UNDERGROUND STORAGE TANK SYSTEMS CLOSURE AND REMEDIAL ACTIVITIES

Waste Oil Area
Laredo International Airport
Laredo, Texas
Texas Water Commission LPST I.D. NO. 106165
Contract No. DACA 63-93-C0006

Prepared for:

UNITED STATES ARMY CORPS OF ENGINEERS
Fort Worth District

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Prepared by:
SWL ENVIRONMENTAL SERVICES
4150-B Freidrich Lane
Austin, Texas

July 1993

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1.0 INTRODUCTION

SWL Environmental Services (SWL) was retained by United States Army Corps of Engineers (COE) to remove 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 the following sections is known as the Waste Oil 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.

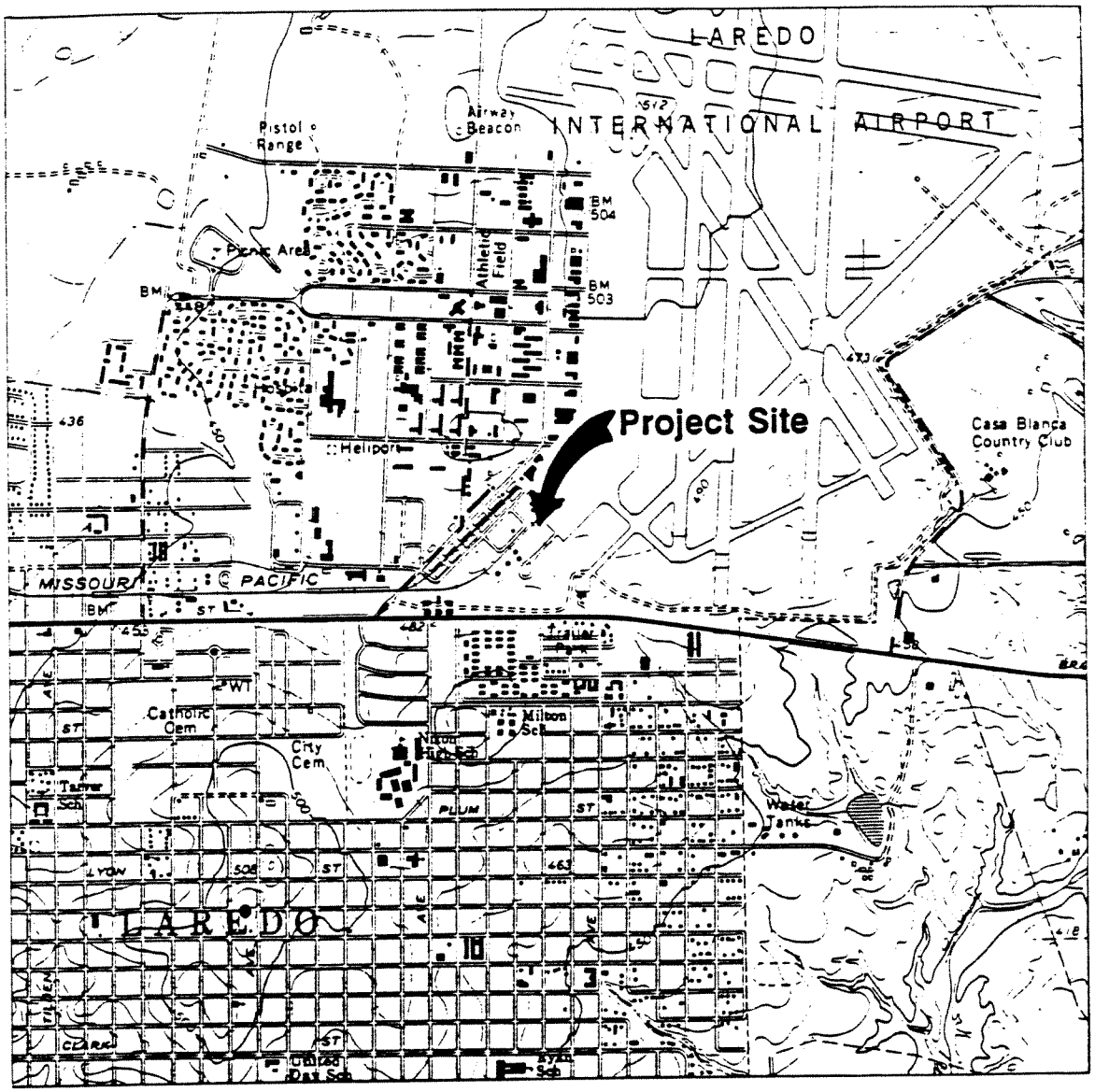


FIGURE 1-1
VICINITY MAP
Waste Oil Area
Laredo International Airport
U. S. Army Corps of Engineers
Laredo, Texas

SWL Reference No. 505893-130.5

N

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'

SWL ENVIRONMENTAL

01680

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 five out-of-service, steel USTs from the Waste Oil 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 [Leaking Petroleum Storage Tank (LPST) I.D. 104866] is located due west of the Waste Oil Area. Due south 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 Barker Aeromotive facility. An active fuel system (LPST I.D. No. 95021), operated by the City of Laredo, is located northwest of the facility. A site map indicating the adjacent site storage systems is presented in Figure 2-2.

Table 2-1

UST SUMMARY
Waste Oil 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-12	T-1349	10,000	Diesel Oil/ Diesel	Sand/Diesel	Steel	1945
T-13	T-1348	10,000	Lub Oil/ MoGas	Sand/Diesel	Steel	1945
T-14	T-1347	10,000	Lub Oil/ MoGas	Sand/Water	Steel	1945
T-15	T-1346	10,000	Drain Oil/ AV Lub	Sand/Water	Steel	1945
T-16	T-1352	1,000	Kerosene/ AV Gas	Sand/Water	Steel	1945

REVIATIONS:
COE - U.S. Army Corps of Engineers
SWL - SWL Environmental Services
AV Gas - Aviation Gasoline
MoGas - Motor Gasoline
Lub Oil - Lubrication Oil
AV Lub - Aviation Lubricants

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 was 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 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 exposure 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 overlying soils on February 15 and were completed on April 20, 1993. The adjacent Barker Aeromotive facility monitoring wells (MW-1 and MW-2) and gravel recovery trench, installed by Everest Environmental Services, were completely removed during the excavation activities due to the close proximity of the wells and recovery trench to tank number T-12.

Upon uncovering the USTs, a heavy oil was visible in the excavation. The TWC District 11 Office was informed immediately of the unexpected site conditions. Immediate removal of the phase-separated hydrocarbon (PSH) was verbally directed by the TWC. The TWC assigned LPST I.D. No. 106165 to the facility.

Alamo Petroleum, Inc. removed and transported a total of 13,100 gallons of water and hydrocarbon product from the USTs and tankhold on February 16 and 17, and March 9, 1993. Disposition of the liquids is discussed in Section 4.2.

During the PSH removal activities groundwater recharge was documented into the USTs. A frac tank was placed onsite as a means of storing the tankhold water prior to treatment during the removal activities. (Refer to Section 4.1.3 for discussion regarding Groundwater Storage and Discharge).

Five steel USTs (of single wall construction) were removed on February 22, 23, and 24, 1993. Each UST was sheared to remove the sand content. The activities 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 seams and obvious rust holes. The partially dismantled steel piping was approximately 32 feet long and extended over the top of tanks T-16, T-12 and T-13.

During the UST systems removal, the excavated soils were initially screened for the presence of petroleum hydrocarbons using a Photionization 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. Hydrocarbon vapors were checked using headspace techniques. Hydrocarbon vapors greater than 9,999 parts per million (ppm) were detected in the moist blackish gray, clayey sand excavated from the tankhold. All readings were recorded on the Sample Data Log. The tankhold excavation measured approximately 58 feet by 47 feet by 12 feet deep.

Following receipt of analytical data and facsimile to the TWC District 11 Office, the TWC was unable to establish site cleanup levels. Currently, when directed by the TWC, risk based

standards for cleanup levels are determined following the performance of a Limited Site Assessment (LSA). 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 cleanup levels attained during the removals. Correspondence by the COE confirming not to request PSTR Funds can be found in Appendix A.

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

Following the removal of the UST systems 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 nutrient 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 1,500 cubic yards of soil were treated in containment cell numbers three and four. 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 following removal of PSH by Alamo Petroleum, Inc. SWL personnel utilized a centrifugal pump with connecting suction and discharge hoses 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 a surface water discharge under Texas Administrative Code (TAC), Chapter 321, Subchapter H was obtained from the TWC and the City of Laredo officials.

On February 25, 1993, the TWC assigned discharge registration number DR-5-106165 to the facility for acknowledgement of receipt and reporting purposes. A discharge of approximately 35,000 gallons of treated groundwater occurred the week of February 26, 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

Eleven verification soil samples were collected from the tankhold side walls. Verification composite samples were not collected from beneath the USTs due to the groundwater in the tankhold. Sample collection adhered to the TWC site verbal directive, and COE specifications.

A total of 24 composite soil samples were collected from the excavated backfill material for characterization purposes. One composite sample (DSW-1) was initially collected from the stockpiled soils in containment cell four to document original hydrocarbon constituent levels. Remaining stockpile 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 samples were removed and transferred directly into 4- or 8-ounce precleaned glass containers sealed with Teflon™-lined lids.

3.2.2 Water Sampling Methodology

Five samples were collected form the water contained in the tankhold. Following treatment of the water, one sample was collected to confirm fulfillment of discharge requirements. The tankhold and treated water samples were collected using a new disposable hand bailer. The sample was transferred with minimal headspace from the bailer to the appropriate sample containers furnished by the analytical laboratory. The water samples collected for total petroleum hydrocarbons (TPH) analysis were placed in one-liter amber glass bottles with hydrochloric acid preservative. A 40-milliliter glass vial was used for the water samples collected for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX). A one liter plastic bottle with nitric acid preservative was used for the water samples collected for total lead. Samples collected for analysis of total dissolved solids (TDS) and pH were placed in 500 milliliter plastic bottles.

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:

- Travel blanks (i.e., TBW-1) consisting of organic free reagent water were kept with field sample containers from the time they left the laboratory to until the time they returned. Travel blanks were collected during all liquid sampling events and were only analyzed for BTEX:

- Rinsate blanks (i.e., RBW-1) consisting of reagent water collected from a final rinse of sampling equipment after the decontamination procedure was performed. One rinsate blank was collected and analyzed for each 20 confirmation samples.

- Quality Control Replicates (i.e., RW-1) consisted of a portion of a confirmation composite sample from each sample group. Quality control replicate samples were collected from each sample group or one in ten confirmation samples; and

- Quality Assurance samples were collected from a portion of the replicate sample. The samples were sent to the COE Dallas laboratory for analysis 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 and lead, by EPA Method 8020/602 and SW846 6010, respectively, extractable organic halogens and total lead by EPA 600/4/84, and EPA 7420, respectively. Percent moisture was performed by gravimetric procedures for each soil sample. Water samples were also analyzed for total dissolved solids (TDS) by EPA method 160.1, total lead by EPA 239.1, and total organic halogens by SW-846 9020. Analytical results are discussed in Section 3.3.

3.3 Laboratory Analysis

The results of the laboratory analyses of the soil verification 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 reports, and chain of custody documents).

The laboratory results indicate elevated levels of TPH constituents remain in the in situ soils of the tankhold walls. TPH levels of 12,100 milligrams per kilogram (mg/kg) and 8,660 mg/kg were documented on the south tankhold wall in samples TCWW-10 and TCWW-11, respectively. Samples TCWW-5 and TCWW-6 collected from the southeastern area of the tankhold documented 2,790 mg/kg and 6,970 mg/kg, respectively for TPH. Eastern wall samples, TCWW-7, TCWW-8, and TCWW-9 documented TPH levels as great as 5,670 mg/kg

and 7,280 mg/kg. All sidewall confirmation samples were below the detection limit for benzene. Low levels of toluene, ethylbenzene, and xylenes were documented to exist in the east, west, and south wall samples. Low levels of lead, 87.2 mg/kg and 12.0 mg/kg (samples TCWW-7 and TCWW-8) of the east tankhold wall, were documented in the soils.

Low levels of BTEX (ranging from 3.82 milligrams per liter (mg/L) and 0.049 mg/L) were documented in the analyzed tankhold water from samples Excavation Water Waste Oil (EWW)-5 and EWW-3, respectively. Percent moisture of the soil samples averaged 19.40 percent.

Elevated levels of TPH in the tankhold water samples ranged from 1,400 mg/L to as low as 3.0 mg/L (samples EWW-1 and EWW-3, respectively). Total dissolved solids (TDS) were documented as high as 3,350 mg/L. Total organic halogen levels ranged from 0.03 mg/L to 0.06 mg/L. The treated groundwater sample (EWW-6) documented non-detect levels of BTEX and TPH levels of 0.08 mg/L. Contaminant concentrations in discharged groundwater were below TWC requirements as presented on the TWC Petroleum Fuels Contaminated Waters Report form in Appendix A.

The samples collected from the stockpiled soils were also found to contain elevated levels of TPH and total lead. The final sampling of the stockpiled soils showed some reduction in total petroleum hydrocarbons following treatment. The initial sampling documented TPH levels of 10,700 mg/kg. An average of the 23 composite samples indicates approximately 7,330 mg/kg of TPH constituents in the stockpiled soils. TPH concentrations were reduced during treatment by approximately 30 percent. Upon receipt of all confirmation analytical data, results were immediately facsimiled to the TWC District 11 Office in Weslaco.

Quality control replicate sample RW-1, collected from a portion of sample TCWW-3, detected zero percent difference in analysis of BTEX, extractable organic halogens and total lead constituents. A difference of 1.23 percent was observed in the percent moisture analysis. TPH results indicated an approximately 4,000 percent difference in samples RW-1 and TCWW-3.

The difference in TPH results may be attributed to an organic matrix interference which will give a false elevated TPH value in EPA test method 418.1 or non-homogeneity of the sample (i.e., hot spots within the sample matrix).

The rinsate blank sample RBW-1, detected 0.16 mg/l of total organic halogens. Extractable organic halogens were not detected in the soil sample batch of TCWW-1 through TCWW-11. No other constituents were detected in sample RBW-1.

The travel blank, TBW-1, was kept with the excavation water sample batch EWW-1 through EWW-5. The travel blank analysis was non-detect for BTEX constituents indicating no tampering of the sample had occurred.

3.4 Tankhold Backfilling and Turfing

The excavation was filled with approximately 340 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. Treated backfill material was returned to the tankhold, as per TWC guidance. The backfill and clean, granular fill material was placed in two-foot lifts then smoothed and compacted with the backhoe before placement of the each layer. Compaction requirements by the COE included field in-place compaction and density testing prior to placement each lift of backfill material. Trinity Testing Laboratories, Inc. was subcontracted by CCC Group, Inc. to provide field compaction testing. Field compaction tests reports are included in Appendix D.

A 20 foot by 40 foot area of road was reconstructed with concrete to return the facility to its original condition. The soil area was then graded, smoothed, and turfed with Bermuda™ grass seed.

4.0 DISPOSITION OF THE TANK SYSTEMS AND LIQUIDS

4.1 Tanks and Piping

The tanks and piping were transported offsite by CCC Group, Inc. The tanks tested as inert and were properly placarded prior to transport. The tanks were transported to Wilkinson Iron and Metals, Inc. in Laredo for scrap metal recycling. Correspondence by CCC, Group Inc. documenting the disposal of the tanks is provided in Appendix E.

4.2 Liquids

Approximately 13,100 gallons of product and water were removed from the tankhold. All product and water was transported offsite for reclamation/disposal by Alamo Petroleum, Inc. Waste Manifests are included in Appendix E.

5.0 CONCLUSIONS

Following removal of the five UST systems, in situ sidewall soils were documented to have levels of TPH ranging from 2,790 mg/kg to 12,100 mg/kg. Low levels of toluene, ethylbenzene, and xylenes (i.e., 2.46 mg/kg to 9.82 mg/kg) were also detected in the soils of the tankhold sidewalls. No benzene was detected in the soil samples. Tankhold sidewall soil samples documented total lead levels as high as 87.2 mg/kg.

Soil samples were not collected from the bottom of the USTs, due to groundwater and the presences of PSH. Approximately 35,000 gallons of treated groundwater was discharged to surface storm drainage waters with approval from the TWC and City of Laredo officials.

Stockpiled soils were documented to contain levels of TPH as high as 10,700 mg/kg. Treatment of the stockpiled soils by enhanced biodegradation reduced TPH levels by approximately 30 percent on average. Following TWC guidance, stockpiled soils were returned to the tankhold and properly compacted.

Table 3-1

SUMMARY OF ANALYTICAL RESULTS
SOIL VERIFICATION SAMPLES
Waste Oil 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)	LEAD mg/kg (ppm)	EOX mg/kg (ppm)
TCWW-1	2/23/93	12 FT.	73.1	BDL	BDL	BDL	BDL	BDL	BDL
TCWW-2	2/23/93	12 FT.	487	BDL	BDL	BDL	BDL	10.3	BDL
TCWW-3	2/23/93	12 FT.	217	BDL	BDL	BDL	BDL	BDL	BDL
TCWW-4	2/23/93	12 FT.	1,630	BDL	BDL	BDL	BDL	BDL	BDL
TCWW-5	2/23/93	12 FT.	2,790	BDL	BDL	2.46	7.43	BDL	BDL
TCWW-6	2/23/93	12 FT.	6,970	BDL	BDL	6.05	9.82	BDL	BDL
TCWW-7	2/23/93	12 FT.	5,670	BDL	BDL	2.52	4.67	87.2	BDL
W-8	2/23/93	12 FT.	7,280	BDL	BDL	2.93	8.28	12.0	BDL
TCWW-9	2/23/93	12 FT.	4,010	BDL	BDL	2.83	5.59	BDL	BDL
TCWW-10	2/23/93	12 FT.	12,100	BDL	3.68	5.77	3.38	BDL	BDL
TCWW-11	2/23/93	12 FT.	8,660	BDL	3.03	4.72	3.08	BDL	BDL

TOTAL METALS

		ARSENIC mg/kg (ppm)	BARIUM mg/kg (ppm)	CADMIUM mg/kg (ppm)	CHROMIUM mg/kg (ppm)	LEAD mg/kg (ppm)	MERCURY mg/kg (ppm)	SELENIUM mg/kg (ppm)	SILVER mg/kg (ppm)
TCWW-7	2/23/93	5.75	230	1.00	7.81	28.1	BDL	BDL	BDL

NOTES:
mg/kg - milligrams per kilogram
TPH - total petroleum hydrocarbons
FT. - feet
ppm - parts per million
BDL - parameter below detection for the utilized analytical method
TCWW - tank confirmation wall waste oil area
EOX - total organic halogens

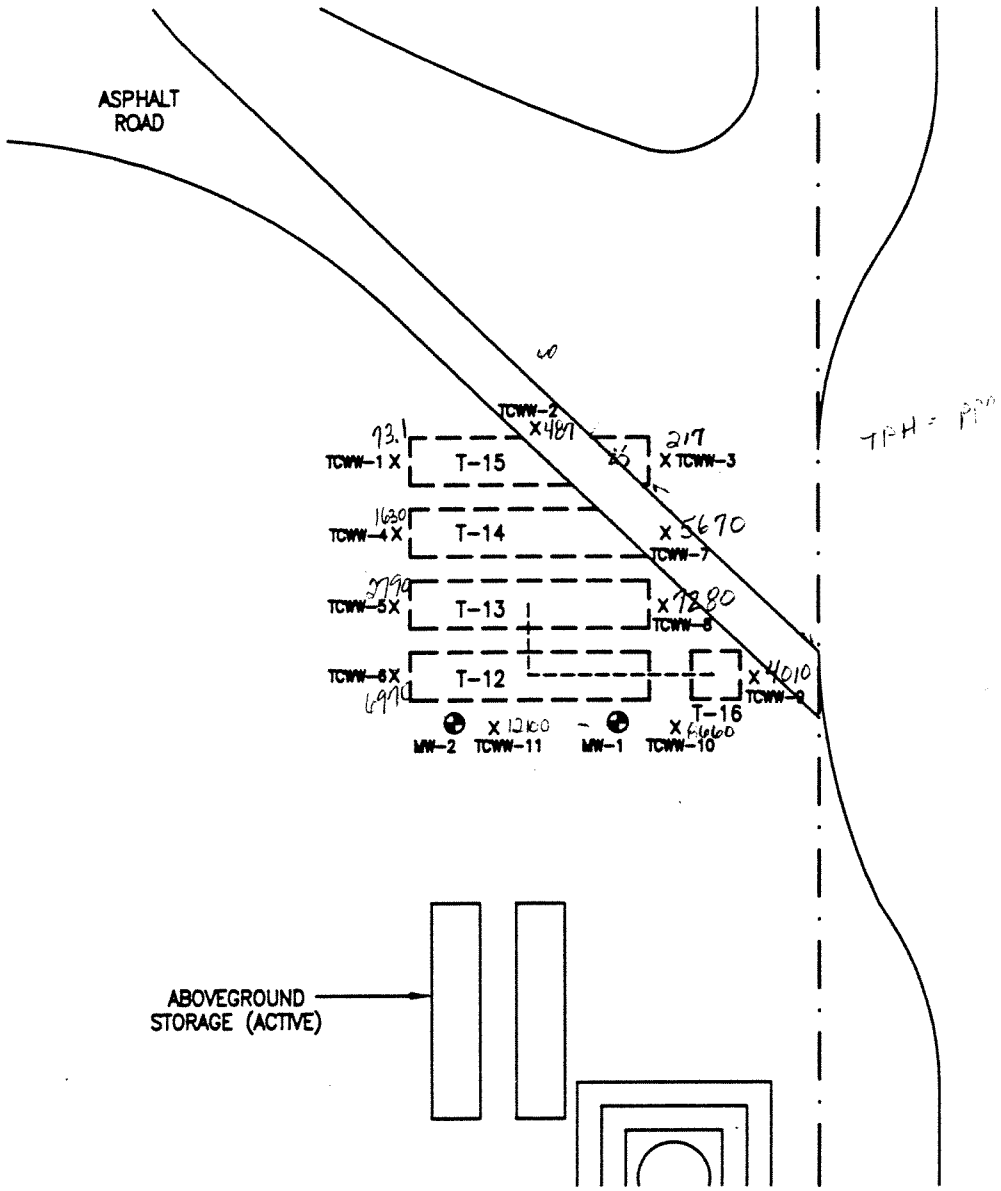
Table 3-2

SUMMARY OF ANALYTICAL RESULTS
TANKHOLD AND TREATED WATER SAMPLES
Waste Oil Area
Laredo International Airport
Laredo, Texas

SAMPLE ID	DATE COLLECTED	TPH mg/l (ppm)	BENZENE mg/l (ppm)	TOLUENE mg/l (ppm)	ETHYL-BENZENE mg/l (ppm)	XYLENES mg/l (ppm)	LEAD mg/l (ppm)	EOX mg/l (ppm)	TDS mg/l (ppm)
EWW-1	2/17/93	1,400	0.300	1.954	0.043	0.037	BDL	0.05	3,220
EWW-2	2/17/93	860	0.920	1.297	0.257	0.548	BDL	0.03	3,350
EWW-3	2/17/93	3.0	0.0041	BDL	0.0286	0.0120	BDL	0.06	2,410
EWW-4	2/17/93	17.8	BDL	BDL	0.0658	BDL	BDL	0.05	2,490
EWW-5	2/17/93	55.2	0.47	0.94	0.63	1.78	BDL	0.03	2,520
EWW-6	2/23/93	0.80	BDL	BDL	BDL	BDL	NA	NA	NA

NOTES:
mg/l - milligram per liter
BDL - parameter below the detection limit for the utilized analytical method
ppm - parts per million
NA - parameter not analyzed
EWW - excavation water waste oil area
EOX - Total Organic Halogens
TDS - Total Dissolved Solids
TPH - Total Petroleum Hydrocarbons

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



Extent of Excavation

Underground Storage Tank

Piping

X Sample Location

Offsite Monitoring Well (MW-1 & MW-2)

TCWW-1-11 Tank Confirmation Wall Waste Oil Area

T-12 Tank Identification Number

0 10 20 30

Scale in Feet

FIGURE 3-3
CONFIRMATION SAMPLE LOCATION MAP – WASTE OIL AREA

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

SWL ENVIRONMENTAL

DWGS 5058 93 30008 5-13-93

Ta 3-3

SUMMARY OF ANALYTICAL RESULTS
STOCKPILE SOIL SAMPLES
Waste Oil 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	TOTAL LEAD mg/kg (ppm)	TCLP LEAD mg/kg (ppm)	EOX mg/kg (ppm)
DSW-1	2/23/93	10,700	BDL	BDL	5.53	6.76	0.012	BDL	BDL	BDL
DSW-1A	4/5/93	5,510	BDL	BDL	BDL	BDL	BDL	31.1	BDL	27.5
DSW-2	4/5/93	6,730	BDL	BDL	BDL	BDL	BDL	22.8	BDL	34.9
DSW-3	4/6/93	6,780	BDL	BDL	BDL	BDL	BDL	BDL	BDL	16.5
DSW-4	4/6/93	4,260	BDL	BDL	BDL	BDL	BDL	15.2	BDL	13.6
DSW-5	4/6/93	7,590	BDL	BDL	BDL	BDL	BDL	39.9	BDL	20.0
DSW-6	4/6/93	766	BDL	BDL	BDL	BDL	BDL	22.7	BDL	28.1
DSW-7	4/6/93	6,800	BDL	BDL	BDL	BDL	BDL	29.0	BDL	13.9
DSW-8	4/6/93	6,380	BDL	BDL	BDL	BDL	BDL	29.1	BDL	BDL
DSW-9	4/6/93	2,300	BDL	BDL	BDL	BDL	BDL	22.6	BDL	BDL
DSW-10	4/6/93	2,960	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
DSW-11	4/6/93	5,540	BDL	BDL	BDL	BDL	BDL	29.5	BDL	BDL
DSW-12	4/6/93	7,820	BDL	BDL	BDL	BDL	BDL	16.6	BDL	BDL
DSW-13	4/6/93	7,110	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
DSW-14	4/6/93	14,700	BDL	BDL	BDL	BDL	BDL	18.4	BDL	10.0
DSW-15	4/6/93	10,200	BDL	BDL	BDL	BDL	BDL	22.8	BDL	BDL
DSW-16	4/6/93	14,600	BDL	BDL	BDL	BDL	BDL	21.7	BDL	BDL
DSW-17	4/6/93	5,660	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
DSW-18	4/6/93	7,720	BDL	BDL	BDL	BDL	BDL	21.2	BDL	BDL

Table 3 ontinued

SUMMARY OF ANALYTICAL RESULTS
STOCKPILE SOIL SAMPLES
Waste Oil 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	TOTAL LEAD mg/kg (ppm)	TCLP LEAD mg/kg (ppm)	EOX mg/kg (ppm)
DSW-19	4/6/93	11,500	BDL	BDL	BDL	BDL	BDL	21.7	BDL	BDL
DSW-20	4/6/93	6,170	BDL	BDL	BDL	BDL	BDL	11.7	BDL	BDL
DSW-21	4/6/93	17,100	BDL	BDL	BDL	BDL	BDL	22.2	BDL	BDL
DSW-22	4/6/93	7,300	BDL	BDL	BDL	BDL	BDL	24.4	BDL	BDL
DSW-23	4/6/93	3,120	BDL	BDL	BDL	BDL	BDL	22.3	BDL	BDL

NOTES: mg/kg - milligrams per kilogram
TCLP - toxicity characteristic leaching procedure
BDL - parameter below the detection limit for the utilized analytical method
ppm - parts per million
TPH - total petroleum hydrocarbons
DSW - Dirty Soil Waste Oil Area
EOX - Total Organic Halogens

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

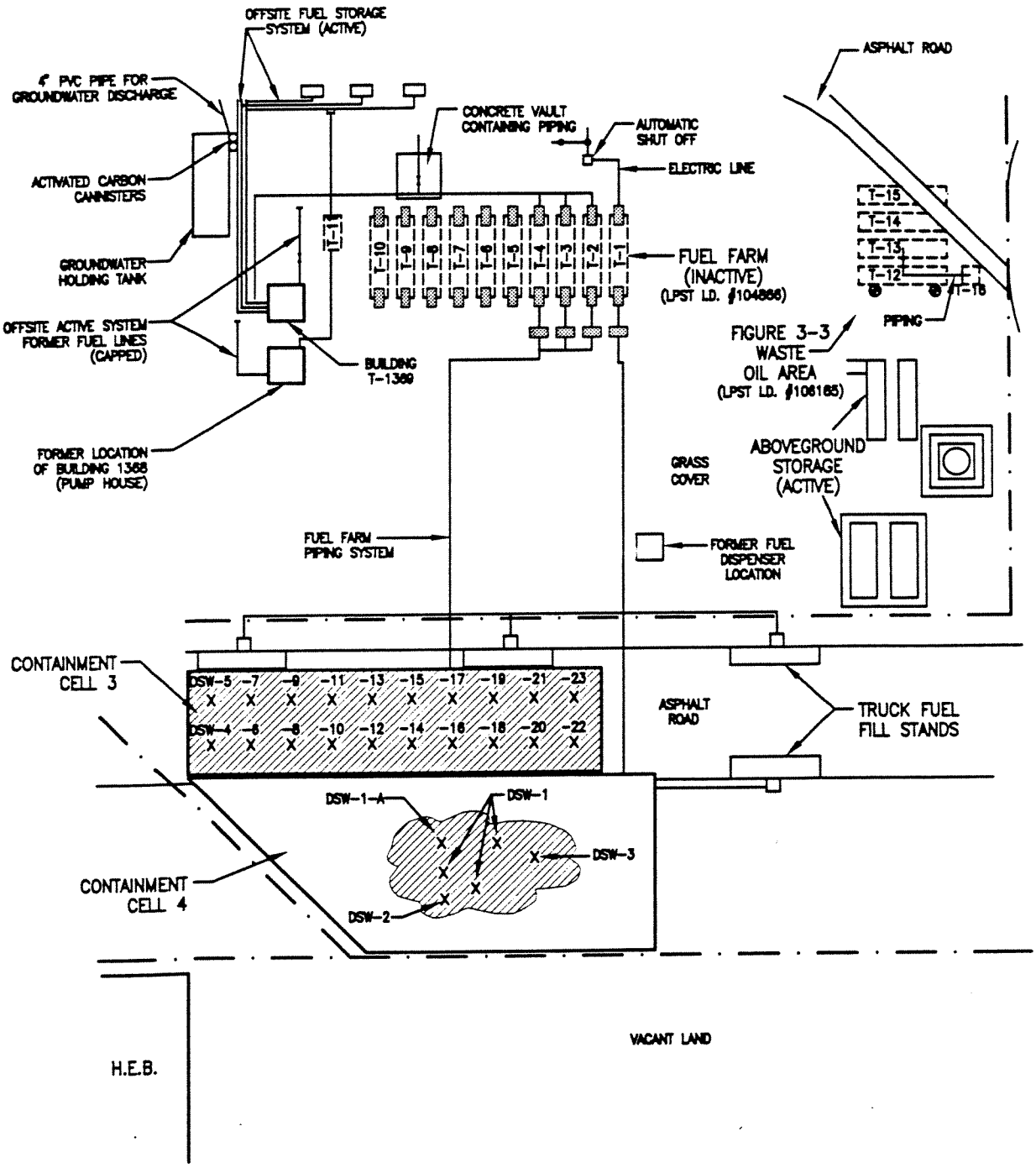


FIGURE 3-4
STOCKPILE SAMPLE LOCATION MAP – WASTE OIL AREA

Laredo International Airport
Laredo, Texas
SWL Reference No. 505893-130(5.0)

SWL ENVIRONMENTAL

DWGS 505893\30009 5-13-93

APPENDIX A

TWC CORRESPONDENCE AND DOCUMENTATION

SWL
ENVIRONMENTAL SERVICES

4150 Friedrich Lane
P.O. Box 17366
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.

P:\PROJECTS\1130 1130 1_64.LTR

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

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) 03
___ 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) Req. # 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.

RECEIVED
JAN 27 1993
DISTRICT 11

7. SCHEDULE/DATES FOR PROPOSED CONSTRUCTION:

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

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

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

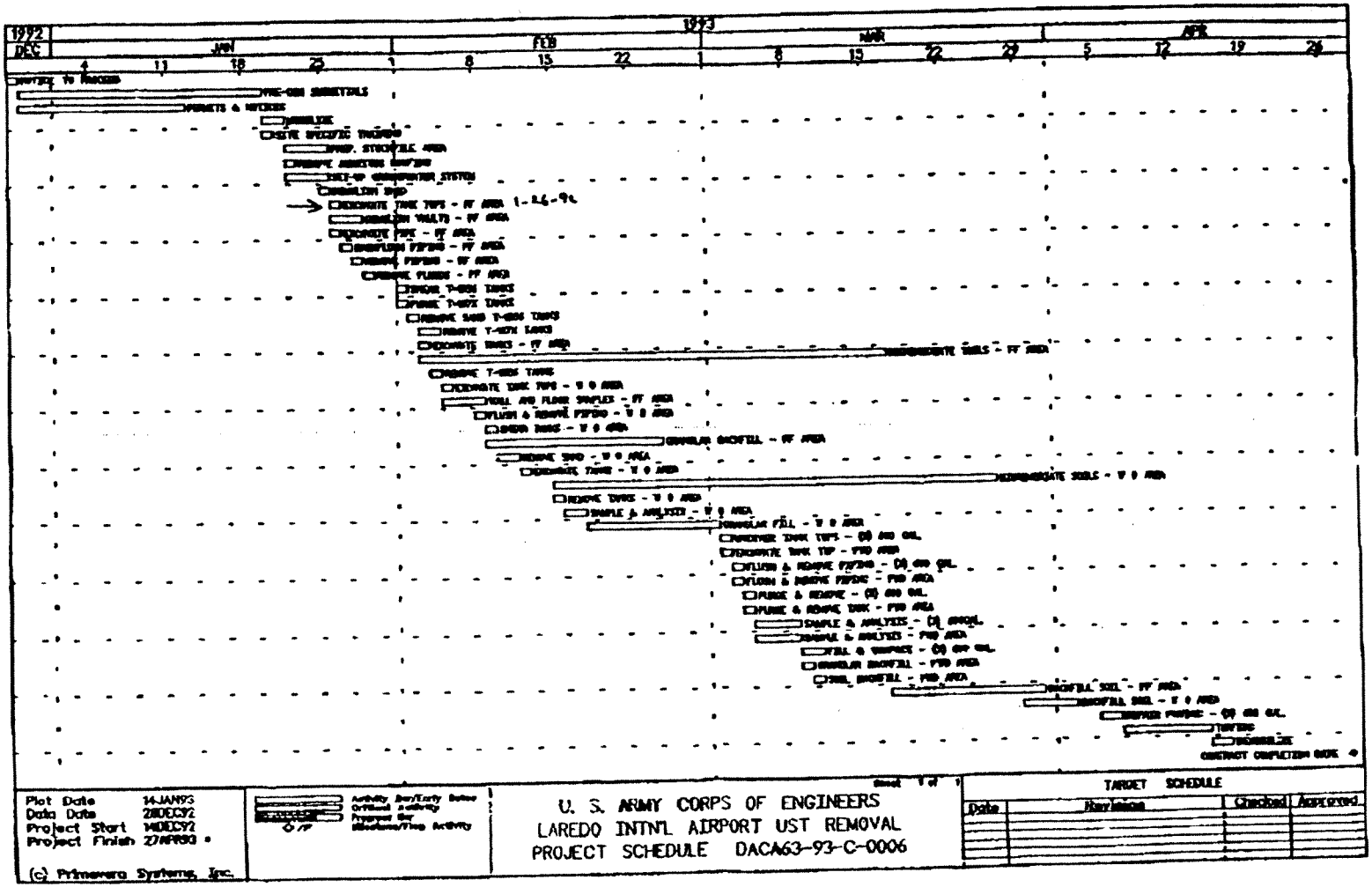
9. MAIL COMPLETED FORM TO:

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: REVISED
9301130 27
Logged by: _____ Date: _____

01703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12
19
26
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
Start
Finish
Checked
Approved

TWC LPST SITE DIRECTIVE DOCUMENTATION

SITE NAME Laredo International Airport (site 2) UST ID NO. 9940

SITE ADDRESS 518 Flightline Bldg 132 LPST ID NO. 106165

TRACKING NO. 930113027

INSPECTION DATE 2-24-93 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 2-23-93 inspection report.

1. 2-10,000 + 1-1,000 gal. USTs have been removed. The other 2-10,000 gal UST were being removed on 2-24-93.
2. 1-1,000 gal waste oil tank was completely full of waste oil. The others had approximately 6' of water in. Alamo Petroleum Exchange removed approximately 20,000 gal of waste oil & water.
3. Water samples were collected from each waste oil tank, pumped through a carbon absorbtion unit then stored in a Frac tank. Water samples were collected from the Frac to determine if it meets surface water discharge requirement (10,659 gals)
4. Waste oil was observed covering the tank hole with apparent groundwater. Alamo Petroleum Exchange will pump out waste oil & water after all tanks are removed.

Note: The U.S. Army Corps of Engineers wishes to expedite this project by removing the tanks and backfill as soon as possible. The steps taken at this site are not directives by TWC but concurrence with work being done by Southwestern Laboratories. Walls will be overexcavated to < 30 mg/kg BTEX and < 100 TPH mg/kg.

5. Overexcavation will be done if possible to < 30 BTEX + 100 TPH; then backfilled with pea gravel to 5 ft below grade. Clean backfill onsite or offsite will be used to bring to grade (compacted 2 ft lifts).

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.

William F Morris

TWC Field Inspector

2-24-93

Date

Larry Collins Quality Control

Received by Owner/Operator/Representative

2-24-93

Date

TWC-0091 (10-10-90)

01705

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, P.E.
Project Manager

LF/mjj
Attachment

1993\USCORP\9313G-1\LT011893.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 <u>but</u> is:
   ( )groundwater, ( ) stormwater or ( ) both groundwater and stormwater.
   (Check a block in each of the three columns below)

<u>Contaminated By</u>	<u>Released From An</u>	<u>And Will Be Disposed of by</u>
( ) 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)

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)

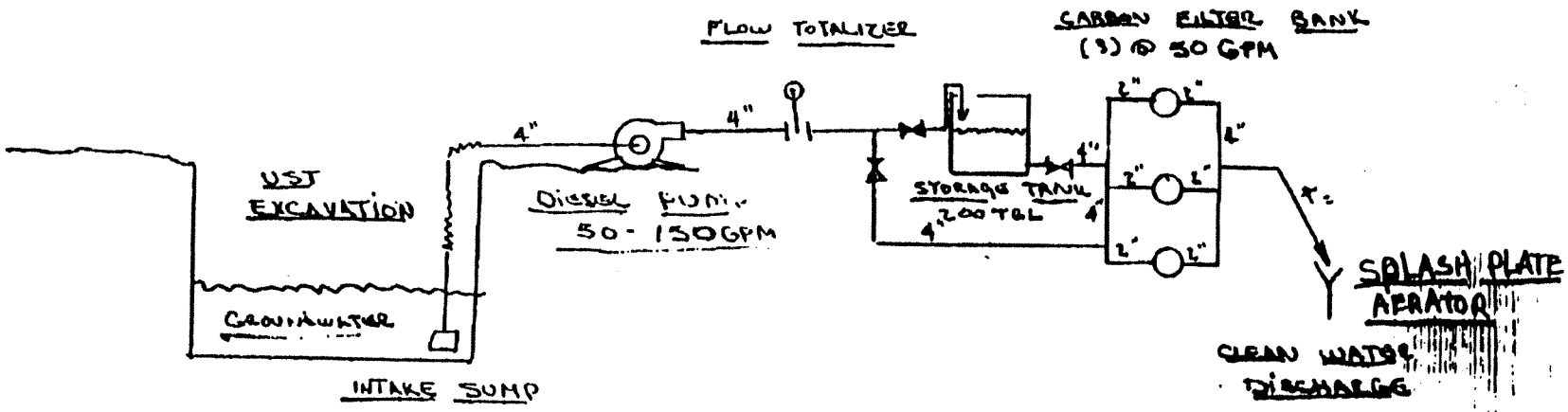
attest that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete and accurate.

Signature: _____ Date: _____

01710

WATER PURIFICATION SYSTEM

SCHEMATIC DRAWING



LABADO INT'NL AIRPORT
UST REMOVAL
28JAN93

DWG # FSK-1

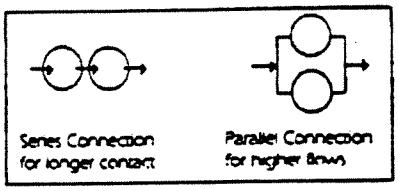
Water Purification System

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.

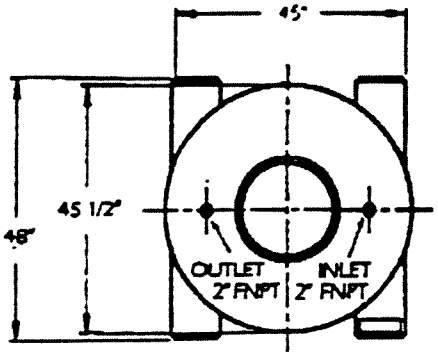


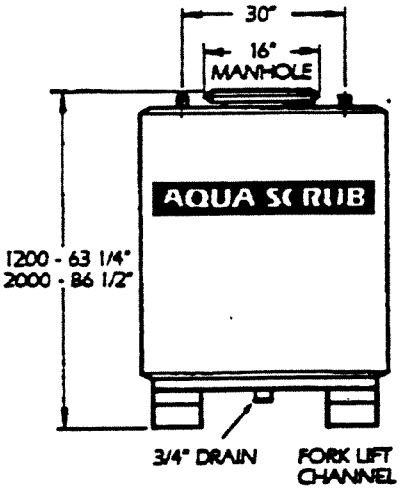
RECOMMENDED CARBON

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

General Application
KG-601 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.

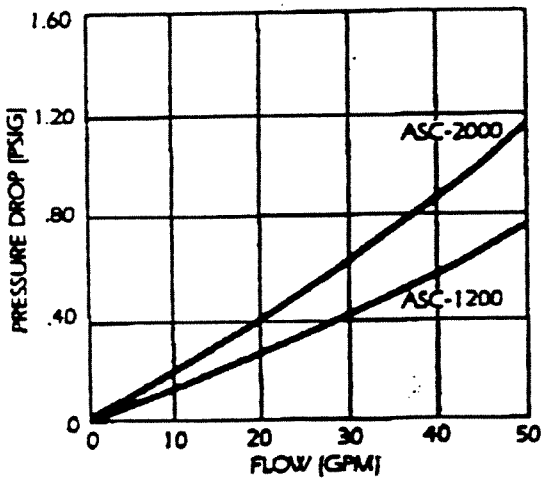
MATERIALS OF CONSTRUCTION

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.

WESTATES CARBON
ACTIVATED CARBON SYSTEMS
WESTATES CARBON, INC.
2130 Leo Ave., Los Angeles, CA 90040
PHONE: (213) 722-7500
FAX: (213) 722-0207

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

Re: Discharge of UST Tankhold Water, Laredo International Airport
Laredo, Texas for the United States Army Corps of Engineers
LPST I.D. No. 106165

Dear Charles,

Please find enclosed an application for registration of discharge for the aforementioned facility. As can be seen on the form, the estimated date of the initial discharge from this LPST site is Friday, February 26, 1993. A splash pad will be utilized at the point of discharge to ensure protection from erosion. A site map indicating the location of the discharge is attached for your reference.

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

Sincerely,

SWL ENVIRONMENTAL SERVICES

Lee W. Forbes, P.E.
Project Manager

cc: Raj Guntnur, City of Laredo, Laredo International Airport
Ann Miller, Texas Water Commission
Bill Morris, Texas Water Commission
David Soltesz, Army Corps of Engineers
Jose Flores, Laredo International Airport

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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): United States Army Corps of Engineers

   Individual to Contact: Mr. David Soltesz

   Mailing Address: 5430 Fredericksburg 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.: 106165 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 ( ) 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).
(x) 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.
(x) Kerosene		
( ) Jet Fuel		

5. (a) Site located within city of Laredo Address 518 Flightline.
   (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 with discharge through activated carbon cannisters

8. a. Estimated date for Discharge: February 26, 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: February 24, 1993
(NOTE-A FACSIMILE WILL NOT BE PROCESSED & AN ORIGINAL SIGNATURE IS REQUIRED)

01714

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

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, 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

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):** United States Army Corps of Engineers

   Individual to Contact: Mr. David Soltesz

   Mailing Address: 5430 Fredericksburg 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.:** 106165 **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 ( ) 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).
(x) 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.
(x) Kerosene		
( ) Jet Fuel		

5. (a) **Site located within city of** Laredo **Address** 518 Flightline.
   (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 with discharge through activated carbon cannisters

8. **a. Estimated date for Discharge:** February 26, 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: _____ **Date:** February 24, 1993
(NOTE-A FACSIMILE WILL NOT BE PROCESSED & AN ORIGINAL SIGNATURE IS REQUIRED)

01717

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 S-106165 Process Date: February 25, 1993

On or about February 25, 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:_____

01713

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. 106165

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-6 provides proof of system efficiency.

As can be seen on the form, the discharge occurred in the month of February. SWL hopes this oversight in the reporting deadline has not inconvenienced you. 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

ESI\1993\USCORP\93130-1\041493LE.MS

ACKNOWLEDGEMENT OF REGISTRATION AND REPORT FORM

xas 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: DRS-106165 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 Commissio 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
	2/26/93				
Sample Identification	EWW-6				
Before/After Treatment	After				
Volume (Gallons)	35,070				
Parameter Limitation					
1. TPH 15 mg/l	0.81				
2. Lead 0.25 mg/l	Not Required				
3. Benzene 50 ppb	<0.0040				
4. Total BTEX** 500 ppb	<0.0040				
5. pH 6.0-9.0 (Standard Unit)	Not Required				
Enter date sample was collected for the Day/Week of Discharge	2/23/93				

Note: Any excursion from discharge limitations requires the submission of a report of noncompliance. The report must address whe 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 an that to the best of my knowledge and belief such information is true, complete and accurate.

nature: Monica Scott Date: 4/14/93

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

01720

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 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

ESI:1993\USCORP\93130_4\030893LE.LF

5 Mar 93

TO: SWL.

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

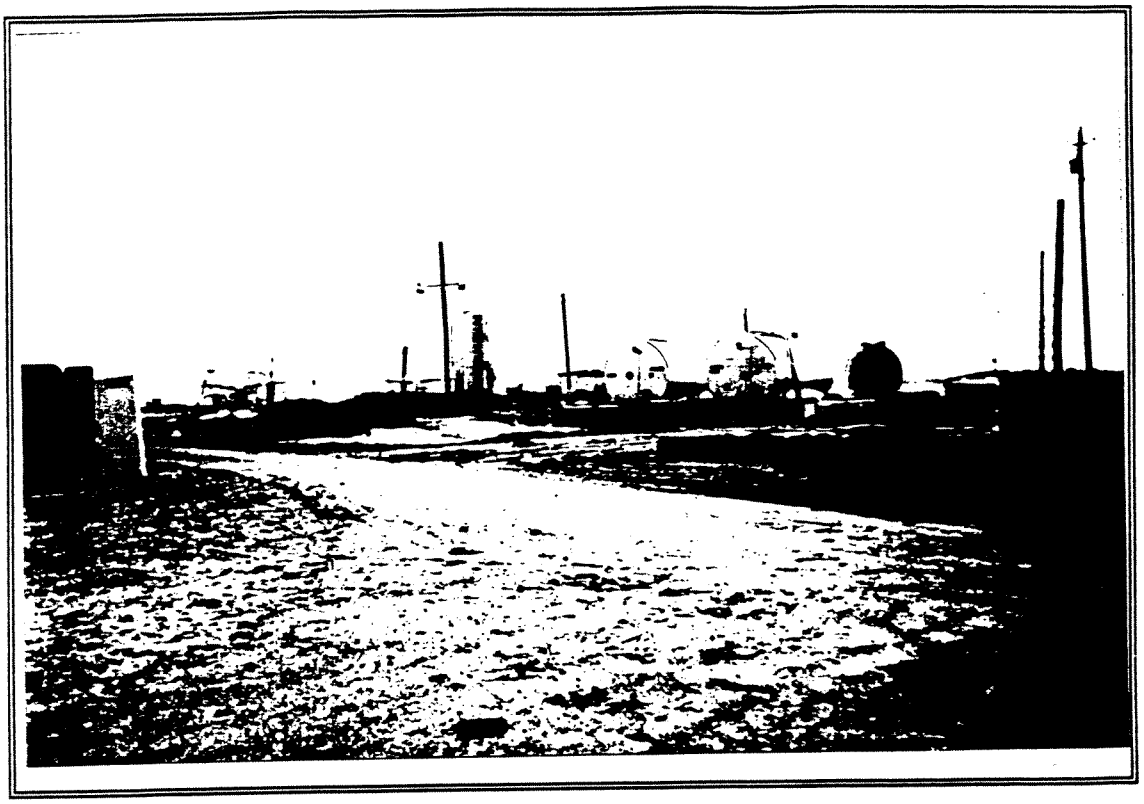
SUBJECT: REIMBURSEMENT

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

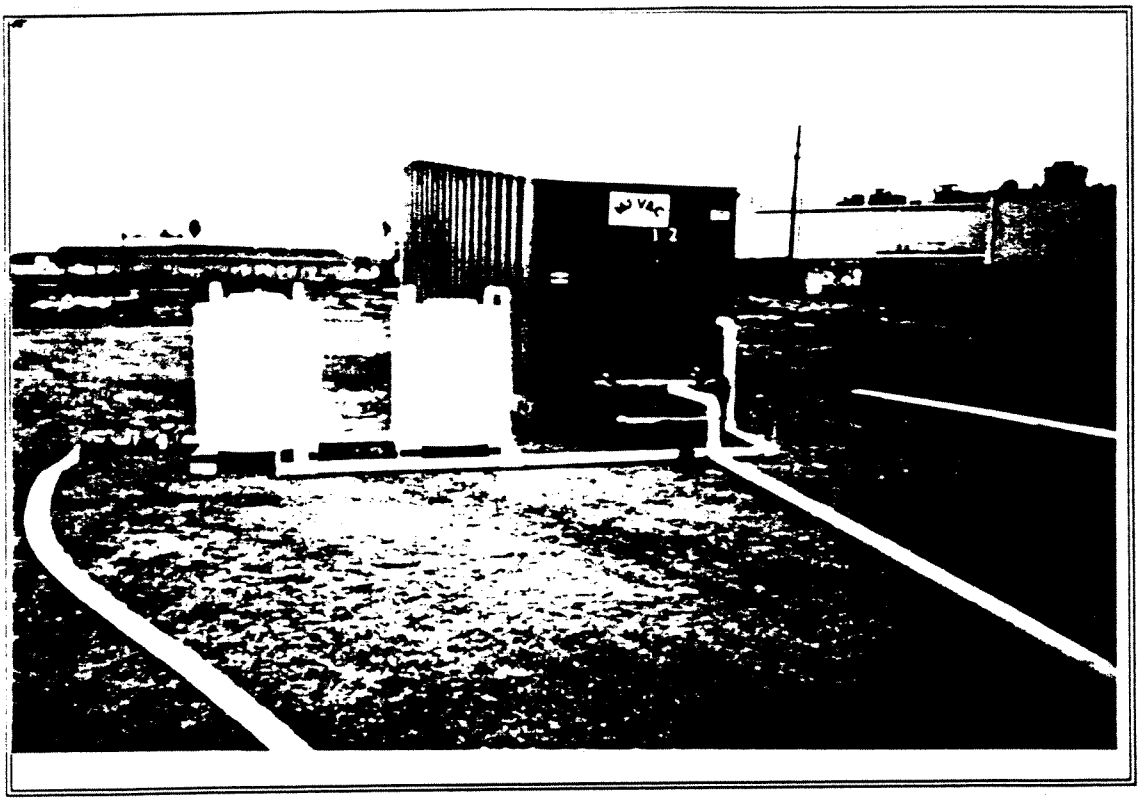
APPENDIX B

SITE PHOTOGRAPHS

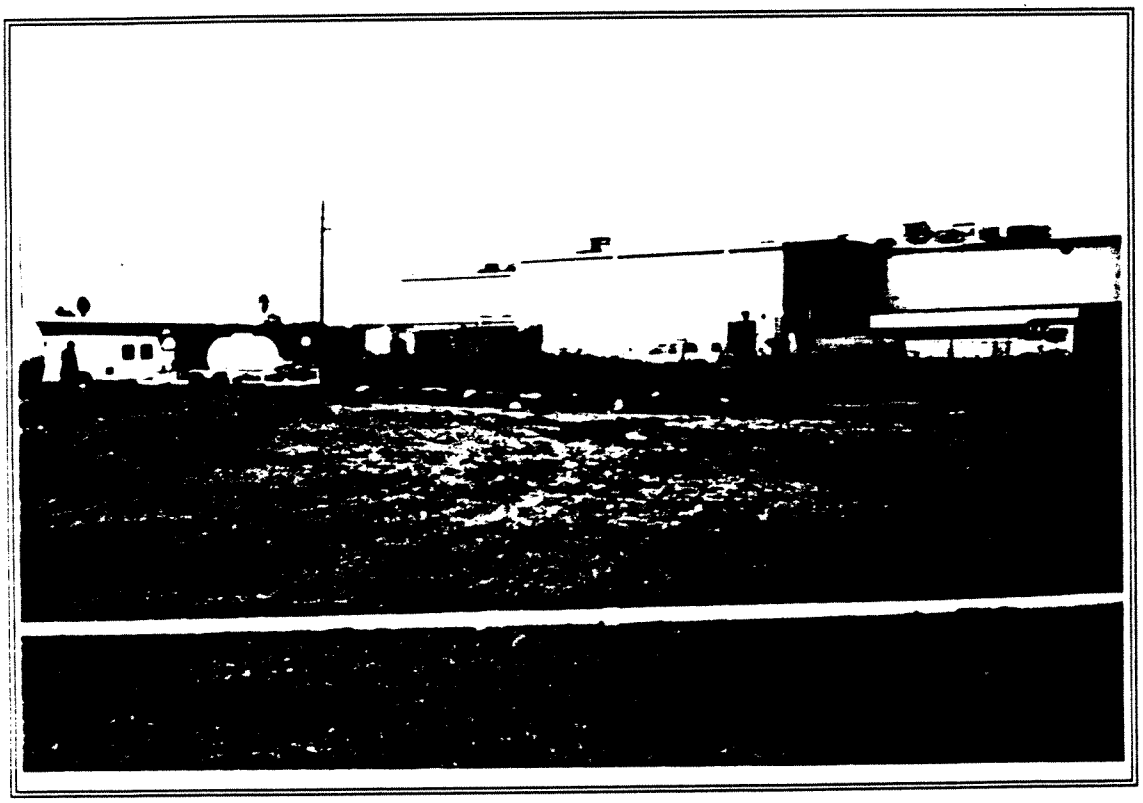


1. Site prior to UST removal activities.

2. Heavy oil in the excavation was removed by Alamo Petroleum, Inc.

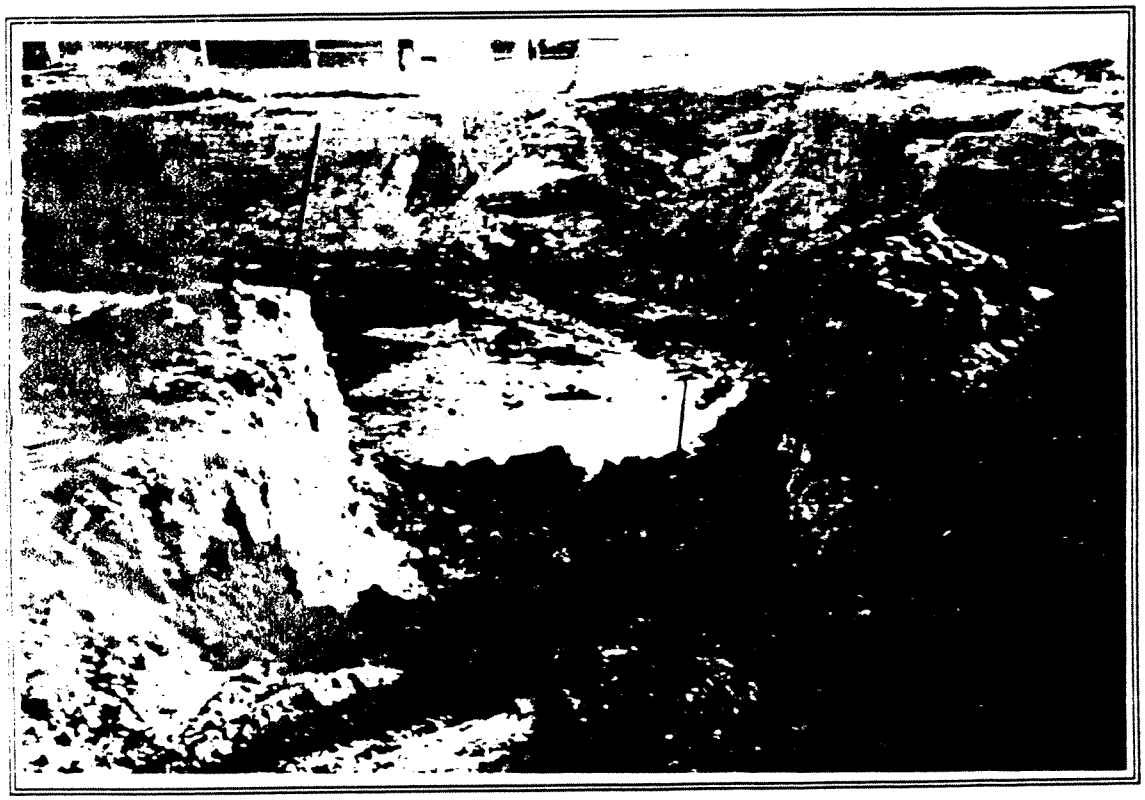


3. Groundwater treatment system . . .

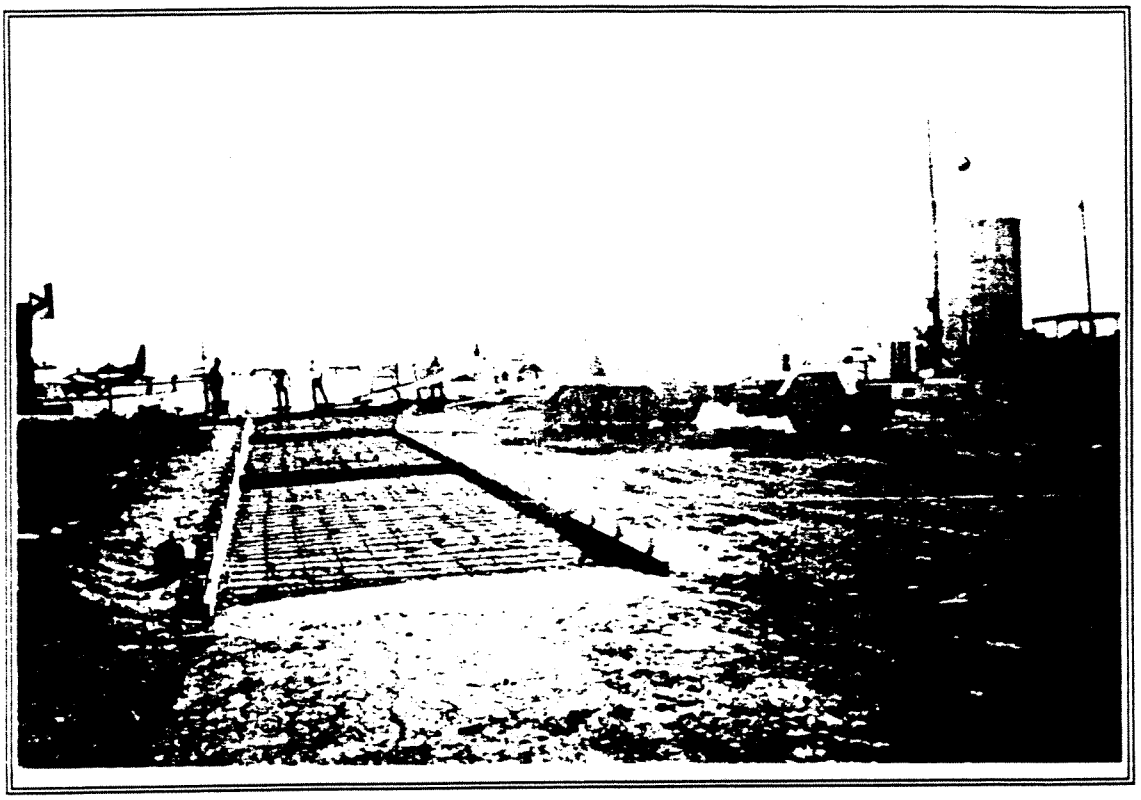


4. EmTech Environmental Services, Inc. applying bacteria and nutrients to soils in the containment cell.

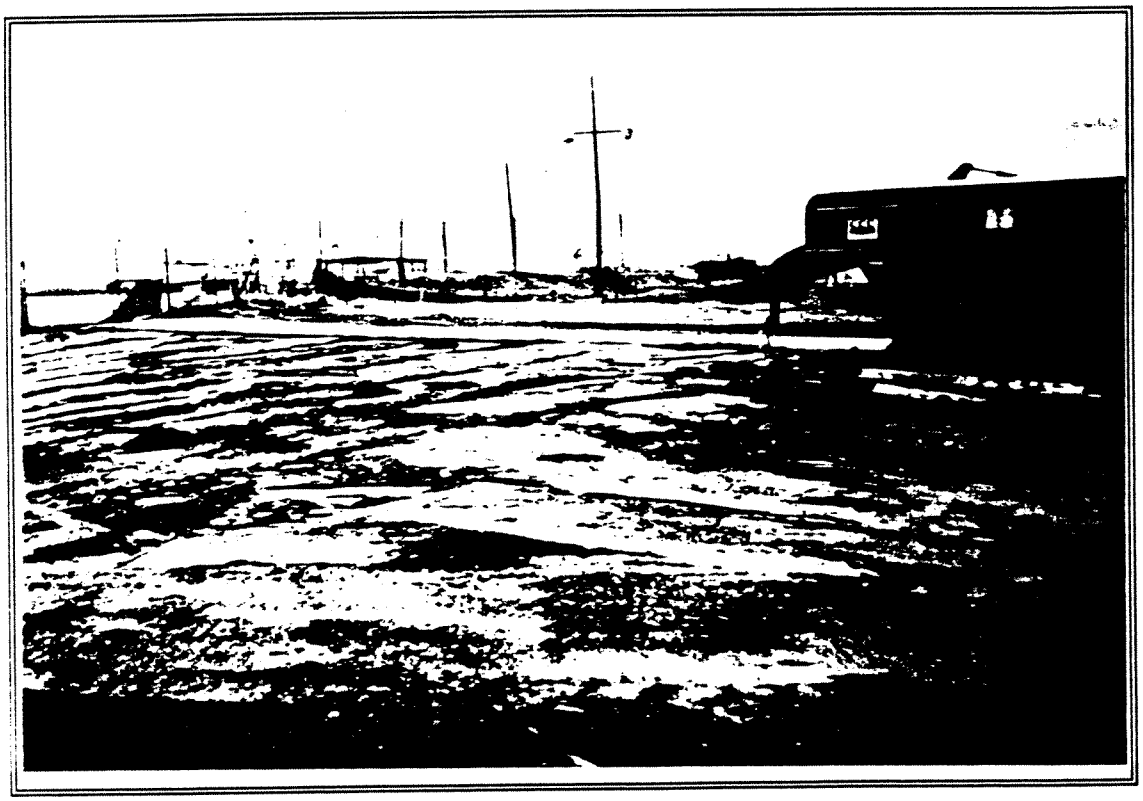
5 UST loaded and strapped for hauling to scrap metal recycling facility.



6. Excavation following the UST and product removal. View is to the northeast.



7 Pouring of concrete for construction of the road destroyed during the removal of the UST systems.



8. Surface area smoothed and graded prior to turfing. View is to the southeast.

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. 93-02-345
Report Date 03/02/93 09:46

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/23/93

Sampled By SWL-AUSTIN

Sample Type SOIL AND LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/24/93

LOCATION: LAREDO AIRPORT

Lab No.	Sample Identification
93-02-345-01	TCWW-1
93-02-345-02	TCWW-2
93-02-345-03	TCWW-3
93-02-345-04	RW-1
93-02-345-05	TCWW-4
93-02-345-06	TCWW-5
93-02-345-07	TCWW-6
93-02-345-08	TCWW-7
93-02-345-09	TCWW-8
93-02-345-10	TCWW-9
93-02-345-11	RBW-1
93-02-345-12	TCWW-10
93-02-345-13	TCWW-11

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A TCWW-1 Collected: 02/23/93 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	02/24/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	02/26/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	18.85	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	73.1	mg/kg	5.0	02/25/93	MR

Sample: 02A TCWW-2 Collected: 02/23/93 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	02/24/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	02/26/93	JH
LEAD	EPA 7420	10.3	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	21.10	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	487	mg/kg	5.0	02/25/93	MR

Sample: 03A TCWW-3 Collected: 02/23/93 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	02/24/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	18.38	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	217	mg/kg	5.0	02/25/93	MR

Sample: 04A RW-1 Collected: 02/23/93 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	02/24/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	19.61	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	<5.0	mg/kg	5.0	02/25/93	MR

Sample: 05A TCWW-4 Collected: 02/23/93 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	02/24/93	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	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	19.81	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	1630	mg/kg	5.0	02/25/93	MR

Sample: 06A TCWW-5 Collected: 02/23/93 11:00

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - SOIL SAMPLE	SW846 8020					
Benzene	SW846 8020	<0.40	mg/kg	0.40	02/24/93	JFG
Toluene	SW846 8020	<0.40	mg/kg	0.40		
Ethylbenzene	SW846 8020	2.46	mg/kg	0.40		
Xylenes	SW846 8020	7.43	mg/kg	0.40		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	19.43	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	2790	mg/kg	5.0	02/25/93	MR

Sample: 07A TCWW-6 Collected: 02/23/93 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	02/25/93	JFG
Toluene	SW846 8020	<0.40	mg/kg	0.40		
Ethylbenzene	SW846 8020	6.05	mg/kg	0.40		
Xylenes	SW846 8020	9.82	mg/kg	0.40		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	15.02	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	6970	mg/kg	5.0	02/25/93	MR

Sample: 08A TCWW-7 Collected: 02/23/93 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	02/25/93	JFG
Toluene	SW846 8020	<0.40	mg/kg	0.40		
Ethylbenzene	SW846 8020	2.52	mg/kg	0.40		
Xylenes	SW846 8020	4.67	mg/kg	0.40		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	87.2	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	14.83	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	5670	mg/kg	5.0	02/25/93	MR

Sample: 09A TCWW-8 Collected: 02/23/93 13:00

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - SOIL SAMPLE	SW846 8020					
Benzene	SW846 8020	<0.40	mg/kg	0.40	02/25/93	JFG
Toluene	SW846 8020	<0.40	mg/kg	0.40		
Ethylbenzene	SW846 8020	2.93	mg/kg	0.40		
Xylenes	SW846 8020	8.28	mg/kg	0.40		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	12.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	18.52	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	7280	mg/kg	5.0	02/25/93	MR

Sample: 10A TCWW-9 Collected: 02/23/93 13:30

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - SOIL SAMPLE	SW846 8020					
Benzene	SW846 8020	<0.40	mg/kg	0.40	02/25/93	JFG
Toluene	SW846 8020	<0.40	mg/kg	0.40		
Ethylbenzene	SW846 8020	2.83	mg/kg	0.40		
Xylenes	SW846 8020	5.59	mg/kg	0.40		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	23.25	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	4010	mg/kg	5.0	02/25/93	MR

Sample: 11A RBW-1 Collected: 02/23/93 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	02/25/93	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		
LEAD	EPA 239.1	<0.10	mg/l	0.10	02/26/93	JA
TOT. PET. HYDROCARBONS H2O	EPA 418.1	<0.50	mg/l	0.50	02/25/93	HC
TOTAL ORGANIC HALOGEN	SW-846 9020	0.16	mg/l	0.01	02/25/93	JH

Sample: 12A TCWW-10 Collected: 02/23/93 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	02/25/93	JFG
Toluene	SW846 8020	3.68	mg/kg	0.40		
Ethylbenzene	SW846 8020	5.77	mg/kg	0.40		
Xylenes	SW846 8020	3.38	mg/kg	0.40		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	21.13	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	12,100	mg/kg	5.0	02/25/93	MR

TEST RESULTS BY SAMPLE

Sample: 13A TCWW-11 Collected: 02/23/93 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	02/25/93	JFG
Toluene	SW846 8020	3.03	mg/kg	0.40		
Ethylbenzene	SW846 8020	4.72	mg/kg	0.40		
Xylenes	SW846 8020	3.08	mg/kg	0.40		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/01/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	23.13	% MOISTU	0.10	02/24/93	JFG
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	8660	mg/kg	5.0	02/25/93	MR

QA/QC REPORT

Client: SWI Austin

Report No.: 93-02-345

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

SOUTHWESTERN LABORATORIES

ient: SOL Austin

File No.:

Report No.: 93-02-345

Report Date: 2/24/93

BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

SwL Lab No.	Sample I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylenes
93-02-345	Blank (2016)	<4	<4	<4	<4

ate Analyzed 2/24/93 BTEX Method 5030/8020

nalyzed 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.

01736

CHANNEL NO	1	FILE	9
SAMPLE NO	0	METHOD	8403
REPORT NO	270	SAMPLE WT	100
IS WT	1	STANDARD	1

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	7.65	448				
2	8.282	8532	V	2		BENZENE
3	9.453	8255	V P	1		INT STD
4	11.734	8311	S	3		TOLUENE
5	12.722	196	T			
6	15.217	6094		4		ETHYL BEN
7	15.534	7713	V	5		P-XYLENE
8	15.798	11355	V	6		M-XYLENE
9	17.611	7760		7		O-XYLENE
10	19.006	187				
	TOTAL	58764				

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	8.3	0.15	58.8496	200
3	TOLUENE	11.7	0.1	54.2569	200
4	ETHYL BEN	15.2	0.1	73.9956	200
5	P-XYLENE	15.5	0.1	58.4673	200
6	M-XYLENE	15.8	0.15	99.711	200
7	O-XYLENE	17.6	0.15	58.1046	200

DAILY STEM CALIBRATION 8/24/93 ALS 2016

COMPOUND	AVE RF	RF	%D
BENZENE	58.16	52.35	-5.4
TOLUENE	52.36	54.26	-3.7
ETHYL BENZ	71.76	74	-2.2
P-XYLENE	54.81	58.48	-6.7
M-XYLENE	38.21	39.71	-4
O-XYLENE	55.78	58.11	-4.2

SOUTHWESTERN LABORATORIES

ent: SWL Auction

File No.:

Report No.:

Report Date:

BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

SwL Lab No.	Sample I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylenes
93-02-345	Blank (2016)	< 4	< 4	< 4	< 4

te Analyzed: 2/24/93 BTEX Method 5030/8020

alyzed 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.

01738

MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-345-2
Sample I.D.: TCLW-2
Date: 2/24/93
Sample Matrix: Soil
Analyst: JFG
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	245.47	122.7	
Toluene	200 ug/l		244.31	122.2	
Ethyl Benzene	200 ug/l		252.75	126.4	
p-Xylene	200 ug/l		249.58	124.8	
m-Xylene	200 ug/l		253.43	126.7	
o-Xylene	200 ug/l		261.65	130.8	

MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-345-2
Sample I.D.: TCWW-2
Date: 2/24/93
Sample Matrix: So. 1
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	238.23	119.1	
Toluene	200 ug/l		243.13	121.6	
Ethyl Benzene	200 ug/l		237.86	118.9	
p-Xylene	200 ug/l		233.50	116.8	
m-Xylene	200 ug/l		234.56	117.3	
o-Xylene	200 ug/l		236.54	118.3	

01740

QA/QC REPORT

Client: SWL Austin

Report No.: 93-2-345

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: 239.1

DATE OF TEST: 2/26/93 PARAMETER : PB MATRIX: HNO3 ANALYST: JA MDL:10.0

CALIBRATION STANDARDS/BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTRATION	MEASURED CONCENTRATION	% RECOVERY
0.25	0.012	ICV	1.00	0.998	99.8
0.50	0.021	CCV	1.00	0.999	99.9
1.00	0.045				
1.00	0.189				
R.(R) =	0.99981				

SAMPLE ID NUMBERS IN THIS RUN: 93-2-279-1
93-2-318-1

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	PB % RECOVERY
93-2-279-1	<10.0	<10.0	0	1.00	0.997	99.7
93-2-343-1	10.0	<10.0	0	1.00	1.1185	101.8
93-2-345-10	<10.0	<10.0	0	1.00	1.021	102.1

01742

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 418.1

DATE OF TEST: 2/23/93 PARAMETER : TPH MATRIX: SOIL ANALYST: MR MDL: 5.0

CALIBRATION STANDARDS/BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTRATION	MEASURED CONCENTRATION	% RECOVERY
10.46	0.04	ICV	104.6	57.1	53.3
51.3	0.174	ICV	104.6	110.00	105.2
104.6	0.33				
209.2	0.63				

[illegible] = .999939

SAMPLE ID NUMBERS IN THIS RUN: 93-2-345-2A
93-2-250-07A

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	PM % RECOVERY
93-2-345-2A	116.00	114.000	-1.5714	403.91	494.00	120.8
93-2-250-07A	<5.0	<5.0	0	418.4	441.00	105.6
93-2-346-01	5540.00	5520.00	0	41739	41960	100.4

889078

Page 1 of 2

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. 92130

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	TCWW-1	2-23-93 0830	X		4 oz Glass 8 oz Glass	Soil	4°C	BTEX, TPH, TOX, Total Pb	
2	TCWW-2	2-23-93 0900	X		"	"	"	" " " "	
3	TCWW-3	2-23-93 0930	X		"	"	"	" " " "	
4	RW-1	2-23-93 0930	X	X	"	"	"	" " " "	
5	TCWW-4	2-23-93 10:30	X		"	"	"	" " " "	
6	TCWW-5	2-23-93 11:00	X		"	"	"	" " " "	
7	TCWW-6	2-23-93 11:30	X		"	"	"	" " " "	
8	TCWW-7	2-23-93 12:30	X		"	"	"	" " " "	
9	TCWW-8	2-23-93 13:00	X		"	"	"	" " " "	
10	TCWW-9	2-23-93 13:30	X		"	"	"	" " " "	

Samplers: (Print) Larry Collins

Affiliation: SWL

Results by 48

Rush Charges Authorized: Yes ✓ No

Relinquished by: (Signature) Larry Collins — Date: 2-23-93 Time: 16:45

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

REMARKS: 48 Hr ANALYSIS ON All Samples

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) — Date: 2-24-93 Time: 10:45

Data Results To: 1. Lee Forbes Austin

2.

COC Seal No.

REC'D. ON ICE: Yes ✓ No

Intact: Yes

Laboratory No. 93-02-345

01744

889078

Page 2 of 2

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. 92130

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
11	RBW-1	2-23-93 15:45		X	(2) 40 ml VOA	Liquid	4°C	BTEX	
	"	"		X	(2) 1 L Amber	"	"	TPH, TOX	
	"	"		X	(2) 500 ml Plastic	"	"	Total Lead	
12	TCWW-10	2-23-93 14:30	X		4 oz Glass 8 " " 16 " "	Soil	"	BTEX, TPH, TOX, Total Pb	
13	TCWW-11	2-23-93 1500	X		"	"	"	" " " "	

Samplers: (Print) Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 2-23-93 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: 2-24-93 Time: 10:45

COC Seal No.

REC'D. ON ICE Yes X No ___

Intact: Yes

Results by 48 Hrs

Rush Charges Authorized Yes ✓ No ___

REMARKS: 48 Hour Turnaround on all samples

Data Results To: 1. Lee Forbes Austin 2.

Laboratory No. 93-02-345

01745

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. 93-03-162
Report Date 03/18/93 13:41

Project DACA6393C006 CORPS OF ENG

Date Sampled 02/23/93

Sampled By SWL-HOUSTON

Sample Type SOIL SAMPLE

Transported by SWL-HOUSTON

P.O. # JOB#505892-130

Date Received 03/10/93

LOCATION - LAREDO AIRPORT

Lab No.	Sample Identification
93-03-162-01	TCWW-7

SOUTHWESTERN LABORATORIES

Reviewed By

HECTOR CORONADO

TEST RESULTS BY SAMPLE

Sample: 01A TCWW-7 Collected: 02/23/93 12:30
Job: TOT_MS TOTAL METALS

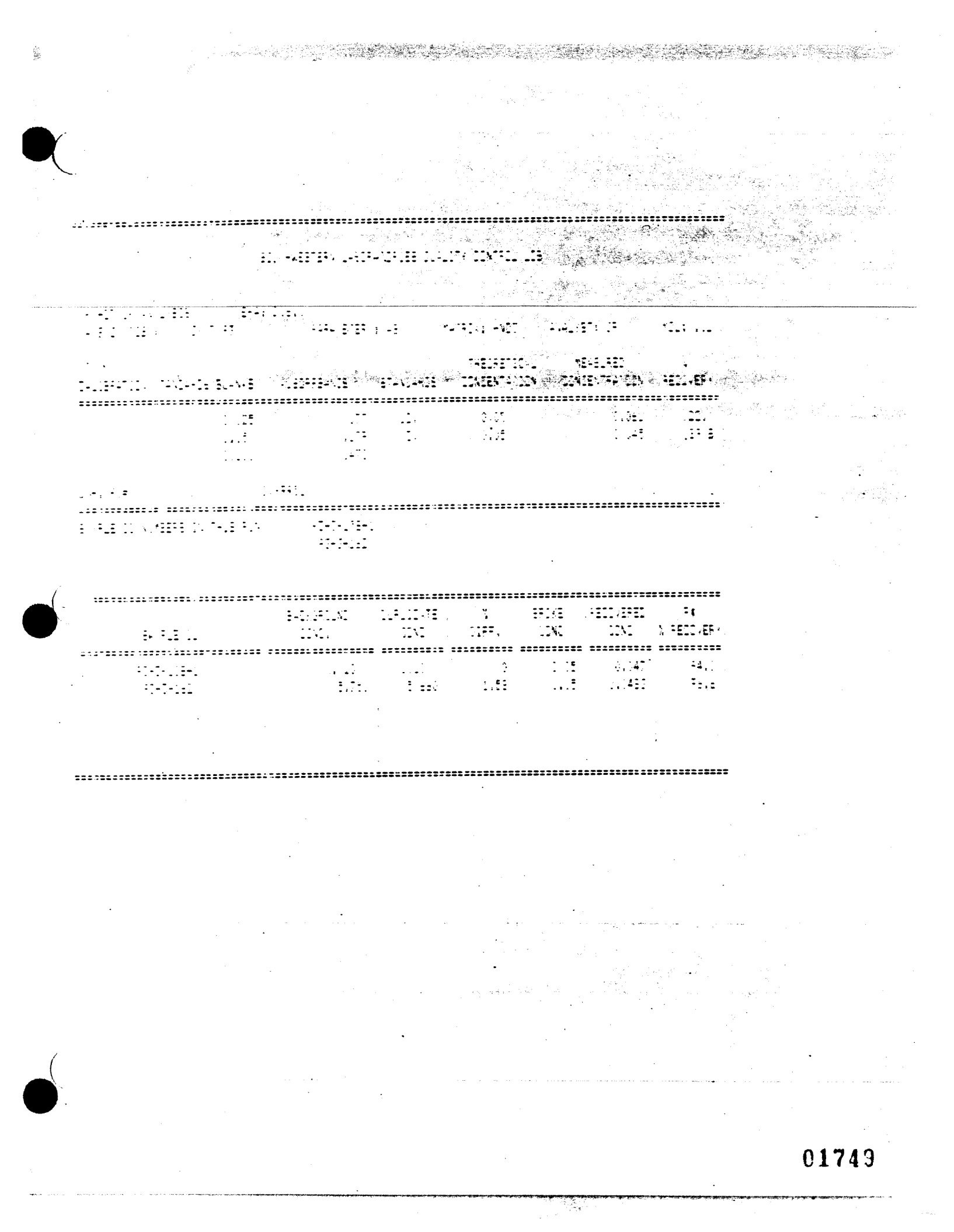
Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
ARSENIC	EPA 7060	5.75	mg/kg	1.00	03/17/93	JP
BARIUM	EPA 6010	230	mg/kg	22.0	03/12/93	JP
CADMIUM	EPA 6010	1.00	mg/kg	1.00	03/12/93	JP
CHROMIUM	EPA 6010	7.81	mg/kg	5.00	03/12/93	JP
LEAD	EPA 7420	28.1	mg/kg	10.0	03/13/93	JA
MERCURY	SW_846_7471	<0.40	mg/kg	0.40	03/18/93	JA
SELENIUM	EPA 7740	<1.00	mg/kg	1.00	03/12/93	JP
SILVER	EPA 272.1	<5.00	mg/kg	5.00	03/13/93	JA

QA/QC REPORT

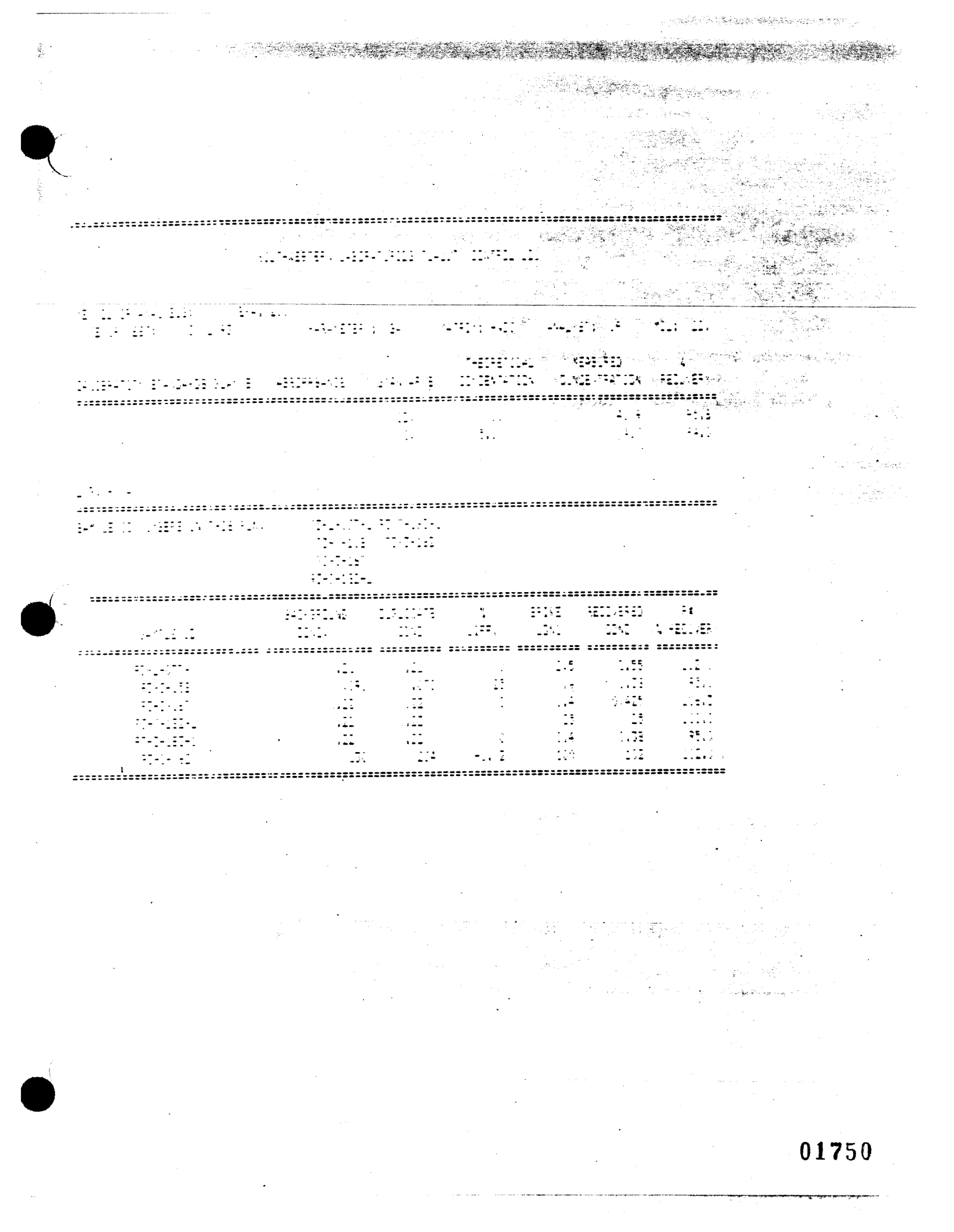
Client: SWL - Austin

Report No.: 93-3-162

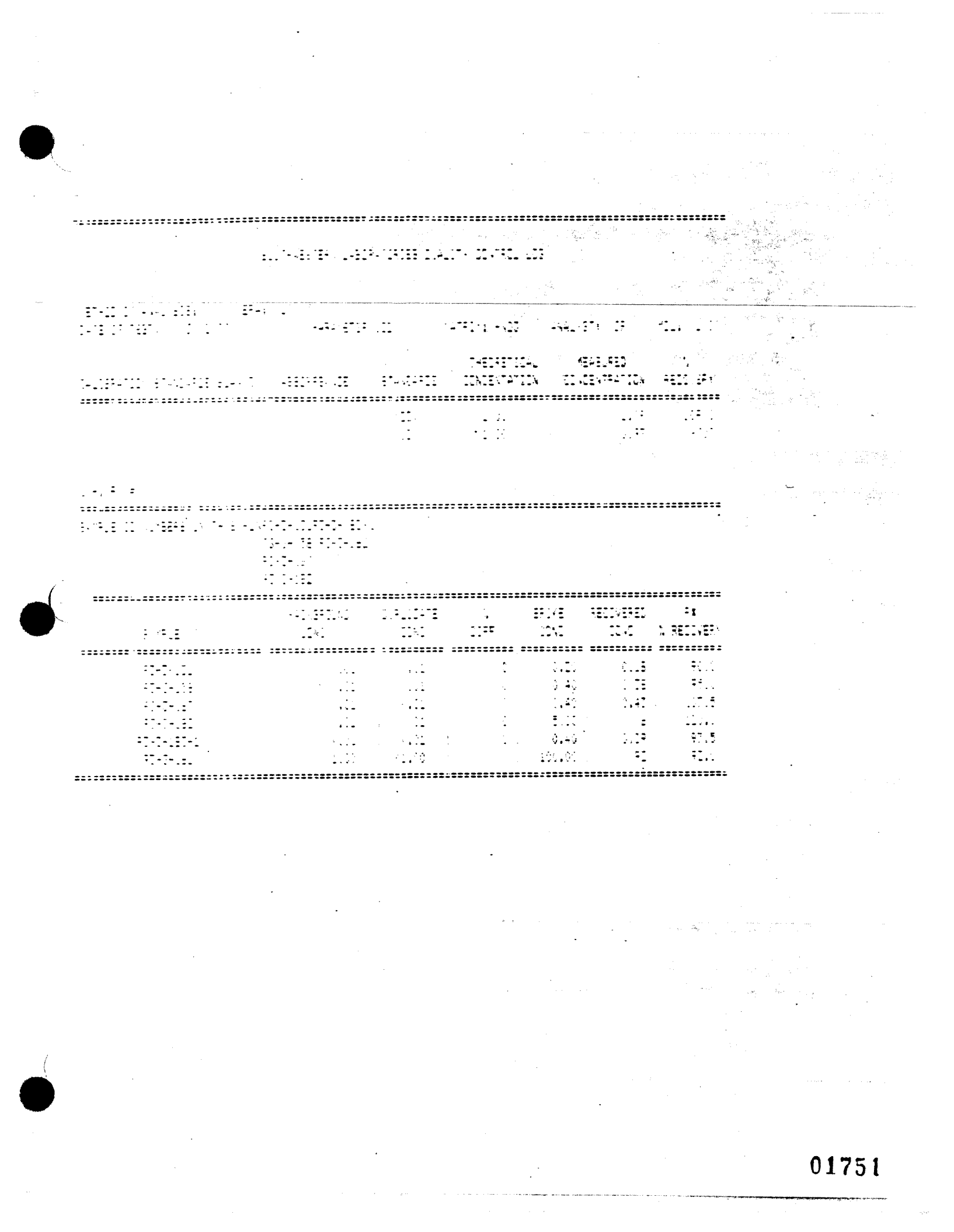
The following pages contain the results of the batch specific QC data associated with the above referenced report no.



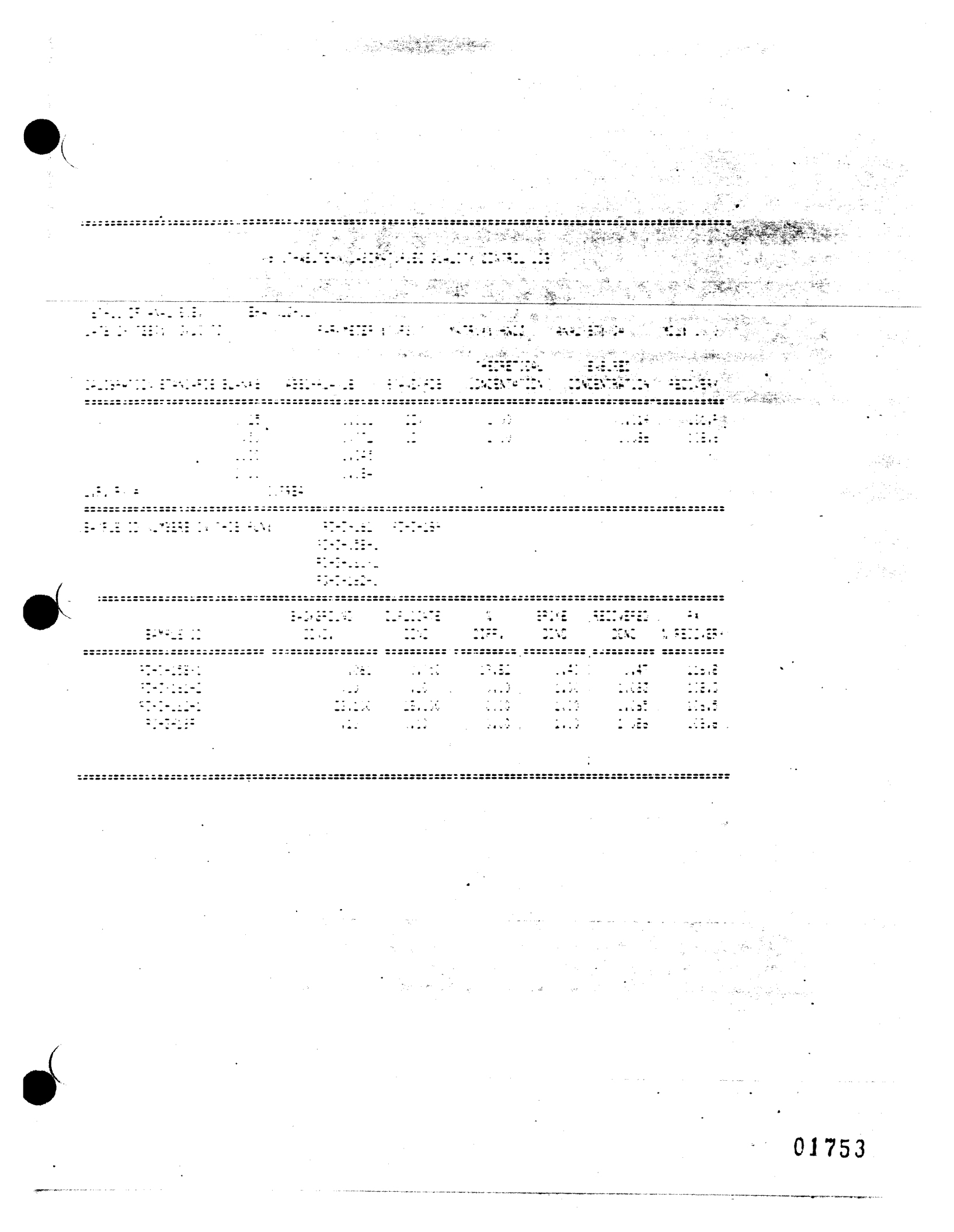
01743



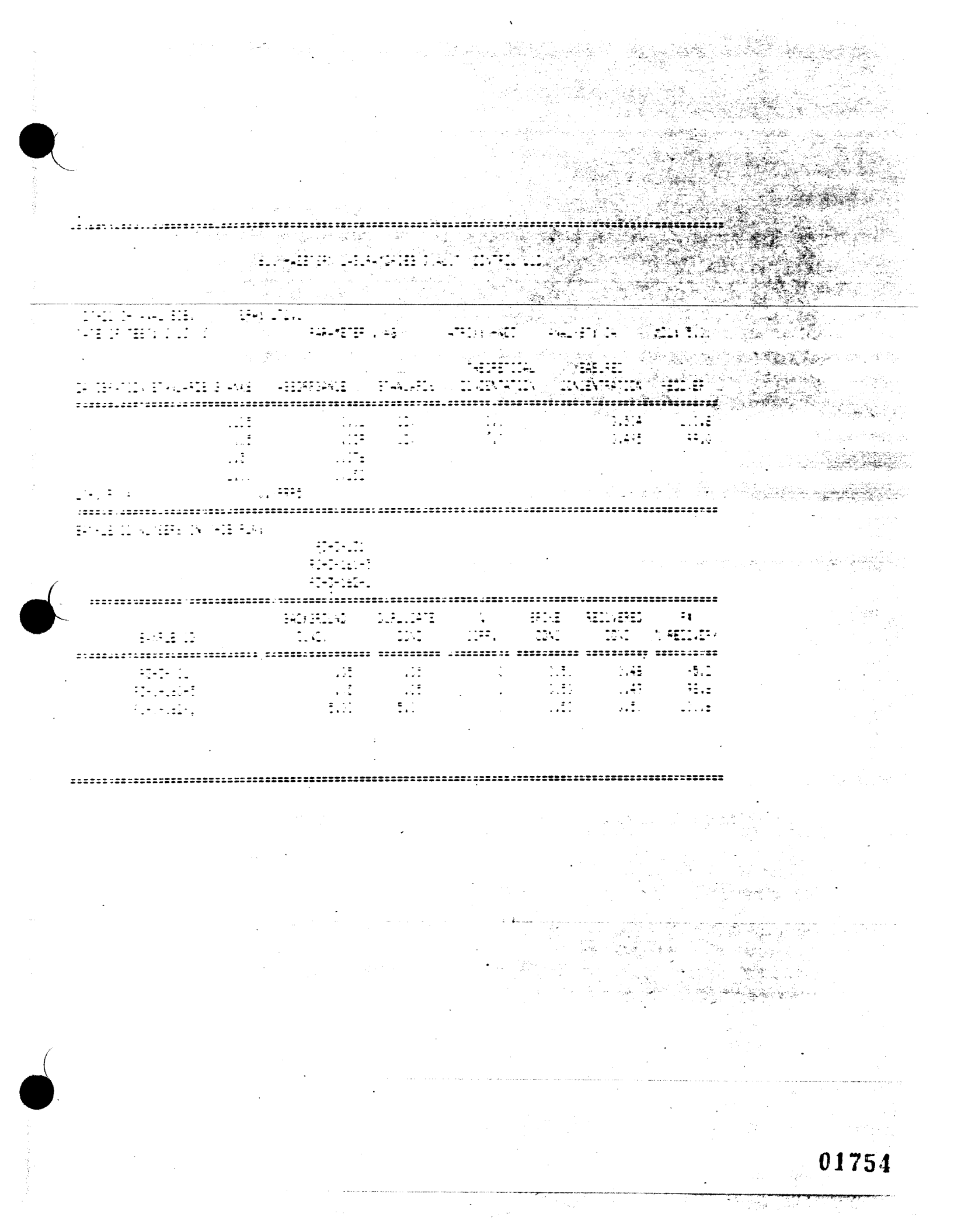
01750



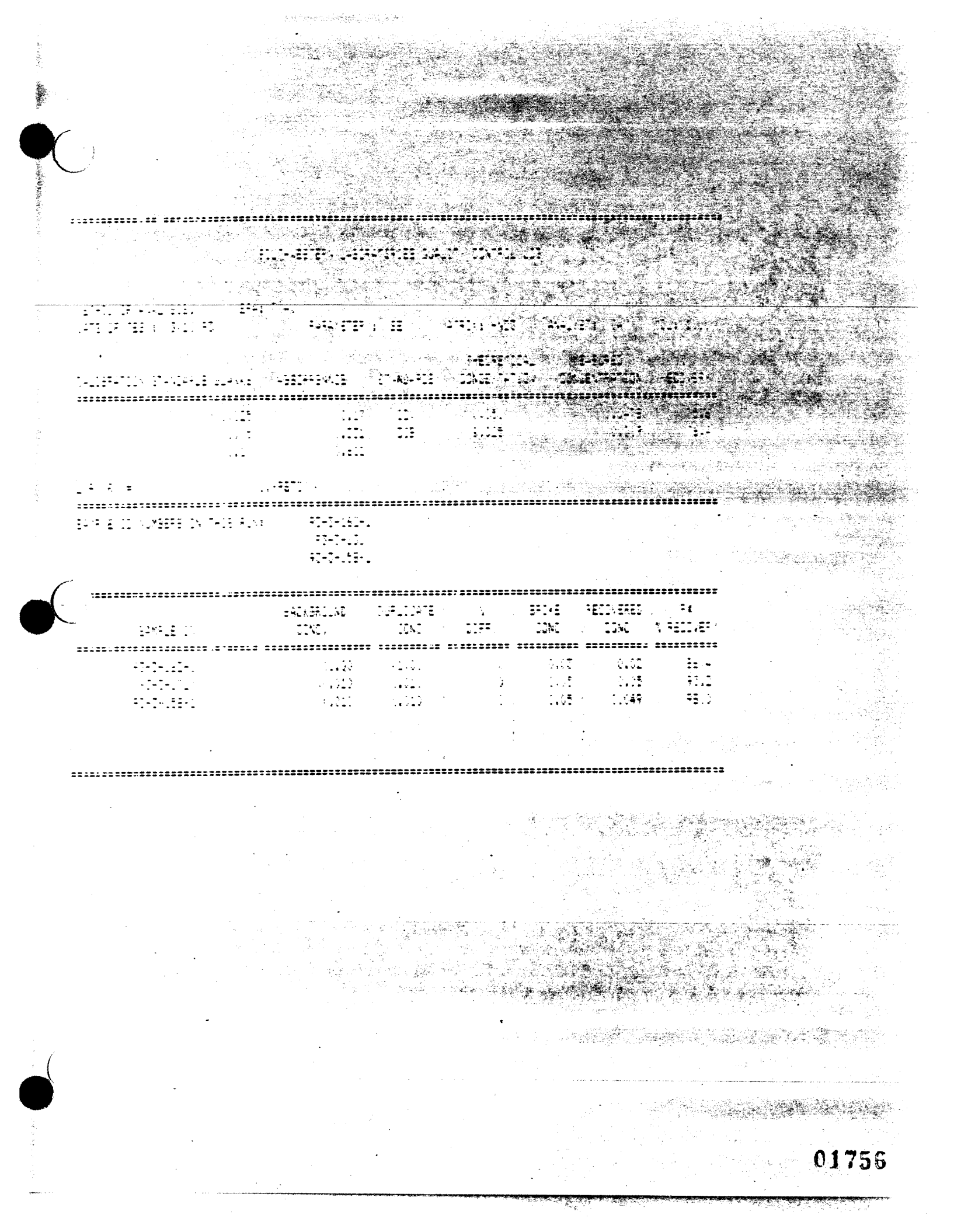
01751



01753



01754



01756

Larry Collins

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.: DACA63-93-C-0006

Client/Project: Corps of Eng. – 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
	TCWW-7	2-23-93 12:30			8oz	Soil		Total RCRA Metals	

Samplers: (Print): L. Collins

Affiliation: SWL – Houston

Results by: 10 days

Rush Charges Authorized: Yes ____ No X

30% Discount

Relinquished by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

REMARKS: JOB# 505892-130

Ref # 93-02-345-08A

Received by: (Signature) Date: Time:

Received by: (Signature) Date: Time:

Received by Laboratory: (Signature) B. Salazar Date: 3-10-93 Time: 9:30

Data Results To:

1. Lee Forbes

2.

COC Seal No.

REC'D. ON ICE: Yes ____ No ____

Intact: Yes

Laboratory No.: 93-03-162

017557

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. 93-02-253
Report Date 02/23/93 14:27

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/17/93

Sampled By SWL-AUSTIN

Sample Type LIQUID SAMPLES

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/18/93

LOCATION: LAREDO AIRPORT

Lab No.	Sample Identification
93-02-253-01	EWW-1
93-02-253-02	EWW-2
93-02-253-03	EWW-3
93-02-253-04	EWW-4
93-02-253-05	EWW-5
93-02-253-06	TBW-1

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A EWW-1 Collected: 02/17/93 13:00

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - WATER SAMPLE	SW846_8020					
Benzene	SW846_8020	0.300	mg/l	0.020	02/18/93	JFG
Toluene	SW846_8020	1.954	mg/l	0.020		
Ethylbenzene	SW846_8020	0.043	mg/l	0.020		
Xylenes	SW846_8020	0.037	mg/l	0.020		
LEAD	EPA 239.1	<0.10	mg/l	0.10	02/19/93	GLM
TOT. PET. HYDROCARBONS H20	EPA 418.1	1400	mg/l	0.50	02/22/93	HC
TOTAL DISSOLVED SOLIDS	EPA 160.1	3220	mg/l	1	02/19/93	JH
TOTAL ORGANIC HALOGEN	SW-846 9020	0.05	mg/l	0.01	02/19/93	JH

Sample: 02A EWW-2 Collected: 02/17/93 13:30

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - WATER SAMPLE	SW846_8020					
Benzene	SW846_8020	0.920	mg/l	0.020	02/19/93	JFG
Toluene	SW846_8020	1.297	mg/l	0.020		
Ethylbenzene	SW846_8020	0.257	mg/l	0.020		
Xylenes	SW846_8020	0.548	mg/l	0.020		
LEAD	EPA 239.1	<0.10	mg/l	0.10	02/19/93	GLM
TOT. PET. HYDROCARBONS H20	EPA 418.1	860	mg/l	0.50	02/22/93	HC
TOTAL DISSOLVED SOLIDS	EPA 160.1	3350	mg/l	1	02/19/93	JH
TOTAL ORGANIC HALOGEN	SW-846 9020	0.03	mg/l	0.01	02/19/93	JH

Sample: 03A EWW-3 Collected: 02/17/93 14:00

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - WATER SAMPLE	SW846_8020					
Benzene	SW846_8020	0.0041	mg/l	0.0040	02/19/93	JFG
Toluene	SW846_8020	<0.0040	mg/l	0.0040		
Ethylbenzene	SW846_8020	0.0286	mg/l	0.0040		
Xylenes	SW846_8020	0.0120	mg/l	0.0040		
LEAD	EPA 239.1	<0.10	mg/l	0.10	02/19/93	GLM
TOT. PET. HYDROCARBONS H20	EPA 418.1	3.0	mg/l	0.50	02/22/93	HC
TOTAL DISSOLVED SOLIDS	EPA 160.1	2410	mg/l	1	02/19/93	JH
TOTAL ORGANIC HALOGEN	SW-846 9020	0.06	mg/l	0.01	02/19/93	JH

TEST RESULTS BY SAMPLE

Sample: 04A EWW-4 Collected: 02/17/93 14:30

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - WATER SAMPLE	SW846_8020					
Benzene	SW846_8020	<0.0040	mg/l	0.0040	02/19/93	JFG
Toluene	SW846_8020	<0.0040	mg/l	0.0040		
Ethylbenzene	SW846_8020	0.0658	mg/l	0.0040		
Xylenes	SW846_8020	<0.0040	mg/l	0.0040		
LEAD	EPA 239.1	<0.10	mg/l	0.10	02/19/93	GLM
TOT. PET. HYDROCARBONS H20	EPA 418.1	17.8	mg/l	0.50	02/22/93	HC
TOTAL DISSOLVED SOLIDS	EPA 160.1	2490	mg/l	1	02/19/93	JH
TOTAL ORGANIC HALOGEN	SW-846 9020	0.05	mg/l	0.01	02/19/93	JH

Sample: 05A EWW-5 Collected: 02/17/93 15:00

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - WATER SAMPLE	SW846_8020					
Benzene	SW846_8020	0.47	mg/l	0.20	02/18/93	JFG
Toluene	SW846_8020	0.94	mg/l	0.20		
Ethylbenzene	SW846_8020	0.63	mg/l	0.20		
Xylenes	SW846_8020	1.78	mg/l	0.20		
LEAD	EPA 239.1	<0.10	mg/l	0.10	02/19/93	GLM
TOT. PET. HYDROCARBONS H20	EPA 418.1	55.2	mg/l	0.50	02/22/93	HC
TOTAL DISSOLVED SOLIDS	EPA 160.1	2520	mg/l	1	02/19/93	JH
TOTAL ORGANIC HALOGEN	SW-846 9020	0.03	mg/l	0.01	02/19/93	JH

Sample: 06A TBW-1 Collected: 02/17/93 15:30

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		

QA/QC REPORT

Client: SWL Austin

Report No.: 93-02-253

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.: 93-02-253

Report Date: 2/16/93

BTEX ANALYSIS

Matrix: water

Concentration Units. (ppb)

SwL Lab No.	Sample I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylenes
93-02-253	Blank (2032)	< 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.

01762

CR501 CHROMATOPAC

CHANNEL NO	1	FILE	9
SAMPLE NO	0	METHOD	0403
REPORT NO	515	SAMPLE WT	100
IS WT	1	STANDARD	1

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	4.595	49815	V			
2	9.391	243439		2		BENZENE
3	10.605	75757	V	R 1		INT STD
4	13.072	225587	SV	3		TOLUENE
5	16.557	170109	V	4		ETHYL BEN
6	16.868	230836	V	4		ETHYL BEN
7	17.128	280696	V	5		P-XYLENE
8	18.895	210070	SV	7		O-XYLENE
	TOTAL	1486308				

CALIBRATION MADE IN IDENTIFICATION FILE 9
MODE$ 93

IDNO	NAME	TIME	BAND	FACTOR	CONC
1	INT STD	10.8	0.3	1	1
2	BENZENE	9.6	0.3	62.2387	200
3	TOLUENE	13.3	0.3	67.1642	200
4	ETHYL BEN	16.7	0.2	37.7891	200
5	P-XYLENE	17	0.15	53.9778	200
6	M-XYLENE	17.3	0.2	46.0001	200
7	O-XYLENE	19	0.3	72.1252	200
8	MTBE	4.8	0.2	308.22	200

DAILY BTEX CALIBRATION 2/18/93 ALS 2032

COMPOUND	AVE RF	RF	%D
BENZENE	61.38	62.23	-1.4
TOLUENE	69.89	67.16	3.9
ETHYL BENZ	100.8	89.06	11.6
P-XYLENE	75.8	65.63	13.4
M-XYLENE	54.38	53.97	0.7
O-XYLENE	78.72	72.12	8.3

159

223-02037-01

911015

Shimadzu

01763

MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: TBW-1
Sample Matrix: water
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-253-6
Date: 2/18/93
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	209	105	82-117
Toluene	200 ug/l		209	105	78-111
Ethyl Benzene	200 ug/l		198	99	71-121
p-Xylene	200 ug/l		192	96	67-124
m-Xylene	200 ug/l		214	107	
o-Xylene	200 ug/l		201	101	

01764

MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-253-6
Sample I.D.: TDW-1
Date: 2/18/93
Sample Matrix: water
Analyst: I.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	210	105	82-117
Toluene	200 ug/l		210	105	78-118
Ethyl Benzene	200 ug/l		207	104	71-121
-Xylene	200 ug/l		200	100	
m-Xylene	200 ug/l		184	92	67-124
o-Xylene	200 ug/l		206	103	

01765

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA [illegible]
DATE OF TEST: [illegible] PARAMETER : PB MATRIX: ACID ANALYST: [illegible] [illegible]

CALIBRATION STANDARDS/BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTRATION	MEASURED CONCENTRATION	% RECOVERY
[illegible]	[illegible]	[illegible]	[illegible]	1.95	97.5
[illegible]	[illegible]				
[illegible]	[illegible]				
[illegible]	[illegible]				

CORR. [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]	1.00	[illegible]	[illegible]

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA [illegible]
DATE OF TEST: [illegible] PARAMETER: [illegible] MATRIX: SOIL ANALYST: [illegible] [illegible]

CALIBRATION STANDARDS BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTRATION	MEASURED CONCENTRATION	% RECOVERY
[illegible]	[illegible]	[illegible]	[illegible]	100	100.[illegible]
[illegible]	[illegible]				
[illegible]	[illegible]				
[illegible]	[illegible]				

[illegible]

SAMPLE ID NUMBERS IN THIS RUN: [illegible]
[illegible]
[illegible]

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	% RECOVERY
[illegible]	[illegible]	[illegible]	[illegible]	415.02	431	[illegible].3
[illegible]	21.000	[illegible]	[illegible]	403.03	420	104.2

TOTAL DISSOLVED SOLIDS - EPA 160.1

Date Analyzed: 02 / 19 / 93 Created: 02/23/93 12:47
Analyst: JH Updated: 02/23/93 12:47
Run No: 1
Logged in EBS? (QA Officer use only)

Lab Number	Class/ Subclass/ Dup/ Matrix	Volume	Tare Wt.	180C Wt.	550C Wt.		mg/L
#9302253-01A	S C W	100.00	113.4448	113.7664		TDS	3220
#9302253-02A	S C W	100.00	120.8855	121.2206		TDS	3350
#9302253-03A	S C W	100.00	116.8995	117.1404		TDS	2410
#9302253-04A	S C W	100.00	115.4548	115.7039		TDS	2490
#9302253-05A	S C W	100.00	115.9211	116.1726		TDS	2520
#9302253-02A	S C D W	100.00	117.5199	117.8614		TDS	3420
#9302256-01D	S C W	100.00	76.6580	76.7488		TDS	908
#9302256-02D	S C W	100.00	78.1401	78.4712		TDS	3310
#9302256-03D	S C W	100.00	78.7887	78.9870		TDS	1980
#9302256-04D	S C W	100.00	67.0585	67.4746		TDS	4160
#9302256-03D	S C D W	100.00	72.3915	72.5913		TDS	2000
#9302267-01A	S C W	100.00	118.5567	118.7979		TDS	2410
#9302263-01A	S C W	100.00	114.2780	114.5893		TDS	3110
#1CB	B I W	100.00	73.6433	73.6432		TDS	<1.0

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: Corp 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
1	EWW-1	2-17-93 1300		X	40 ml VOA Glass	Liquid	4°C	BTEX, TPH, TDS, TOX, Total Lead	
2	EWNW-2	2-17-93 1330		X	"	"	"	" " " " "	
3	EWW-3	2-17-93 1400		X	"	"	"	" " " " "	
4	EWW-4	2-17-93 1430		X	"	"	"	" " " " "	
5	EWW-5	2-17-93 1500		X	"	"	"	" " " " "	
6	TBW-1	2-17-93 1530		X	40 ml VOA	"	"	BTEX	

Samplers: (Print): Larry Collins

Affiliation: SwL

Relinquished by: (Signature) Larry Collins — Date: 2-17-93 Time: 4:55

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: 2-18-93 Time: 8:30

COC Seal No.:

RECD. ON ICE: Yes X No

Intact: Yes

Laboratory No.: 93-02-253

Results by: 48

Rush Charges Authorized: Yes ✓ No

REMARKS: 48 Hour results on all Analysis.

Data Results To:

1. Lee Forkes Austin

2.

01763

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

01770

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 LOG

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 CONCENTRATION	MEASURED CONCENTRATION	% RECOVERY
10.46	0.04	ICV	104.6	107	102.3
12.3	0.174				
104.6	0.33				
209.2	0.67				

L.R.(R) = .999539

SAMPLE ID NUMBERS IN THIS RUN: 93-2-344-01A

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	% % RECOVERY

889078

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.: G2 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 VOA 1L Amber	Liquid	4°C	BTEX, TPH	

RUSH

Samplers: (Print): Larry Collins

Affiliation: SWL

Relinquished by: (Signature) Larry Collins — Date: 2-23-93 Time: 1646

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by Laboratory: (Signature) [illegible] — Date: 2/24/93 Time: 10:45

COC Seal No.

REC'D. ON ICE: Yes X No ____

Intact: Yes

Laboratory No.: 9302.345

Results by: 48

Rush Charges Authorized: Yes ✓ No ____

REMARKS: 48 Hour Rush Turn Around

Data Results To:

1. Lane Forbes Austin

2.

0177

QA/QC REPORT

Client: SWC 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

Spike

Compound	Amount Added (ug/ml)	Sample Conc. (ug/ml)	MS Conc. (ug/ml)	MS % Recovery	QA % Limit
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	
-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
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: JFG
Parameter: BTEX

Sp. ke 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	

01777

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	
-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: LEE FORBES

Client No. DACA6393C006
Report No. 93-02-346
Report Date 03/03/93 11:09

Project DACA6393C006/CORPS OF ENG.

Date Sampled 02/23/93

Sampled By SWL-AUSTIN

Sample Type SOIL SAMPLE

Transported by DELIVERY SERVICE

P.O. # JOB# 505892-130

Date Received 02/24/93

Lab No.	Sample Identification
93-02-346-01	DSW-1

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A DSW-1 Collected: 02/23/93 16:30

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - SOIL SAMPLE	SW846 8020					
Benzene	SW846 8020	<0.40	mg/kg	0.40	02/25/93	JFG
Toluene	SW846 8020	<0.40	mg/kg	0.40		
Ethylbenzene	SW846 8020	5.53	mg/kg	0.40		
Xylenes	SW846 8020	6.76	mg/kg	0.40		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	03/02/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	02/26/93	JA
PERCENT MOISTURE	GRAVIMETRIC	17.75	% MOISTU	0.10	02/24/93	JFG
TCLP BENZENE	EPA 8020/602	0.012	mg/l	0.005	03/02/93	JFG
TCLP LEAD	SW-846 6010	<0.50	mg/l	0.50	02/27/93	JP
TCLP PREP.	SW-846 1311	02/26/93	DATE		02/26/93	AR
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	10,700	mg/kg	5.0	02/25/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	03/01/93	DATE		03/01/93	CJG

QA/QC REPORT

Client: SWL Austin

Report No.: 93-2-346

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 239.1

DATE OF TEST: 2/26/93 PARAMETER : PB MATRIX: HNO3 ANALYST: JA MDL:10

CALIBRATION STANDARDS/BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTATION	MEASURED CONCENTRATION	% RECOVERY
0.25	0.011	ICV	1.00	0.994	99.4
0.50	0.024	CCV	1.00	1.004	100.4
1.00	0.046				
2.00	0.094				
L.R.(R) = 0.9996					

SAMPLE ID NUMBERS IN THIS RUN: 93-2-34a-1

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	% RECOVERY
93-2-34b-1	<10.0	<10.0	0	1.00	0.97526	97.5

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA 200.7

DATE OF TEST: 2/26/93 PARAMETER : PB MATRIX: HNO3 ANALYST: JP MDL: .50

CALIBRATION STANDARDS/BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTRATION	MEASURED CONCENTRATION	% RECOVERY
		ICV	5.00	4.796	95.9
		CCV	5.00	5.267	105.3
L.R./R =					

SAMPLE ID NUMBERS IN THIS RUN: 93-2-034
93-2-037-1
93-2-046

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	% RECOVERY
93-2-037-1	<.05	.05	0	5.00	4.192	83.8

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 418.1

DATE OF TEST: 2/25/93 PARAMETER : TPH MATRIX: SOIL ANALYST: MR MDL: 5.0

CALIBRATION STANDARDS/BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTATION	MEASURED CONCENTRATION	% RECOVERY
10.46	0.04	ICV	104.6	87.1	83.3
52.3	0.174	CCV	104.6	110.00	105.2
104.6	0.33				
209.2	0.63				

R.S.(R = .99993

SAMPLE ID NUMBERS IN THIS RUN: 93-2-295-03
93-2-293-7A
93-2-345-3
93-2-346-1A

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	% RECOVERY
93-2-295-03	6.200	3.600	53.1612	417.59	448.80	107.4
93-2-293-7A	<5.0	<5.0	0	418.4	442.00	105.6
93-2-345-3	177.00	156.00	26.1981	418.4	431.00	104.3
93-2-346-1A	8540.000	8620.000	2.52004	41769.85	41960	100.4

01784

QA/QC REPORT

Client: SWL Austin

Report No.: 93-02-346

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.: 93-02-346

Report Date: 2/24/93

BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

SwL Lab No.	Sample I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylenes
93-02-346	Blank (2.0)	< 4	< 4	< 4	< 4

Date Analyzed: 2/24/93 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.

01786

C-RSA CHROMATOPAC
CHANNEL NO 1
SAMPLE NO 0
REPORT NO 270
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	7.65	442				
2	8.282	8532	V	2		BENZENE
3	9.453	2255	V R	1		INT STD
4	11.734	8311	S	3		TOLUENE
5	12.722	196	T			
6	15.217	6094		4		ETHYL BEN
7	15.534	7712	V	5		P-XYLENE
8	15.798	11355	V	6		M-XYLENE
9	17.611	7760		7		O-XYLENE
10	19.006	107				
	TOTAL	52764				

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	52.8496	200
3	TOLUENE	11.7	0.1	54.2569	200
4	ETHYL BEN	15.2	0.1	73.9956	200
5	P-XYLENE	15.5	0.1	58.4673	200
6	M-XYLENE	15.8	0.15	39.711	200
7	O-XYLENE	17.6	0.15	58.1046	200

DAILY BTEX CALIBRATION 2/24/93 ALS 2016

COMPOUND	AVE RF	RF	%D
BENZENE	50.16	52.85	-5.4
TOLUENE	52.36	54.26	-3.7
ETHYL BENZ	71.76	74	-3.2
P-XYLENE	54.81	58.48	-6.7
M-XYLENE	38.21	39.71	-4
O-XYLENE	55.78	58.11	-4.2

20 - | 18:965
19:282

01787

MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-02-345-2
Sample I.D.: TCLK-2
Date: 2/24/93
Sample Matrix: Soil
Analyst: JFG
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	ND	245.47	122.7	
Toluene	200 ug/l		244.31	122.2	
Ethyl Benzene	200 ug/l		252.75	126.4	
p-Xylene	200 ug/l		249.58	124.8	
m-Xylene	200 ug/l		253.43	126.7	
o-Xylene	200 ug/l		261.65	130.8	

Along with this run, the following were analized:
92-02-346-1 "SwL Austin" 3/3/93 JFG.

MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: TCWW-2
Sample Matrix: So. 1
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-02-345-2
Date: 2/24/93
Analyst: JFG
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	238.23	119.1	
Toluene	200 ug/l		243.13	121.6	
Ethyl Benzene	200 ug/l		237.86	118.9	
Xylene	200 ug/l		233.50	116.8	
m-Xylene	200 ug/l		234.56	117.3	
o-Xylene	200 ug/l		236.54	118.3	

01789

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
	DSW-1	2-23-93 16:30		X	4 oz Glass 8 " " 16 " "	Soil	4°C	BTEX, TPH, TOX, Total Pb, TCLP Pb & Ba	

Samplers: (Print): Larry Collins

Affiliation: SwL

Relinquished by: (Signature) Larry Collins — Date: 2-23-93 Time: 16:45

Relinquished by: (Signature) — Date: Time:

Relinquished by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time:

Received by: (Signature) — Date: Time: 2-24-93

Received by Laboratory: (Signature) Richard — Date: 2-24-93 Time: 10:45

COC Seal No.:

REC'D. ON ICE: Yes X No

Intact: Yes

Results by:

Rush Charges Authorized: Yes ____ No ✓

REMARKS: Normal Turn Around on These Samples
Run all analyses listed on C.O.C. at normal TAT - per Lee Forbes 2-24-93

Data Results To:
1. Lee Forbes Austin
2.

Laboratory No.: 93-02-346

017930

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
93-04-081-08	DSW-2

Reviewed By

SOUTHWESTERN LABORATORIES

CHRIS BARRY

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

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

Sample: 07A DSW-1-A Collected: 04/05/93 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	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	27.5	mg/kg	10.0	04/14/93	JH
LEAD	EPA 7420	31.1	mg/kg	10.0	04/13/93	JA
PERCENT MOISTURE	GRAVIMETRIC	16.92	% MOISTU	0.10	04/08/93	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	JP
TCLP PREP.	SW-846 1311	04/09/93	DATE		04/10/93	JH
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	5510	mg/kg	5.0	04/10/93	MPG
ZERO HEADSPACE EXTRACTION	SW846 1311	04/08/93	DATE		04/08/93	CJG

Sample: 08A DSW-2 Collected: 04/05/93 15:15

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - SOIL SAMPLE	SW846 8020					
Benzene	SW846 8020	<0.40	mg/kg	0.40	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	34.9	mg/kg	10.0	04/14/93	JH
LEAD	EPA 7420	22.8	mg/kg	10.0	04/13/93	JA
PERCENT MOISTURE	GRAVIMETRIC	18.75	% MOISTU	0.10	04/08/93	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	JP
TCLP PREP.	SW-846 1311	04/09/93	DATE		04/10/93	JH
TOT.PET. HYDROCARBONS SOIL	EPA 418.1	6730	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: JP MDL: 0.5

CALIBRATION STANDARDS/BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTATION	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	P% (% 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 CONCENTRATION	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	% % RECOVERY
93-04-055	<10.0	<10.0	0	1.00	0.97	97.0
93-4-120-1	0.10	0.10	0	1.00	0.8	80.0

01797

Work Order: 9304081 Client: SWL_AUSTIN

BLANK

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
1	PB	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 Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
3	P304081-01	TPH_S	W M	S	1		1.0	25.3000	1.0	1.0		JS

Analytes	Result	Unspiked Result	Detection Limit	Spike Value	Rec- overy	Specs Low	Specs High	V
TPH_S	595	20.7	4.94	402.16	142 *	50	110	Y

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
1	P304081-01A	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 Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
2	P304081-01	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	434.3982.4 *	-15	15		Y

SAMPLE

Seq	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
4	P304081-02A	TPH_S	S C	S			1.0	25.3000	1.0	1.0		JS

Analytes	Result	Detection Limit		V
TPH_S	17.7	4.90	430.98	Y

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
5	P304081-03A	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	Y

Work Order: 9304081 Client: SWL_AUSTIN

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
6	9304081-04A	TPH_B	S D	S			1.0	25.2000	1.0	1.0		JS

Analytes	Result	Detection Limit				
TPH_B	14.1	4.96	436.11			Y

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
7	9304081-05A	TPH_B	S D	S			1.0	25.2000	1.0	1.0		JS

Analytes	Result	Detection Limit				
TPH_B	36.5	4.94	434.39			Y

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
8	9304081-06A	TPH_B	S D	S			1.0	25.6000	1.0	1.0		JS

Analytes	Result	Detection Limit				
TPH_B	69.9	4.88	429.30			Y

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
9	9304081-07A	TPH_B	S D	S			10	25.6000	1.0	1.0		JS

Analytes	Result	Detection Limit				
TPH_B	4580	48.83	4292.97			Y

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
10	9304081-08A	TPH_B	S D	S			10	25.1000	1.0	1.0		JS

Analytes	Result	Detection Limit				
TPH_B	5470	49.80	4378.49			Y

CONTROL

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
12	ICV	TPH_B	T I	S			1.0	100.0000	1.0	1.0		JS

Analytes	Result	Theoretical Value	Detection Limit	Spike Value	Percent Recovery	Spec Low	Spec High		
TPH_B	114	105.93	1.23	104	90	110			Y

SOUTHWESTERN LABORATORIE ...ALITY CONTROL LOG

MDL < .0

Prep 04-08-93
Run 04-14-93

EPA Doc. no.
METHOD OF ANALYSIS 600/4/84-008 PARAMETER Fox 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

C0810

88907P

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) 40z Glass 80z "	"	"	TPH, TOX, TCLP Pb, Total Pb, BTEX, TCLP Bz	
8	DSW-2	4-5-93 1515		X	"	"	"	" " " " " "	
								"	

RUSH

Samplers: (Print) Larry Collins	Relinquished by: (Signature) Larry Collins	Date: 4-5-93 Time: 1800	Received by: (Signature)	Date: Time:	COC Seal No.
Affiliation: SWL	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time: 4/7/93	REC'D. ON ICE Yes X No
	Relinquished by: (Signature)	Date: Time:	Received by Laboratory: (Signature)	Date: Time: 1235	Initial:

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 Jobsite

2. Monica Scott Austin

Laboratory No. 93-04-081

01801

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
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

SOUTHWESTERN LABORATORIES

Reviewed By

CHRIS BARRY

TEST RESULTS BY SAMPLE

Sample: 01A DSW-3 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 H2O	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

TEST RESULTS BY SAMPLE

Sample: 03A TB-W 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		

Sample: 04A DSW-4 Collected: 04/06/93 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	04/08/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	13.6	mg/kg	10.0	04/15/93	JH
LEAD	EPA 7420	15.2	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	13.17	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/10/93	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	4260	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/09/93	DATE		04/09/93	CJG

Sample: 05A DSW-5 Collected: 04/06/93 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	04/08/93	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		

TEST RESULTS BY SAMPLE

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	20.0	mg/kg	10.0	04/15/93	JH
LEAD	EPA 7420	39.3	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	15.46	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/10/93	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	7590	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/09/93	DATE		04/09/93	CJG

Sample: 06A DSW-6 Collected: 04/06/93 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	04/08/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	28.1	mg/kg	10.0	04/16/93	JH
LEAD	EPA 7420	22.7	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	16.14	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/10/93	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	766	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/09/93	DATE		04/09/93	CJG

Sample: 07A DSW-7 Collected: 04/06/93 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	04/09/93	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		

TEST RESULTS BY SAMPLE

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	13.9	mg/kg	10.0	04/16/93	JH
LEAD	EPA 7420	29.0	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	15.85	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/10/93	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	6800	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/09/93	DATE		04/09/93	CJG

Sample: 08A DSW-8 Collected: 04/06/93 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	04/08/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	29.1	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	18.54	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/10/93	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	6380	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/09/93	DATE		04/09/93	CJG

Sample: 09A DSW-9 Collected: 04/06/93 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	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		

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	22.6	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	20.83	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/10/93	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	2300	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/09/93	DATE		04/09/93	CJG

Sample: 10A DSW-10 Collected: 04/06/93 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	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	20.25	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/10/93	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	2960	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/09/93	DATE		04/09/93	CJG

Sample: 11A DSW-11 Collected: 04/06/93 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	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		

TEST RESULTS BY SAMPLE

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	29.5	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	25.30	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/13/93	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	5540	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/12/93	DATE		04/12/93	CJG

Sample: 12A DSW-12 Collected: 04/06/93 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	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	<10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	16.6	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	13.17	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/13/93	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	7820	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/12/93	DATE		04/12/93	CJG

Sample: 13A DSW-13 Collected: 04/06/93 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	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	<10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	16.92	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/13/93	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	7110	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/12/93	DATE		04/12/93	CJG

TEST RESULTS BY SAMPLE

Sample: 14A DSW-14 Collected: 04/06/93 13:00

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	10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	18.4	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	16.91	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/13/93	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	14,700	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/12/93	DATE		04/12/93	CJG

Sample: 15A DSW-15 Collected: 04/06/93 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	04/09/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	22.8	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	19.09	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/13/93	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	10,200	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/12/93	DATE		04/12/93	CJG

Sample: 16A DSW-16 Collected: 04/06/93 13:30

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
BTEX - SOIL SAMPLE	SW846 8020					
Benzene	SW846 8020	<0.40	mg/kg	0.40	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	<10.0	mg/kg	10.0	04/23/93	JH
LEAD	EPA 7420	21.7	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	18.22	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/13/93	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	14,600	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/12/93	DATE		04/12/93	CJG

Sample: 17A DSW-17 Collected: 04/06/93 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	04/09/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/26/93	JH
LEAD	EPA 7420	<10.0	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	8.70	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/13/93	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	5660	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/12/93	DATE		04/12/93	CJG

Sample: 18A DSW-18 Collected: 04/06/93 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	04/09/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/26/93	JH
LEAD	EPA 7420	21.2	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	26.30	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/13/93	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	7720	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/12/93	DATE		04/12/93	CJG

Sample: 19A DSW-19 Collected: 04/06/93 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	04/09/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/26/93	JH
LEAD	EPA 7420	21.7	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	17.12	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/14/93	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	11,500	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/13/93	DATE		04/13/93	CJG

Sample: 20A DSW-20 Collected: 04/06/93 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	04/09/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/26/93	JH
LEAD	EPA 7420	11.7	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	11.85	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/14/93	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	6170	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/13/93	DATE		04/13/93	CJG

Sample: 21A DSW-21 Collected: 04/06/93 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	04/09/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/26/93	JH
LEAD	EPA 7420	22.2	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	19.18	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/14/93	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	17,100	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/13/93	DATE		04/13/93	CJG

TEST RESULTS BY SAMPLE

Sample: 22A DSW-22 Collected: 04/06/93 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	04/09/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/26/93	JH
LEAD	EPA 7420	24.4	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	15.53	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/14/93	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	7300	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/13/93	DATE		04/13/93	CJG

Sample: 23A DSW-23 Collected: 04/06/93 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	04/09/93	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		
EXTRACT ORGANIC HALOGEN	EPA 600/4/84	<10.0	mg/kg	10.0	04/26/93	JH
LEAD	EPA 7420	22.3	mg/kg	10.0	04/15/93	GLM
PERCENT MOISTURE	GRAVIMETRIC	20.12	% MOISTU	0.10	04/09/93	JFG
TCLP BENZENE	EPA 8020/602	<0.005	mg/l	0.005	04/14/93	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	3120	mg/kg	5.0	04/12/93	MR
ZERO HEADSPACE EXTRACTION	SW846 1311	04/13/93	DATE		04/13/93	CJG

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.: 93-04-088

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: 4/6/93 BTEX Method 5030/8020

Analyzed by: J.S.

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.

01816

CHANNEL NO 1
SAMPLE NO 0
REPORT NO 1336
IS WT 1

FILE 9
METHOD 0403
SAMPLE WT 100
STANDARD 1

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

223.02037.01

01817

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

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		166	83	78-118
Ethyl Benzene	200 ug/l		147	74	71-121
Xylene	200 ug/l		162	81	
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	67-124
Xylene	200 ug/l		175	88	
o-Xylene	200 ug/l		189	95	

01819

SOUTHWESTERN LABORATORIES

ient: SwL Austin

File No.:

Report No.: 93-04-080

Report Date: 4/9/93

BTEX ANALYSIS

Matrix: water

Concentration Units, (ppb)

SwL Lab No.	Sample I.D.	Benzene	Toluene	Ethyl Benzene	Total Xylenes
93-04-089	Blank (2032)	< 4	< 4	< 4	< 4

Date Analyzed: 4/9/93 BTEX Method 5030/8020

nalyzed 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	0403
REPORT NO	1398	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: 4/9/93
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	180	90	82-117
Toluene	200 ug/l		184	92	78-118
Ethyl Benzene	200 ug/l		172	86	71-121
·ylene	200 ug/l		154	77	
m,p-Xylene	200 ug/l		185	93	67-124
o-Xylene	200 ug/l		182	91	

01822

MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: DSW-20
Sample Matrix: soil
Spiking Solution: SwL BTEX Spike

SwL Lab No.: 93-04-088-20
Date: 4/9/93
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	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	

01823

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

Spike

Compound	Amount Added (ug/ml)	Sample Conc. (ug/ml)	MS Conc. (ug/ml)	MS % Recovery	(%Recov) QA % Limit
Benzene	200 ug/L	N/D	~~207~~ 163	82	82-117

01824

MATRIX SPIKE RECOVERY

Client: SwL Austin
SwL Lab No.: 93-04-084-10
Sample I.D.: Dsw-10
Date: 4/10/93
Sample Matrix: Liquid
Analyst: J.F.G
Spiking Solution: BTEX 200 µg/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	203	102	82-117

SOUTHWESTERN LABORATORIES

Client: 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: LA.

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.

01826

C-RSA CHROMATOPAC

CHANNEL NO	1	FILE	9
SAMPLE NO	0	METHOD	0403
REPORT NO	913	SAMPLE WT	100
IS WT	1	STANDARD	1

PKNO	TIME	AREA	MK	IDNO	CONC	NAME
1	8.884	7285		2		BENZENE
2	9.401	2034	P	1		INT STD
3	11.69	6962		3		TOLUENE
4	15.173	5292		4		ETHYL BEN
5	15.499	6647	V	5		P-XYLENE
6	15.758	9834	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	%I
BENZENE	50.16	55.84	-11.4
TOLUENE	52.36	58.43	-11.6
ETHYL BENZ	71.76	76.87	-7.2
P-XYLENE	54.81	61.2	-11.7
M-XYLENE	38.21	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 µg/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

MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: Dsw-18
Sample Matrix: Liquid TCLP
Spiking Solution: BTEX std. 200 µg/mL

SwL Lab No.: 93-04-088-18
Date: 4/13/93
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 µg/L	N/D	204	102	82-127

01829

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

Spike

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

01830

MATRIX SPIKE RECOVERY

Client: SwL Austin
Sample I.D.: DSW-23
Sample Matrix: liquid-TCLP
Spiking Solution: BTEX 20.0 µg/mL

SwL Lab No.: 93-04-088-23
Date: 4/14/93
Analyst: J.F.G
Parameter: TCLP-B

Compound	Amount Added (ug/ml)	Sample Conc. (ug/ml)	MS Conc. (ug/ml)	MS % Recovery	(%Recov) QA % Limit
					Spike
Benzene	200 µg/L	N/D	183	92	82-117

01831

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.

METHOD OF ANALYSIS STD METHODS 5320-B PARAMETER TOX MATRIX WATER ANALYST JH Run 57 (04-08-93) DATE (04-22-93) 600

CALIBRATION STANDARDS/BLANK ABSORBANCE

L.R. (0) =	

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

01833

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS 600/4/84-088 (EPA DOC. NO.) PARAMETER COX MATRIX SOLIDS ANALYST JH DATE RUN 04-08-93 / RUN 04-15-93 / 04-26-93 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

01834

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: EPA: 239.1
DATE OF TEST: 4/15/93 PARAMETER : PB MATRIX: HNO3 ANALYST: BLF MDL: 10.

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	0.045				
2.00	0.091				
C.F.A.A. =	0.9956a				

SAMPLE ID NUMBERS IN THIS RUN
93-4-089-01
93-4-098-13A
93-4-099-23A
93-4-503

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	% RECOVERY
93-4-089-01	<10.0	<10.0	0.0	76.50	76.50	102.1
93-4-098-13A	<10.0	<10.0	0.0	86.40	84.4	97.1
93-4-099-23A	22.0	25.1	-13.1	61.30	71.69	86.1

SOUTHWESTERN LABORATORIES QUALITY CONTROL LOG

METHOD OF ANALYSIS: SW-846 6010
DATE OF TEST: 4/15/93 PARAMETER : PB MATRIX: HNO3 ANALYST: GLM MDL: .50

CALIBRATION STANDARDS/BLANKS	ABSORBANCE	STANDARDS	THEORETICAL CONCENTRATION	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				
R.S.D. =	0.99786				

SAMPLE ID NUMBERS IN THIS RUN: PJ-4-SED-1A
PJ-4-EE-1TA
PJ-4-BS

SAMPLE ID	BACKGROUND CONC.	DUPLICATE CONC	% DIFF.	SPIKE CONC	RECOVERED CONC	PA % RECOVERY
PJ-4-SED-1A	<.50	<.50	0.00	5.00	5.06	101.2
PJ-4-BS-1S	<.50	<.50	0.00	5.00	5.21	104.2

01836

Work Order: 9304068 Client: SWL_AUSTIN

BLANK

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smp Sec	Smp Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
6	ICB	TDS	B I	W			1.0	1.0	1.0	1.0		J3

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 Smp Sec	Smp Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
2	9304061-01	TDS	S D D	W	1		1.0	1.0	1.0	1.0		J3

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 Smp Sec	Smp Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
3	930-085-01A	TDS	S D	W			1.0	1.0	1.0	1.0		J3

Analytes	Result	Detection Limit		
TDS	650	5		Y
VDS	NA			Y

SAMPLE DUPLICATE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smp Sec	Smp Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
4	9304086-01	TDS	S D D	W	3		1.0	1.0	1.0	1.0		J3

Analytes	Result	Reference Result	Detection Limit	RPD	Specs Low	Specs High	
TDS	634	650	5	0.157	-15	15	Y
VDS	NA	NA		0	-15	15	Y

BLANK

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smp Sec	Smp Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
11	BLK	TPH_E	B P	S			1.0	25.0000	1.0	1.0		J83

Analytes	Result	Detection Limit	Specs Low	Specs High
TPH_E	30.4	5.0	5.01	

Work Order: 9304086 Client: SWL_AUSTIN

BLANK

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
29	BLK	TPH_G	B P	S			1.0	25.0000	1.0	1.0		35J

Analytes	Result	Detection Limit	Specs Low	Specs High	
TPH_G	11.2	5.00	5.00		Y

BLANK

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
35	BLK	TPH_G	B P	S			1.0	25.3300	1.0	1.0		35J

Analytes	Result	Detection Limit	Specs Low	Specs High	
TPH_G	19.1	4.93	5.00		Y

SPIKE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
4	9304086-04	TPH_G	K M	S	2		10	25.3000	1.0	1.0		35J

Analytes	Result	Unspiked Result	Detection Limit	Spike Value	Recovery	Specs Low	Specs High	
TPH_G	8450	3700	49.41	4347.87	109	55.6	125	Y

SPIKE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
17	9304086-14	TPH_G	K M	S	15		100	25.1100	1.0	1.0		35J

Analytes	Result	Unspiked Result	Detection Limit	Spike Value	Recovery	Specs Low	Specs High	
TPH_G	56300	12200	497.81	43757.42	101	55.6	125	Y

SPIKE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
28	9304086-23	TPH_G	K M	S	26		10	25.3000	1.0	1.0		35J

Analytes	Result	Unspiked Result	Detection Limit	Spike Value	Recovery	Specs Low	Specs High	
TPH_G	7500	2490	49.41	4347.87	115	55.6	125	Y

SPIKE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
37	930[illegible]	TPH_G	K M	S	35		100	25.[illegible]	1.0	1.0		35J

Analytes	Result	Unspiked Result	Detection Limit	Spike Value	Recovery	Specs Low	Specs High	
TPH_G	53300	8270	493.49	40357.25	112	55.6	125	Y

01838

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
1	9304088-01A	TPH_B	S C	S			10	25.7000	1.0	1.0		JSJ

Detection

Analytes	Result	Limit	
TPH_B	5740	48.26	V

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
2	9304088-04A	TPH_B	S C	S			10	25.4000	1.0	1.0		JSJ

Detection

Analytes	Result	Limit	
TPH_B	3700	49.21	V

SAMPLE DUPLICATE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk 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		JSJ

Analytes	Result	Reference Result	Detection Limit	RPD	Limits Low	Limits High	
TPH_B	3970	3703	49.21	7.04	-15	15	

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
4	9304088-05A	TPH_B	S C	S			10	25.3000	1.0	1.0		JSJ

Detection

Analytes	Result	Limit	
TPH_B	8410	49.41	

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
5	9304088-06A	TPH_B	S C	S			1.0	25.3000	1.0	1.0		JSJ

Detection

Analytes	Result	Limit	
TPH_B	641	4.94	

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
6	9304088-07A	TPH_B	S C	S			1	25.4000	1.0	1.0		JSJ

Detection

Analytes	Result	Limit	
TPH_B	5720	49.21	V

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smk Seq	Smk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
8	9304088-03A	TPH_S	S C	S			10	25.3000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_S	5200	47.41

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smk Seq	Smk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
9	9304088-09A	TPH_S	S C	S			10	25.3000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_S	1800	49.41

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smk Seq	Smk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
10	9304088-10A	TPH_S	S C	S			10	25.3000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_S	2760	47.41

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smk Seq	Smk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
11	9304088-11A	TPH_S	S C	S			10	25.2000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_S	4140	49.60

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smk Seq	Smk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
13	9304088-12A	TPH_S	S C	S			100	10.1100	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_S	6790	494.07

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Smk Seq	Smk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
14	9304088-13A	TPH_S	S C	S			1.0	25.6000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_S	8910	488.28

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
15	9304088-14A	TPH_B	S C	B			100	25.3000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_B	12200	494.07

SAMPLE DUPLICATE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
16	9304088-14A	TPH_B	S C D	B	15		100	25.3000	1.0	1.0		JSJ

Analytes	Result	Reference Result	Detection Limit	RPD	Spece Low	Spece High
TPH_B	12300	12200	494.07	0.81	-15	15

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
13	9304088-17A	TPH_B	S C	B			10	25.3000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_B	8250	48.45

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
14	9304088-18A	TPH_B	S C	B			100	25.4000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_B	11900	492.13

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Spk Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
10	9304088-07A	TPH_B	S C	B			1.0	25.3000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_B	9170	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
11	9304088-13A	TPH_B	S C	B			100	25.4000	1.0	1.0		JSJ

Analytes	Result	Detection Limit
TPH_B	9690	492.13

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref 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 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 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	12300	484.50

SAMPLE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref 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 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	1490	49.41

SAMPLE DUPLICATE

Seq.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Seq	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
27	9304088-23	TPH_S	S C D	S	26		10	25.2000	1.0	1.0		JSJ

Analytes	Result	Reference Result	Detection Limit	RPD	Limit	Spike Rec
TPH_S	1230	1490	49.60	19.0	10	15

SAMPLE DUPLICATE

Sec.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Sec	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
3E	9304173-02	TPH_S	S D	S	35		100	25.0300	1.0	1.0		JSJ

Analytes	Reference Result	Detection Result	Limit	RPD	Specs Low	High	V
TPH_S	6320	6270	499.00	0.794	-15	15	Y

CONTROL

Sec.	Sample ID	Test Code	Class/ Sub/Sup	Matrix/ Sub	Ref Seq	Spk Sec	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
3C	ICV	TPH_S	T I	S			1.0	100.0000	1.0	1.0		JSJ

Analytes	Theoretical Result	Value	Detection Limit	Spike Value	Recovery	Specs Low	High	V
TPH_S	118	109.90	1.25	107	90	110		Y

CONTROL

Sec.	Sample ID	Test Code	Class/ Sub/Sup	Matrix/ Sub	Ref Seq	Spk Sec	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
3F	ICV	TPH_S	T I	S			1.0	100.0000	1.0	1.0		JSJ

Analytes	Theoretical Result	Value	Detection Limit	Spike Value	Recovery	Specs Low	High	V
TPH_S	118	109.90	1.25	107	90	110		Y

BLANK

Sec.	Sample ID	Test Code	Class/ Sub/Sup	Matrix/ Sub	Ref Seq	Spk Sec	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
3I	PB	TPH_W	B P	W			1.0	1000.00	1.0	1.0		JE

Analytes	Result	Detection Limit	Specs Low	High	V
TPH_W	0.5	0.5		1.5	

SAMPLE

Sec.	Sample ID	Test Code	Class/ Sub/Dup	Matrix/ Sub	Ref Seq	Spk Sec	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
3J	9304088-01A	TPH_W	S D	W			1.0	1000.00	1.0	1.0		JE

Analytes	Result	Detection Limit		V
TPH_W	1.5	0.5	11.0	

CONTROL

Sec.	Sample ID	Test Code	Class/ Sub/Sup	Matrix/ Sub	Ref Seq	Spk Sec	Dilution	Weight	Volume	Conv. Factor	Flag	Ver
3K	ICV	TPH_W	T I	W			1.0	100.00	1.0	1.0		JE

Analytes	Theoretical Result	Value	Detection Limit	Spike Value	Recovery	Specs Low	High	V
TPH_W	114	109.9	5.0	100	90	110		

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	(3) 40Z Glass 8 oz "	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): 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:

Received by Laboratory: (Signature) K Burnall — Date: 4-7-93 Time: 12:30

COC Seal No.:

REC'D. ON ICE: Yes ✓ No ___

Initial: Geo

Laboratory No.: 93-04-088

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

Liquid samples 72 hrs/Matrix risk. OK for MS.

01844

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): 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: 4-7-93 Time: 12:30

Received by Laboratory: (Signature) K Burnall

COC Seal No.

REC'D. ON ICE: Yes ✓ No ____

Initial: Yes

Laboratory No. 93-04-088

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

01845

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) R Burnett — Date: Time: 12:30

COC Seal No.

REC'D. ON ICE: Yes ✓ No

Intact: Yes

Laboratory No.: 93-04088

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

01846

APPENDIX D

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 12, 1993

REPORT NUMBER: Page 1 of 1
93076-03

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	04-12-93	6"probe	110.5	8.8	104.0	94.2	2-A
2	04-12-93	6"probe	110.5	11.0	103.6	93.8	2-A
3	04-12-93	6"probe	110.5	11.8	110.2	99.7	2-A
4	04-12-93	6"probe	110.5	8.9	108.9	98.6	2-A
5	04-12-93	6"probe	110.5	12.1	112.7	102.0	2-A
6	04-12-93	6"probe	110.5	14.0	108.0	97.7	2-A

TEST LOCATION:

1	North Side 2nd Lift
2	Center 2nd Lift
3	South Side 2nd Lift
4	North Side 3rd Lift
5	Center 3rd Lift
6	South Side 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.

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 9, 1993

REPORT NUMBER: Page 1 of 1
93076-02

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	04-09-93	6"probe	110.5	12.4	114.5	103.6	2-A
2	04-09-93	6"probe	110.5	14.0	106.2	96.1	2-A
3	04-09-93	6"probe	110.5	12.7	107.8	97.5	2-A

TEST LOCATION: 1st Lift

1	North Side
2	Center
3	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.

TRINITY TESTING LABORATORIES, INC.

01849

APPENDIX E

UST AND LIQUID 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

01851

P.O. BOX 200350, 5797 DIETRICH RD., SAN ANTONIO, TX 78220-0350
210/661-4251 FAX: 210/661-6060

ALAMO PETROLEUM EXCHANGE

NON-HAZARDOUS WASTE MANIFEST

GENERATOR

GENERATOR NAME AND ADDRESS
LAREDO AIRPORT
4007 NORTH JARVIS
LAREDO, TEXAS
PHONE NO. ( )

GENERATING LOCATION/ADDRESS
LAREDO AIRPORT
4007 NORTH JARVIS
LAREDO, TEXAS
PHONE NO. ( )

GENERATOR'S US EPA ID NO.

STATE GENERATOR'S ID:

DESCRIPTION OF WASTE	WASTE CODE	QUANTITY	UNITS	CONTAINERS NO.	CONTAINERS TYPE	TYPE
WASTE OIL + WATER	N/A	3600	GALLONS	1	T	

TYPE: D-DRUM, C-CARTON, B-BAG, T-TANK, P-POUNDS, Y-YARDS, O-OTHER

Any recoverable hydrocarbon product to be recycled for energy recovery

GENERATOR AUTHORIZED AGENT NAME: Garlan Vick CCC Group
SIGNATURE: Garlan Vick
SHIPMENT DATE: 2-17-93

TRANSPORTER

TRUCK NO.: 30
PHONE NO.: 1-800-322-5085
TRANSPORTER NAME: ALAMO PETROLEUM EXCHANGE
DRIVER NAME (PRINT): RAYMOND TERRAZAS
ADDRESS: 454 SOLEDAD SUITE #100, SAN ANTONIO, TEXAS 78205
VEHICLE LICENSE NO./STATE: 2CB-444 TEXAS
VEHICLE CERTIFICATION:
US EPA ID NO.: TXD 987991866
STATE TRANSPORTER'S ID: 41654

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE GENERATOR SITE LISTED ABOVE.
DRIVER SIGNATURE: Raymond Terrazas
SHIPMENT DATE: 2-17-93

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS DELIVERED WITHOUT INCIDENT TO THE DESTINATION LISTED BELOW.
DRIVER SIGNATURE: Raymond Terrazas
DELIVERY DATE: 2-17-93

DESTINATION

SITE NAME: ALAMO PETROLEUM EXCHANGE
PHONE: (800) 322-5085
ADDRESS: ROUTE 5 BOX 360-X, SAN ANTONIO, TEXAS 78221
US EPA ID NO.: TXD 987991866
STATE FACILITY'S ID: 41654

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL HAS BEEN ACCEPTED AND TO THE BEST OF MY KNOWLEDGE THE FOREGOING IS TRUE AND ACCURATE.

NAME OF AUTHORIZED AGENT: JEANNETTE WOOD
SIGNATURE: Jeannette Wood
RECEIPT DATE: 2-17-93

WHITE - GENERATOR'S SECOND COPY YELLOW - FACILITY
PINK - TRANSPORTER GOLD - GENERATOR'S FIRST COPY

01852

ALAMO PETROLEUM EXCHANGE

NON-HAZARDOUS WASTE MANIFEST

GENERATOR

GENERATOR NAME AND ADDRESS
Laredo Int Airport
4007 Jarvis
Laredo Tx. 78041
PHONE NO. ( )

GENERATING LOCATION/ADDRESS
Laredo Int. Airport
4007 Jarvis
Laredo Tx. 78041
PHONE NO. ( )

GENERATOR'S US EPA ID NO.

STATE GENERATOR'S ID:

DESCRIPTION OF WASTE	WASTE CODE	QUANTITY	UNITS	CONTAINERS NO.	CONTAINERS TYPE
Waste Water + Oil	N/A	5000	Gallons	1	T

TYPE - D-DRUM C-CARTON B-BAG T-TANK P-POUNDS Y-YARDS O-OTHER

ANY RECOVERABLE HYDROCARBON PRODUCT TO BE RECYCLED FOR ENERGY RECOVERY

GENERATOR AUTHORIZED AGENT NAME: Gaylan Vick CCC Group
SIGNATURE: Gaylan Vick
SHIPMENT DATE: 2-16-93

TRANSPORTER

TRUCK NO.: 30
PHONE NO.: 1-800-322-5085
TRANSPORTER NAME: Alamo Petroleum Exchange
DRIVER NAME (PRINT): Raymond Terrazas
ADDRESS: 454 Soledad Suite #100 San Antonio, Texas 78205
VEHICLE LICENSE NO./STATE: 2CB-444 Texas
VEHICLE CERTIFICATION:
US EPA ID NO.: TXD 987991866
STATE TRANSPORTER'S ID: 41654

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE GENERATOR SITE LISTED ABOVE.
DRIVER SIGNATURE: Raymond Terrazas
SHIPMENT DATE: 2-16-93

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS DELIVERED WITHOUT INCIDENT TO THE DESTINATION LISTED BELOW.
DRIVER SIGNATURE: Raymond Terrazas
DELIVERY DATE: 2-16-93

DESTINATION

SITE NAME: Alamo Petroleum Exchange
PHONE: 800-322-5085
ADDRESS: Route 5 Box 360-X San Antonio, Texas 78221
US EPA ID NO.: TXD 987991866
STATE FACILITY'S ID: 41654

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL HAS BEEN ACCEPTED AND TO THE BEST OF MY KNOWLEDGE THE FOREGOING IS TRUE AND ACCURATE.

NAME OF AUTHORIZED AGENT: Joannette Wood
SIGNATURE: Joannette Wood
RECEIPT DATE: 2-16-93

WHITE - GENERATOR'S SECOND COPY YELLOW - FACILITY
PINK - TRANSPORTER GOLD - GENERATOR'S FIRST COPY

01853

ALAMO PETROLEUM EXCHANGE

NON-HAZARDOUS WASTE MANIFEST

GENERATOR

GENERATOR NAME AND ADDRESS	GENERATING LOCATION/ADDRESS
LARED AIRPORT 4007 NORTH JARUS LAREDO, TEXAS PHONE NO. ( )	SAME PHONE NO. ( )
GENERATOR'S US EPA ID NO.	STATE GENERATOR'S ID:

DESCRIPTION OF WASTE	WASTE CODE	QUANTITY	UNITS	CONTAINERS NO.	CONTAINERS TYPE
WASTE WATER + SOME OIL	N/A	4500	GALLONS	1	T

TYPE: B-DRUM, C-CARTON, B-BAG, T-TRUCK, P-POUNDS, Y-YARDS, O-OTHER

GENERATOR AUTHORIZED AGENT NAME	SIGNATURE	SHIPMENT DATE
Barbara Vick / CCC Group		3-9-93

TRANSPORTER

TRUCK NO.	PHONE NO.
30	1-800-322-5085
TRANSPORTER NAME: ALAMO PETROLEUM EXCHANGE	DRIVER NAME (PRINT): RAYMOND TERRAZAS
ADDRESS: 454 SOLEDAD SUITE #100 SAN ANTONIO, TEXAS 78205	VEHICLE LICENSE NO./STATE: 2CB.444 TEXAS
	VEHICLE CERTIFICATION
US EPA ID NO. TXD 987991866	STATE TRANSPORTER'S ID: 41654

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE GENERATOR SITE LISTED ABOVE.

DRIVER SIGNATURE	SHIPMENT DATE
Raymond Terraza	3-9-93

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS DELIVERED WITHOUT INCIDENT TO THE DESTINATION LISTED BELOW.

DRIVER SIGNATURE	DELIVERY DATE
Raymond Terraza	3-9-93

DESTINATION

SITE NAME	PHONE
ALAMO PETROLEUM EXCHANGE	800.322.5085
ADDRESS: ROUTE 5 BOX 360-X SAN ANTONIO, TEXAS	
US EPA ID NO. TXD 987991866	STATE FACILITY'S ID: 41654

I HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL HAS BEEN ACCEPTED AND TO THE BEST OF MY KNOWLEDGE THE FOREGOING IS TRUE AND ACCURATE.

NAME OF AUTHORIZED AGENT	SIGNATURE	RECEIPT DATE
JEANNETTE WOOD	Jeannette Wood	3-9-93

WHITE - GENERATOR'S SECOND COPY YELLOW - FACILITY
PINK - TRANSPORTER GOLD - GENERATOR'S FIRST COPY

01854

SWL

SOUTHWESTERN LABORATORIES

ENGINEERING & ENVIRONMENTAL SERVICES

01855

Texas Water Commission

INTEROFFICE MEMORANDUM

TO : LPST FILE ROOM/RPR SECTION DATE: 9/24 1993

THRU :

FROM : Herschel Janus, PST Technical Services Section

SUBJECT: Documentation Regarding the Facility Located at:

Laredo International Airport Waste Oil Area
Facility Name

518 Flight line Laredo
Facility Address

LPST Number: 10165

Construction Notification Tracking Number: 94309 01901

Technical Services Section is **forwarding** X or **has on file for review** ____ documentation on the referenced facility. Please note the following observation(s) related to the documentation referenced.

____ Documentation provided was originally **cc'ed** to RPR section staff.

____ Documentation provided **indicates a possible release** from a petroleum storage tank which may require **identification as an LPST site and assignment of an LPST number.**

____ Documentation provided appears appropriate for RPR review and/or Section files.

X Documentation on file is related to the referenced **LPST** site. The documentation was received in regard to Construction Notification for construction activities at the referenced facility. **This documentation is retained in the Technical Services files.** If you desire to copy or review the documentation, please request **the construction notification file** from the Technical Services Section staff. Please refer to the **construction notification tracking number** when requesting the file.

Item: Removal Apt.
Rec'd Tech. Serv. 9/1/93

HH
Technical Services Section

cc: Construction Notification File

01856