

SWL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-01-379
Report Date 02/08/93 09:31

Project DACA6393C006/CORPS OF ENG.

Date Sampled 01/28/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY.SERVICE

P.O. # JOB#505892-130

Date Received 01/29/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-01-379-01 | CLTS-28 |
| 93-01-379-02 | CLTS-29 |
| 93-01-379-03 | CLTS-30 |
| 93-01-379-04 | CLTS-31 |
| 93-01-379-05 | CLTS-32 |
| 93-01-379-06 | CLTS-33 |
| 93-01-379-07 | CLTS-34 |
| 93-01-379-08 | CLTS-35 |
| 93-01-379-09 | CLTS-36 |
| 93-01-379-10 | CLTS-37 |
| 93-01-379-11 | CLTS-38 |
| 93-01-379-12 | CLTS-39 |
| 93-01-379-13 | CLTS-40 |
| 93-01-379-14 | CLTS-41 |
| 93-01-379-15 | CLTS-42 |
| 93-01-379-16 | CLTS-43 |
| 93-01-379-17 | CLTS-44 |
| 93-01-379-18 | CLTS-45 |
| 93-01-379-19 | CLTS-46 |
| 93-01-379-20 | CLTS-47 |

Order # 93-01-379
02/08/93 09:31
Client: SOUTHWESTERN LABORATORIES

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A CLTS-28 Collected: 01/28/93 12:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.50 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/03/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 756 | mg/kg | 5.0 | 02/02/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/02/93 | DATE | | 02/02/93 | CJG |

Sample: 02A CLTS-29 Collected: 01/28/93 13:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.07 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/03/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 444 | mg/kg | 5.0 | 02/02/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/02/93 | DATE | | 02/02/93 | CJG |

Sample: 03A CLTS-30 Collected: 01/28/93 13:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.19 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/03/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/02/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/02/93 | DATE | | 02/02/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 04A CLTS-31 Collected: 01/28/93 13:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.88 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/03/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 518 | mg/kg | 5.0 | 02/02/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/02/93 | DATE | | 02/02/93 | CJG |

Sample: 05A CLTS-32 Collected: 01/28/93 13:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.88 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/03/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 11.0 | mg/kg | 5.0 | 02/02/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/02/93 | DATE | | 02/02/93 | CJG |

Sample: 06A CLTS-33 Collected: 01/28/93 14:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.73 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/03/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 14,800 | mg/kg | 5.0 | 02/02/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/02/93 | DATE | | 02/02/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 07A CLTS-34 Collected: 01/28/93 14:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.56 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/03/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 413 | mg/kg | 5.0 | 02/02/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/02/93 | DATE | | 02/02/93 | CJG |

Sample: 08A CLTS-35 Collected: 01/28/93 14:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.45 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/03/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/02/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/02/93 | DATE | | 02/02/93 | CJG |

Sample: 09A CLTS-36 Collected: 01/28/93 14:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.28 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/03/93 | DATE | | 02/03/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 10A CLTS-37 Collected: 01/28/93 15:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/01/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.80 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 30.4 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/03/93 | DATE | | 02/03/93 | CJG |

Sample: 11A CLTS-38 Collected: 01/28/93 15:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.39 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | <5.0 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/03/93 | DATE | | 02/03/93 | CJG |

Sample: 12A CLTS-39 Collected: 01/28/93 15:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.64 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 27.2 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/03/93 | DATE | | 02/03/93 | CJG |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-003-7
Sample I.D.: CLTS-54
Date: 2/7/93
Sample Matrix: TCLP-
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 189 | 95 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-003-7
Sample I.D.: CLTS - 54
Date: 2/7/93
Sample Matrix: TCLP-
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B SpikeDup

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 202 | 101 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: [illegible]
DATE OF TEST: [illegible] PARAMETER: TPH MATRIX: SOIL ANALYST: MR MOL: [illegible]

| CALIBRATION STANDARDS | BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|---|
| | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | [illegible] | [illegible] | | | | |
| | [illegible] | [illegible] | | | | |
| | [illegible] | [illegible] | | | | |

[illegible]

SAMPLE ID NUMBERS IN THIS RUN: [illegible]
[illegible]

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | % RECOVERY |
|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

01555

01556

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

DACA63-93-C-006

Project no.: 92130

Client/Project: Corps. OF Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | | | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CLTS-48 | 1-29-93 0700 | | X | 4oz Glass | Soil | Ice | BTEX, | TCLP BZ, | TPH | |
| 2 | CLTS-49 | 1-29-93 0715 | | X | " | " | " | " | " | " | |
| 3 | CLTS-50 | 1-29-93 0730 | | X | " | " | " | " | " | " | |
| 4 | CLTS-51 | 1-29-93 0745 | | X | " | " | " | " | " | " | |
| 5 | CLTS-52 | 1-29-93 0800 | | X | " | " | " | " | " | " | |
| 6 | CLTS-53 | 1-29-93 0815 | | X | " | " | " | " | " | " | |
| 7 | CLTS-54 | 1-29-93 0830 | | X | " | " | " | " | " | " | |
| 8 | CLTS-55 | 1-29-93 0845 | | X | " | " | " | " | " | " | |
| 9 | CLTS-56 | 1-29-93 0900 | | X | " | " | " | " | " | " | |
| 10 | CLTS-57 | 1-29-93 0915 | | X | " | " | " | " | " | " | |

Samplers: (Print): Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 1-29-93 Time: 12:50

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) [illegible] — Date: 1-29-93 Time: 1250

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) [illegible] — Date: 2/1/93 Time: 8:30

COC Seal No.:

REC'D ON ICE: Yes X No ___

Intact: Yes

Laboratory No.: 9302-003

Results by: ___

Rush Charges Authorized: Yes ___ No ___

REMARKS:
* Report soil results on a dry weight basis, get TS results from GC lab

Data Results To:
1. Lee Forbes
2.

01557

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 92 130

Client/Project: Corp of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | CLTS-58 | 1-29-93 0930 | | X | 40 z Glass | Soil | ECG | BTEX, TCLP Bz, TPH | |
| 12 | CLTS-59 | 1-29-93 0945 | | X | " | " | " | " " " | |
| | ~~CLTS-60~~ | ~~1-29-93 1000~~ | | ~~X~~ | | | | | |

Samplers: (Print): Larry Collins

Affiliation: SWL

Results by _____

Rush Charges Authorized

Yes _____ No _____

Relinquished by: (Signature) Larry Collins — Date: 1-29-93 Time: 12:50

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

REMARKS:

Received by: (Signature) [signature] — Date: 1-29-93 Time: 12:50

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) [signature] — Date: 2-1-93 Time: 8:30

Data Results To:

1. Lee Forbes

2.

COC Seal No.

RECD. ON ICE: Yes ✓ No _____

Intact: Yes

Laboratory No. 93-02-003

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-059
Report Date 02/10/93 10:44

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/02/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/03/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-02-059-01 | DSN-1 |
| 93-02-059-02 | DSN-2 |
| 93-02-059-03 | DSN-3 |
| 93-02-059-04 | DSN-4 |
| 93-02-059-05 | DSN-5 |
| 93-02-059-06 | DSN-6 |
| 93-02-059-07 | DSN-7 |
| 93-02-059-08 | DSN-8 |
| 93-02-059-09 | DSN-9 |
| 93-02-059-10 | DSN-10 |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

Order # 93-02-059
02/10/93 10:44
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: D1A DSN-1 Collected: 02/02/93 10:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.31 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/08/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 35.6 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/07/93 | DATE | | 02/07/93 | CJG |

Sample: D2A DSN-2 Collected: 02/02/93 10:55

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.02 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/08/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 219 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/07/93 | DATE | | 02/07/93 | CJG |

Sample: D3A DSN-3 Collected: 02/02/93 11:10

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.22 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 21.4 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/08/93 | DATE | | 02/08/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 04A DSN-4 Collected: 02/02/93 11:20

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.13 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 145 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/08/93 | DATE | | 02/08/93 | CJG |

Sample: 05A DSN-5 Collected: 02/02/93 11:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.89 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 79.2 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/08/93 | DATE | | 02/08/93 | CJG |

Sample: 06A DSN-6 Collected: 02/02/93 11:40

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.080 | mg/kg | 0.080 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.080 | mg/kg | 0.080 | | |
| Ethylbenzene | SW846 8020 | <0.080 | mg/kg | 0.080 | | |
| Xylenes | SW846 8020 | <0.080 | mg/kg | 0.080 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.85 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 459 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/08/93 | DATE | | 02/08/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 07A DSN-7 Collected: 02/02/93 11:50

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.080 | mg/kg | 0.080 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.080 | mg/kg | 0.080 | | |
| Ethylbenzene | SW846 8020 | <0.080 | mg/kg | 0.080 | | |
| Xylenes | SW846 8020 | <0.080 | mg/kg | 0.080 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 17.22 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 522 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/08/93 | DATE | | 02/08/93 | CJG |

Sample: 08A DSN-8 Collected: 02/02/93 12:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 16.99 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 70.2 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW845 1311 | 02/08/93 | DATE | | 02/08/93 | CJG |

Sample: 09A DSN-9 Collected: 02/02/93 12:10

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 0.113 | mg/kg | 0.020 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 0.766 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.53 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 11.1 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/08/93 | DATE | | 02/08/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 10A DSN-10 Collected: 02/02/93 12:20

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | 0.261 | mg/kg | 0.020 | 02/04/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | 0.311 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 24.72 | % MOISTU | 0.10 | 02/04/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 61.9 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/08/93 | DATE | | 02/08/93 | CJG |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-02-059

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

ient: SwL Austin

File No.:

Report No.: 93-02-059

Report Date: 2/4/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-059 | Blank (2016) | <4 | <4 | <4 | <4 |

ate Analyzed: 2/4/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

C-R5A CHROMATOPAC

CHANNEL NO 1
SAMPLE NO 0
REPORT NO 301
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 8.323 | 9593 | | 2 | | BENZENE |
| 2 | 9.475 | 2468 | V R | 1 | | INT STD |
| 3 | 11.787 | 9126 | | 3 | | TOLUENE |
| 4 | 15.268 | 6678 | | 4 | | ETHYL BEN |
| 5 | 15.586 | 8469 | V | 5 | | P-XYLENE |
| 6 | 15.85 | 13160 | V | 6 | | M-XYLENE |
| 7 | 17.665 | 8602 | V | 7 | | O-XYLENE |
| | TOTAL | 58096 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 51.4476 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 54.0797 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 73.8999 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 58.2744 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 37.5009 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 57.3711 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 386.629 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/4/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 51.45 | -2.6 |
| TOLUENE | 52.36 | 54.08 | -3.3 |
| ETHYL BENZ | 71.76 | 73.91 | -3 |
| P-XYLENE | 54.81 | 58.28 | -6.4 |
| M-XYLENE | 38.21 | 37.5 | 1.8 |
| O-XYLENE | 55.78 | 57.38 | -2.9 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-059-8
Sample I.D.: DSN-8
Date: 2/4/93
Sample Matrix: soil
Analyst: J.F.G.
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | Spike | | |
| Benzene | 200 ug/l | N/D | 220 | 110 | 82-117 |
| Toluene | 200 ug/l | | 224 | 112 | 78-118 |
| thyl Benzene | 200 ug/l | | 216 | 108 | 71-121 |
| p-Xylene | 200 ug/l | | 213 | 107 | 67-124 |
| m-Xylene | 200 ug/l | | 200 | 100 | |
| o-Xylene | 200 ug/l | | 246 | 123 | |

# MATRIX SPIKE RECOVERY

Client: Swc Austin
SwL Lab No.: 93-02-059-8
Sample I.D.: DSN-8
Date: 2/4/93
Sample Matrix: soil
Analyst: T.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 252 | 126 | 82-117 |
| Toluene | 200 ug/l | | 252 | 126 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 238 | 119 | 71-121 |
| p-Xylene | 200 ug/l | | 248 | 124 | |
| m-Xylene | 200 ug/l | | 223 | 112 | 67-124 |
| o-Xylene | 200 ug/l | | 267 | 134 | |

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-02-059

Report Date: 2/7/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SWL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-059 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/7/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 49.6803 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 51.2702 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 69.5843 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 55.3459 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 36.472 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 55.2485 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 229.963 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/7/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 49.68 | 0.9 |
| TOLUENE | 52.36 | 51.27 | 2 |
| ETHYL BENZ | 71.76 | 69.59 | 3 |
| P-XYLENE | 54.81 | 55.35 | -1 |
| M-XYLENE | 38.21 | 36.47 | 4.5 |
| O-XYLENE | 55.78 | 55.25 | 0.9 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-057-8
Sample I.D.: DSW-8
Date: 2/8/93
Sample Matrix: Soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 179 | 90 | 82-117 |
| Toluene | 200 ug/l | | 176 | 88 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 171 | 86 | 71-121 |
| p-Xylene | 200 ug/l | | 169 | 85 | 67-124 |
| m-Xylene | 200 ug/l | | 171 | 86 | |
| o-Xylene | 200 ug/l | | 174 | 87 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: DSN-8
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-054-8
Date: 2/8/93
Analyst: J.F.G
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 224 | 112 | 82-117 |
| Toluene | 200 ug/l | | 227 | 114 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 220 | 110 | 71-121 |
| Xylene | 200 ug/l | | 217 | 109 | 67-124 |
| m-Xylene | 200 ug/l | | 204 | 102 | |
| o-Xylene | 200 ug/l | | 230 | 115 | |

SOUTHWESTERN LABORATORIES

ent: SwL Austin

File No.:

Report No.: 93-02-054

Report Date: 2/9/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-059 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/9/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

C-R5A CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 48
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

102037.01

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 8.291 | 9387 | | 2 | | BENZENE |
| 2 | 9.465 | 2257 | V R | 1 | | INT STD |
| 3 | 11.76 | 9108 | | 3 | | TOLUENE |
| 4 | 15.246 | 6757 | | 4 | | ETHYL BEN |
| 5 | 15.565 | 8504 | V | 5 | | P-XYLENE |
| 6 | 15.828 | 12252 | V | 6 | | M-XYLENE |
| 7 | 17.645 | 8478 | | 7 | | O-XYLENE |
| | TOTAL | 56744 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 48.0897 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 49.5647 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 66.8126 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 53.0826 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 36.8456 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 53.2509 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 229.963 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/9/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 48.08 | 4.1 |
| TOLUENE | 52.36 | 49.56 | 5.3 |
| ETHYL BENZ | 71.76 | 66.8 | 6.9 |
| P-XYLENE | 54.81 | 53.08 | 3.1 |
| M-XYLENE | 38.21 | 36.84 | 3.5 |
| O-XYLENE | 55.78 | 53.24 | 4.5 |

01573

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-059-3
Sample I.D.: DSN-3
Date: 2/9/93
Sample Matrix: TCLP
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 188 | 94 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin

SwL Lab No.: 93-02-059-3

Sample I.D.: DSN-3

Date: 2/9/93

Sample Matrix: TCLP

Analyst:

Spiking Solution: SwL BTEX Spike

Parameter: BTEX

TCLP-13 Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 203 | 102 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

[illegible]

[illegible]

| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

[illegible]

| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

[illegible]

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | % RECOVERY |
|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

[illegible]

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

DACA63-93-C-0046

Project no. 92 130

Client/Project: Corps of Engineers / Laredo Airport (NON-WASTE oil AREA)

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | DSN-1 | 2-2-93 10:45 | | X | 4 oz Glass | Soil | Ice | BTEX, TCLP B2, TPH, ~~K, PO4, PH~~, [illegible] | |
| 2 | DSN-2 | 2-2-93 10:55 | | X | " | " | " | " " " " " " | |
| 3 | DSN-3 | 2-2-93 11:10 | | X | " | " | " | " " " " " " | |
| 4 | DSN-4 | 2-2-93 11:20 | | X | " | " | " | " " " " " " | |
| 5 | DSN-5 | 2-2-93 11:30 | | X | " | " | " | " " " " " " | |
| 6 | DSN-6 | 2-2-93 11:40 | | X | " | " | " | " " " " " " | |
| 7 | DSN-7 | 2-2-93 11:50 | | X | " | " | " | " " " " " " | |
| 8 | DSN-8 | 2-2-93 12:00 | | X | " | " | " | " " " " " " | |
| 9 | DSN-9 | 2-2-93 12:10 | | X | " | " | " | " " " " " " | |
| 10 | DSN-10 | 2-2-93 12:20 | | X | " | " | " | " " " " " " | |

Samplers: (Print) Larry Collins

Affiliation: Sud Enviromental

Relinquished by: (Signature) Larry Collins — Date: 2-2-93 Time: 16:45

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) K Bursnall — Date: 2-3-93 Time: 8:30

COC Seal No.

REC'D. ON ICE Yes ✓ No ___

Intact: Yes

Laboratory No. 93-02-059

Results by 24 HRS

Rush Charges Authorized Yes ✓ No ___

REMARKS: Need 24 Hr Rush on All Samples
NO - 7 Day TA
[illegible]

Data Results To:
1. Lee Forbes Austin
2. Larry Collins Laredo

01577

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: MONICA SCOTT

Client No. DACA6393C006
Report No. 93-04-081
Report Date 04/16/93 12:57

Project DACA6393C006/CORPS OF ENG.

Date Sampled 04/05/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 5058-93-130

Date Received 04/07/93

| Lab No. | Sample Identification |
|---|---|
| 93-04-081-01 | DSN-11 |
| 93-04-081-02 | DSN-12 |
| 93-04-081-03 | DSN-13 |
| 93-04-081-04 | DSN-14 |
| 93-04-081-05 | DSN-15 |
| 93-04-081-06 | DSN-16 |
| 93-04-081-07 | DSW-1-A } Waste Oil Area |
| 93-04-081-08 | DSW-2 } Waste Oil Area |

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A DSN-11 Collected: 04/05/93 13:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/08/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.65 | % MOISTU | 0.10 | 04/08/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 04/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 56.0 | mg/kg | 5.0 | 04/10/93 | MPG |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 04/08/93 | DATE | | 04/08/93 | CJG |

Sample: 02A DSN-12 Collected: 04/05/93 13:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/08/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.032 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.56 | % MOISTU | 0.10 | 04/08/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 04/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 21.9 | mg/kg | 5.0 | 04/10/93 | MPG |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 04/08/93 | DATE | | 04/08/93 | CJG |

Sample: 03A DSN-13 Collected: 04/05/93 14:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/08/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.77 | % MOISTU | 0.10 | 04/08/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 04/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 44.2 | mg/kg | 5.0 | 04/10/93 | MPG |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 04/08/93 | DATE | | 04/08/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 04A DSN-14 Collected: 04/05/93 14:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/08/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 18.24 | % MOISTU | 0.10 | 04/08/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 04/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 17.2 | mg/kg | 5.0 | 04/10/93 | MPG |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 04/08/93 | DATE | | 04/08/93 | CJG |

Sample: 05A DSN-15 Collected: 04/05/93 14:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/08/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 16.80 | % MOISTU | 0.10 | 04/08/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 04/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 47.9 | mg/kg | 5.0 | 04/10/93 | MPG |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 04/08/93 | DATE | | 04/08/93 | CJG |

Sample: 06A DSN-16 Collected: 04/05/93 14:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 04/08/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 21.87 | % MOISTU | 0.10 | 04/08/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 04/09/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 89.5 | mg/kg | 5.0 | 04/10/93 | MPG |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 04/08/93 | DATE | | 04/08/93 | CJG |

# QA/QC REPORT

Client: SWL - Austin

Report No.: 93-04-081

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 200.7

DATE OF TEST: 4/15/93 PARAMETER: PB MATRIX: HNO3 ANALYST: JF MDL: 0.5

| CALIBRATION STANDARDS/BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| | | ICV | 5.00 | 5.3 | 106.0 |
| | | CCV | 5.00 | 5.37 | 107.4 |
| L.R.B. = | | | | | |

SAMPLE ID NUMBERS IN THIS RUN: 93-4-081-07
93-4-021-1

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | % RECOVERY |
|---|---|---|---|---|---|---|
| 93-4-081-07 | <.50 | <.50 | 0 | 5.00 | 5.14 | 102.8 |
| 93-4-021-1 | <.50 | <.50 | 0 | 2.50 | 2.54 | 101.6 |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 239.1
DATE OF TEST: 4/13 93 PARAMETER : PB MATRIX: HNO3 ANALYST: JP MDL: 10.

| CALIBRATION STANDARDS/BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| | | ICV | 1.00 | 1.05 | 105.0 |
| | | CCV | 1.00 | 0.94 | 94.0 |

L.R.(R) =

SAMPLE ID NUMBERS IN THIS RUN 93-04-055
93-4-081
93-4-120-1

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | PA % RECOVERY |
|---|---|---|---|---|---|---|
| 93-04-055 | <10.0 | <10.0 | 0 | 1.00 | 0.97 | 97.0 |
| 93-4-120-1 | <.10 | <.10 | 0 | 1.00 | 0.8 | 80.0 |

01583

Work Order: 9304081 Client: SWL_AUSTIN

BLANK

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | FB | TPH_S | B P | S | | | 1.0 | 25.0000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | Specs Low | Specs High | V |
|---|---|---|---|---|---|
| TPH_S | < 5.00 | 5.00 | 5.00 | | Y |

SPIKE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 9304081-01 | TPH_S | K M | S | 1 | | 1.0 | 25.3000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Unspiked Result | Detection Limit | Spike Value | Recovery | Specs Low | Specs High | V |
|---|---|---|---|---|---|---|---|---|
| TPH_S | 595 | 20.7 | 4.94 | 403.16 | 142 x | 90 | 110 | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9304081-01A | TPH_S | S C | S | | | 1.0 | 25.2000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | V |
|---|---|---|---|
| TPH_S | 20.7 | 4.96 436.11 | Y |

SAMPLE DUPLICATE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 9304081-01 | TPH_S | S C D | S | 1 | | 1.0 | 25.3000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Reference Result | Detection Limit | | RPD | Specs Low | Specs High | V |
|---|---|---|---|---|---|---|---|---|
| TPH_S | 49.7 | 20.7 | 4.94 | 434.3952.4 x | -15 | 15 | | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 9304081-02A | TPH_S | S C | S | | | 1.0 | 25.5000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | V |
|---|---|---|---|
| TPH_S | 17.9 | 4.90 430.98 | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 9304081-03A | TPH_S | S C | S | | | 1.0 | 25.7000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | V |
|---|---|---|---|
| TPH_S | 35.9 | 4.86 427.63 | |

01584

Work Order: 9304081 Client: SWL_AUSTIN

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 9304081-04A | TPH_S | S C | S | | 1.0 | 25.2000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | | |
|---|---|---|---|---|
| TPH_S | 14.1 | 4.96 | 436.11 | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 9304081-05A | TPH_S | S C | S | | 1.0 | 25.3000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | | |
|---|---|---|---|---|
| TPH_S | 36.5 | 4.94 | 434.39 | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 9304081-06A | TPH_S | S C | S | | 1.0 | 25.6000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | | |
|---|---|---|---|---|
| TPH_S | 69.9 | 4.88 | 429.30 | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 9304081-07A | TPH_S | S C | S | | 10 | 25.6000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | | |
|---|---|---|---|---|
| TPH_S | 4581 | 48.83 | 4292.97 | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 9304081-08A | TPH_S | S C | S | | 10 | 25.1000 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | | |
|---|---|---|---|---|
| TPH_S | 5470 | 49.80 | 4378.49 | |

CONTROL

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | [illegible] | TPH_S | [illegible] | S | | [illegible] | [illegible] | 1.0 | [illegible] | | JS |

| Analytes | Result | Theoretical Value | Detection Limit | Spike Value | Rec. Over | Specs Low | High |
|---|---|---|---|---|---|---|---|
| TPH_S | 114 | 109.50 | 1.23 | 104 | 90 | 110 | |

01585

SOUTHWESTERN LABORATORIES Q ITY CONTROL LOG

MDL. <1k

Rep 04-08-93
Rev 04-14-93

EPA DOC. No.

METHOD OF ANALYSIS 600/4/84-008 PARAMETER EOX MATRIX Solids ANALYST JH DATE TIME 600

| CALIBRATION STANDARDS/BLANK | ABSORBANCE |
|---|---|
| | |
| | |
| | |
| | |
| L.R. (r) = | |

| STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|
| BLANK | <10.0 | <10.0 | 100.0% |
| STD | 200 | 215.54 | 107.8% |
| ↓ | 1000 | 992.29 | 99.2% |
| | | | |
| | | | |
| | | | |

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

93-04-081 (7A, 8A)

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKED SAMPLE - SAMPLE ÷ THEORETICAL x 100

| LAB #-SAMPLE ID # | FIRST CONC. | DIL. FACTOR | REPL. CONC. | DIL. FACTOR | RANGE | %PRECISION | SPIKED SAMPLE CONC. | SAMPLE CONC. | THEO. CONC. | % RECOVERY |
|---|---|---|---|---|---|---|---|---|---|---|
| 04-081-7A | 27.5 | | 27.4 | | 0.1 | 0.36% | 913.88 | 27.5 | 996.41 | 89.0% |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

PRECISION % FIRST CONC REPLICATE CONC MEAN x 100

01586

Page 1 of 1

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 5058-93-130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | DSN-11 | 4-5-93 1330 | | X | 4 & 8 OZ Glass | Soil | 4°C | TPH, BTEX, TCLP BZ | |
| 2 | DSN-12 | 4-5-93 1345 | | X | " | " | " | " " " | |
| 3 | DSN-13 | 4-5-93 1400 | | X | " | " | " | " " " | |
| 4 | DSN-14 | 4-5-93 1415 | | X | " | " | " | " " " | |
| 5 | DSN-15 | 4-5-93 1430 | | X | " | " | " | " " " | |
| 6 | DSN-16 | 4-5-93 1445 | | X | " | " | " | " " " | |
| 7 | DSW-1-A | 4-5-93 1500 | | X | (3) 4 OZ Glass 8 OZ " | " | " | TPH, TOX, TCLP Pb, Total Pb, BTEX, TCLP BZ | |
| 8 | DSW-2 | 4-5-93 1515 | | X | " | " | " | " " " " " " | |
| | | | | | | | | " | |
| | | | | | | | | | |

RUSH

Samplers: (Print) Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 4-5-93 Time: 1800

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time: 4-7-93

Received by Laboratory: (Signature) K Barnhall — Date: Time: 12:30

COC Seal No.

REC'D. ON ICE Yes X No ____

Intact: [illegible]

Laboratory No. 93-04-081

Results by 72 HRS

Rush Charges Authorized Yes ____ No ____

REMARKS: HAVE All results done in 72 Hrs. (1WK TAT OK per MS)

Data Results To:

1. Larry Collins Job site
2. Monica Scott Austin

01587

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: SEAN KELLY

Client No. DACA6393C006
Report No. 93-03-181
Report Date 03/17/93 10:22

Project DACA6393C006/CORPS OF ENG.

Date Sampled 03/10/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 5058-92-130

Date Received 03/11/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-03-181-01 | DSN-2-2 |
| 93-03-181-02 | DSN-4-2 |
| 93-03-181-03 | DSN-6-2 |
| 93-03-181-04 | DSN-7-2 |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A DSN-2-2 Collected: 03/10/93 09:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| PERCENT MOISTURE | GRAVIMETRIC | 96.2 | % MOISTU | 0.10 | 03/15/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 41.2 | mg/kg | 5.0 | 03/15/93 | HC |

Sample: 02A DSN-4-2 Collected: 03/10/93 09:10

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| PERCENT MOISTURE | GRAVIMETRIC | 95.4 | % MOISTU | 0.10 | 03/15/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 41.5 | mg/kg | 5.0 | 03/15/93 | HC |

Sample: 03A DSN-6-2 Collected: 03/10/93 09:20

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| PERCENT MOISTURE | GRAVIMETRIC | 95.6 | % MOISTU | 0.10 | 03/15/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 60.4 | mg/kg | 5.0 | 03/15/93 | HC |

Sample: 04A DSN-7-2 Collected: 03/10/93 09:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| PERCENT MOISTURE | GRAVIMETRIC | 92.6 | % MOISTU | 0.10 | 03/15/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 78.6 | mg/kg | 5.0 | 03/15/93 | HC |

# QA/QC REPORT

Client: SWL - Austin

Report No.: 93-3-181

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

TPH SOILS - MODIFIED EPA 418.1

| | MO | DAY | YR | | |
|---|---|---|---|---|---|
| Date Analyzed: | 03 | 15 | 93 | Created: | 03/15/93 14:51 |
| Analyst: | HC | | | Updated: | 03/16/93 09:39 |
| Run No: | 1 | | | | |

Logged in EBS? YES (QA Officer use only)

Standard Curve

| Concentration | Absorbance |
|---|---|
| 0.000 | 0.000 |
| 10.200 | 0.026 |
| 51.000 | 0.146 |
| 102.000 | 0.280 |
| 204.000 | 0.540 |

Regression Constant (A) 0.00373038
Regression Coefficient (B) 0.00265073
Correlation Coefficient (r) 0.99963714

| Lab Number | Class/ Subclass/ Dup/ Matrix | Soil Prep Wt.g | / Vol.mL | DF | ABS | Test Code | Result | |
|---|---|---|---|---|---|---|---|---|
| #9303148-01A | S C S | 25.4600 | 100.0000 | | 0.180 | TPH_S | 261 | mg/kg |
| #9303148-02A | S C S | 25.2400 | 100.0000 | | 0.050 | TPH_S | 69.2 | mg/kg |
| #9303148-03A | S C S | 25.3400 | 100.0000 | 10 | 0.100 | TPH_S | 1430 | mg/kg |
| #9303148-04A | S C S | 25.0400 | 100.0000 | | 0.138 | TPH_S | 202 | mg/kg |
| #9303148-04 | S C D S | 25.0800 | 100.0000 | | 0.132 | TPH_S | 193 | mg/kg |
| #9303148-04 | K M S | 25.3300 | 100.0000 | | 0.350 | TPH_S | 516 | mg/kg |
| #9303205-01A | S C S | 25.1100 | 100.0000 | | 0.034 | TPH_S | 45.5 | mg/kg |
| #9303205-02A | S C S | 25.0500 | 100.0000 | | 0.048 | TPH_S | 66.7 | mg/kg |
| #9303205-03A | S C S | 25.0600 | 100.0000 | | 0.134 | TPH_S | 196 | mg/kg |
| #9303205-04A | S C S | 25.0200 | 100.0000 | | 0.026 | TPH_S | 33.6 | mg/kg |
| #9303205-05A | S C S | 25.3400 | 100.0000 | | 0.026 | TPH_S | 33.2 | mg/kg |
| #9303181-01A | S C S | 25.0000 | 100.0000 | | 0.030 | TPH_S | 39.6 | mg/kg |
| #9303181-01 | S C D S | 25.3500 | 100.0000 | | 0.032 | TPH_S | 42.1 | mg/kg |
| #9303181-01 | K M S | 25.2800 | 100.0000 | | 0.270 | TPH_S | 397 | mg/kg |
| #9303181-02A | S C S | 25.0100 | 100.0000 | | 0.030 | TPH_S | 39.6 | mg/kg |
| #9303181-03A | S C S | 25.0300 | 100.0000 | | 0.042 | TPH_S | 57.7 | mg/kg |
| #9303181-04A | S C S | 25.0000 | 100.0000 | | 0.052 | TPH_S | 72.8 | mg/kg |
| #9303097-01A | S C S | 25.0000 | 100.0000 | | 0.018 | TPH_S | 21.5 | mg/kg |
| #PB | B P S | 25.0000 | 100.0000 | | 0.002 | TPH_S | -2.6 | mg/kg |
| #ICV | T I S | 25.0000 | 100.0000 | | 0.280 | TPH_S | 417 | mg/kg |

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 92 130

Client/Project Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | DSN-2-2 | 3-10-93 0900 | | X | 4 oz Glass | Soil | 4°C | TPH | |
| 2 | DSN-4-2 | 3-10-93 0910 | | X | " | " | " | " | |
| 3 | DSN-6-2 | 3-10-93 0920 | | X | " | " | " | " | |
| 4 | DSN-7-2 | 3-10-93 0930 | | X | " | " | " | " | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Samplers: (Print) Larry Collins

Affiliation SWL

Results by 72 Hr

Rush Charges Authorized Yes ____ No ____

Relinquished by: (Signature) Larry Collins Date: 3-10-93 Time: 16:45

Relinquished by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

Received by: (Signature) Date: Time:

Received by: (Signature) Date: Time:

Received by Laboratory: (Signature) [signature] Date: 3-11-93 Time: 9:30

COC Seal No.

REC'D. ON ICE Yes ✓ No ____

Intact Yes

Laboratory No. 93-03181

REMARKS: Regular Turnaround on all samples

Data Results To:

1. Lee Forbes Austin

2. Larry Collins Jobsite

01592

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-01-357
Report Date 02/01/93 09:22

Project DACA6393C006/CORPS OF ENG.

Date Sampled 01/27/93

Sampled By SWL-AUSTIN

Sample Type LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 01/28/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-01-357-01 | T-1 |
| 93-01-357-02 | T-2 |
| 93-01-357-03 | T-3 |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A T-1 Collected: 01/27/93 12:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 01/29/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 01/30/93 | JA |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 4.79 | mg/l | 0.50 | 01/30/93 | HC |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 11,300 | mg/l | 1 | 01/29/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/29/93 | DATE | | 01/29/93 | CJG |
| pH | EPA 150.1 | 7.83 | pH UNITS | | 01/29/93 | MPG |

Sample: 02A T-2 Collected: 01/27/93 12:05

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 01/29/93 | JFG |
| Toluene | SW846_8020 | 0.0306 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | 0.0055 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | 0.0432 | mg/l | 0.0040 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 01/30/93 | JA |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 0.73 | mg/l | 0.50 | 01/30/93 | HC |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 4420 | mg/l | 1 | 01/29/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/29/93 | DATE | | 01/29/93 | CJG |
| pH | EPA 150.1 | 8.96 | pH UNITS | | 01/29/93 | MPG |

Order # 93-01-357
02/01/93 09:22
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: 03A T-3 Collected: 01/27/93 12:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 01/29/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 01/30/93 | JA |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 01/29/93 | JFG |
| TOT. PET. HYDROCARBONS H2O | EPA 418.1 | 0.76 | mg/l | 0.50 | 01/30/93 | HC |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 2420 | mg/l | 1 | 01/29/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 01/29/93 | DATE | | 01/29/93 | CJG |
| pH | EPA 150.1 | 8.34 | pH UNITS | | 01/29/93 | MPG |

# QA/QC REPORT

Client: Swl Austin

Report No.: 93-01-357

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

| | | | | |
|---|---|---|---|---|
| 9 | 17.655 | 7764 | | O-XYLENE |
| | TOTAL | 54796 | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| CONC | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 49.0546 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 52.8832 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 71.8711 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 57.1591 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 37.7072 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 57.0093 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 386.629 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY STEX CALIBRATION 1/29/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 49.05 | 2.2 |
| TOLUENE | 52.36 | 52.87 | -1 |
| ETHYL BENZ | 71.76 | 71.86 | -0.2 |
| P-XYLENE | 54.81 | 57.15 | -4.3 |
| M-XYLENE | 38.21 | 37.7 | 1.3 |
| O-XYLENE | 55.78 | 57 | -2.2 |

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-01-357

Report Date: 1/29/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-357 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 1/29/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

# MATRIX SPIKE RECOVERY

Client: Sun Austin
SwL Lab No.: 93-01-357-1
Sample I.D.: T-1
Date: 1/29/93
Sample Matrix: water
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 205 | 103 | 82-117 |
| Toluene | 200 ug/l | | 216 | 108 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 216 | 108 | 71-121 |
| p-Xylene | 200 ug/l | | 217 | 109 | 67-124 |
| m-Xylene | 200 ug/l | | 213 | 107 | |
| o-Xylene | 200 ug/l | | 215 | 108 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-357-1
Sample I.D.: T-1
Date: 1/29/93
Sample Matrix: water
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | Spike MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 229 | 115 | 82-117 |
| Toluene | 200 ug/l | | 237 | 119 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 243 | 122 | 71-121 |
| p-Xylene | 200 ug/l | | 243 | 122 | 67-124 |
| m-Xylene | 200 ug/l | | 236 | 118 | |
| o-Xylene | 200 ug/l | | 240 | 120 | |

# SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

MDL <0.5

METHOD OF ANALYSIS EPA 418.1 PARAMETER TPH-W MATRIX $H_2O$ ANALYST HP DATE 1/30/93 TIME 1100

| CALIBRATION STANDARDS/BLANK | ABSORBANCE |
|---|---|
| 0 | 0.000 |
| 10.88 | 0.034 |
| 54.4 | 0.164 |
| 108.8 | 0.320 |
| L.R. (r) = 0.999954 217.6 | 0.650 |

| STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|
| BLANK | <0.5 | <0.5 | |
| 108.8 CKSTD | 108.8 | 107.3 | 99% |
| | | | |
| | | | |
| | | | |
| | | | |

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

93-01-267-1, 01-327-1, 01-357-(1 thru 3),

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKED SAMPLE - SAMPLE ÷ THEORETICAL x 100

| LAB #-SAMPLE ID # | FIRST CONC. | DIL. FACTOR | REPL. CONC. | DIL. FACTOR | RANGE | %PRECISION | SPIKED SAMPLE CONC. | SAMPLE CONC. | THEO. CONC. | % RECOVERY |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
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| | | | | | | | | | | |

PRECISION % = FIRST CONC - REPLICATE CONC ÷ MEAN x 100

016010

19078

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P O Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 5872-130

Client/Project: Corps Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | T-1 | 1-27-93 12:00 | | X | 500 ml Plast 1L Amber 2) 40 ml VOA | Liquid | ICE | Total BTEX, TCLP Bz, PH, Lead, TPH, TDS | |
| 2 | T-2 | 1-27-93 12:05 | | X | " | " | " | " " " " " " | |
| 3 | T-3 | 1-27-93 12:15 | | X | " | " | " | " " " " " " | |
| | ~~T-4~~ L.C. | | | | | | | | |
| | ~~T-5~~ L.C. | | | | | | | | |
| | ~~T-6~~ L.C. | | | | | | | | |
| | ~~T-7~~ L.C. | | | | | | | | |
| | ~~T-8~~ L.C. | | | | | | | | |
| | ~~T-9~~ L.C. | | | | | | | | |
| | ~~T-10~~ L.C. | | | | | | | | |

Samplers: (Print) Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 1-27-93 Time: 1655

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) [signature] — Date: Time: 2:30

COC Seal No.

REC'D. ON ICE Yes ✓ No

Intact: [illegible]

Laboratory No. 9301.357

Results by

Rush Charges Authorized Yes ✓ No

REMARKS: Rapid Turnaround on samples (T-1) - (T-

Data Results To:

1. Lee Forbes

2.

01603

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*

222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-01-381
Report Date 02/03/93 10:26

Project DACA6393C006/CORPS OF ENG.

Date Sampled 01/27/93 01/28/93

Sampled By SWL-AUSTIN

Sample Type LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB#505892-130

Date Received 01/29/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-01-381-01 | T-4 |
| 93-01-381-02 | T-5 |
| 93-01-381-03 | T-6 |
| 93-01-381-04 | T-7 |
| 93-01-381-05 | T-8 |
| 93-01-381-06 | T-9 |
| 93-01-381-07 | T-10 |

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A T-4 Collected: 01/27/93 16:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/01/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 02/03/93 | JA |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/01/93 | JFG |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 2530 | mg/l | 1 | 02/02/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |
| pH | EPA 150.1 | 8.01 | pH UNITS | NONE | 01/29/93 | PS |

Sample: 02A T-5 Collected: 01/27/93 16:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | 2.520 | mg/l | 0.020 | 02/02/93 | JFG |
| Toluene | SW846_8020 | <0.020 | mg/l | 0.020 | | |
| Ethylbenzene | SW846_8020 | <0.020 | mg/l | 0.020 | | |
| Xylenes | SW846_8020 | <0.020 | mg/l | 0.020 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 02/01/93 | JA |
| TCLP BENZENE | EPA 8020/602 | 2.520 | mg/l | 0.025 | 02/02/93 | JFG |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 1.99 | mg/l | 0.50 | 02/02/93 | MR |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 1360 | mg/l | 1 | 02/02/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |
| pH | EPA 150.1 | 7.42 | pH UNITS | NONE | 01/29/93 | PS |

Sample: 03A T-6 Collected: 01/28/93 08:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/01/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |

TEST RESULTS BY SAMPLE

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| LEAD | EPA 239.1 | 0.10 | mg/l | 0.10 | 02/03/93 | JA |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/01/93 | JFG |
| TOT. PET. HYDROCARBONS H2O | EPA 418.1 | 1.04 | mg/l | 0.50 | 02/02/93 | MR |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 1720 | mg/l | 1 | 02/02/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |
| pH | EPA 150.1 | 7.44 | pH UNITS | NONE | 01/29/93 | PS |

Sample: 04A T-7 Collected: 01/28/93 08:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | 1.886 | mg/l | 0.020 | 02/02/93 | JFG |
| Toluene | SW846_8020 | <0.020 | mg/l | 0.020 | | |
| Ethylbenzene | SW846_8020 | 0.369 | mg/l | 0.020 | | |
| Xylenes | SW846_8020 | <0.020 | mg/l | 0.020 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 02/03/93 | JA |
| TCLP BENZENE | EPA 8020/602 | 1.886 | mg/l | 0.025 | 02/02/93 | JFG |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 1800 | mg/l | 1 | 02/02/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |
| pH | EPA 150.1 | 8.05 | pH UNITS | NONE | 01/29/93 | PS |

Sample: 05A T-8 Collected: 01/28/93 09:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | 0.0166 | mg/l | 0.0040 | 02/02/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 02/01/93 | JA |
| TCLP BENZENE | EPA 8020/602 | 0.017 | mg/l | 0.005 | 02/02/93 | JFG |
| TOT. PET. HYDROCARBONS H2O | EPA 418.1 | <0.50 | mg/l | 0.50 | 02/02/93 | MR |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 2000 | mg/l | 1 | 02/02/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |
| pH | EPA 150.1 | 8.07 | pH UNITS | NONE | 01/29/93 | PS |

TEST RESULTS BY SAMPLE

Sample: 06A T-9 Collected: 01/28/93 09:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/01/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 02/01/93 | JA |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/01/93 | JFG |
| TOT. PET. HYDROCARBONS H2O | EPA 418.1 | <0.50 | mg/l | 0.50 | 02/02/93 | MR |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 1330 | mg/l | 1 | 02/02/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |
| pH | EPA 150.1 | 7.38 | pH UNITS | NONE | 01/29/93 | PS |

Sample: 07A T-10 Collected: 01/28/93 10:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | 0.2954 | mg/l | 0.0040 | 02/02/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | 0.2169 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 02/01/93 | JA |
| TCLP BENZENE | EPA 8020/602 | 0.295 | mg/l | 0.005 | 02/02/93 | JFG |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 1030 | mg/l | 1 | 02/02/93 | JH |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/01/93 | DATE | | 02/01/93 | CJG |
| pH | EPA 150.1 | 7.99 | pH UNITS | NONE | 01/29/93 | PS |

# QA/QC REPORT

Client: Sut Austin

Report No.: 93-01-381

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-01-381

Report Date: 2/1/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-381 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/1/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | | | |
|---|---|---|---|---|---|
| 5 | 16.742 | 33761 | | | |
| TOTAL | 1346809 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE$ 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.6 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.5 | 0.3 | 54.2473 | 200 |
| 3 | TOLUENE | 13.2 | 0.3 | 61.5991 | 200 |
| 4 | ETHYL BEN | 16.6 | 0.2 | 87.5393 | 200 |
| 5 | P-XYLENE | 16.9 | 0.15 | 62.4269 | 200 |
| 6 | M-XYLENE | 17.2 | 0.2 | 48.3917 | 200 |
| 7 | O-XYLENE | 18.9 | 0.3 | 68.0933 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 253.504 | 200 |

DAILY BTEX CALIBRATION 2/1/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 54.24 | 11.6 |
| TOLUENE | 69.89 | 61.59 | 11.8 |
| ETHYL BENZ | 100.8 | 87.53 | 13.1 |
| P-XYLENE | 75.8 | 62.42 | 17.6 |
| M-XYLENE | 54.38 | 48.39 | 11 |
| O-XYLENE | 78.72 | 68.09 | 13.5 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: T-4
Sample Matrix: water
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-01-381-1
Date: 2/2/93
Analyst: J.F.G
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 218 | 109 | 82-117 |
| Toluene | 200 ug/l | | 217 | 110 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 220 | 110 | 71-121 |
| p-Xylene | 200 ug/l | | 207 | 104 | 67-124 |
| m-Xylene | 200 ug/l | | 221 | 111 | |
| o-Xylene | 200 ug/l | | 225 | 114 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: T-4
Sample Matrix: water
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-01-381-1
Date: 2/2/93
Analyst: J.F.G
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 198 | 99 | 82-117 |
| Toluene | 200 ug/l | | 202 | 101 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 200 | 100 | 71-121 |
| p-Xylene | 200 ug/l | | 190 | 95 | 67-124 |
| m-Xylene | 200 ug/l | | 204 | 102 | |
| o-Xylene | 200 ug/l | | 204 | 102 | |

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-01-381

Report Date: 2/2/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-381 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/2/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE$ 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.6 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.5 | 0.3 | 58.4353 | 200 |
| 3 | TOLUENE | 13.2 | 0.3 | 64.8471 | 200 |
| 4 | ETHYL BEN | 16.6 | 0.2 | 89.0673 | 200 |
| 5 | P-XYLENE | 16.9 | 0.15 | 65.1354 | 200 |
| 6 | M-XYLENE | 17.2 | 0.2 | 53.3839 | 200 |
| 7 | O-XYLENE | 18.9 | 0.3 | 71.9101 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 292.716 | 200 |

DAILY BTEX CALIBRATION 2/2/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 58.43 | 4.8 |
| TOLUENE | 69.89 | 64.84 | 7.2 |
| ETHYL BENZ | 100.8 | 89.06 | 11.6 |
| P-xYLENE | 75.8 | 65.13 | 14 |
| M-XYLENE | 54.38 | 53.38 | 1.8 |
| O-XYLENE | 78.72 | 71.9 | 8.6 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: T-4
Sample Matrix: TCLP
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-01-311-1
Date: 2/2/93
Analyst: J.F.G
Parameter: BTEX

TCLP-B Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 218 | 109 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# MATRIX SPIKE RECOVERY

Client: Swi Austin
Sample I.D.: T-4
Sample Matrix: TCLP
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-01-381-1
Date: 2/2/93
Analyst: J.F.G
Parameter: BTEX

TCLP-B Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 198 | 99 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

MDL <.5

METHOD OF ANALYSIS 418.1 PARAMETER TPH MATRIX waters ANALYST HC/MR DATE <.5 TIME

| CALIBRATION STANDARDS/BLANK | ABSORBANCE |
|---|---|
| 10.88 | .038 |
| 54.4 | .16 |
| 108.8 | .32 |
| 217.6 | .62 |
| L.R. (r) = 99985 | |

| STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|
| BLANK | <.5 | <.5 | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

93-01 381-2,3,5,6

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKED SAMPLE - SAMPLE + THEORETICAL x 100

| LAB #-SAMPLE ID # | FIRST CONC. | DIL. FACTOR | REPL. CONC. | DIL. FACTOR | RANGE | %PRECISION | SPIKED SAMPLE CONC. | SAMPLE CONC. | THEO. CONC. | % RECOVERY |
|---|---|---|---|---|---|---|---|---|---|---|
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PRECI[illegible] FIRST CONC REPLICATE CONC - MEAN x 100

01618

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 92-130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No / Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | T-4 | 1-27-93 16:00 | | X | 500 ml Plast 1 L Amber (2) 40 ml Vial | Liquid | Ice | Total BTEX, TCLP Bz, PH, TPH, Lead, TDS | * |
| 2 | T-5 | 1-27-93 16:15 | | X | " | " | " | " " " " " " | |
| 3 | T-6 | 1-28-93 0800 | | X | " | " | " | " " " " " " | |
| 4 | T-7 | 1-28-93 0830 | | X | " | " | " | " " " " " " | * |
| 5 | T-8 | 1-28-93 0900 | | X | 5 " | " | " | " " " " " " | |
| 6 | T-9 | 1-28-93 0930 | | X | " | " | " | " " " " " " | |
| 7 | T-10 | 1-28-93 1000 | | X | " | " | " | " " " " " " | * |
| | CLTS-15 | 1-28-93 0930 | | X | 4oz Glass | Soil | " | BTEX, TCLP Bz, TPH | |
| | CLTS-16 | 1-28-93 0945 | | X | " | " | " | " " " | |
| | CLTS-17 | 1-28-93 1000 | | X | " | " | " | " " " | |

Samplers: (Print): Larry Collins

Affiliation: Sun Environmental

Relinquished by: (Signature) Larry Collins — Date: 1-28-93 Time:

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) Bowman — Date: 1-28-93 Time: 7:30

COC Seal No.:

REC'D. ON ICE: Yes ___ No ___

Intact: Yes

Laboratory No.: 93-01-381

Results by: ___

Rush Charges Authorized: Yes ___ No ___

REMARKS: Rapid Turnaround on all liquid samples. (T-4)-(T-

* TPH (Volatile) T-4, (T-5), (T-6), (T-7)

Due Thursday 2/3/93

Data Results To:
1. Lee Simpson
2.

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-017
Report Date 02/08/93 13:08

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/01/93

Sampled By SWL-AUSTIN

Sample Type LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/02/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-02-017-01 | T-4-A |
| 93-02-017-02 | T-7-A |
| 93-02-017-03 | T-10-A |

SOUTHWESTERN LABORATORIES

Reviewed By

HECTOR CORONADO

TEST RESULTS BY SAMPLE

Sample: 01A T-4-A Collected: 02/01/93 09:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 0.60 | mg/l | 0.50 | 02/05/93 | MR |

Sample: 02A T-7-A Collected: 02/01/93 10:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 1.70 | mg/l | 0.50 | 02/05/93 | MR |

Sample: 03A T-10-A Collected: 02/01/93 10:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 2.50 | mg/l | 0.50 | 02/05/93 | MR |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-2-017

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

TPH WATER - MODIFIED EPA 418.1

| | MO | DAY | YR | | |
|---|---|---|---|---|---|
| Date Analyzed: | 02 | 05 | 93 | Created: | 02/08/93 09:54 |
| Analyst: | MR | | | Updated: | 02/08/93 10:21 |
| Run No: | 1 | | | | |

Logged in EBS? (QA Officer use only)

Standard Curve

| Concentration | Absorbance |
|---|---|
| 0.000 | 0.000 |
| 10.200 | 0.038 |
| 51.000 | 0.170 |
| 102.000 | 0.330 |
| 204.000 | 0.640 |

Regression Constant (A) *0.00604198*
Regression Coefficient (B) *0.00312579*
Correlation Coefficient (r) *0.99982095*

| Lab Number | Class/ Subclass/ Dup/ Matrix | Sample Vol,mL | Extract Vol,mL | DF | ABS | Test Code | Result | |
|---|---|---|---|---|---|---|---|---|
| #9301370-01A | S C W | 985.00 | 100.00 | | 0.006 | TPH_W | 0 | mg/L |
| #9301370-02A | S C W | 990.00 | 100.00 | | 0.020 | TPH_W | 0.5 | mg/L |
| #9302017-01A | S C W | 1000.00 | 100.00 | | 0.024 | TPH_W | 0.6 | mg/L |
| #9302017-02A | S C W | 960.00 | 100.00 | | 0.056 | TPH_W | 1.7 | mg/L |
| #9302017-03A | S C W | 990.00 | 100.00 | | 0.084 | TPH_W | 2.5 | mg/L |
| #9302060-01A | S C W | 975.00 | 100.00 | | 0.008 | TPH_W | 0.1 | mg/L |
| #9302074-01A | S C W | 1000.00 | 100.00 | | 0.180 | TPH_W | 5.6 | mg/L |
| #9302074-02A | S C W | 1000.00 | 100.00 | | 0.180 | TPH_W | 5.6 | mg/L |
| #9302089-01A | S C W | 980.00 | 100.00 | | 0.042 | TPH_W | 1.2 | mg/L |
| #9302089-02A | S C W | 990.00 | 100.00 | | 0.078 | TPH_W | 2.3 | mg/L |
| #9302089-03A | S C W | 995.00 | 100.00 | | 0.000 | TPH_W | -0.2 | mg/L |
| #[illegible] | B P W | 1000.00 | 100.00 | | 0.000 | TPH_W | -0.2 | mg/L |

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

DACA6393C006

Project no. 92 130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | T-4-A | 2-1-93 09:45 | | X | 1L Amber | Liquid | Ice | TPH | |
| 2 | T-7-A | 2-1-93 10:00 | | X | " | " | " | " | |
| 3 | T-10-A | 2-1-93 10:15 | | X | " | " | " | " | |
| | | | | | | | | | |
| | | | | | | | | | |
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RUSH

| Samplers: (Print) | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | 2-1-93 16:45 | [signature] | 2-1-93 4:45 | |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | REC'D. ON ICE Yes ✓ No |
| SWL Enviro | Relinquished by: (Signature) | Date: Time: | Received by Laboratory: (Signature) R Bussnall | Date: 2-2-93 Time: 8:30 | Intact: Yes |

Results by

Rush Charges Authorized Yes ✓ No

REMARKS: Rapid results on All liquid samples
3dy per Chris Berry
Replacements - 93-01-381

Data Results To:
1. Lee Forbes Austin Tx
2.

Laboratory No. 93-02-017

01624

SwL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-344
Report Date 02/26/93 08:48

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/23/93

Sampled By SWL-AUSTIN

Sample Type LIQUID SAMPLE

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/24/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-02-344-01 | EWW-6 |

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A EWW-6 Collected: 02/23/93 16:40

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 02/24/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | 0.80 | mg/l | 0.50 | 02/25/93 | HC |

# QA/QC REPORT

Client: SWL AUSTIN

Report No.: 93-2-344

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES QUALITY CONTROL L35

METHOD OF ANALYSIS: EPA: 418.1

DATE OF TEST: 2/25/93 PARAMETER : TPH MATRIX: WATER ANALYST: HC MDL: .5

| CALIBRATION STANDARDS/BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| 10.46 | 0.04 | ICV | 104.6 | 107 | 102.3 |
| 52.3 | 0.174 | | | | |
| 104.6 | 0.32 | | | | |
| 209.2 | 0.67 | | | | |
| C.C.(R) = .999539 | | | | | |

SAMPLE ID NUMBERS IN THIS RUN: 93-2-344-01A

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | % RECOVERY |
|---|---|---|---|---|---|---|
| | | | | | | |

01628

Page 1 of

**SWL**

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 92 130

Client/Project: Corps of Engineer / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| | EWW-6 | 2-23-93 1640 | | X | (2) 40 ML 16A 1L Amber | Liquid | 4°C | BTEX, TPH | |
| | | | | | | | | | |
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RUSH

| Samplers: (Print) | Relinquished by: (Signature) | Date: / Time: | Received by: (Signature) | Date: / Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | 2-23-93 1646 | | | |
| Affiliation | Relinquished by: (Signature) | Date: / Time: | Received by: (Signature) | Date: / Time: | REC'D. ON ICE Yes X No |
| SWL | Relinquished by: (Signature) | Date: / Time: | Received by Laboratory: (Signature) K Buisnall | Date: 2-24-93 Time: 10:45 | Intact Yes |

Results by 48

Rush Charges Authorized

Yes ✓ No

REMARKS: 48 Hour Rush Turn Around

Data Results To:

1. Lane Forbes Austin

2.

Laboratory No. 93-02-345

01623

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-02-344

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: EWW-6
Sample Matrix: Water
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-344-1
Date: 2/24/93
Analyst: JF6
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | ND | 160.36 | 80.2 | |
| Toluene | 200 ug/l | | 166.78 | 83.4 | |
| Ethyl Benzene | 200 ug/l | | 165.87 | 82.9 | |
| p-Xylene | 200 ug/l | | 169.15 | 84.6 | |
| m-Xylene | 200 ug/l | | 117.84 | 58.9 | |
| o-Xylene | 200 ug/l | | 163.86 | 81.9 | |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
SwL Lab No.: 93-02-344-1
Sample I.D.: EWW-6
Date: 2/24/93
Sample Matrix: Water
Analyst: JFG
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Duplicate

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | ND | 197.17 | 98.6 | |
| Toluene | 200 ug/l | | 203.85 | 101.9 | |
| Ethyl Benzene | 200 ug/l | | 210.72 | 105.4 | |
| p-Xylene | 200 ug/l | | 208.31 | 104.2 | |
| m-Xylene | 200 ug/l | | 92.18 | 46.1 | |
| o-Xylene | 200 ug/l | | 197.15 | 98.6 | |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
SwL Lab No.: 93-02-344-1
Sample I.D.: EWW-6
Date: 2/25/93
Sample Matrix: Water
Analyst: DBS
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Triplicate

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | ND | 163.53 | 81.8 | |
| Toluene | 200 ug/l | | 169.61 | 84.8 | |
| Ethyl Benzene | 200 ug/l | | 173.45 | 86.7 | |
| p-Xylene | 200 ug/l | | 184.67 | 92.3 | |
| m-Xylene | 200 ug/l | | 97.53 | 48.8 | |
| o-Xylene | 200 ug/l | | 202.20 | 101.1 | |

SWL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: MONICA SCOTT

Client No. DACA6393C006
Report No. 93-04-088
Report Date 04/27/93 13:51

Project DACA6393C006/CORPS OF ENG.

Date Sampled 04/06/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 5058-93-130

Date Received 04/07/93

| Lab No. | Sample Identification |
|---|---|
| 93-04-088-01 | DSW-3 } Waste Oil Area MS 5/27/93 |
| 93-04-088-02 | EWW |
| 93-04-088-03 | TB-W |
| 93-04-088-04 | DSW-4 |
| 93-04-088-05 | DSW-5 |
| 93-04-088-06 | DSW-6 |
| 93-04-088-07 | DSW-7 |
| 93-04-088-08 | DSW-8 |
| 93-04-088-09 | DSW-9 |
| 93-04-088-10 | DSW-10 |
| 93-04-088-11 | DSW-11 |
| 93-04-088-12 | DSW-12 |
| 93-04-088-13 | DSW-13 |
| 93-04-088-14 | DSW-14 |
| 93-04-088-15 | DSW-15 |
| 93-04-088-16 | DSW-16 |
| 93-04-088-17 | DSW-17 |
| 93-04-088-18 | DSW-18 |
| 93-04-088-19 | DSW-19 |
| 93-04-088-20 | DSW-20 |
| 93-04-088-21 | DSW-21 |
| 93-04-088-22 | DSW-22 |
| 93-04-088-23 | DSW-23 |

} Waste Oil Area MS 5/27/93

SOUTHWESTERN LABORATORIES

HO

Reviewed By

Chris Barry

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A DSW-3 (Waste Oil Area) MS 5/27/93 Collected: 04/06/93 09:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.40 | mg/kg | 0.40 | 04/09/93 | JFG |
| Toluene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Ethylbenzene | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| Xylenes | SW846 8020 | <0.40 | mg/kg | 0.40 | | |
| EXTRACT ORGANIC HALOGEN | EPA 600/4/84 | 16.5 | mg/kg | 10.0 | 04/16/93 | JH |
| LEAD | EPA 7420 | <10.0 | mg/kg | 10.0 | 04/15/93 | GLM |
| PERCENT MOISTURE | GRAVIMETRIC | 15.36 | % MOISTU | 0.10 | 04/09/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 04/09/93 | JFG |
| TCLP LEAD | SW-846 6010 | <0.50 | mg/l | 0.50 | 04/15/93 | GLM |
| TCLP PREP. | SW-846 1311 | 04/12/93 | DATE | | 04/13/93 | JH |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 6780 | mg/kg | 5.0 | 04/12/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 04/09/93 | DATE | | 04/09/93 | CJG |

Sample: 02A EWW Collected: 04/06/93 09:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - WATER SAMPLE | SW846_8020 | | | | | |
| Benzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | 04/08/93 | JFG |
| Toluene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Ethylbenzene | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| Xylenes | SW846_8020 | <0.0040 | mg/l | 0.0040 | | |
| LEAD | EPA 239.1 | <0.10 | mg/l | 0.10 | 04/12/93 | JA |
| TOT. PET. HYDROCARBONS H20 | EPA 418.1 | <0.50 | mg/l | 0.50 | 04/12/93 | MR |
| TOTAL DISSOLVED SOLIDS | EPA 160.1 | 655 | mg/l | 1 | 04/08/93 | JH |
| TOTAL ORGANIC HALOGEN | SW-846 9020 | 0.19 | mg/l | 0.01 | 04/12/93 | JH |
| pH | EPA 150.1 | 7.51 | pH UNITS | | 04/07/93 | EU |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-04-088

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-02-088

Report Date: 4/8/93

# BTEX ANALYSIS

Matrix: Soil

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-04-088 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 4/8/93 BTEX Method 5030/8020,

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

CHANNEL NO 1
SAMPLE NO 0
REPORT NO 1336
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

223-02037-01

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 4.671 | 43516 | | 8 | | MTBE |
| 2 | 9.547 | 246201 | V | 2 | | BENZENE |
| 3 | 10.737 | 77833 | V R | 1 | | INT STD |
| 4 | 13.2 | 223195 | V | 3 | | TOLUENE |
| 5 | 16.523 | 157146 | | 4 | | ETHYL BEN |
| 6 | 16.847 | 205956 | V | 5 | | P-XYLENE |
| 7 | 17.111 | 312124 | V | 6 | | M-XYLENE |
| 8 | 19.01 | 206216 | SV | 7 | | O-XYLENE |
| | TOTAL | 1472186 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9

MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.6 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.4 | 0.3 | 63.2274 | 200 |
| 3 | TOLUENE | 13.1 | 0.3 | 69.7445 | 200 |
| 4 | ETHYL BEN | 16.6 | 0.2 | 99.0586 | 200 |
| 5 | P-XYLENE | 16.9 | 0.15 | 75.5825 | 200 |
| 6 | M-XYLENE | 17.1 | 0.2 | 49.8733 | 200 |
| 7 | O-XYLENE | 18.9 | 0.3 | 75.4872 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 357.725 | 200 |

DAILY BTEX CALIBRATION 4/8/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 63.22 | -3 |
| TOLUENE | 69.89 | 69.74 | 0.2 |
| ETHYL BENZ | 100.8 | 99.05 | 1.7 |
| P-XYLENE | 75.8 | 75.58 | 0.2 |
| M-XYLENE | 54.38 | 49.87 | 8.2 |
| O-XYLENE | 78.72 | 75.48 | 4.1 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: DSW-11
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-04-088-11
Date: 4/8/93
Analyst: J.F.G
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 166 | 83 | 82-117 |
| Toluene | 200 ug/l | | 166 | 83 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 147 | 74 | 71-121 |
| Xylene | 200 ug/l | | 162 | 81 | |
| m-Xylene | 200 ug/l | | 132 | 66 | 67-124 |
| o-Xylene | 200 ug/l | | 161 | 81 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-04-088-11
Sample I.D.: DSW-11
Date: 4/8/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 196 | 98 | 82-117 |
| Toluene | 200 ug/l | | 203 | 102 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 173 | 87 | 71-121 |
| Xylene | 200 ug/l | | 172 | 86 | |
| m-Xylene | 200 ug/l | | 175 | 88 | 67-124 |
| o-Xylene | 200 ug/l | | 189 | 9.5 | |

SOUTHWESTERN LABORATORIES

ient: SWL Austin

File No.:

Report No.: 93-04-088

Report Date: 4/9/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-04-088 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 4/9/93 BTEX Method 5030/8020

Analyzed By:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 0 | METHOD | 8403 |
| REPORT NO | 1392 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 4.564 | 41545 | | 8 | | MTBE |
| 2 | 9.358 | 234527 | | 2 | | BENZENE |
| 3 | 10.553 | 78182 | V R | 1 | | INT STD |
| 4 | 13.003 | 211076 | V | 3 | | TOLUENE |
| 5 | 16.45 | 148115 | | 4 | | ETHYL BEN |
| 6 | 16.768 | 209598 | V | 5 | | P-XYLENE |
| 7 | 17.029 | 284292 | SV | 6 | | M-XYLENE |
| 8 | 18.827 | 197666 | SV | 7 | | O-XYLENE |
| | TOTAL | 1405001 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.6 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.4 | 0.3 | 66.6725 | 200 |
| 3 | TOLUENE | 13.1 | 0.3 | 74.0801 | 200 |
| 4 | ETHYL BEN | 16.4 | 0.2 | 105.57 | 200 |
| 5 | P-XYLENE | 16.7 | 0.15 | 74.6023 | 200 |
| 6 | M-XYLENE | 17.1 | 0.2 | 55.0015 | 200 |
| 7 | O-XYLENE | 18.9 | 0.3 | 79.1057 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 376.373 | 200 |

DAILY BTEX CALIBRATION 4/9/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 66.67 | -8.7 |
| TOLUENE | 69.89 | 74.07 | -6 |
| ETHYL BENZ | 100.8 | 105.56 | -4.8 |
| P-XYLENE | 75.8 | 74.6 | 1.5 |
| M-XYLENE | 54.38 | 55 | -1.2 |
| O-XYLENE | 78.72 | 79.1 | -0.5 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-04-088-20
Sample I.D.: DSW-20
Date: 4/4/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 180 | 90 | 82-117 |
| Toluene | 200 ug/l | | 184 | 92 | 78-118 |
| thyl Benzene | 200 ug/l | | 172 | 86 | 71-121 |
| -Xylene | 200 ug/l | | 154 | 77 | 67-124 |
| m-Xylene | 200 ug/l | | 185 | 93 | |
| o-Xylene | 200 ug/l | | 182 | 91 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-04-088-20
Sample I.D.: DSW-20
Date: 4/5/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 177 | 89 | 82-117 |
| Toluene | 200 ug/l | | 172 | 86 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 170 | 85 | 71-121 |
| -Xylene | 200 ug/l | | 164 | 82 | 67-124 |
| m-Xylene | 200 ug/l | | 166 | 83 | |
| o-Xylene | 200 ug/l | | 144 | 72 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-04-085-10
Sample I.D.: DSW-10
Date: 4/10/93
Sample Matrix: liquid
Analyst: J.F.G
Spiking Solution: BTEX 200 ug/mL
Parameter: TCLP-B

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | Spike (%Recov) QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/L | N/D | ~~207~~ 163 | 82 | 82-117 |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
Sample I.D.: D3W-10
Sample Matrix: Liquid
Spiking Solution: BTEX 200 ug/mL

SwL Lab No.: 93-04-084-10
Date: 4/10/93
Analyst: J.F.G
Parameter: TCLP-B

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | (%Recov) QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/L | N/D | 203 | 102 | 82-117 |

SOUTHWESTERN LABORATORIES

'ent: SWL Austin

File No.:

Report No.: 93-04-088

Report Date: 4/13/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-04-088 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 4/13/93 BTEX Method 5030/8020

Analyzed By: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

C-RSA CHROMATOPAC

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 0 | METHOD | 0403 |
| REPORT NO | 912 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 9.284 | 7285 | | 2 | | BENZENE |
| 2 | 9.401 | 2034 | R | 1 | | INT STD |
| 3 | 11.69 | 6962 | | 3 | | TOLUENE |
| 4 | 15.173 | 5292 | | 4 | | ETHYL BEN |
| 5 | 15.489 | 6647 | V | 5 | | P-XYLENE |
| 6 | 15.758 | 9934 | SV | 6 | | M-XYLENE |
| 7 | 17.573 | 6636 | SV | 7 | | O-XYLENE |
| | TOTAL | 44691 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.4 | 0.15 | 1 | 1 |
| 2 | BENZENE | 9.2 | 0.15 | 55.8476 | 200 |
| 3 | TOLUENE | 11.7 | 0.1 | 58.4378 | 200 |
| 4 | ETHYL BEN | 15.2 | 0.1 | 76.8744 | 200 |
| 5 | P-XYLENE | 15.5 | 0.1 | 61.2044 | 200 |
| 6 | M-XYLENE | 15.8 | 0.15 | 41.3722 | 200 |
| 7 | O-XYLENE | 17.6 | 0.15 | 61.3086 | 200 |

DAILY BTEX CALIBRATION 4/13/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 55.94 | -11.4 |
| TOLUENE | 52.36 | 58.43 | -11.6 |
| ET-YL BENZ | 71.76 | 76.87 | -7.2 |
| P-XYLENE | 54.81 | 61.2 | -11.7 |
| M-XYLENE | 39.21 | 41.36 | -8.3 |
| O-XYLENE | 55.78 | 61.3 | -9.9 |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
SwL Lab No.: 93-04-088-18
Sample I.D.: DSW-18
Date: 4/13/93
Sample Matrix: liquid TCLP
Analyst: J.F.G
Spiking Solution: BTEX STD. 200 ug/mL
Parameter: TCLP-B

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | (%Recov) QA % Limit |
|---|---|---|---|---|---|
| | | | Spike | | |
| Benzene | 200 ug/L | N/D | 178 | 89 | 82-127 |

01650

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-04-088-18
Sample I.D.: DSW-18
Date: 4/13/93
Sample Matrix: Liquid TCLP
Analyst: J.F.G
Spiking Solution: BTEX STD. 200 ug/ml
Parameter: TCLP-B

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | (%Recov) QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/L | N/D | 204 | 102 | 82-117 |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
SwL Lab No.: 93-04-088-23
Sample I.D.: DSW-23
Date: 4/14/93
Sample Matrix: Liquid - TCLP
Analyst: J.F.G
Spiking Solution: BTEX 200 ug/mL
Parameter: TCLP-B

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | (%Recov) QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/L | N/D | 177 | 89 | 82-117 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-04-088-23
Sample I.D.: DSW-23
Date: 4/14/93
Sample Matrix: liquid-TCLP
Analyst: J.F.G
Spiking Solution: BTEX 20 ug/mL
Parameter: TCLP-B

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | Spike (%Recov) QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/L | N/D | 183 | 92 | 82-117 |

# QA/QC REPORT

Client: SWL-Austin

Report No.: 93-4-088

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES QUALITY CONTROL

MDL: 0.01

METHOD OF ANALYSIS: STD METHODS 5320-B PARAMETER: TOC MATRIX: WATER ANALYST: JH DATE: (04-22-93) Run (04-08-93) T: 680

| CALIBRATION STANDARDS/BLANK | ABSORBANCE |
|---|---|
| | |
| | |
| | |
| | |
| L.R. (1) = | |

| STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|
| BLANK | <0.01 | <0.01 | 100.0% |
| STD | 0.1 ppm | 0.119 | 119.0% |
| | | | |
| | | | |
| | | | |
| | | | |

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

93-04-052-(1A-3A)
93-04-088

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKED SAMPLE - SAMPLE ÷ THEORETICAL x 100

| LAB #-SAMPLE ID # | FIRST CONC. | DIL. FACTOR | REPL. CONC. | DIL. FACTOR | RANGE | %PRECISION | SPIKED SAMPLE CONC. | SAMPLE CONC. | THEO. CONC. | % RECOVERY |
|---|---|---|---|---|---|---|---|---|---|---|
| 04-052-3A | 0.21 | | 0.19 | | 0.02 | 10.0% | 0.36 | 0.21 | 0.20 | 75.0% |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

PRECISION = FIRST CONC. - REPLICATE CONC. / MEAN x 100

01655

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

MDL 10.0

PREP 04-08-93
Run (04-15-93) -
(04-26-93)

EPA DOC. No.
METHOD OF ANALYSIS 600/4/84-008 PARAMETER EOX MATRIX Solids ANALYST JH DATE TIME 600

| CALIBRATION STANDARDS/BLANK | ABSORBANCE |
|---|---|
| | |
| | |
| | |
| | |
| L.R. (r) = | |

| STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|
| BLANK | <10.0 | <10.0 | 100.0% |
| STD | 200 | 217.72 | 108.9% |
| CCV | ↓ | 213.52 | 106.8% |
| ↓ | ↓ | 222.74 | 111.0% |
| | | | |
| | | | |

LAB NUMBERS/SAMPLE ID NUMBERS IN THIS RUN:

93-04-088-(1A, 4A-23A)

QUALITY CONTROL DUPLICATES AND SPIKES

PERCENT RECOVERY CALCULATION: SPIKED SAMPLE - SAMPLE + THEORETICAL x 100

| LAB #-SAMPLE ID # | FIRST CONC. | DIL. FACTOR | REPL. CONC. | DIL. FACTOR | RANGE | %PRECISION | SPIKED SAMPLE CONC. | SAMPLE CONC. | THEO. CONC. | % RECOVERY |
|---|---|---|---|---|---|---|---|---|---|---|
| 04-088-1A | 16.5 | | 16.1 | | 0.4 | 2.5% | 917.27 | 16.5 | 994.63 | 90.6% |
| 04-088-13A | <10.0 | | <10.0 | | 0.0 | 0.0% | 947.06 | <10.0 | 998.70 | 94.8% |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

PRECISION % FIRST CONC REPLICATE CONC MEAN x 100

01656

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 239.1
DATE OF TEST: 4/15/93 PARAMETER : PB MATRIX: HNO3 ANALYST: BLM MDL: 10.7

| CALIBRATION STANDARDS/BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTRATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| 0.25 | 0.01 | ICV | 1.00 | 1.04 | 104.0 |
| 0.50 | 0.022 | CCV | 1.00 | 1.01 | 101.0 |
| 1.00 | 0.043 | | | | |
| 2.00 | 0.091 | | | | |
| L.R.(R) = | 0.99986 | | | | |

SAMPLE ID NUMBERS IN THIS RUN 93-4-08B-01
93-4-08B-13A
93-4-08B-23A
93-4-503

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | PW % RECOVERY |
|---|---|---|---|---|---|---|
| 93-4-08B-01 | <10.0 | <10.0 | 0.00 | 76.90 | 78.30 | 102.1 |
| 93-4-08B-13A | <10.0 | <10.0 | 0.00 | 86.40 | 84.4 | 97.1 |
| 93-4-08B-23A | 22.3 | 25.1 | -1.81 | 61.30 | 71.00 | 88.1 |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: SW-846 6010
DATE OF TEST: 4/15/93 PARAMETER : PB MATRIX: HNO3 ANALYST: ELM.MDL: .50

| CALIBRATION STANDARDS/BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| 0.25 | 0.013 | ICV | 1.00 | 0.95 | 95.0 |
| 0.50 | 0.024 | CCV | 1.00 | 0.992 | 99.2 |
| 1.00 | 0.049 | | | | |
| 2.00 | 0.094 | | | | |
| L.R.(R) = | 0.99986 | | | | |

SAMPLE ID NUMBERS IN THIS RUN F3-4-0BB-1A
F3-4-BB-13A
F3-4-BB

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | PK % RECOVERY |
|---|---|---|---|---|---|---|
| F3-4-0BB-1A | <.50 | <.50 | 0.00 | 5.00 | 5.06 | 101.2 |
| F3-4-BB-13A | .50 | <.50 | 0.00 | 5.00 | 5.21 | 104.2 |

Work Order: 9304088 Client: SWL AUSTIN

BLANK

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | ICB | TDS | B I | W | | 1.0 | 1.0 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | Specs Low | Specs High | |
|---|---|---|---|---|---|
| TDS | < 5 | 5 | 5.0 | | Y |
| VDS | NA | | 5.0 | | Y |

SAMPLE DUPLICATE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 9304061-01 | TDS | S C D | W | 1 | 1.0 | 1.0 | 1.0 | 1.0 | | JS |

| Analytes | Result | Reference Result | Detection Limit | RPD | Specs Low | Specs High | |
|---|---|---|---|---|---|---|---|
| TDS | 155 | 143 | 5 | 8.05 | -15 | 15 | Y |
| VDS | NA | NA | | 0 | -15 | 15 | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 9304088-01A | TDS | S C | W | | 1.0 | 1.0 | 1.0 | 1.0 | | JS |

| Analytes | Result | Detection Limit | |
|---|---|---|---|
| TDS | 655 | 5 | Y |
| VDS | NA | | Y |

SAMPLE DUPLICATE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 9304088-01 | TDS | S C D | W | 3 | [illegible] | 1.0 | 1.0 | 1.0 | | JS |

| Analytes | Result | Reference Result | Detection Limit | RPD | Specs Low | Specs High | |
|---|---|---|---|---|---|---|---|
| TDS | 654 | 655 | 5 | 0.153 | -15 | 15 | Y |
| VDS | NA | NA | | 0 | -15 | 15 | Y |

BLANK

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] | [illegible] | [illegible] | [illegible] | | [illegible] |

| Analytes | Result | Detection Limit | Specs Low | Specs High |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | |

01659

Work Order: 9304088 Client: SWL_AUSTIN

BLANK

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | BLK | TPH_S | B P | S | | | 1.0 | 25.0000 | 1.0 | 1.0 | | 250 |

| Analytes | Result | Detection Limit | Specs Low | Specs High | |
|---|---|---|---|---|---|
| TPH_S | 11.2 | 5.00 | 5.00 | | Y |

BLANK

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | BLK | TPH_S | B P | S | | | 1.0 | 25.3300 | 1.0 | 1.0 | | 250 |

| Analytes | Result | Detection Limit | Specs Low | Specs High | |
|---|---|---|---|---|---|
| TPH_S | 16.1 | 4.93 | 5.00 | | Y |

SPIKE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 9304088-04 | TPH_S | N M | S | 2 | | 10 | 25.3000 | 1.0 | 1.0 | | 250 |

| Analytes | Result | Unspiked Result | Detection Limit | Spike Value | Recovery | Specs Low | Specs High | |
|---|---|---|---|---|---|---|---|---|
| TPH_S | 8450 | 3700 | 49.41 | 4942.87 | 119 | 85.1 | 125 | |

SPIKE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | 9304088-14 | TPH_S | N M | S | 15 | | 10 | 25.1100 | 1.0 | 1.0 | | 250 |

| Analytes | Result | Unspiked Result | Detection Limit | Spike Value | Recovery | Specs Low | Specs High | |
|---|---|---|---|---|---|---|---|---|
| TPH_S | 26500 | 12000 | 447.01 | 4470.13 | 101 | 85.1 | 125 | |

SPIKE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | 9304088-23 | TPH_S | [illegible] | [illegible] | [illegible] | | [illegible] | 25.1600 | [illegible] | 1.0 | | 250 |

| Analytes | Result | Unspiked Result | Detection Limit | Spike Value | Recovery | Specs Low | Specs High | |
|---|---|---|---|---|---|---|---|---|
| TPH_S | 7100 | 2470 | 44.41 | 4440.87 | 110 | 85.1 | 125 | |

SPIKE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | 9304088-[illegible] | TPH_S | [illegible] | S | [illegible] | | [illegible] | 25.1100 | [illegible] | [illegible] | | 250 |

| Analytes | Result | Unspiked Result | Detection Limit | Spike Value | Recovery | Specs Low | Specs High | |
|---|---|---|---|---|---|---|---|---|
| TPH_S | 10000 | 4170 | 49.44 | 4944.37 | 118 | 85.1 | 125 | |

01660

Work Order: 9304088 Client: SWL_AUSTIN

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Sp Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9304.88-01A | TPH_B | S C | S | | 10 | 25.9000 | 1.0 | 1.0 | | 3SJ |

Detection

| Analytes | Result | Limit |
|---|---|---|
| TPH_B | 5740 | 48.26 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix Sub | Ref Sp Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 9304.88-04A | TPH_B | S C | S | | 10 | 25.4000 | 1.0 | 1.0 | | 3SJ |

Detection

| Analytes | Result | Limit |
|---|---|---|
| TPH_B | 3700 | 49.21 |

SAMPLE DUPLICATE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Sp Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 9304088-04 | TPH_B | S C D | S | 2 | 10 | 25.4000 | 1.0 | 1.0 | | 3SJ |

| Analytes | Result | Reference Result | Detection Limit | RPD | Sizes Low | Sizes High |
|---|---|---|---|---|---|---|
| TPH_B | 3970 | 3700 | 47.21 | 7.04 | -.5 | 15 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix Sub | Ref Sp Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 9304088-05A | TPH_B | S C | S | | 10 | 25.3000 | 1.0 | 1.0 | | 3SJ |

Detection

| Analytes | Result | Limit |
|---|---|---|
| TPH_B | 8420 | 49.41 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix Sub | Ref Sp Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 9304088-06A | TPH_B | S C | S | | 10 | 25.3000 | 1.0 | 1.0 | | 3SJ |

Detection

| Analytes | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | [illegible] |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix Sub | Ref Sp Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 9304088-07A | TPH_B | S C | S | | 10 | 25.4000 | 1.0 | 1.0 | | 3SJ |

Detection

| Analytes | Result | Limit |
|---|---|---|
| TPH_B | [illegible] | 49.21 |

01661

Work Order: 9304088 Client: SWL_AUSTIN

SAMPLE

| Sec. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 9304088-03A | TPH_S | S C | S | | 10 | 25.3000 | 1.0 | 1.0 | | JSJ |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | 5200 | 49.41 | |

SAMPLE

| Sec. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 9304088-09A | TPH_S | S C | S | | 10 | 25.3000 | 1.0 | 1.0 | | JSJ |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | 1820 | 49.41 | Y |

SAMPLE

| Sec. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 9304088-10A | TPH_S | S C | S | | 10 | 25.3000 | 1.0 | 1.0 | | JSJ |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | 2360 | 49.41 | Y |

SAMPLE

| Sec. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 9304088-11A | TPH_S | S C | S | | 10 | 25.3000 | 1.0 | 1.0 | | JSJ |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | 4140 | 49.60 | Y |

SAMPLE

| Sec. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 9304088-12A | TPH_S | S C | S | | 10 | [illegible] | [illegible] | [illegible] | | [illegible] |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | 6790 | 494.07 | |

SAMPLE

| Sec. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Sec Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 9304088-13A | TPH_S | S C | S | | 10 | [illegible] | 1.0 | [illegible] | | JSJ |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | 5900 | 488.28 | |

Work Order: 9304088 Client: SWL_AUSTIN

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 9304088-14A | TPH_S | S C | S | | 100 | 25.3000 | 1.0 | 1.0 | | JSJ |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | 12200 | 494.07 | |

SAMPLE DUPLICATE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 9304088-14 | TPH_S | S C D | S | 15 | 100 | 25.3000 | 1.0 | 1.0 | | JSJ |

| Analytes | Result | Reference Result | Detection Limit | Specs RPD | Low | High | V |
|---|---|---|---|---|---|---|---|
| TPH_S | 12300 | 12200 | 494.07 | 0.81[illegible] | -15 | 15 | Y |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 9304088-15A | TPH_S | S C | S | | 10 | 25.8000 | 1.0 | 1.0 | | JSJ |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | 8290 | 48.45 | |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | 9304088-16A | TPH_S | S C | S | | 100 | 25.4000 | 1.0 | 1.0 | | JSJ |

Detection

| Analytes | Result | Limit |
|---|---|---|
| TPH_S | 11900 | 492.13 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 9304088-17A | TPH_S | S C | S | | [illegible] | 25.3000 | 1.0 | 1.0 | | JSJ |

Detection

| Analytes | Result | Limit |
|---|---|---|
| TPH_S | 5170 | 494.07 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 9304088-18A | TPH_S | S C | S | | [illegible] | 25.4[illegible] | [illegible] | [illegible] | | JSJ |

Detection

| Analytes | Result | Limit | V |
|---|---|---|---|
| TPH_S | [illegible] | 492.13 | |

01663

Work Order: 9304088 Client: SWL_AUSTIN

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 9304088-19A | TPH_S | S C | S | | | 100 | 25.3000 | 1.0 | 1.0 | | JSJ |

| Analytes | Result | Detection Limit |
|---|---|---|
| TPH_S | 9500 | 494.07 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 9304088-20A | TPH_S | S C | S | | | 100 | 25.3000 | 1.0 | 1.0 | | JSJ |

| Analytes | Result | Detection Limit |
|---|---|---|
| TPH_S | 5440 | 494.07 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 9304088-21A | TPH_S | S C | S | | | 100 | 25.8000 | 1.0 | 1.0 | | JSJ |

| Analytes | Result | Detection Limit |
|---|---|---|
| TPH_S | 13800 | 484.50 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 9304088-22A | TPH_S | S C | S | | | 10 | 25.2000 | 1.0 | 1.0 | | JSJ |

| Analytes | Result | Detection Limit |
|---|---|---|
| TPH_S | 6170 | 49.60 |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 9304088-23A | TPH_S | S C | S | | | 10 | 25.3000 | 1.0 | 1.0 | | JSJ |

| Analytes | Result | Detection Limit |
|---|---|---|
| TPH_S | 2490 | 49.41 |

SAMPLE DUPLICATE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq | Spk Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 9304088-23 | TPH_S | S C D | S | [illegible] | | 10 | 25.2000 | 1.0 | 1.0 | | JSJ |

| Analytes | Result | Reference Result | Detection Limit | RPD | Speed Low | Speed High |
|---|---|---|---|---|---|---|
| TPH_S | 2230 | 2490 | 49.60 | 11.0 | -15 | 15 |

Work Order: 9304088 Client: SWL_AUSTIN

SAMPLE DUPLICATE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 | 9304133-02 | TPH_S | S D D | S | 35 | 100 | 25.0500 | 1.0 | 1.0 | | JSJ |

| Analytes | Reference Detection Result | Result | Limit | RPD | Specs Low | High | V |
|---|---|---|---|---|---|---|---|
| TPH_S | 6320 | 6270 | 499.00 | 0.794 | -15 | 15 | Y |

CONTROL

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | ICV | TPH_S | T I | S | | 1.0 | 100.0000 | 1.0 | 1.0 | | JSJ |

| Analytes | Theoretical Detection Result | Value | Limit | Spike Value | Recovery | Specs Low | High | V |
|---|---|---|---|---|---|---|---|---|
| TPH_S | 118 | 109.90 | 1.25 | 107 | 90 | 110 | | Y |

CONTROL

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | ICV | TPH_S | T I | S | | 1.0 | 100.0000 | 1.0 | 1.0 | | JSJ |

| Analytes | Theoretical Detection Result | Value | Limit | Spike Value | Recovery | Specs Low | High |
|---|---|---|---|---|---|---|---|
| TPH_S | 118 | 109.90 | 1.25 | 107 | 90 | 110 | |

BLANK

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | PB | TPH_W | B P | W | | 1.0 | 1000.00 | 1.0 | 1.0 | | JS |

| Analytes | Detection Result | Limit | Specs Low | High |
|---|---|---|---|---|
| TPH_W | 0.5 | 0.5 | 0.5 | |

SAMPLE

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 9304088-12A | TPH_W | S D | W | | 1.0 | 1000.00 | 1.0 | 1.0 | | JS |

| Analytes | Detection Result | Limit | Specs Low | High |
|---|---|---|---|---|
| TPH_W | 0.5 | 0.5 | 0.5 | |

CONTROL

| Seq. | Sample ID | Test Code | Class/ Sub/Dup | Matrix/ Sub | Ref Spk Seq Seq | Dilution | Weight | Volume | Conv. Factor | Flag | Ver |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | ICV | TPH_W | T I | W | | 1.0 | 1000.00 | 1.0 | 1.0 | | JS |

| Analytes | Theoretical Detection Result | Value | Limit | Spike Value | Recovery | Specs Low | High |
|---|---|---|---|---|---|---|---|
| TPH_W | 114 | 109.9 | 5.0 | 104 | 90 | 110 | |

01665

TEST RESULTS BY SAMPLE

Sample: 13A CLTS-40 Collected: 01/28/93 15:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.44 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 11.6 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/03/93 | DATE | | 02/03/93 | CJG |

Sample: 14A CLTS-41 Collected: 01/28/93 16:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.78 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 33.2 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/03/93 | DATE | | 02/03/93 | CJG |

Sample: 15A CLTS-42 Collected: 01/28/93 16:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.14 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 32.3 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/03/93 | DATE | | 02/03/93 | CJG |

Order # 93-01-379
02/08/93 09:31
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: 16A CLTS-43 Collected: 01/28/93 16:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.29 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/04/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 47.4 | mg/kg | 5.0 | 02/03/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/03/93 | DATE | | 02/03/93 | CJG |

Sample: 17A CLTS-44 Collected: 01/28/93 16:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.51 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/05/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 25.6 | mg/kg | 5.0 | 02/04/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/04/93 | DATE | | 02/04/93 | CJG |

Sample: 18A CLTS-45 Collected: 01/28/93 17:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.02 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/05/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 29.2 | mg/kg | 5.0 | 02/04/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/04/93 | DATE | | 02/04/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 19A CLTS-46 Collected: 01/28/93 17:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.29 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/05/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 29.5 | mg/kg | 5.0 | 02/04/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/04/93 | DATE | | 02/04/93 | CJG |

Sample: 20A CLTS-47 Collected: 01/28/93 17:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.81 | % MOISTU | 0.10 | 02/01/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/05/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 33.1 | mg/kg | 5.0 | 02/04/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/04/93 | DATE | | 02/04/93 | CJG |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-01-379

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-01-379

Report Date: 2/1/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-379 | Blank (2-32) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/1/93 BTEX Method 5030/8020

Analyzed by: J.F.G.

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

TOTAL 1346889

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE$ 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.6 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.5 | 0.3 | 54.2473 | 200 |
| 3 | TOLUENE | 13.2 | 0.3 | 61.5991 | 200 |
| 4 | ETHYL BEN | 16.6 | 0.2 | 87.5393 | 200 |
| 5 | P-XYLENE | 16.9 | 0.15 | 62.4269 | 200 |
| 6 | M-XYLENE | 17.2 | 0.2 | 48.3917 | 200 |
| 7 | O-XYLENE | 18.9 | 0.3 | 68.0933 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 253.504 | 200 |

DAILY BTEX CALIBRATION 2/1/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 54.24 | 11.6 |
| TOLUENE | 69.89 | 61.59 | 11.8 |
| ETHYL BENZ | 100.8 | 87.53 | 13.1 |
| P-XYLENE | 75.8 | 62.42 | 17.6 |
| M-XYLENE | 54.38 | 48.39 | 11 |
| O-XYLENE | 78.72 | 68.09 | 13.5 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-379-10
Sample I.D.: CLTS-37
Date: 2/4/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | Spike | | |
| Benzene | 200 ug/l | N/A | 189 | 95 | 82-117 |
| Toluene | 200 ug/l | | 188 | 94 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 189 | 95 | 71-121 |
| p-Xylene | 200 ug/l | | 178 | 89 | 67-124 |
| m-Xylene | 200 ug/l | | 188 | 94 | |
| o-Xylene | 200 ug/l | | 189 | 95 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-379-10
Site I.D.: CLTS-37
Date: 2/4/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 204 | 102 | 62-117 |
| Toluene | 200 ug/l | | 205 | 103 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 207 | 104 | 71-121 |
| p-Xylene | 200 ug/l | | 193 | 97 | 67-124 |
| m-Xylene | 200 ug/l | | 204 | 102 | |
| o-Xylene | 200 ug/l | | 203 | 102 | |

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-01-379

Report Date: 2/2/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-379 | Blank (2016) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/2/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 9.5 | 0.15 | 1 | 1 |
| 2 | BENZENE | 8.3 | 0.15 | 48.3316 | 200 |
| 3 | TOLUENE | 11.8 | 0.1 | 49.4638 | 200 |
| 4 | ETHYL BEN | 15.3 | 0.1 | 68.9252 | 200 |
| 5 | P-XYLENE | 15.6 | 0.1 | 51.8606 | 200 |
| 6 | M-XYLENE | 15.9 | 0.15 | 36.3649 | 200 |
| 7 | O-XYLENE | 17.7 | 0.15 | 53.0693 | 200 |
| 8 | MTBE | 4.1 | 0.1 | 386.629 | 200 |
| 9 | 1,3 DICHL | 26.6 | 0.15 | 53.6199 | 200 |
| 10 | 1,4 DICHL | 27.5 | 0.15 | 52.2488 | 200 |
| 11 | 1,2 DICHL | 28.8 | 0.15 | 62.5822 | 200 |

DAILY BTEX CALIBRATION 2/2/93 ALS 2016

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 50.16 | 48.33 | 3.6 |
| TOLUENE | 52.36 | 49.46 | 5.5 |
| ETHYL BENZ | 71.76 | 68.93 | 3.9 |
| P-XYLENE | 54.81 | 51.86 | 5.3 |
| M-XYLENE | 38.21 | 36.36 | 4.8 |
| O-XYLENE | 55.78 | 53.07 | 4.8 |

# MATRIX SPIKE RECOVERY

Client: SWL Austin
SwL Lab No.: 93-01-379-20
Sample I.D.: CLTS-47
Date: 2/2/93
Sample Matrix: soil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 216 | 108 | 92-117 |
| Toluene | 200 ug/l | | 215 | 108 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 216 | 108 | 71-121 |
| p-Xylene | 200 ug/l | | 204 | 102 | 67-124 |
| m-Xylene | 200 ug/l | | 219 | 110 | |
| o-Xylene | 200 ug/l | | 208 | 104 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-379-20
Sample I.D.: CLTS-47
Date: 2/2/93
Sample Matrix: Coil
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | ND | 199 | 100 | 82-117 |
| Toluene | 200 ug/l | | 202 | 101 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 202 | 101 | 71-121 |
| p-Xylene | 200 ug/l | | 189 | 95 | 67-124 |
| m-Xylene | 200 ug/l | | 195 | 98 | |
| o-Xylene | 200 ug/l | | 194 | 97 | |

SOUTHWESTERN LABORATORIES

Client: SwL Austin

File No.:

Report No.: 93-01-379

Report Date: 2/3/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-379 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/3/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

CR501 CHROMATOPAC

| | | | |
|---|---|---|---|
| CHANNEL NO | 1 | FILE | 9 |
| SAMPLE NO | 0 | METHOD | 0403 |
| REPORT NO | 264 | SAMPLE WT | 100 |
| IS WT | 1 | STANDARD | 1 |

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 4.729 | 49969 | SV | 8 | | MTBE |
| 2 | 9.647 | 253764 | | 2 | | BENZENE |
| 3 | 10.825 | 71739 | V R | 1 | | INT STD |
| 4 | 13.271 | 223693 | SV | 3 | | TOLUENE |
| 5 | 16.728 | 164369 | V | 4 | | ETHYL BEN |
| 6 | 17.039 | 206498 | V | 5 | | P-XYLENE |
| 7 | 17.3 | 296307 | V | 6 | | M-XYLENE |
| 8 | 19.082 | 205084 | SV | 7 | | O-XYLENE |
| | TOTAL | 1471422 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNU | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.6 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.5 | 0.3 | 56.5398 | 200 |
| 3 | TOLUENE | 13.2 | 0.3 | 64.1403 | 200 |
| 4 | ETHYL BEN | 16.6 | 0.2 | 87.2901 | 200 |
| 5 | P-XYLENE | 16.9 | 0.15 | 69.4812 | 200 |
| 6 | M-XYLENE | 17.2 | 0.2 | 48.4219 | 200 |
| 7 | O-XYLENE | 18.9 | 0.3 | 69.9605 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 287.132 | 200 |

DAILY BTEX CALIBRATION 2/3/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 56.53 | 7.9 |
| TOLUENE | 69.89 | 64.14 | 8.2 |
| ETHYL BENZ | 100.8 | 87.29 | 13.4 |
| P-XYLENE | 75.8 | 69.48 | 8.3 |
| M-XYLENE | 54.38 | 48.42 | 10.9 |
| O-XYLENE | 78.72 | 69.96 | 11.1 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-379-8
Sample I.D.: CLTS-35
Date: 2/4/93
Sample Matrix: TCLP
Analyst: J.F.G.
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 173 | 86 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-379-8
Sample I.D.: CLTS-35
Date: 2/4/93
Sample Matrix: TCLP
Analyst: J.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 184 | 92 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

SOUTHWESTERN LABORATORIES

Client: SwL Austin

File No.:

Report No.: 93-01-379

Report Date: 2/4/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-01-379 | Blank (2-32) | <4 | <4 | <4 | <4 |

Date Analyzed: _____ BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

CR501 CHROMATOPAC

CHANNEL NO 1
SAMPLE NO 0
REPORT NO 299
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 4.767 | 50020 | V | 8 | | MTBE |
| 2 | 9.715 | 275904 | | 2 | | BENZENE |
| 3 | 10.905 | 78988 | V R | 1 | | INT STD |
| 4 | 13.372 | 243939 | SV | 3 | | TOLUENE |
| 5 | 16.859 | 181224 | V | 4 | | ETHYL BEN |
| 6 | 17.172 | 224767 | V | 5 | | P-XYLENE |
| 7 | 17.434 | 316090 | V | 6 | | M-XYLENE |
| 8 | 19.21 | 222132 | SV | 7 | | O-XYLENE |
| | TOTAL | 1593063 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.9 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.7 | 0.3 | 57.2577 | 200 |
| 3 | TOLUENE | 13.4 | 0.3 | 64.7606 | 200 |
| 4 | ETHYL BEN | 16.8 | 0.2 | 87.1718 | 200 |
| 5 | P-XYLENE | 17.2 | 0.15 | 70.2844 | 200 |
| 6 | M-XYLENE | 17.4 | 0.2 | 49.9782 | 200 |
| 7 | O-XYLENE | 19.1 | 0.3 | 71.118 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 315.827 | 200 |

DAILY BTEX CALIBRATION 2/4/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 57.25 | 6.7 |
| TOLUENE | 69.89 | 64.76 | 7.3 |
| ETHYL BENZ | 100.8 | 87.17 | 13.5 |
| P-XYLENE | 75.8 | 70.28 | 7.2 |
| M-XYLENE | 54.38 | 49.97 | 8.1 |
| O-XYLENE | 78.72 | 71.11 | 9.6 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-01-379-16
Sample I.D.: CLTS-43
Date: 2/4/93
Sample Matrix: TCLP-B
Analyst: T.F.G
Spiking Solution: SwL BTEX Spike
Parameter: BTEX

TCLP-B Spike

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 192 | 96 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

# MATRIX SPIKE RECOVERY

Client: SWL Austin

SwL Lab No.: 93-01-379-16

Sample I.D.: CLTS-43

Date: 2/4/93

-ple Matrix: TCLP-B

Analyst: J.F.G

..king Solution: SwL BTEX Spike

Parameter: BTEX

TCLP-B Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 189 | 95 | 82-117 |
| Toluene | 200 ug/l | | | | |
| Ethyl Benzene | 200 ug/l | | | | |
| p-Xylene | 200 ug/l | | | | |
| m-Xylene | 200 ug/l | | | | |
| o-Xylene | 200 ug/l | | | | |

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 418.1

DATE OF TEST: 2/3/93 PARAMETER : TPH MATRIX: SOIL ANALYST: MR MDL: 5.0

| ...ATION STANDARDS/BLANKS | ABSORBANCE | STANDARDS | THEORETICAL CONCENTATION | MEASURED CONCENTRATION | % RECOVERY |
|---|---|---|---|---|---|
| 0 | 0 | | | | |
| 10.2 | 0.03 | | | | |
| 51 | 0.16 | | | | |
| 102 | 0.32 | | | | |
| L.R.(R) = .999835 204 | 0.62 | | | | |

SAMPLE ID NUMBERS IN THIS RUN: 93-1-356
93-1-379

| SAMPLE ID | BACKGROUND CONC. | DUPLICATE CONC | % DIFF. | SPIKE CONC | RECOVERED CONC | % % RECOVERY |
|---|---|---|---|---|---|---|
| 93-1-356-01A | 44.100 | 41.700 | 5.59440 | 406.9 | 410.9 | 104.2 |

889071



**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 92-130

Client/Project: Corp of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | CLTS-28 | 1-28-93 12:45 | | X | 4oz Glass | Soil | Ice | BTEX, TCLP B2, TPH | |
| 2 | CLTS-29 | 1-28-93 1300 | | X | " | " | " | " " " | |
| 3 | CLTS-30 | 1-28-93 1315 | | X | " | " | " | " " " | |
| 4 | CLTS-31 | 1-28-93 1330 | | X | " | " | " | " " " | |
| 5 | CLTS-32 | 1-28-93 1345 | | X | " | " | " | " " " | |
| 6 | CLTS-33 | 1-28-93 1400 | | X | " | " | " | " " " | |
| 7 | CLTS-34 | 1-28-93 1415 | | X | " | " | " | " " " | |
| 8 | CLTS-35 | 1-28-93 1430 | | X | " | " | " | " " " | |
| 9 | CLTS-36 | 1-28-93 1445 | | X | " | " | " | " " " | |
| 10 | CLTS-37 | 1-28-93 1500 | | X | " | " | " | " " " | |

| Samplers: (Print) | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | | [signature] | | |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | REC'D. ON ICE Yes X No ___ |
| SWL | Relinquished by: (Signature) | Date: Time: | Received by Laboratory: (Signature) K Burnsnall | Date: 1-27-93 Time: 1:30 | Intact: Yes |

Results by _____

Rush Charges Authorized

Yes ____ No ____

REMARKS: Report soil results on a dry-weight basis, get TS results from GC lab.

Data Results To:

1. Lee Forbes Austin

2.

Laboratory No. 93-01-379

01539

889078



SWL

SOUTHWESTERN LABORATORIES, INC.

222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.

Client/Project

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | CLTS-38 | 1-28-93 1515 | | X | 4oz Glass | Soil | Ice | BTEX, TCLP B2, TPH | |
| 12 | CLTS-39 | 1-28-93 1530 | | X | " | " | " | " " " | |
| 13 | CLTS-40 | 1-28-93 1545 | | X | " | " | " | " " " | |
| 14 | CLTS-41 | 1-28-93 1600 | | X | " | " | " | " " " | |
| 15 | CLTS-42 | 1-28-93 1615 | | X | " | " | " | " " " | |
| 16 | CLTS-43 | 1-28-93 1630 | | X | " | " | " | " " " | |
| 17 | CLTS-44 | 1-28-93 1645 | | X | " | " | " | " " " | |
| 18 | CLTS-45 | 1-28-93 1700 | | X | " | " | " | " " " | |
| 19 | CLTS-46 | 1-28-93 1715 | | X | " | " | " | " " " | |
| 20 | CLTS-47 | 1-28-93 1730 | | X | " | " | " | " " " | |

Samplers: (Print) Larry Collins

Affiliation: SWL Enviro.

Relinquished by: (Signature) Larry Collins — Date: 1-28-93 Time:

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time: 1-29-93

Received by Laboratory: (Signature) [signature] — Date: Time: 1:30

COC Seal No.

REC'D. ON ICE Yes ✓ No ____

Intact: Yes

Results by ____

Rush Charges Authorized

Yes ____ No ____

REMARKS:

Data Results To:

1. Lee Forbes Austin

2.

Laboratory No. 93-01-379

01540

SWL

# SOUTHWESTERN LABORATORIES

*Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services*
222 CAVALCADE * P.O. BOX 8768, HOUSTON, TEXAS 77249 * 713 692-9151

Client SOUTHWESTERN LABORATORIES
P.O. BOX 17366
AUSTIN, TEXAS 78760

Attn: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-003
Report Date 02/10/93 10:37

Project DACA639C006/CORPS OF ENG.

Date Sampled 01/29/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/01/93

LOCATION: LAREDO AIRPORT

| Lab No. | Sample Identification |
|---|---|
| 93-02-003-01 | CLTS-48 |
| 93-02-003-02 | CLTS-49 |
| 93-02-003-03 | CLTS-50 |
| 93-02-003-04 | CLTS-51 |
| 93-02-003-05 | CLTS-52 |
| 93-02-003-06 | CLTS-53 |
| 93-02-003-07 | CLTS-54 |
| 93-02-003-08 | CLTS-55 |
| 93-02-003-09 | CLTS-56 |
| 93-02-003-10 | CLTS-57 |
| 93-02-003-11 | CLTS-58 |
| 93-02-003-12 | CLTS-59 |

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

Order # 93-02-003
02/10/93 10:37
Client: SOUTHWESTERN LABORATORIES

TEST RESULTS BY SAMPLE

Sample: 01A CLTS-48 Collected: 01/29/93 07:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.88 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 48.3 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/06/93 | DATE | | 02/06/93 | CJG |

Sample: 02A CLTS-49 Collected: 01/29/93 07:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.78 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 29.7 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/06/93 | DATE | | 02/06/93 | CJG |

Sample: 03A CLTS-50 Collected: 01/29/93 07:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 13.55 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 37.0 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/06/93 | DATE | | 02/06/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 04A CLTS-51 Collected: 01/29/93 07:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 10.20 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 61.5 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/06/93 | DATE | | 02/06/93 | CJG |

Sample: 05A CLTS-52 Collected: 01/29/93 08:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 16.02 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 69.4 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/06/93 | DATE | | 02/06/93 | CJG |

Sample: 06A CLTS-53 Collected: 01/29/93 08:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 12.95 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 23.3 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/06/93 | DATE | | 02/06/93 | CJG |

Sample: 07A CLTS-54 Collected: 01/29/93 08:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.76 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/07/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 38.1 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/06/93 | DATE | | 02/06/93 | CJG |

Sample: 08A CLTS-55 Collected: 01/29/93 08:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 11.85 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/08/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 392 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/07/93 | DATE | | 02/07/93 | CJG |

Sample: 09A CLTS-56 Collected: 01/29/93 09:00

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 16.84 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/08/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 487 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/07/93 | DATE | | 02/07/93 | CJG |

TEST RESULTS BY SAMPLE

Sample: 10A CLTS-57 Collected: 01/29/93 09:15

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/02/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 15.40 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/08/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 34.4 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/07/93 | DATE | | 02/07/93 | CJG |

Sample: 11A CLTS-58 Collected: 01/29/93 09:30

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/03/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 23.30 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/08/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 49.4 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/07/93 | DATE | | 02/07/93 | CJG |

Sample: 12A CLTS-59 Collected: 01/29/93 09:45

| Test Name | Method | Result | Units | Detection Limit | Date Started | Analyst |
|---|---|---|---|---|---|---|
| BTEX - SOIL SAMPLE | SW846 8020 | | | | | |
| Benzene | SW846 8020 | <0.020 | mg/kg | 0.020 | 02/03/93 | JFG |
| Toluene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Ethylbenzene | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| Xylenes | SW846 8020 | <0.020 | mg/kg | 0.020 | | |
| PERCENT MOISTURE | GRAVIMETRIC | 14.59 | % MOISTU | 0.10 | 02/02/93 | JFG |
| TCLP BENZENE | EPA 8020/602 | <0.005 | mg/l | 0.005 | 02/08/93 | JFG |
| TOT.PET. HYDROCARBONS SOIL | EPA 418.1 | 61.4 | mg/kg | 5.0 | 02/08/93 | MR |
| ZERO HEADSPACE EXTRACTION | SW846 1311 | 02/07/93 | DATE | | 02/07/93 | CJG |

# QA/QC REPORT

Client: SWL Austin

Report No.: 93-03-003

The following pages contain the results of the batch specific QC data associated with the above referenced report no.

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-02-003

Report Date: 2/2/93

# BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-003 | Blank (2032) | <4 | <4 | <4 | <4 |

Date Analyzed: 2/2/93 BTEX Method 5030/8020

Analyzed by:

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

TOTAL 1550800

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.6 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.5 | 0.3 | 58.4353 | 200 |
| 3 | TOLUENE | 13.2 | 0.3 | 64.8471 | 200 |
| 4 | ETHYL BEN | 16.6 | 0.2 | 89.0673 | 200 |
| 5 | P-XYLENE | 16.9 | 0.15 | 65.1354 | 200 |
| 6 | M-XYLENE | 17.2 | 0.2 | 53.3839 | 200 |
| 7 | O-XYLENE | 18.9 | 0.3 | 71.9101 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 292.716 | 200 |

DAILY BTEX CALIBRATION 2/2/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 58.43 | 4.8 |
| TOLUENE | 69.89 | 64.84 | 7.2 |
| ETHYL BENZ | 100.8 | 89.06 | 11.6 |
| P-XYLENE | 75.8 | 65.13 | 14 |
| M-XYLENE | 54.38 | 53.38 | 1.8 |
| O-XYLENE | 78.72 | 71.9 | 8.6 |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: CLTS - 59
Sample Matrix: Soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-003-12
Date: 2/2/93
Analyst: J.F.G
Parameter: BTEX

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| | | | | Spike | |
| Benzene | 200 ug/l | N/D | 172 | 86 | 82-117 |
| Toluene | 200 ug/l | | 151 | 76 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 149 | 75 | 71-121 |
| p-Xylene | 200 ug/l | | 150 | 75 | 67-124 |
| m-Xylene | 200 ug/l | | 164 | 82 | |
| o-Xylene | 200 ug/l | | 163 | 82 | |

# MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: CLTS-59
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-003-12
Date: 2/3/93
Analyst: J.F.G
Parameter: BTEX

Spike Dup.

| Compound | Amount Added (ug/ml) | Sample Conc. (ug/ml) | MS Conc. (ug/ml) | MS % Recovery | QA % Limit |
|---|---|---|---|---|---|
| Benzene | 200 ug/l | N/D | 212 | 106 | 82-117 |
| Toluene | 200 ug/l | | 186 | 93 | 78-118 |
| Ethyl Benzene | 200 ug/l | | 182 | 91 | 71-121 |
| p-Xylene | 200 ug/l | | 191 | 96 | 67-124 |
| m-Xylene | 200 ug/l | | 200 | 100 | |
| o-Xylene | 200 ug/l | | 202 | 101 | |

SOUTHWESTERN LABORATORIES

Client: SWL Austin

File No.:

Report No.: 93-02-003

Report Date: 2/7/93

# BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

| SwL Lab No. | Sample I.D. | Benzene | Toluene | Ethyl Benzene | Total Xylenes |
|---|---|---|---|---|---|
| 93-02-003 | Blank (2032) | < 4 | < 4 | < 4 | < 4 |

Date Analyzed: 2/7/93 BTEX Method 5030/8020

Analyzed by: [illegible]

Method detection limits are 20 ug/kg and 4 ug/l for BETX in soil and water, respectively. Higher detection limits indicate possible matrix interferences.

| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | 16.53 | 161490 | | 4 | 204.2883 | ETHYL BEN |
| 5 | 16.844 | 213871 | V | 5 | 201.9901 | P-XYLENE |
| 6 | 17.104 | 291437 | SV | 6 | 201.6133 | M-XYLENE |
| 7 | 18.866 | 200987 | SV | 7 | 201.1586 | O-XYLENE |
| | TOTAL | 1403678 | | | 1214.8355 | |

CR501 CHROMATOPAC

CHANNEL NO 1
SAMPLE NO 0
REPORT NO 370
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

| PKNO | TIME | AREA | MK | IDNO | CONC | NAME |
|---|---|---|---|---|---|---|
| 1 | 9.424 | 245383 | | 2 | | BENZENE |
| 2 | 10.611 | 69494 | V R | 1 | | INT STD |
| 3 | 13.053 | 221017 | SV | 3 | | TOLUENE |
| 4 | 16.53 | 161490 | | 4 | | ETHYL BEN |
| 5 | 16.844 | 213871 | V | 5 | | P-XYLENE |
| 6 | 17.104 | 291437 | SV | 6 | | M-XYLENE |
| 7 | 18.866 | 200987 | SV | 7 | | O-XYLENE |
| | TOTAL | 1403678 | | | | |

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE# 93

| IDNO | NAME | TIME | BAND | FACTOR | CONC |
|---|---|---|---|---|---|
| 1 | INT STD | 10.6 | 0.3 | 1 | 1 |
| 2 | BENZENE | 9.4 | 0.3 | 56.6412 | 200 |
| 3 | TOLUENE | 13.1 | 0.3 | 62.8854 | 200 |
| 4 | ETHYL BEN | 16.5 | 0.2 | 86.0658 | 200 |
| 5 | P-XYLENE | 16.8 | 0.15 | 64.9867 | 200 |
| 6 | M-XYLENE | 17.1 | 0.2 | 47.6905 | 200 |
| 7 | O-XYLENE | 18.9 | 0.3 | 69.1526 | 200 |
| 8 | MTBE | 4.7 | 0.2 | 315.827 | 200 |

DAILY BTEX CALIBRATION 2/7/93 ALS 2032

| COMPOUND | AVE RF | RF | %D |
|---|---|---|---|
| BENZENE | 61.38 | 56.64 | 7.7 |
| TOLUENE | 69.89 | 62.88 | 10 |
| ETHYL BENZ | 100.8 | 86.06 | 14.6 |
| P-XYLENE | 75.8 | 64.98 | 14.2 |
| M-XYLENE | 54.38 | 47.69 | 12.3 |
| O-XYLENE | 78.72 | 69.15 | 12.1 |

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 5058-93-130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | DSW-3 | 4-6-93 0900 | | X | (2) 4oz Glass 8oz " | Soil | 4°C | BTEX, TPH, TOX, Total Pb, TCLP Pb & BZ | |
| 2 | EWW | 4-6-93 0930 | | X | (1) 1L Amber (2) 500 ml AST. (3) VOA | Liquid | " | BTEX, TPH, total lead, TOX, TDS, pH | 72 hr Rush |
| 3 | TB-W | 4-6-93 0930 | | X | (2) VOA | " | " | BTEX | |
| 4 | DSW-4 | 4-6-93 10:30 | | X | 8 oz Glass 16 oz Glass | Soil | " | BTEX, TPH, TOX, Tot. Pb, TCLP Pb & BZ | |
| 5 | DSW-5 | 4-6-93 10:45 | | X | " | " | " | " " " " " | |
| 6 | DSW-6 | 4-6-93 11:00 | | X | " | " | " | " " " " " | |
| 7 | DSW-7 | 4-6-93 11:15 | | X | " | " | " | " " " " " | |
| 8 | DSW-8 | 4-6-93 11:30 | | X | " | " | " | " " " " " | |
| 9 | DSW-9 | 4-6-93 11:45 | | X | " | " | " | " " " " " | |
| 10 | DSW-10 | 4-6-93 12:00 | | X | " | " | " | " " " " " | |

| Samplers: (Print) | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | 4-6-93 18:00 | | | |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: 4-7-93 | REC'D. ON ICE Yes ✓ No ___ |
| SWL | Relinquished by: (Signature) | Date: Time: | Received by Laboratory: (Signature) K Burnall | Date: Time: 12:30 | Intact: Yes |

Results by 48 Hrs

Rush Charges Authorized Yes ✓ No ___

REMARKS: Need ~~all~~ Liquid results in 48 Hours. Soil results in 72 Hrs.

Data Results To:
1. Larry Collins Job site
2. Monica Scott Austin

Laboratory No. 93-04-088

Liquid samples 72 hrs/ Alkalinity, TDS, pH, or nor MS

01666

**SWL**

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no.: 5058-93-130

Client/Project: Corps of Engineers / Laredo Air Port

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 11 | DSW-11 | 4-6-93 12:15 | | X | 8 oz Glass 16 oz Glass | Soil | 4°C | BTEX, TPH, TOX, TH. Pb, TCLP Pb & BZ | |
| 12 | DSW-12 | " 12:30 | | X | " | " | " | " " " " " | |
| 13 | DSW-13 | " 12:45 | | X | " | " | " | " " " " " | |
| 14 | DSW-14 | " 1300 | | X | " | " | " | " " " " " | |
| 15 | DSW-15 | " 1315 | | X | " | " | " | " " " " " | |
| 16 | DSW-16 | " 1330 | | X | " | " | " | " " " " " | |
| 17 | DSW-17 | " 1345 | | X | " | " | " | " " " " " | |
| 18 | DSW-18 | " 1400 | | X | " | " | " | " " " " " | |
| 19 | DSW-19 | " 1415 | | X | " | " | " | " " " " " | |
| 20 | DSW-20 | " 1430 | | X | " | " | " | " " " " " | |

| Samplers: (Print) | Relinquished by: (Signature) | Date: 4-6-93 Time: 18:00 | Received by: (Signature) | Date: Time: | COC Seal No. |
|---|---|---|---|---|---|
| Larry Collins | Larry Collins | | | | |
| Affiliation | Relinquished by: (Signature) | Date: Time: | Received by: (Signature) | Date: Time: 4-7-93 | REC'D. ON ICE Yes ✓ No ___ |
| SWL | Relinquished by: (Signature) | Date: Time: | Received by Laboratory: (Signature) K. Burnell | Date: Time: 12:30 | Intact: Yes |

Results by 72 HRS

Rush Charges Authorized

Yes ___ No ___

REMARKS: Need soil results in 72 Hours.

Data Results To:

1. Larry Collins Job Site
2. Monica Scott Austin

Laboratory No. 93-04-088

01667

SWL

SOUTHWESTERN LABORATORIES, INC.
222 Cavalcade Street P.O. Box 8768 Houston, Texas 77249 (713) 692-9151

# Analysis Request and Chain of Custody Record

Project no. 5058-93-130

Client/Project: Corps of Engineers / Laredo Airport

| Lab ID No. | Field Sample No./ Identification | Date and Time | Grab | Comp | Sample Container (Size/Mat'l) | Sample Type (Liquid Sludge, Etc.) | Preservative | ANALYSIS REQUESTED | LABORATORY REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 21 | DSW-21 | 4-6-93 14:45 | | X | 8 oz glass 16 oz " | Soil | 4°C | BTEX, TPH, TOX, TH. Pb, TCLP Pb & Bz | |
| 22 | DSW-22 | 4-6-93 1500 | | X | " | " | " | " " " " " " | |
| 23 | DSW-23 | 4-6-93 1515 | | X | " | " | " | " " " " " " | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Samplers: (Print) Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 4-6-93 Time: 18:00

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time: 4-7-93

Received by Laboratory: (Signature) K Barsnall — Date: Time: 12:30

COC Seal No.

REC'D. ON ICE Yes ✓ No ___

Intact: Yes

Results by 72 Hrs

Rush Charges Authorized Yes ___ No ___

REMARKS: Need soil results in 72 Hrs.

Data Results To:
1. Larry Collins Job site
2. Monica Scott Austin

Laboratory No. 93-04-088

01663

APP D
UST DISPOSAL REPORTS

# APPENDIX D

# UST DISPOSAL RECEIPTS

# CCC GROUP, INC.

## * * * AFFADAVIT OF DISPOSAL * * *

21MAY93

This is to affirm that the underground storage tanks removed from the Laredo International Airport, under ACOE contract DACA63-93-C-006 were disposed of as follows:

Disposal by shearing and recycling as salvage

Four 25,000 gallon tanks from the Fuel Farm Site

Commercial Metals Company
4614 Agnes Hwy 44
Corpus Christi, Texas 78405
512/884-4071

All remaining tanks from the Fuel Farm Site
All tanks from the Waste Oil Site
All tanks from the smaller sites
(Bldg. 160, DEA Bldg., Bldg 2098)
All piping from all sites

Wilkinson Iron & Metal Inc.
2300 Scott
Laredo, Texas
210/724-7183

Buzz Hafer, Manager, Environmental Projects

STATE OF TEXAS

COUNTY OF BEXAR

Sworn to and subscribed before me, a Notary Public, on May 21, 1993 by Buzz Hafer.

MADELEINE FELAN
Notary Public, State of Texas
My Comm. Exp. 1-13-96

P.O. BOX 200350, 5797 DIETRICH RD., SAN ANTONIO, TX 78220-0350
210/661-4251 FAX: 210/661-6060

# APPENDIX E

# FIELD COMPACTION TESTS REPORTS

TRINITY TESTING LABORATORIES, INC.
1305 GARCIA ST. LAREDO, TEXAS 78041 (512) 727-3702

# REPORT OF FIELD COMPACTION TESTS

TESTED FOR: CCC Group, Inc.
P. O. Box 200350
5797 Dietrich Rd.
San Antonio, Texas 78220-0350

PROJECT: Laredo International Airport

DATE: April 7, 1993

REPORT NUMBER: Page 1 of 2
03076.04

TEST DATA: Optimum Moisture - 15.4%

| TEST NO. | DATE TESTED | DEPTH/ ELEV | MAXIMUM LAB DRY DENSITY | WATER CONTENT | IN-PLACE DRY DENSITY | PERCENT COMPACTION | COMMENTS |
|---|---|---|---|---|---|---|---|
| 1 | 04-07-93 | 6"probe | 110.5 | 12.1 | 112.5 | 101.8 | 2-A |
| 2 | 04-07-93 | 6"probe | 110.5 | 13.3 | 113.2 | 102.5 | 2-A |
| 3 | 04-07-93 | 6"probe | 110.5 | 14.0 | 109.6 | 99.1 | 2-A |
| 4 | 04-07-93 | 6"probe | 110.5 | 14.4 | 112.0 | 101.3 | 2-A |
| 5 | 04-07-93 | 6"probe | 110.5 | 14.0 | 110.6 | 100.1 | 2-A |
| 6 | 04-07-93 | 6"probe | 110.5 | 12.3 | 108.4 | 98.1 | 2-A |

TEST LOCATION: Waste Oil Area

| | | |
|---|---|---|
| 1 | East | 1st Lift |
| 2 | West | 1st Lift |
| 3 | West | 2nd Lift |
| 4 | East | 2nd Lift |
| 5 | North | 3rd Lift |
| 6 | South | 3rd Lift |

NOTE: Densities are shown in lbs./cubic foot and the moisture content is a percentage of dry weight. Percent compaction is based upon the maximum laboratory dry density.

1. FILL MATERIAL
2. BACKFILL
3. BASE COURSE
4. SUBBASE
5. SOIL CEMENT
6. OTHER

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION
D. LOW MOISTURE

Distribution:
(1) Above
(1) Southwestern Laboratories, Inc.

TRINITY TESTING LABORATORIES, INC.

01672

TRINITY TESTING LABORATORIES, INC.
1305 GARCIA ST. LAREDO, TEXAS 78041 (512) 727-3702

# REPORT OF FIELD COMPACTION TESTS

TESTED FOR: CCC Group, Inc.
P. O. Box 200350
5797 Dietrich Rd.
San Antonio, Texas 78220-0350

PROJECT: Laredo International Airport

DATE: April 7, 1993

REPORT NUMBER: Page 2 of 2
~~93076-04~~

TEST DATA: Optimum Moisture - 15.4%

| TEST NO. | DATE TESTED | DEPTH/ ELEV | MAXIMUM LAB DRY DENSITY | WATER CONTENT | IN-PLACE DRY DENSITY | PERCENT COMPACTION | COMMENTS |
|---|---|---|---|---|---|---|---|
| 7 | 04-07-93 | 6"probe | 110.5 | 10.3 | 111.8 | 101.2 | 2-A |
| 8 | 04-07-93 | 6"probe | 110.5 | 13.9 | 107.0 | 96.8 | 2-A |
| 9 | 04-07-93 | 6"probe | 110.5 | 9.6 | 104.7 | 94.7 | 2-A |
| 10 | 04-07-93 | 6"probe | 110.5 | 14.3 | 105.8 | 95.8 | 2-A |
| | | | | | | | |
| | | | | | | | |

TEST LOCATION: Waste Oil Area

| | |
|---|---|
| 7 | North 4th Lift |
| 8 | South 4th Lift |
| 9 | East Final Lift |
| 10 | West Final Lift |
| | |
| | |

NOTE: Densities are shown in lbs./cubic foot and the moisture content is a percentage of dry weight. Percent compaction is based upon the maximum laboratory dry density.

1. FILL MATERIAL
2. BACKFILL
3. BASE COURSE
4. SUBBASE
5. SOIL CEMENT
6. OTHER

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION
D. LOW MOISTURE

Distribution:
(1) Above
(1) Southwestern Laboratories, Inc.

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# REPORT OF FIELD COMPACTION TESTS

TESTED FOR: CCC Group, Inc.
P. O. Box 200350
5797 Dietrich Rd.
San Antonio, Texas 78220-0350

PROJECT: Laredo International Airport

DATE: April 13, 1993

REPORT NUMBER: Page 1 of 1
93076-05

TEST DATA: Optimum Moisture - 15.4%

| TEST NO. | DATE TESTED | DEPTH/ ELEV | MAXIMUM LAB DRY DENSITY | WATER CONTENT | IN-PLACE DRY DENSITY | PERCENT COMPACTION | COMMENTS |
|---|---|---|---|---|---|---|---|
| 1 | 04-13-93 | 6"probe | 110.5 | 14.0 | 108.4 | 98.1 | 2-A |
| 2 | 04-13-93 | 6"probe | 110.5 | 13.8 | 106.6 | 96.5 | 2-A |
| 3 | 04-13-93 | 6"probe | 110.5 | 12.3 | 104.7 | 94.7 | 2-A |
| 4 | 04-13-93 | 6"probe | 110.5 | 10.8 | 97.1 | 87.9 | 2-A |
| 5 | 04-13-93 | 6"probe | 110.5 | 11.1 | 105.9 | 95.8 | 2-A |
| 6 | 04-13-93 | 6"probe | 110.5 | 12.2 | 105.6 | 95.5 | 2-A |

TEST LOCATION: 4th Lift

| | |
|---|---|
| 1 | North Side |
| 2 | Center |
| 3 | South Side |
| 4 | North Side |
| 5 | Center |
| 6 | South Side |

NOTE: Densities are shown in lbs./cubic foot and the moisture content is a percentage of dry weight. Percent compaction is based upon the maximum laboratory dry density.

1. FILL MATERIAL
2. BACKFILL
3. BASE COURSE
4. SUBBASE
5. SOIL CEMENT
6. OTHER

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION
D. LOW MOISTURE

Distribution:
(1) Above
(1) Southwestern Laboratories, Inc.

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