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REVISED FINAL SITE ASSESSMENT AND CHARACTERIZATION OF RECREATIONAL VEHICLE FAMILY CAMPING AREA NAS FORT WORTH TX
3/1/1999
THE ENVIRONMENTAL COMPANY

NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

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Revised Final Report
Site Assessment and Characterization of the Fuel Pipeline Area

Naval Air Station (NAS) Fort Worth
Joint Reserve Base
Carswell Field, Texas

March 1999

Contract No. F41624-95-D-8002
Deliver Order No. 0003

Prepared for:
Department of the Air Force
HQ Human Systems Center (HSC) PKVCC
3207 North Road
Brooks AFB, Texas 78235-5353

REVISED FINAL REPORT

SITE ASSESSMENT INVESTIGATION AND CHARACTERIZATION OF THE FUEL PIPELINE AREA

NAVAL AIR STATION (NAS) FORT WORTH JOINT RESERVE BASE CARSWELL FIELD, TEXAS

Contract No. F41624-95-D-8002
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Prepared for:

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3207 North Road
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Prepared by:

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REVIEW COMMENTS AND RESPONSES TO REVIEW COMMENTS

The following tables and letters contain the technical review comments and The Environmental Company, Inc.'s (TEC's) responses on the draft and final characterization reports for the Recreational Vehicle (RV) Family Camping (Fam Camp) and Fuel Pipeline areas at Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field. The comments were prepared by the Air Force Center for Environmental Excellence (AFCEE), U.S. Environmental Protection Agency (EPA), and Texas Natural Resource Conservation Commission. The tables and letters include the following:

- Response to AFCEE Review Comments (May 1, 1997) on the Draft Site Assessment, Investigation, and Characterization Report for the RV Fam Camp and Fuel Pipeline Areas (March 1997)
- Response to EPA Review Comments (September 23, 1997) on the Draft Site Assessment, Investigation, and Characterization Report for the RV Fam Camp and Fuel Pipeline Areas (March 1997)
- Response to TNRCC Review Comments (February 9, 1998) on the Draft Site Assessment, Investigation, and Characterization Report for the RV Fam Camp and Fuel Pipeline Areas (March 1997)
- Letter from EPA, dated July 20, 1998, regarding review comments on the Final Site Assessment and Characterization Report for the RV Fam Camp Area (June 1998) and the Final Site Assessment Investigation and Characterization Report for the Fuel Pipeline Areas (June 1998)
- Letter from TNRCC, dated July 27, 1998, regarding review comments on the Final Site Assessment and Characterization Report for the RV Fam Camp Area (June 1998) and the Final Site Assessment Investigation and Characterization Report for the Fuel Pipeline Areas (June 1998)

The Final Site Assessment and Characterization Report for the RV Fam Camp Area (June 1998) and the Final Site Assessment Investigation and Characterization Report for the Fuel Pipeline Areas (June 1998) represent revisions of the Draft Report based on the 1997 and February 1998 review comments listed above. As part of revising the Draft Report, the RV Fam Camp investigation was separated from the Fuel Pipeline investigation, resulting in the two final characterization reports. The letters dated July 1998 and prepared by EPA and TNRCC are review comments on these two reports.

In response to the July 1998 letters, TEC resampled locations in the RV Fam Camp and Fuel Pipeline areas based on historical observations, previous investigations, organic vapor screening, and hydrocarbon fingerprinting. The results associated with the resampling effort in the Fuel Pipeline areas are presented in this revised final report. The results for the RV Fam Camp area are presented in a separate report.

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RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

General Comments

Item	Comment	Response and/or Action Taken
1	The contractor presented a partial risk evaluation of the Unnamed Stream area and the West Fork of the Trinity River area. Action levels were not determined for these areas since the contamination identified at these sites was attributed to sources other than the pipeline being investigated by this project. Risk assessments are being performed for sites encompassing the Unnamed Stream and the West Fork of the Trinity River areas as part of site investigations conducted under separate contracts. The contractor's evaluation of the exposure scenarios for these areas was unnecessary for the reasons indicated above. The partial evaluation of the risk assessment process was somewhat confusing, presenting pathways and not evaluating them. All of these requirements for the risk assessment process at these areas will be addressed by the other contracts.	Concur, risk evaluation modified.
2	The contractor should reevaluate the screening action levels (SALS) presented in Table 2-5. Practical quantitation limits (PQLS) should only be used in place of lower background levels if it is demonstrated that lower levels of quantitation of a contaminant are not possible. Additionally, background levels used for arsenic, lead, and cadmium are higher than those determined in the most recent draft Basewide Background Study (Jacobs 1997). The contractor should reevaluate contaminants as necessary if the SALs are changed.	PQLs were not used as screening levels in the revised final report. The screening levels were revised in the revised final report to reflect the results of the draft Basewide Background Study (Jacobs, 1997) and subsequent revisions (Jacobs, 1998), analytes were reevaluated with respect to the screening levels.
3	The contractor did not present a conceptual site model (CSM) as stated in the Work Plan (WP) and statement of work (SOW). A CSM in tabular format as specified in the Air Force Center for Environmental Excellence (AFC-EE) "Handbook" (September 1993) would greatly clarify the exposure pathway analysis presented in the risk evaluation.	A tabular CSM based on AFCEE guidelines is included in the revised final report.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Specific Comments

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
1	xiii	Executive Summary	The last sentence of this page is not complete. This sentence would describe the recommended management category for the RV Fam Camp if completed. The value box area and Farmers Branch Creek area should also be categorized.	Text added.
2	1-7	1.4.1.2	The contractor should clarify the reference to lead exceeding action levels. Is the contractor referring to action levels developed in this report or action levels developed in the RFI (Law 1995) being discussed?	The text refers to action levels devloped in the RFI. Text was modified.
3	1-10	1.5.1	The contractor should clarify that the galvanized water trough to be installed at the former oil/water separator location at the Unnamed Stream will only be in place until the removal project is completed.	Point clarified.
4	1-10	1.5.3	The contractor should clarify the tank removal date at the Base Service Station (BSS). This section conflicts with section 1.4.1.3.	The date was revised to 1993.
5	Figure 1-3	Figure 1-3	The road identified as River Oaks Boulevard should be identified as White Settlement Road.	Figure modified.
6	Figure 1-4	Figure 1-4	Soil borings shown on the map should be included in the legend. The site symbol consisting of horizontal lines should also be identified in the legend.	Figure modified. Boring locations were removed. Figure 1-4 is Figure 1-5 in the revised final report.
7	Figure 1-4	Figure 1-4	The term "abandoned USTs" is used in the figure to represent the former location of underground storage tanks (USTs). The contractor should label the location "former UST location".	Figure modified. Now Figure 1-5.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
8	2-7	2.2.2.2	The text indicates that a split-spoon sampler was driven in accordance with ASTM D-1586. The contractor should correct the text to indicate the manner in which samples were actually collected. The sampler was not driven. The borehole logs in Appendix G indicate that a 5-foot sampler was utilized and no blow counts are presented.	Text modified.
9	2-8	2.2.2.2	The contractor indicates that decontamination fluids were contained and disposed of in accordance with Texas Natural Resource Conservation Commission (TNRCC) regulations. Decontamination fluids were contained but not disposed. No analytical results or disposal receipts are presented for investigation-derived waste (IDW). The SOW and WP indicate that the contractor will dispose of IDW. The contractor should explain the disposition of the IDW including soil and fluids.	Text modified.
10	2-12	2.2.6.1	The contractor should indicate the location of the ambient blank sample.	Text modified.
11	2-13	2.3.1	The contractor indicates that the hydrocarbon fingerprinting identified the exact type of product present in the sample. Suggest the contractor delete the word "exact" from the text.	Text modified.
12	2-17	2.4.3	The contractor should indicate that the reason for evaluating the RV Fam Camp under Texas Administrative Code (TAC) 335, Subchapter S, instead of Petroleum Storage Tank (PST) guidelines is that it is not a PST area.	Concur. Text modified.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
13	2-19	2.4.3.1	The contractor indicates that the SALs for PST areas are based on the PQLs if the PQLs are higher that background levels. The contractor should only consider using the PQL as the SAL if it is demonstrated that lower levels of quantitation of a contaminant are not possible.	PQLs were not used as screening levels in the revised final report.
14	2-19	2.4.3.1	The contractor indicates that the SALs for the Unnamed Stream and RV Fam Camp areas are based on the PQLs if the PQLs are higher than background levels. The contractor should address the statement in TAC 335.554 (d) that the PQL can only be used as the SAL if it is demonstrated that lower levels of quantitation of a contaminant are not possible.	PQLs were not used as screening levels in the revised final report.
15	2-24	Table 2-5	Suggest the contractor utilize background concentrations for arsenic instead of the PQLs. The contractor should verify the background concentrations utilized for arsenic, cadmium, and lead. The levels are considerably higher than the levels determined in the January 1997 Jacobs Engineering Basewide Background Study at NAS Fort Worth. NOTE: The January 1997 Jacobs Basewide Background Study is a draft version.	Screening levels were revised to reflect the upper tolerance limit (UTL) concentrations presented in Jacobs' draft Basewide Background Study (Jacobs 1997) and subsequent revisions to some of the UTLs (Jacobs 1998).

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
16	3-11	3.3.4.3	The text indicates that an analysis of the potential risks posed by compounds exceeding SALs at the Unnamed Stream is presented in section 5.0 of the report. The contractor should correct this statement since action levels were not developed for these compounds at the Unnamed Stream in this report. The risks posed are to be evaluated under another contract.	Concur, text modified.
17	3-13	3.3.5.3	See above comment. The above comment also applies to the West Fork of the Trinity River area.	Concur, text modified.
18	3-24	Table 3-8	The summary of detected results does not list benzene under the heading of BTEX (benzene, toluene, ethylbenzene, xylenes). Similar situations exist for other samples listed on other tables following this table. The same omission occurs for figure 3-1. The contractor should correct or clarify.	Footnotes were added to Section 3.0 tables and figures to indicate that only detected compounds were included. Benzene was not detected in Valve Box soil samples.
19	4-1	4.3	The reference to section 3.4 should be corrected to section 3.3.4.	Irrelevant to the revised final report.
20	5-1	5.0	The contractor should present a CSM in this section of the report as required by the WP and SOW. The AFCEE Handbook specifies a CSM in tabular format.	A tabular CSM based on AFCEE guidelines is included in the revised final report.
21	5-2	5.0	The contractor should not present an evaluation of the exposure scenarios for sites which were determined not to be sources.	Concur, text modified.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
22	5 - 2	5.1.2	The contractor indicates that the selection of potential human receptors was based in part on the migration potential evaluation in section 4.0; however, the migration potentials of the Unnamed Stream and the West Fork of the Trinity River were not discussed in section 4.0 since the pipelines did not contribute to the contamination.	Concur, text modified.
23	5 - 3	5.1.2	The contractor infers that the Unnamed Stream is located next to the golf course; however, the Unnamed Stream is separated from the golf course by a significant distance and buildings, roads and undeveloped land not associated with the golf course. The contractor should delete or clarify the manner in which the Unnamed Stream could be associated with the golf course.	Concur, text deleted.
24	5 - 3	5.1.2	If potential beneficial use of the groundwater at the Unnamed Stream and RV Fam Camp is designated Category I due to the potential to impact groundwater, this reasoning and designation would also apply to the West Fork of the Trinity River area. Seepage to the river in this area has already been noted (section 1.4.1.3).	Eliminated discussion of the Unnamed Stream and West Fork of the Trinity River areas because investigations of these areas are addressed under separate contracts.
25	5 - 4	5.1.3	The contractor should eliminate use of the term "expanded golf club" or include reference to the Unnamed Stream and RV Fam Camp.	Concur, reference eliminated.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
26	5 - 4	5.1.3	The contractor begins the fourth paragraph indicating that the only environmental media of concern for this risk evaluation is subsurface soil. This is an inaccurate statement which seems to indicate an incomplete risk evaluation. This section on exposure pathway evaluation must evaluate all practical potential for exposure. Only after the evaluation of each potential pathway can the complete pathways be identified. The pathways must also consider future transport to other media of concern. The contractor indicates that no exposure exists for surface soils; however, no surface soil samples were obtained.	Text was modified to reflect results of Sections 3.0 and 4.0, which conclude that chemicals of concern were only detected in subsurface soil and future contaminant migration to other media is not expected. Surface soil was screened using PID. Because PID results indicated no surface soil contamination and the pipelines are located below the ground surface, no surface soil samples were collected for laboratory analysis. In the Pipeline revised final report, no COPCs were identified; therefore a risk evaluation was not performed.
27	5 - 4	5.1.3	The contractor indicates that groundwater is not likely to be impacted by sources identified in this study, as indicated in section 4.0. Section 4.0 clearly indicates the groundwater contamination exists in the area of the Unnamed Stream and the West Fork of the Trinity River. If the contractor is attempting to indicate the groundwater is not impacted by the sources investigated for this report, the pipeline areas, why are they being evaluated in this section?	Based on AFCEE's general comments, discussion of these areas was eliminated from the exposure pathway analysis.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
28	5 - 5	5.1.3	The future exposure scenarios have failed to consider dermal exposure to the construction worker. The recreational visitor should not contact or ingest subsurface soils	Cleanup levels in the revised final report were based on TNRCC's 1998 implementation of RRSN guidance memorandum. The RRSN2 values provided in this guidance incorporate dermal and inhalation exposures under a residential scenario.
29	5 - 1 7	Table 5-5	The contractor should clarify the status of arsenic. Was arsenic detected or evaluated?	Arsenic was not detected at the RV Fam Camp area.

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Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

General Comments

Item	Comment	Response and/or Action Taken
A.	USAF's Draft SC Report should include a document intended to be used in fulfilling deed recordation requirements if appropriate.	Not appropriate because no deed restrictions are required.

Specific Comments

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
B.	xiii	Executive Summary	USAF recommends that the RV Fam Camp be managed under Category 1 (no further action). USAF should include a statement that specifies which of the TNRCC's Risk Reduction Standards are applicable to the RV Fam Camp.	Text added.
C.	1-3	1.2.4	USAF provided a brief description of the regional geology. USAF should include a stratigraphic map in the Draft SC Report that represents the subsurface at the RV Fam Camp. This detailed cross-section of the study area should utilize the information obtained from the field investigations.	A stratigraphic map is included in the revised final report (Figure 1-4).

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D.	2-19	2.4.3.1	USAF states that the screening action levels (SALS) for the RV Fam Camp area were based on the maximum background concentrations measured during the Oil/Water Separator Assessment and RCRA Facility Investigation conducted by Law Environmental, Inc. in 1994. USAF adds that the background soil samples were obtained from five boreholes drilled within the vicinity of the investigation area to depths ranging from 4 to 14 feet below the ground's surface. Table 2-5 (Basis for TNRCC Screening Action Levels (SALS) for the RV Fam Camp Site Investigation) lists the SALs chosen by USAF for the RV Fam Camp. USAF should provide additional information in the Draft SC Report that justifies the selection of background concentrations. EPA does not believe that the use of maximum concentrations of inorganics is appropriate for use as background concentrations and comparison to soil analytical data or TNRCC's media-specific concentrations (MSCs). The technical issues that should be addressed by USAF include selection of background sampling locations, considerations in selection of sampling procedures, and statistical analyses.	Background upper tolerance limit (UTL) concentrations from Jacobs Engineering draft Basewide Background Study (Jacobs Engineering 1997) were used as screening levels in the revised final report. Some of the UTLs were revised subsequent to release of the study report (Jacobs personal communication 1998). These revised values were used as screening levels. PQLs were not used as screening levels in the revised final report.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

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RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D. (cont)	2-19	2.4.3.1	USAF should consider the protocols described in the following EPA guidance documents in the establishment of background for all environmental media of concern. These documents, not all inclusive, are titled Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (Addendum to Interim Final Guidance, June 1992), "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (Interim Final Guidance, April 1989, EPA/530-SW-89-026), and "Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites" (December 1995, EPA/540/5-96/500). Although the document has not been approved by TNRCC, USAF should also consider USAF's "Draft Base-Wide Background Study" (January 1997) in the development background for the RV Fam Camp. The Draft SC Report may require amendment based on TNRCC's comments concerning this background study. For clarification purposes, the objective of the RCRA Facility investigation is to delineate the full vertical and horizontal extent of contamination to background conditions. Therefore, it is imperative that true background conditions are established for the RV Fam Camp.	

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D. (cont)	2-19	2.4.3.1	Once background conditions are established, USAF should determine whether the analytical data collected to date are representative of the full vertical and horizontal extent of contamination, if present, at the RV Fam Camp. EPA realizes that in some cases delineating the extent of contamination to unaffected background may not be possible or practical, USAF should discuss this issue with EPA and TNRCC if this is the case at NAS FW. Additionally, USAF must demonstrate in the Draft SC Report that lower levels of quantitation are not possible if Practical Quantitation Limits are used as the basis for the selection of action levels (e.g., the PQLs are greater than their respective background and/or MSCS).	
E.	3-33	Table 3-12	Table 3-12 provides a comparison of the soil sampling results with the TNRCC screening levels. USAF should also consider EPA's Region 6 Human Health Media-Specific Screening Levels in the comparison to the soil analytical results and background concentrations.	Screening of site concentrations at the RV Fam Camp area is based on Risk Reduction Standard Number 1, which relies on background concentrations for determining compliance. Because the focus is on background, risk-based concentrations are not considered in the screening step for this study area.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
F.	5 - 6	5.1.5	USAF provided Table 5-3 (Action Levels for COPC at the RV Fam Camp Area) which lists the MSCs applicable to the RV Fam Camp. USAF modified the residential MSCs to generate recreational and industrial soil scenarios by multiplying the values by a factor to account for the lower exposure frequency. This modification may be reasonable for noncarcinogens but is not recommended for carcinogens since the non-threshold assumption for estimating carcinogenic risk does not allow for the modification based on exposure frequency.	Irrelevant for the revised final report because MSCs obtained from TNRCC's 1998 implementation of RRSN2 guidance memorandum.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO TNRCC REVIEW COMMENTS (FEBRUARY 9, 1998) ON THE DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

General Comments

Item	Comment	Response and/or Action Taken
A	Efforts should be made to identify any Leaking Petroleum Storage Tank (LPST) sites that are referenced in the report (BSG, BSS, etc.) which provide evidence to the final findings of the investigation.	Added LPST ID numbers next to LPST sites (eg BSS, BSG) throughout report, per Antonio Pena (TNRCC, February 23, 1998).

Specific Comments

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
A	xiii	Executive Summary	USAF states that no further action status is recommended because no significant impact to human health and environment exists. USAF should also state that no potential for significant impact exists under future exposure scenarios for the sub-population chosen in Section 5.0 (Risk Evaluation).	Concur. Text added.
B.	1 - 3	1.2.4	USAF should include a geologic stratigraphic map that represents the subsurface along the pipeline areas. Information from field investigations in combination with regional geologic knowledge should be utilized to prepare such a map.	A stratigraphic map is included in the revised final report (Figure 1-4).

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

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RESPONSE TO TNRCC REVIEW COMMENTS (FEBRUARY 9, 1998) ON THE
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
C.	1-9	1.4.1.3	USAF should make efforts to include the most up-to-date information obtained through the latest field investigations at the BSS. Also, SC report should mention that the sources at this location have been removed/eliminated.	Concur. Text added.
D.	2-17	2.4.3	Please identify the references TNRCC PST Division documents utilized for risk evaluation/methodology as RG-175 and RG-36 respectively.	Text added.
E.	2-19	2.4.3.2	Different methodologies were used to set SALs for organics and inorganics due to some chemicals not being in Table A-1 of Beneficial Groundwater Use Category 1 Levels. For SALs set to background levels, additional justification should be provided for the selection of background concentrations as maximum concentrations obtained during 1994 field investigations of other areas. Characterization of background conditions should be determined by placement of borings outside the area of potential contamination. Because direct sampling data from the area of concern prior to waste management activities is seldom available, the use of nearby, non-impacted sampling data in conjunction with statistical/geostatistical estimation techniques and/or statistical models is recommended.	Background upper tolerance limit (UTL) concentrations from Jacobs Engineering draft Basewide Background Study (Jacobs 1997) were used as screening levels in the revised final report. Some of the UTLs were revised subsequent to release of the study report (Jacobs personal communication 1998). These revised values were used as screening levels.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

RESPONSE TO TNRCC REVIEW (FEBRUARY 9, 1998) COMMENTS ON THE DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV) FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
F.	2-19	2.4.3.2	USAF should provide the basis (ex: TDS, receptors, groundwater depth, etc.) for selecting the more stringent Beneficial Groundwater Use Category I target levels over Category II, which is the denomination currently applied to other PSTD areas at the Base. Information about the probable well yield, based on nearby and/or regional experience, at the depths of concern is critical to a risk-based approach.	Assumption of Category I was a conservative measure for screening purposes (i.e. in development of screening action levels), before an exposure analysis was performed. In addition, beneficial use of the groundwater in the vicinity of the Unnamed Stream and RV Family Camp areas is designated as Category I by TNRCC because of potential contaminant migration into local surface water (Parsons Engineering 1996). Therefore, Category I was assumed in the screening step of the Risk Evaluation.
G		Section 5.0	An attempt should be made to identify all complete exposure pathways. The ingestion of COPCs in subsurface soil pathway for the industrial worker population appears to be incomplete due to unlikely excavation activities. TNRCC PSTD recommends the inclusion of the future construction worker scenario because the possibility for repairs/maintenance of the active Pride Petroleum pipeline appears to be likely. Also, target risk for the future pipeline construction/repair/maintenance worker scenario would be protective of the industrial worker. USAF should specify the target risk in the SC report; for PSTD areas, the permissible risk for future exposure scenario is $1x10^{-4}$.	Irrelevant; no COPCs were identified in the revised final report.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the Fuel Pipeline report.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

July 20, 1998

Mr. Rafael Vazquez,
AFBCA Regional Operating Location
3711 Outlaw Country Drive
Austin, Texas 78719-2557

Dear Mr. Vazquez:

The Environmental Protection Agency (EPA) has reviewed the documents, "Site Assessment and Characterization of the Fuel Pipeland Area and Site Assessment and Characterization of the Recreational Vehicle Family Camping Area", Carswell Air Force Base June 1, 1998. Although specific comments may not be required, the reports are being used by the Air Force to categorize property as uncontaminated for eventual transfer. Based upon a review of the data in this report, additional concerns are noted below.

The conclusions reached in these reports are based upon analytical data from Inchcape Testing Service. Due to concern with validation of data from Inchcape, the data should be considered suspect. I cannot concur with the listing of the property as Category 1, based upon this data.

Please contact me at (214) 665-8306 should you wish to discuss this further.

Sincerely,

Gary W. Miller

Gary W. Miller
Senior Project Manager
Base Closure Team

cc: Mark Weegar, TNRCC
Antonio Pena, TNRCC
Charles A. Rice, AFCEE

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

July 27, 1998

Mr. Charles A. Rice
Base Closure Restoration Division
HQ AFCEE/ERB
3207 North Road, Bldg. 532
Brooks AFB, Texas 78235-5363

Re: Final Site Characterization Report for the Recreational Vehicle Family Camping and Fuel Pipeline Areas, NAS Fort Worth JRB- Carswell Field, Fort Worth (Tarrant County), Texas (Facility ID No. 009696)

Dear Mr. Rice:

We have received and reviewed the Final Site Characterization (SC) Report for the Vehicle Family Camping and Fuel Pipeline Areas (June 1998) for NAS Fort Worth JRB (formerly Carswell AFB). The reports are being utilized by the Air Force/U.S. Navy to categorize property as uncontaminated under the PST Chapter 334 regulations for eventual transfer and future use.

It is noted that all Texas Natural Resource Conservation Commission (TNRCC) conclusions reached in these reports (workplan, draft and final version) have been based upon analytical laboratory data from Inchcape Testing Service (ITS). Due to current concerns with the validity of data from ITS, prior to consideration of your No Further Action recommendation, we request reprocessing of the data from ITS. We suggest you contact ITS about the reprocessing process they plan to implement to offset the concerns raised with validation of data from 1994 through January 1998.

We appreciate reviewing this regulatory document. Should you have any questions concerning our conclusions or wish to discuss this matter further, please contact me at 512/239-2186.

Sincerely,

pc

Antonio Peña, P.E.
Federal Facilities Coordinator
Responsible Party Remediation Section
Remediation Division

ARP/keh
scpipela:fnn

cc: Mr. Alvin Brown (AFBCA/OL-H)
(6550 White Settlement Road, Ft. Worth, Texas 76114-3520)
Ann Strahl, TNRCC I&HW, MC-141
Sam Barrett, TNRCC Region 4 Field Office
(1101 East Arkansas Lane, Arlington, Texas 76010-6499)

454 22

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NAVAL AIR STATION (NAS) FORT WORTH
JOINT RESERVE BASE (JRB)
CARSWELL FIELD, TEXAS

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13. ABSTRACT *(Maximum 200 words)*

This technical report provides a summary of investigation activities that included a Site Assessment, Site Investigation, and Site Characterization of the fuel pipeline areas at Naval Air Station Fort Worth, Joint Reserve Base, Carswell Field, Texas. Based on the results of the investigation and characterization, it was recommended that the site be managed under Category I: No Further Action.

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NOTICE

This report has been prepared for the United States Air Force by The Environmental Company, Inc. (TEC) for the purpose of aiding in the implementation of a final remedial action plan under the Air Force Installation Restoration Program (IRP).

Although the area of study was investigated in accordance with IRP guidance, the area has not been identified as an IRP site. NAS Fort Worth (formerly Carswell Air Force Base) is undergoing property disposal/reuse pursuant to the Defense Base Closure and Realignment Act of 1990 and Round II of the Base Closure Commission deliberations. The area of study is being considered for property disposal or reuse and the Air Force Base Conversion Agency (AFBCA) desires to investigate the area to confirm or deny the presence of contamination.

As the report relates to actual or possible releases of potentially hazardous substances, its release prior to a United States Air Force final decision on remedial action may be in the public's interest. The limited objectives of this report and the ongoing nature of the IRP, along with the evolving knowledge of site conditions and chemical effects on the environment and health, must be considered when evaluating this report because subsequent facts may become known that may make this report premature or inaccurate.

Acceptance of this report in performance of the contract under which it is prepared does not mean that the Air Force adopts the conclusions, recommendations, or other views expressed herein, which are those of the contractor only and do not necessarily reflect the official position of the United States Air Force.

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PREFACE

A site assessment (SA), site investigation (SI), and site characterization (SC) of the fuel pipelines at Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas (identified as Project No. 95-8021) was conducted to determine the presence or absence of contamination and to define the nature and extent of such contamination if present.

This report was prepared by The Environmental Company, Inc. (TEC) under contract No. F41624-95-D-8002, Delivery Order 0003. This technical report has been prepared for Project No. 95-8021.

This report provides a summary of the SA, SI, and SC activities, including a risk evaluation and conclusions of the investigation.

This report was written under the direction of Mr. Bob Duffner, TEC Project Manager. The Contracting Officer's Representative for this project is Mr. Charles Pringle, Air Force Center for Environmental Excellence (AFCEE), Environmental Restoration Branch (ERB), Brooks Air Force Base (AFB), Texas.

Approved: Bob Duffner Date: 4/28/99

Bob Duffner
The Environmental Company, Inc.
TEC Project Manager

Approved: Jeff Wilson Date: 4/28/99

for Jack E. Wilson, P.E.
The Environmental Company, Inc.
TEC Project Director

EXECUTIVE SUMMARY

A three-phase investigation was conducted at the Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas. The investigation focused on areas adjacent to two privately owned fuel distribution pipelines that traverse U.S. Government property associated with the former Carswell AFB. Properties associated with the former base are undergoing disposal/reuse pursuant to the Defense Base Closure and Realignment Act of 1990 and Round II of the Base Closure Commission deliberations. **This investigation was conducted in conjunction with an investigation of the Recreational Vehicle (RV) Family Camping (Fam Camp) area**. The investigation activities and results associated with the RV Fam Camp area are presented in a separate report (TEC, 1999).

During the initial site assessment phase, background information including historic observations and investigation reports for adjacent and/or associated sites was collected. Results of this assessment were combined with those from a soil gas survey conducted during the site investigation phase to identify potential areas of concern along the pipelines. The subsurface soils in four areas of concern were characterized during the final phase of the investigation. These included the area surrounding a pipeline valve box, a section of pipeline in the vicinity of Farmers Branch Creek, pipeline areas adjacent to the Unnamed Stream, and pipeline areas along the West Fork of the Trinity River west of Jennings Drive.

Boreholes were advanced at 12 locations in the pipeline investigation areas. Twenty-nine subsurface samples collected from the boreholes were analyzed for selected combinations of volatile organics, semivolatile organics, total petroleum hydrocarbons, and inorganics. In addition to these definitive-quality laboratory analyses, screening-level hydrocarbon fingerprinting was performed on selected samples.

All areas investigated contained no contamination, limited contamination below screening action levels, or contamination attributable to other sources. There was no indication that the pipeline contributed to an unauthorized release of petroleum to the environment in the areas investigated.

Based on the results of this investigation, it is recommended that the areas adjacent to the pipelines between Highway 183 and the base boundary (including the Valve Box area), in the Unnamed Stream area and along the West Fork of the Trinity River directly west of the Jennings Bridge, be managed under Category 1 with respect to the pipeline. The Air Force Center for Environmental Excellence defines Category 1 management as no further action because no significant impact to human health or the environment exists. The Risk Evaluation demonstrates that no significant current or future impact to human health or the environment exists with respect to the pipeline.

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LIST OF ACRONYMS AND ABBREVIATIONS

AA	Atomic Absorption
ACC	Air Combat Command
AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AFCEE	Air Force Center for Environmental Excellence
AL	Action Level
AMSL	Above Mean Sea Level
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society of Testing and Materials
bgs	below ground surface
BHB	Baird, Hampton & Brown, Inc.
BHC	Benzene Hexachloride
BKGRD	Background
BSS	Base Service Station (LPST Site No. 104524)
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
°C	degrees Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
COE	Corps of Engineers
COPC	Chemical of Potential Concern
COR	Contracting Officer's Representative
CPG	Certified Professional Geologist
CUL	Cleanup level
DBCRA	Defense Base Closure and Realignment Act
DEQPPM	Defense Environmental Quality Program Policy Memorandum

DOD	Department of Defense
DOT	Department of Transportation
DQO	Data Quality Objective
DTIC	Defense Technical Information Center
DWEL	Drinking Water Equivalent Level
ECD	Electron Capture Detector
EPA	U.S. Environmental Protection Agency
ERB	Environmental Restoration Branch
°F	degrees Fahrenheit
Fam Camp	Family Camping
FID	Flame Ionization Detector
FOD	Frequency of Detect
FSP	Field Sampling Plan
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectroscopy
GLP	Good Laboratory Practices
GMI	Geo-Marine, Inc.
GORE	W.L. GORE & Associates Screening Module Laboratory
GS	Gore Sorber
GWHBC	Groundwater Health-Based Concentration
GWP	Groundwater Protection
HQ	Headquarters
HSA	Hollow-Stem Auger
ICP	Inductively Coupled Plasma

LIST OF ACRONYMS AND ABBREVIATIONS, continued

IRP	Installation Restoration Program
IRPIMS	Installation Restoration Program Information Management System
JP4	Jet Fuel 4
JP8	Jet Fuel 8
Kg	Kilogram
L	liter
LCS	Laboratory Control Samples
LSTP	Leaking Storage Tank Program
MCL	Maximum Concentration Level
MDL	Method Detection Limit
mg	milligram
MS	Matrix Spike
MSC	Medium-Specific Concentration
MSD	Matrix Spike Duplicate
MSSL	Media-Specific Screening Levels
NAS	Naval Air Station
NCP	National Contingency Plan
ND	Not Detected
NOAA	National Oceanic and Atmospheric Administration
PAH	Polycyclic Aromatic Hydrocarbons
PCE	Tetrachloroethene
P.E.	Professional Engineer
PID	Photoionization Detector
POL	Petroleum, Oils and Lubricants

LIST OF ACRONYMS AND ABBREVIATIONS, continued

ppm	parts per million
PQL	Practical Quantitation Limit
PSTD	Petroleum Storage Tank Division
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
RBC	Risk-Based Concentration
RBCA	Risk-Based Corrective Action
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation/Feasibility Study
RRSN	Risk Reduction Standard Number
RV	Recreational Vehicle
SA/SI	Site Assessment/Site Investigation
SAC	Strategic Air Command
SAL	Screening Action Level
SARA	Superfund Amendments and Reauthorization Act
SB	Soil Boring
SC	Site Characterization
SOP	Standard Operating Procedure
SOW	Statement of Work
spp	Species
SVOC	Semivolatile Organic Compound
TAC	Texas Administrative Code
TCE	Trichloroethylene

LIST OF ACRONYMS AND ABBREVIATIONS, continued

TDS	Total Dissolved Solids
TEC	The Environmental Company, Inc.
TNRCC	Texas Natural Resource Conservation Commission
TPH	Total Petroleum Hydrocarbons
μg	microgram
USAF	United States Air Force
UST	Underground Storage Tank
UTL	Upper Tolerance Limit
$UTL_{95,95}$	UTL with 95% confidence and 95% coverage
VOC	Volatile Organic Compound
WP	Work Plan
YMCA	Young Men's Christian Association

TAB

1

1.0 INTRODUCTION

This Site Characterization (SC) report has been prepared by The Environmental Company, Inc. (TEC) under U.S. Air Force Center for Environmental Excellence (AFCEE) Contract No. F41624-95-D-8002, Delivery Order 0003, project number 95-8021. The SC report summarizes the results of an investigative effort conducted at the Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas. Areas investigated during this project include the following:

- Fuel distribution lines between Highway 183 and Ascol Drive, in the vicinity of the Unnamed Stream and along the West Fork of the Trinity River west of Jennings Drive; and
- Recreational Vehicle (RV) Family Camping (Fam Camp) area.

The project consisted of a three-phase data collection effort that included an initial Site Assessment (SA), followed by a Site Investigation (SI) and an SC. **This SC report provides a summary of the activities that took place in each of these phases and their results for the fuel pipeline areas. The investigation activities and results associated with the RV Fam Camp area are presented in a separate report (TEC, 1999).**

All efforts were completed in accordance with guidelines provided in the Headquarters (HQ) AFCEE *Handbook for the Installation Restoration Program (IRP) Remedial Investigations and Feasibility Studies (RI/FS)*, dated September 1993 (hereafter referred to as the *Handbook*). Although the fuel distribution pipelines were investigated in accordance with IRP guidance, they have not been identified as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site. NAS Fort Worth (formerly Carswell Air Force Base) is undergoing property disposal/reuse pursuant to the Defense Base Closure and Realignment Act (DBCRA) of 1990 and Round II of the Base Closure Commission deliberations. The study areas are being considered for property disposal or reuse.

1.1 THE AIR FORCE INSTALLATION RESTORATION PROGRAM

The objective of the U.S. Air Force IRP is to assess past hazardous waste disposal and spill sites at U.S. Air Force (USAF) installations and to develop remedial actions for those sites. The IRP is the basis for assessments and response actions consistent with the National Contingency Plan (NCP); the CERCLA of 1980; and the Superfund Amendments and Reauthorization Act (SARA) of 1986 for sites that pose a threat to human health and welfare or the environment.

Executive Order 12580, adopted in 1987, gave various Federal agencies, including the Department of Defense (DOD), the responsibility to act as lead agencies for conducting investigations and implementing remediation efforts when they are the sole or co-contributor to contamination on or off their properties.

To ensure compliance with CERCLA and Executive Order 12580, the DOD developed the IRP under the Defense Environmental Restoration Program to identify potentially contaminated sites, investigate these sites, and evaluate and select remedial actions for contaminated sites. The DOD issued Defense Environmental Quality Program Policy

Memorandum (DEQPPM) 80-6 regarding the IRP program, dated June 1980. The DOD formally revised and expanded IRP directives, and amplified all previous directives and memoranda concerning the IRP, through DEQPPM 81-5, dated 11 December 1981. The memorandum was implemented by a USAF message dated 21 January 1982.

The IRP is the primary mechanism for implementing response actions on USAF installations affected by the provisions of SARA. In November 1986, in response to SARA and other United States Environmental Protection Agency (EPA) interim guidance, the U.S. Air Force modified the IRP to provide for an RI/FS program. The IRP was modified so that RI/FS could be conducted as parallel activities rather than serial activities. The IRP now encompasses Applicable or Relevant and Appropriate Requirement (ARAR) determinations, identification and screening of remedial technologies, and the development of remedial alternatives. A project conducted under the IRP may include multiple field activities and studies prior to a detailed final analysis of remedial alternatives.

1.2 NAS FORT WORTH DESCRIPTION

1.2.1 Installation Location

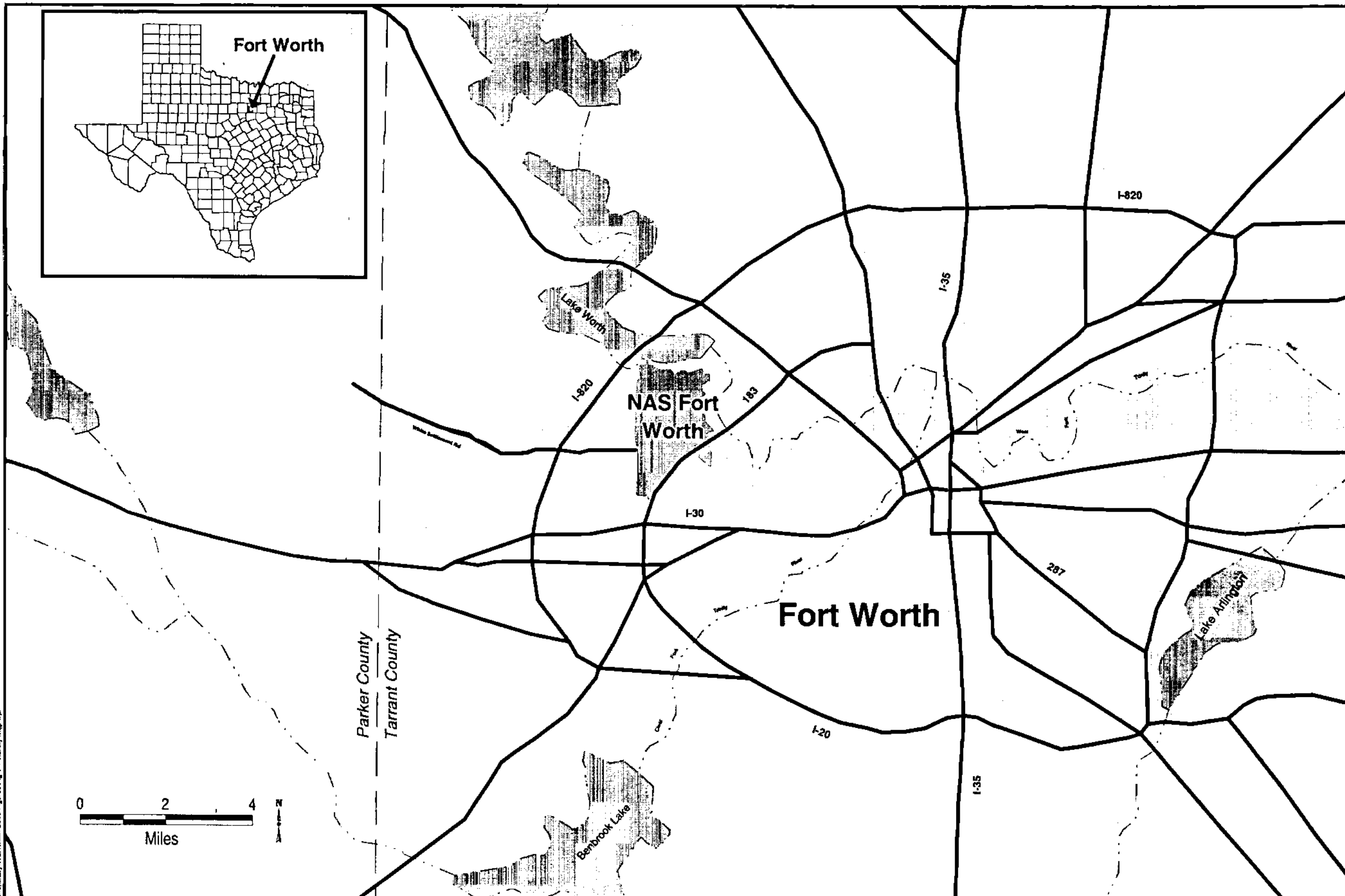
NAS Fort Worth, Joint Reserve Base, Carswell Field (hereafter referred to as NAS Fort Worth) is located in north-central Texas in Tarrant County, approximately 8 miles west of the downtown area of the City of Fort Worth (Figure 1-1). NAS Fort Worth property totals 2,555 acres and consists of a main station and two noncontiguous land parcels. The area surrounding NAS Fort Worth is predominantly suburban, including the residential areas of the City of Fort Worth, Westworth Village, River Oaks, and White Settlement (Figure 1-2).

The main station consists of 2,264 acres and is bordered on the north by Lake Worth, on the east by the Trinity River and Westworth Village, on the northeast and southeast by the City of Fort Worth, on the west and southwest by White Settlement, and on the west by Air Force Plant 4 (Lockheed).

Public and recreational land surrounds Lake Worth north of the station; however, public access along the southern shore of the lake is restricted due to NAS Fort Worth activities. Private recreation lands, a fish hatchery, and a Young Men's Christian Association (YMCA) camp are located along the West Fork of the Trinity River northeast of the station. East and southeast of the station are various types of residential development; a commercial area is located south of the station at the interchange of Interstate Highway I-30 and State Highway 183. This commercial area includes a discount retail center, a shopping mall, and a convenience store. Land uses west of the station are primarily residential and industrial and include single-family residences, Air Force Plant 4, commercial centers, and an industrial complex in White Settlement.

1.2.2 Installation History

The land area currently known as NAS Fort Worth was originally an earthen runway constructed to service an aircraft manufacturing facility. When established in 1942, the installation was referred to as the Tarrant Field Airdrome and was under the jurisdiction of the Gulf Coast Army Air Field Training Command. The installation mission was to provide transition training for B-24 bomber pilots.



The Environmental Company, Inc.

Figure 1-1 -- NAS Fort Worth Vicinity Map

451 40

Date:	June 1998
Project Manager:	B. Duffner
Prepared By:	W. Mitchell
Project No.:	P-3103

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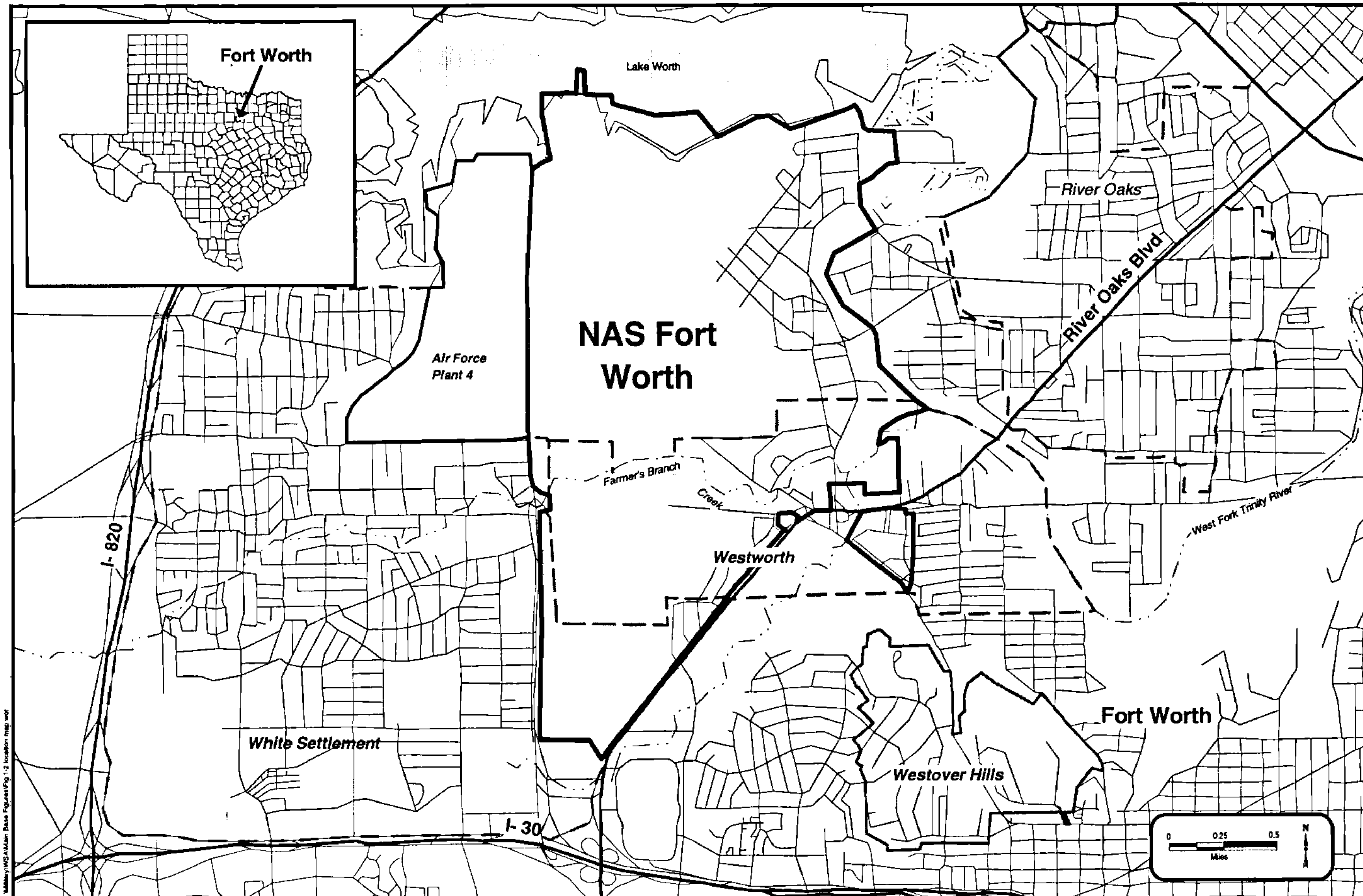

The Environm Company

Figure 1-2 -- NAS Fo orth Location Map

Date: June 1998
Project M er: B. Duffner
Pre y: W. Mitchell
Proj . No: P-3103

The Strategic Air Command (SAC) assumed control of Tarrant Field Airdrome in 1946, and the installation served as the HQ for the Eighth Air Force and as a heavy bomber base. In 1948, the installation was renamed Carswell Air Force Base (AFB) in honor of Major Horace S. Carswell, a Fort Worth native. HQ 19th Air Division was located at Carswell AFB in 1951 and the installation became home base for B-52s and KC-135s in 1956. The Air Combat Command (ACC) assumed control of Carswell AFB in 1992 concurrent with the disestablishment of the SAC.

Carswell AFB was selected for closure and associated property disposal/reuse during Round II of Base Closure Commission deliberations pursuant to the DBCRA of 1990. The planning process for closure and property disposal/reuse at Carswell AFB was initiated in 1992, and Carswell AFB officially closed on 30 September 1993.

The U.S. Navy assumed control of Carswell AFB on 1 October 1994 and renamed the installation NAS Fort Worth.

1.2.3 Regional Topography and Surface Hydrology

NAS Fort Worth is situated in the Grand Prairie Section of the Central Lowlands Physiographic Province. The area is characterized by gently sloping broad terraces that incline to the east and are separated by west-facing escarpments. The surface is typically grass covered with isolated stands of timber on some of the uplands. Within the base, the land surface slopes gently northeast toward Lake Worth and east toward the West Fork of the Trinity River, which flows along the eastern border. Elevations range between 550 and 690 feet above sea level.

NAS Fort Worth is located in the Trinity River Basin immediately south of Lake Worth (Figure 1-2). Surface water generated on the base is discharged through a series of storm drains and natural drainage ways, such as Farmers Branch Creek. Farmers Branch Creek begins near the community of White Settlement and flows to the east. This creek drains the majority of the area included in this investigation. Portions of the base are directly adjacent to Lake Worth and the West Fork of the Trinity River. Surface runoff from adjacent areas discharges directly into these water bodies (Figure 1-3).

1.2.4 Regional Geology and Hydrogeology

A layer of Quaternary sediments covers most of the surface of NAS Fort Worth. This material is thin to absent in some areas where a thin layer of organic soil caps near-surface bedrock. Cretaceous limestones and limy shales of the Goodland Limestone and the Walnut Formation form the bedrock in the areas investigated. These units are a portion of the stable Texas shelf. Bedding is essentially horizontal with regional dips of approximately 35 to 40 feet per mile toward the southeast. No major fracture zones or faults have been mapped in the proximity of the base.

Soils encountered in the present investigation range from organic-rich silty clays to fine-grained sediments of the Trinity River alluvial terraces. Typically, borings drilled in the uplands portion of the base encountered a thin profile of topsoil followed by clay-rich silts containing abundant limestone fragments. However, borings drilled on the flanks of drainages penetrated much thicker profiles of alluvial silts and decomposed limestone products. All borings met refusal against bedrock except those drilled in the West Fork of the Trinity River area. Refusal depths ranged from 17 feet in the shaley

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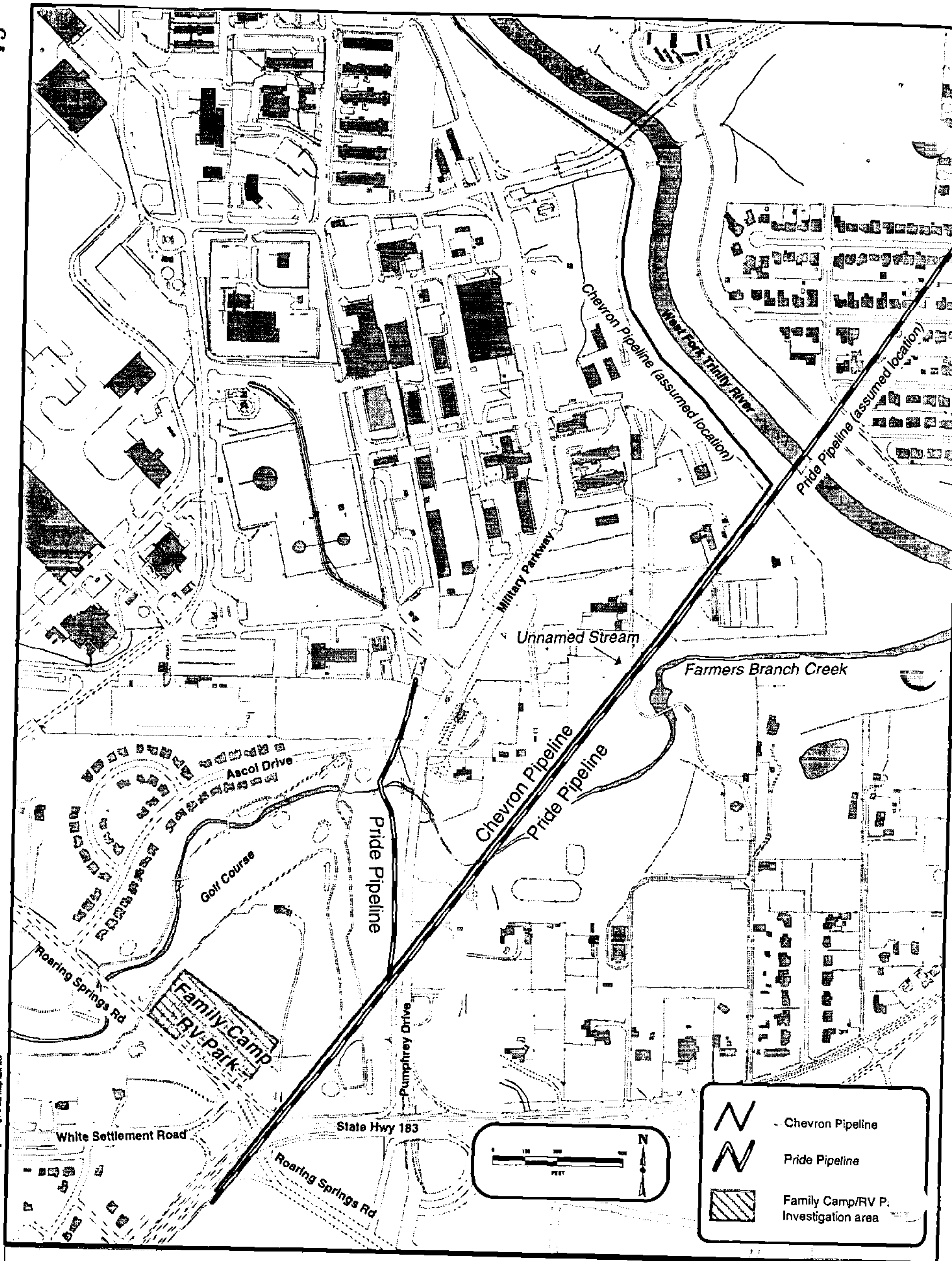


The Environmental Company, Inc.

Figure 1-3 -- Site Map

Date: June 1998
Project Manager: B. Duffner
Prepared By: W. Mitchell
Project No: P-3103

limestone of the Valve Box area to 21 feet in the alluvial fill of the Unnamed Stream area. **A stratigraphic map representing the subsurface of the investigation areas is provided in Figure 1-4.**

The principal hydrogeologic units underlying NAS Fort Worth include the Terrace Alluvium Aquifer and the Upper, Middle, and Lower Paluxy Aquifers. The Paluxy Aquifers are bedrock hosted. The Terrace Alluvium Aquifer is the uppermost aquifer and occurs in unconsolidated material and in the Goodland Formation. The unconsolidated material constituting the Terrace Alluvium is predominantly alluvial and fluvial deposits of clay, silt, sand, and gravel. The Goodland Formation is a thinly to massively bedded fossiliferous limestone. The Terrace Alluvium Aquifer is only partially saturated and is not used as a source of drinking water. Recharge of the aquifer is from precipitation and leaking water supply lines, sewer lines, and storm drains. Discharge seeps into small streams and the Trinity River. Boreholes drilled during this project encountered groundwater within the Terrace Alluvium Aquifer.

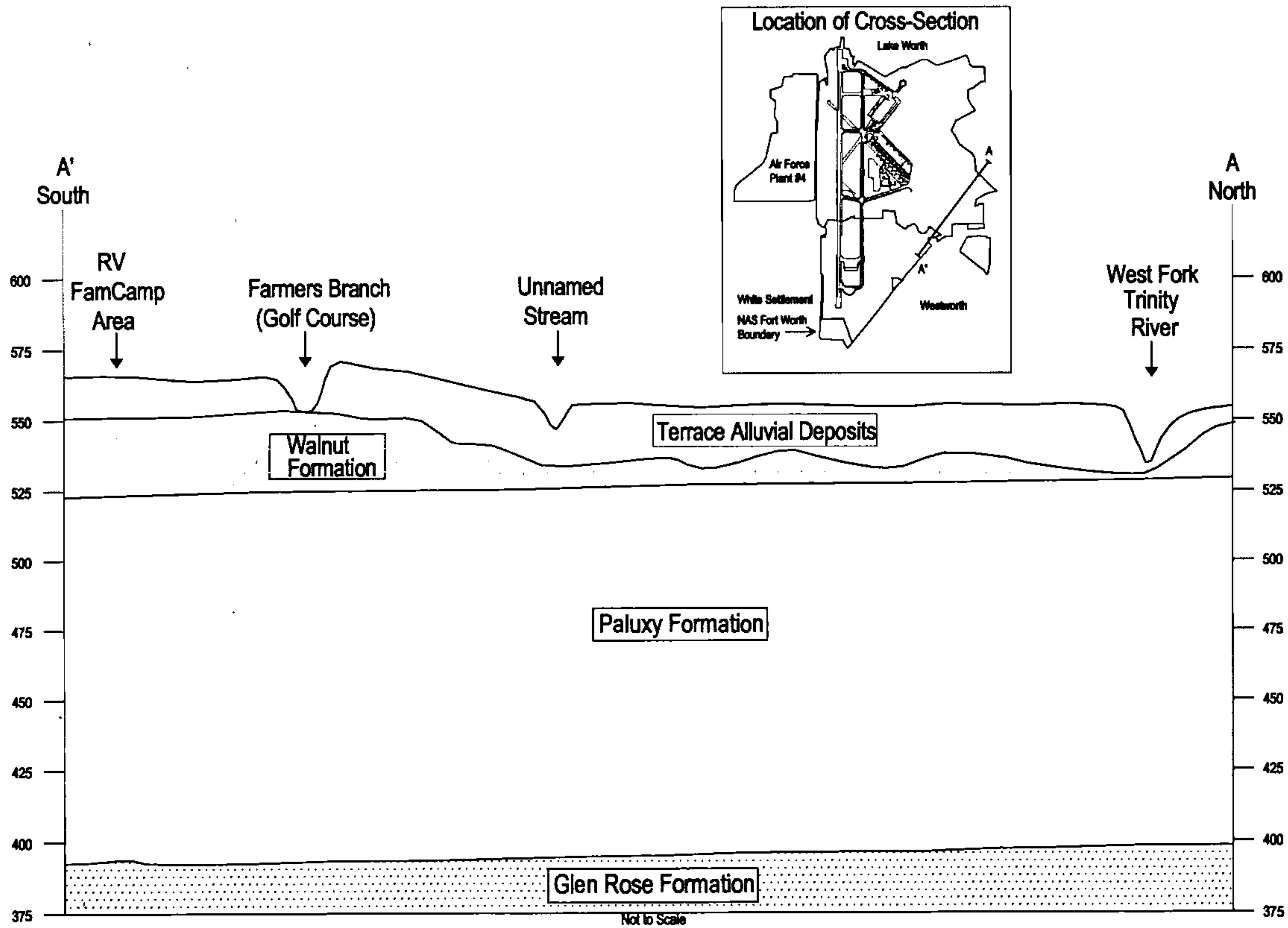
The Paluxy Aquifers are hosted by fine- to medium-grained sandstone separated by clays and shales of the Paluxy Formation. The Middle Paluxy Aquifer serves as a water supply source for the community of White Settlement. The Paluxy Aquifers are hydraulically separated from the Terrace Alluvium Aquifer by the Walnut Formation, a limestone coquina. The Walnut Formation has been subjected to subaerial erosion, suggesting the possibility of local hydraulic communication between the Terrace Formation Aquifer and the deeper Paluxy Aquifers.

1.2.5 Climate

Sub-tropical humid summers and dry winters characterize the climate of NAS Fort Worth, which is situated at 33°N latitude. The average annual air temperature is 66 degrees Fahrenheit (°F). July is the warmest month, with an average monthly air temperature of 86°F. January is the coldest month, with an average monthly air temperature of 45°F. Temperature changes can be rapid in the region, often changing 20° to 30°F in a matter of hours. During calendar year 1995, temperatures averaged 66°F and varied from 48°F in February to 97°F in July. Freezing temperatures occurred during 34 days in 1995. The average annual relative humidity is 63 percent.

The average annual precipitation is 31.5 inches, with the majority of precipitation falling between April and October. There were 31.4 inches of precipitation during 1995, with the wettest month being May. The period from October to February was the driest of the year. Thunderstorms, clustering between March and July, occurred during 61 days in 1995. The maximum recorded precipitation in 1995 was 2.14 inches during one 24-hour period (May 5th). During the present investigation, two major precipitation events occurred on October 21 and 27, causing flash flooding coupled with wind and hail damage.

Prevailing winds are primarily southerly from March through November and northerly from December through February. The average wind speed is 8 knots. Thunderstorms with wind speeds in excess of 65 knots as well as hail storms are common in the region. Climate conditions in summer make tornado formations possible.



Note: A detailed cross section for each area of investigation is provided in Section 4.

The Environment... Company, I...

Figure 1-4 – Generalized Geologic Cross-Section Through NAS Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prep... A. Long
Pr... P-3103

1.3 SITE DESCRIPTIONS

This investigation considered areas adjacent to the fuel distribution pipelines. Two pipelines traverse U.S. Government property associated with the former Carswell AFB (Figure 1-3). In support of this project, the pipeline locations within the investigation area were identified and surveyed. The surveyed pipeline locations are in Appendix A. The privately owned and operated Pride Refining, Inc. (Pride) and Chevron Pipeline Company (Chevron) pipelines are described below.

1.3.1 Pride Pipeline

As shown in Figure 1-3, the active 6-inch diameter jet fuel distribution pipeline runs parallel to Highway 183 to the intersection of Roaring Springs. The line then crosses the NAS Fort Worth golf course in the vicinity of the RV Fam Camp area until reaching Pumphrey Drive. On the west side of Pumphrey Drive, the pipeline branches to the north to service NAS Fort Worth. This service line runs to the north along Pumphrey Drive and crosses Farmers Branch Creek in the vicinity of Ascol Drive. The service line continues north until entering the main station and terminating at the Bulk Fuel Storage Area. The main pipeline continues to the northeast and crosses beneath the West Fork of the Trinity River (Duggan, 1997).

Most of the pipeline is buried approximately 4 feet below ground surface (bgs); however, the pipeline is visible in two locations. These locations are just north of Highway 183 where the pipeline is located in a 2-foot-deep valve box, and at the Unnamed Stream where 3 feet of pipeline is suspended across the stream.

The Pride pipeline was constructed in the 1950s by the Permian Corporation, which is based in Houston, Texas. Pride purchased the pipeline in 1980. During the first 30 years of operation under the Permian Corporation, the pipeline transported crude oil along the main line to the Amber Refinery. In 1983, Pride discontinued pumping crude oil to the refinery and abandoned that portion of the main pipeline located northeast of Pumphrey Drive (Figure 1-3). The abandoned line was nitrogen-purged during the abandonment process. According to Pride personnel, the pipeline northeast of Pumphrey Road never carried jet fuels. After 1983, the southern portion of the line and the service line to the bulk fuel storage tanks were used to transport jet fuel to Carswell AFB. Between 1983 and 1994, Jet Fuel 4 (JP-4) was delivered to the base. After 1994, the pipeline delivered Jet Fuel 8 (JP-8). The entire pipeline in the vicinity of NAS Fort Worth was abandoned in January 1997 as a result of a spill located south of the base (Duggan, 1997). No fuel has been delivered to NAS Fort Worth through the pipeline since January 1997.

1.3.2 Chevron Pipeline

The Chevron commercial distribution line parallels the Pride pipeline through U.S. Government property, entering from the south at the intersection of Roaring Springs Road and Highway 183 (Figure 1-3). The pipelines are approximately 3 feet apart. The pipelines travel in a northeastern direction for approximately 4,200 feet to the West Fork of the Trinity River. At this point, the Chevron pipeline turns to the northwest along the southern bank of the West Fork of the Trinity River (Powell, 1997). The Chevron pipeline is also buried approximately 4 feet bgs. The Chevron pipeline is visible only at the Unnamed Stream crossing.

The Chevron pipeline was constructed in the 1940s and has reportedly carried various grades of refined petroleum products (i.e., gasoline, diesel). The distribution line has been nitrogen-purged and has been out of service since 1988 (Powell, 1997).

1.4 PAST OBSERVATIONS AND INVESTIGATIONS

The sections below summarize past observations and investigations associated with the fuel distribution pipelines. The observations and investigations discussed include those directly related to the pipelines, as well as investigations of adjacent sites that potentially impact these areas.

There are three sections along the fuel distribution pipelines where past observations and/or investigations have occurred (Figure 1-5). These sections include:

- Farmers Branch Creek crossing in the vicinity of the Base Boundary and Ascol Drive;
- Unnamed Stream pipeline crossing; and
- Along the West Fork of the Trinity River west of the Jennings Drive bridge and east of the Base Service Station (LPST Site No. 104524) (BSS).

1.4.1 Farmers Branch Creek

In 1990, the City of Fort Worth was reportedly performing boring operations in the Farmers Branch Creek (near the main entrance to the station) when strong odors of fuel were detected. The station reported this to Pride, which reportedly conducted pressure tests and determined that the line was not leaking. Currently, there are no records of the boring operations or the pressure tests to confirm these findings.

Similar petroleum-related odors were noted by Carswell AFB personnel during utility repair near Farmers Branch Creek. The subsurface operations were occurring west of Pumphrey Drive and south of Ascol Drive where a number of utility lines and equipment are located. These include a gas transmission line, storm water drains and pumps, telephone lines, and the Pride pipeline. It is unknown what utilities were being serviced or on which side of the creek the work was being performed. Visual observations failed to identify the source of the odors (Long, 1996).

There have been no previous environmentally related investigations associated with the pipeline in the vicinity of Farmers Branch Creek.

1.4.2 Unnamed Stream Area

There have been one related past investigation and one significant observation in the vicinity of the pipelines near the Unnamed Stream. These include the following:

- RCRA Facility Investigation (RFI) at the Petroleum, Oils and Lubricants (POL) Tank Farm and the Unnamed Stream Areas (Law, 1995); and
- Petroleum-related odors noted at the Unnamed Stream pipeline crossings.

RFI at the Tank Farm and Unnamed Stream Area. The RFI at the POL Tank Farm and the Unnamed Stream areas was initiated in 1993. Included in the investigation were surface water, sediment, subsurface soil, and groundwater characterization in the

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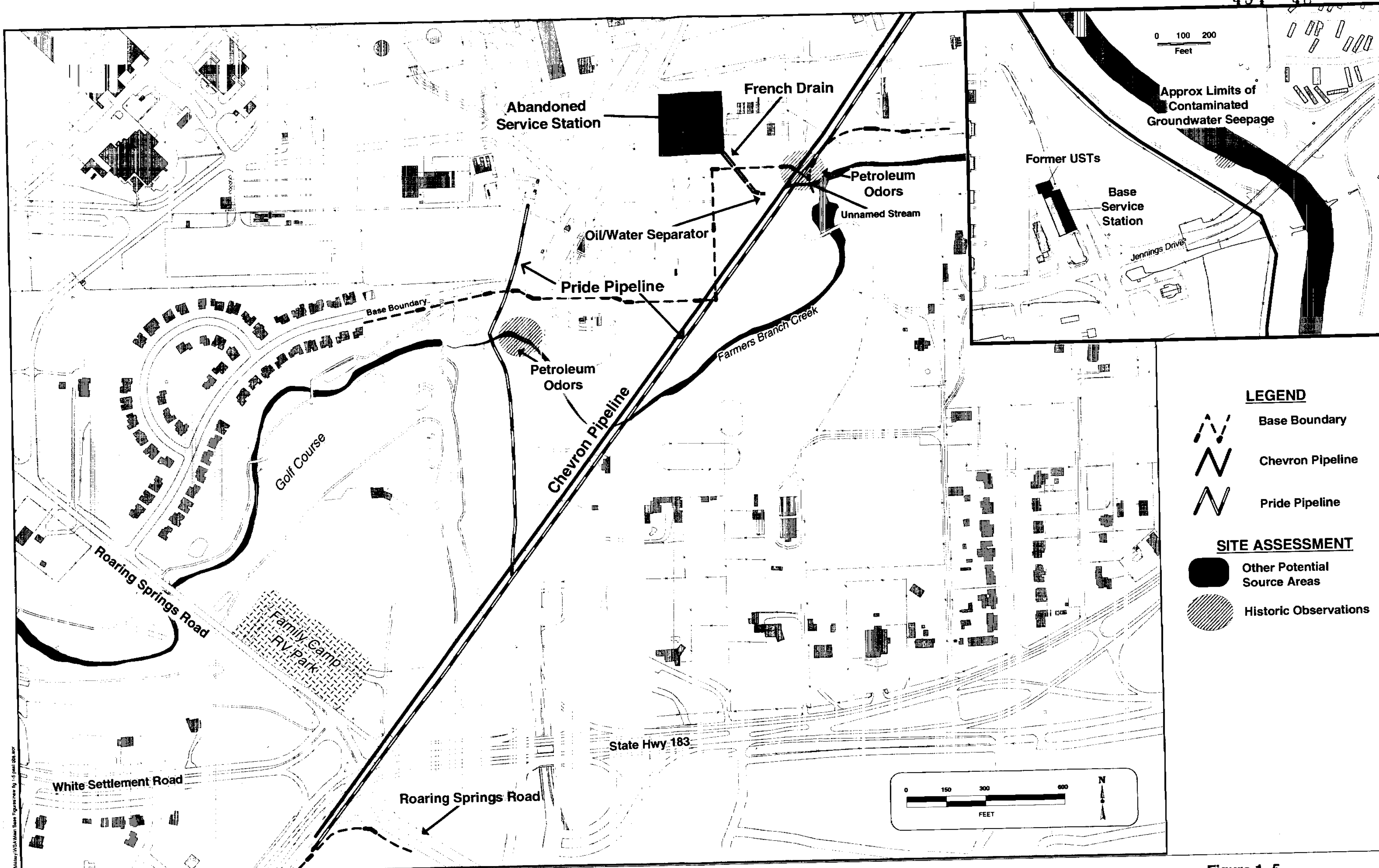

The Environmental Company, Inc.

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Figure 1-5
Past Observation and Investigation Areas

Unnamed Stream area. Source areas for the petroleum-related contamination identified included the tank farm and the Abandoned Service Station located approximately 400 feet northwest (upgradient) from the Unnamed Stream and the pipelines. Associated with the Abandoned Service Station source area was a French drainage system that drained the fueling station and discharged to an oil/water separator. The oil/water separator discharged to the Unnamed Stream.

Surface soil samples analyzed from the Unnamed Stream area contained lead and total petroleum hydrocarbons (TPH). Lead concentrations were above action levels developed by Law (1995) using methodologies specified in the Texas Natural Resource Conservation Commission (TNRCC) Risk Reduction Standards. Sediment samples from the stream contained cadmium and arsenic in excess of National Oceanic and Atmospheric Administration (NOAA) recommended values.

Three groundwater monitoring wells were installed during the investigation. Subsurface soil samples were collected during their installation (Figure 1-6). Two wells (SD13-06 and SD13-07) were located along the stream within 100 feet and 50 feet of the pipelines, respectively. As shown in Figure 1-6, SD13-06 soils contained 440 milligrams/Kilogram (mg/Kg) and 670 mg/Kg TPH. SD13-07 subsurface soils contained 54 mg/Kg and 8,800 mg/Kg TPH. The combined concentration of benzene, toluene, ethylbenzene, and xylenes (BTEXs) ranged from nondetectable to 59 mg/Kg.

Groundwater samples collected from the shallow wells (11 and 19 feet bgs) also contained petroleum-related constituents including ethylbenzene, toluene, and xylenes. Reported concentrations were compared to TNRCC Risk Reduction Standard Number 1 levels (site background) and Standard Number 2 levels (Medium-Specific Concentrations (MSCs)). A number of constituent concentrations exceeded Standard Number 1 background levels, but all POL-related constituents were below the Standard Number 2 MSC. Tetrachloroethylene exceeded the MSC in one event.

Petroleum-Related Odors. In the early 1990s, Carswell AFB personnel and regulatory personnel surveyed the area in relation to ongoing investigations. Petroleum-type odors were noted directly adjacent to the northern side of the stream. The source of the odors could not be determined through visual observation (Long, 1996).

1.4.3 West Fork of the Trinity River

A number of investigations and observations have occurred in the vicinity of the West Fork of the Trinity River, west of Jennings Drive. The majority of the investigations have taken place in association with the Base Service Station (LPST Site No. 104524) (BSS) located on the northwest corner of Jennings Drive and Military Parkway (Figure 1-5). Prior to 1992, a number of limited investigations took place in response to observed gasoline in drainage ditches surrounding the BSS. The most significant observations and investigations in the area have taken place after 1992 and include the following:

- Petroleum-contaminated seep noted along the south bank of the West Fork of the Trinity River;

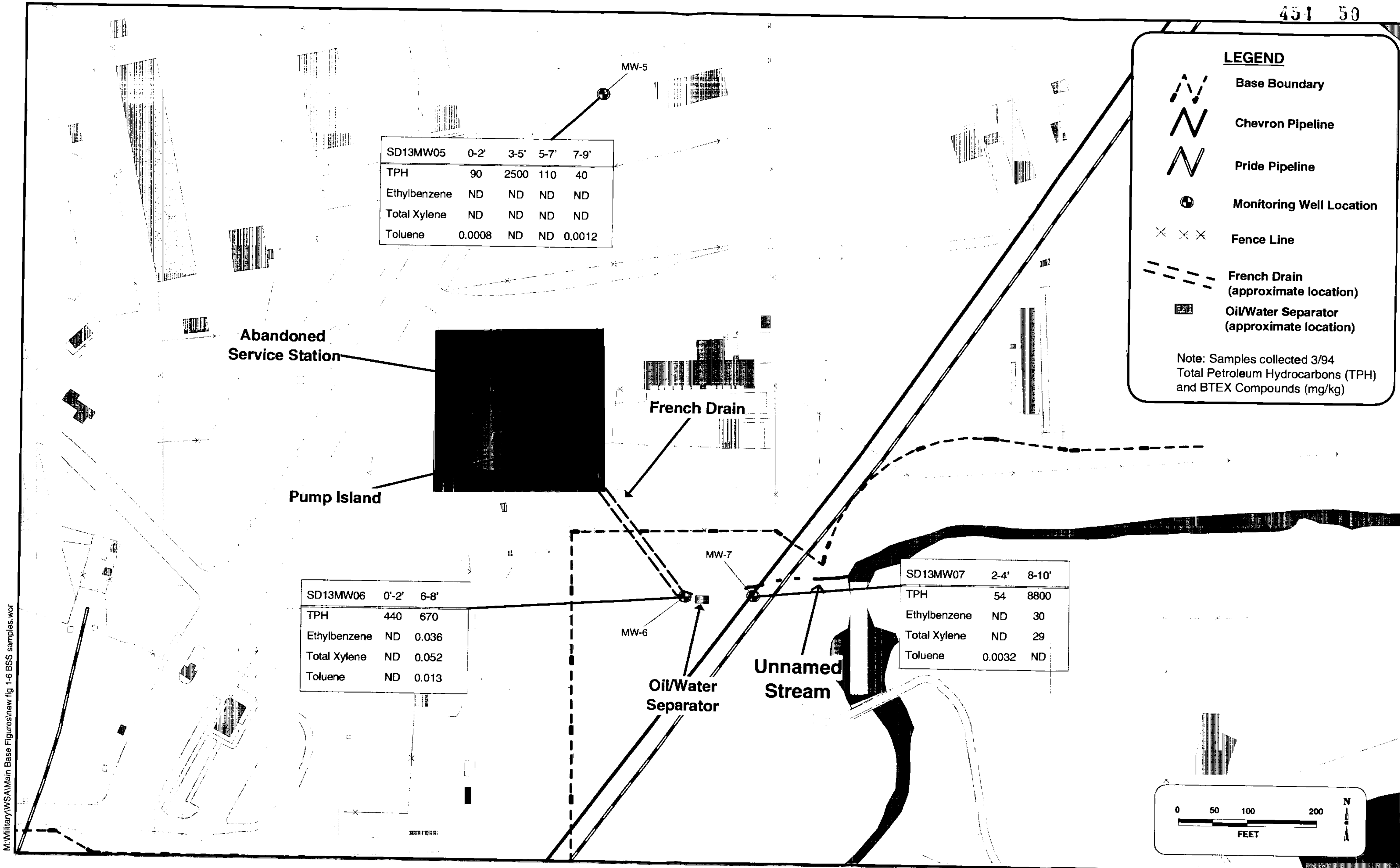

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Figure 1-6
Historic Subsurface Soil Sample Results at Abandoned Service Station Site

- Comprehensive Site Assessment of the BSS Underground Storage Tank (UST) system and related contamination (COE, 1994); and
- Additional Site Assessment of the BSS (IT Corporation, 1997a).

Petroleum-Contaminated Seep. In April 1992, an oil sheen was noted along the southern bank of the West Fork of the Trinity River, approximately 175 feet west of the Jennings Drive bridge crossing. The sheen was traced to a seep discharging from the bank of the river adjacent to Carswell AFB (Figure 1-5). Responders to the discharge included Carswell AFB personnel, Tarrant County Water and Improvement District, and representatives from Chevron Pipeline Company. A containment boom was immediately deployed. As noted previously, the Chevron pipeline had been nitrogen-purged and out of service since 1988. As a precautionary measure, Chevron representatives excavated a 150-foot section of the pipeline directly adjacent to and hydrologically upgradient from the seep. The excavation, which was completed on April 8, 1992, revealed no signs of leaks or pipe corrosion. On April 20, 1992, Chevron conducted a pressure test of the line. There was no net change in pressure through the test period. Based on these observations and tests, Chevron concluded that the pipeline was intact (Ernst, 1997). As a result of this contaminated discharge, the Comprehensive Site Assessment of the BSS was initiated.

Comprehensive Site Assessment of the BSS. In an effort to identify the source and extent of contamination related to the seep discharging into the West Fork of the Trinity River, the U.S. Army Corps of Engineers (COE) was tasked to complete an investigation of the area (COE, 1994). The project scope required the collection and analysis of subsurface soil samples, a soil gas survey, the installation of additional monitoring wells and analysis of groundwater samples, and the collection and analysis of surface water samples. In addition to the environmental media investigation, the integrity of four UST tanks at the BSS was tested. The tanks were removed in May 1993 and May 1996 because they were leaking (see Section 1.5.3).

Results from the assessment indicated that a gasoline release from the tanks had impacted soil within the immediate vicinity of the UST tank system; the uppermost saturated zone extending 500 feet from the BSS east and downgradient to the West Fork of the Trinity River; and surface water within the drainage ditches adjacent to the BSS.

Of importance to this SC is the groundwater and subsurface soil analyses performed during the COE assessment. As shown in Figure 1-7, the COE concluded that a shallow groundwater TPH plume extended from the BSS tanks to the river, across the area traversed by the Chevron pipeline. Groundwater elevation in the area generally varied from 5 to 15 feet bgs (Law, 1996). TPH concentrations within the center of the plume varied from 20.0 mg/L nearest the tanks to 9.0 mg/L. In addition, total BTEX concentrations of 45.88 mg/L and 45.61 mg/L were reported in groundwater samples collected from two wells downgradient of the BSS (BSS-B and MW-10, respectively). Total BTEX concentration found in MW-1 was reported as 17.88 mg/L. It should be noted that the TPH concentration rose from 9.0 mg/L (MW-1) to 9.8 mg/L (MW-10) in the downgradient direction (COE, 1994). This downgradient increase has led past reviewers to suggest that a second source (such as the pipeline) may be present (Long, 1996).

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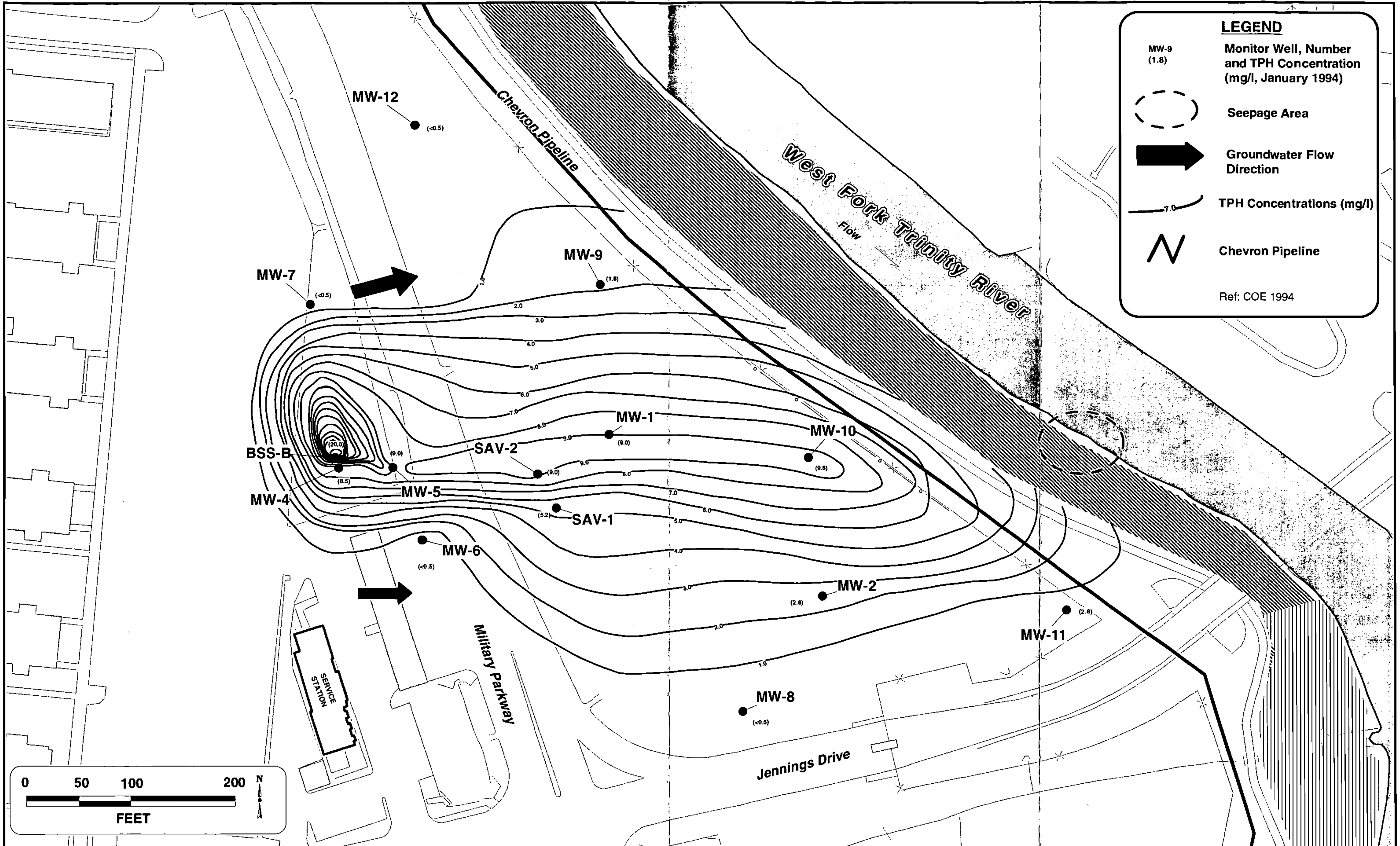

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Figure 1-7
Historic Groundwater Contaminant Contours at Base Service Station Site - Total Petroleum Hydrocarbon (mg/l)

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During installation of the monitoring wells, subsurface soil samples were collected for chemical analyses. A summary of these results is presented in Figure 1-8. Soil samples collected from the borehole located within the center of the groundwater contaminant plume (MW-10) contained up to 32.0 mg/Kg of TPH and 8.0221 mg/Kg of BTEX at a depth of 16 to 18 feet bgs. These values were lower than the concentrations of 130 mg/Kg TPH and 1,146 mg/Kg reported in the downgradient surface soil sample collected at the seep area (COE, 1994).

Additional Site Assessment of BSS. Under contract with AFCEE, the IT Corporation completed a Site Assessment of the BSS (IT Corporation, 1997a). Data from several investigations and removal activities associated with the BSS occurring at NAS Fort Worth from 1992 to 1996 were consolidated and used to support a Plan A assessment in accordance with TNRCC (1994, Publication RG-36). Based on the results of this assessment, which indicated contaminant concentrations above Plan A criteria, a Plan B risk assessment was performed using site-specific data. Contaminants included benzene and carcinogenic PAHs in soil and benzene and toluene in groundwater (IT Corporation, 1997a). The results of the Plan B risk assessment demonstrated that there was no unacceptable human health risk for current or future exposure pathways (IT Corporation, 1997b). As a result, IT Corporation recommended in its draft Corrective Action Plan of June 1997 that no further action at the BSS be taken except for quarterly groundwater monitoring for one year (IT Corporation, 1997b).

Quarterly groundwater monitoring was initiated in January 1997. A recent quarterly groundwater monitoring report produced by HydroGeoLogic (1998) indicated that the BTEX concentrations (measured in the third quarter, July 1997) have remained generally constant over time with results of sampling performed downgradient of the BSS since April 1995. The July 1997 BTEX results, however, are significantly lower than those reported for samples collected by the COE in January 1994 (COE, 1994). As noted above, COE (1994) reported total BTEX concentrations of 45.88 mg/L, 17.8 mg/L, and 45.61 mg/L in groundwater samples collected from three wells downgradient of the BSS (BSS-B, MW-1, and MW-10, respectively). HydroGeoLogic (1998) reported total BTEX levels of 19.2 mg/L and 31.1 mg/L for BSS-B and MW-10, respectively. The groundwater sample from MW-1 had total BTEX concentrations of 8.24 mg/L.

Subsequent to the risk assessment and corrective action plan, IT Corporation collected surface water samples from the west bank of the West Fork of the Trinity River downgradient of the BSS LPST site. Analytical results indicated the presence of methyl tertiary butyl ether and benzene at concentrations below those detected in previous BSS surface water samples in a location upgradient of the area where a petroleum sheen was observed in 1992. No petroleum-related compounds were detected in the surface water samples collected from the area where the petroleum sheen was observed in 1992. IT Corporation concluded that

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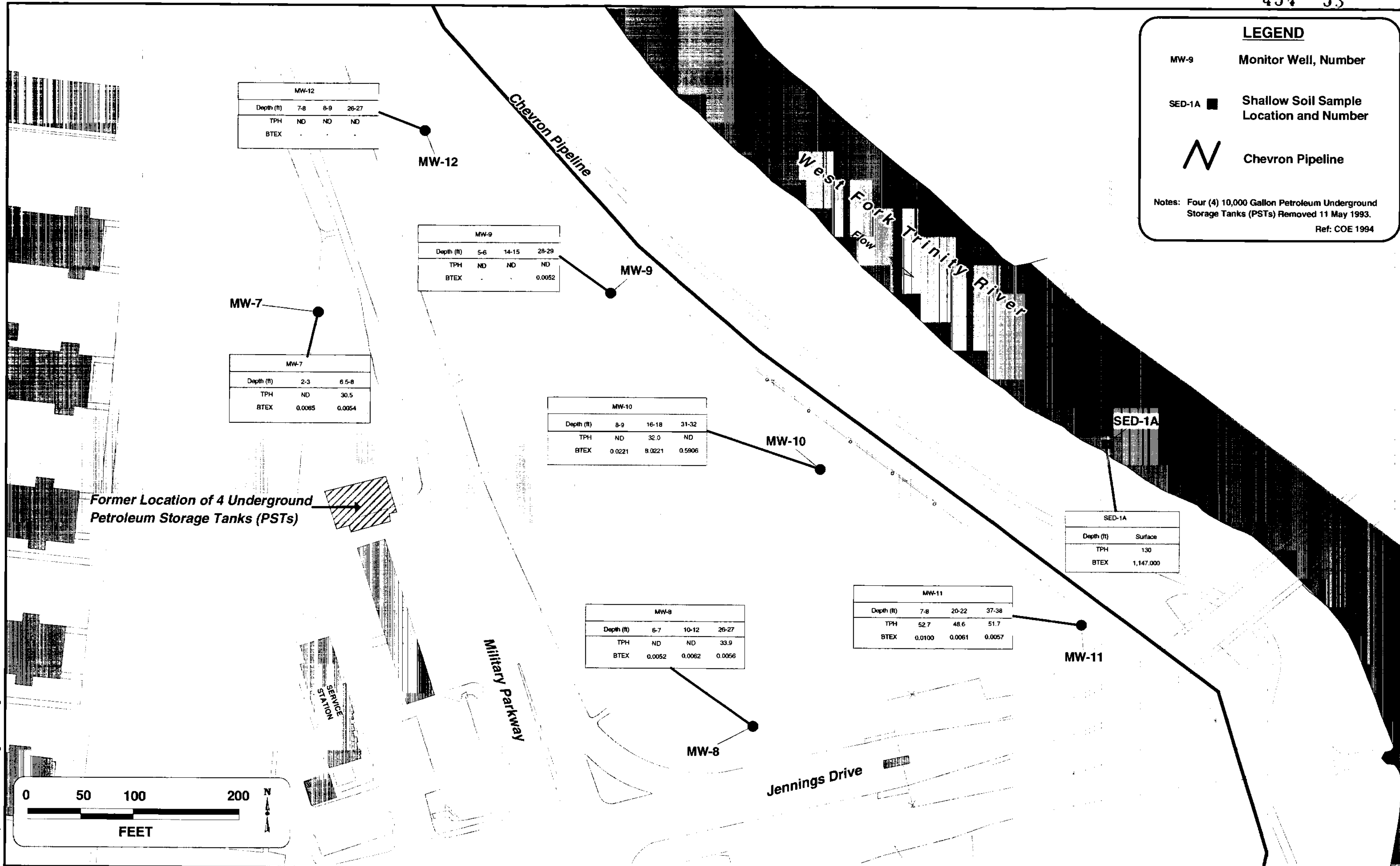

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Figure 1-8
Historic Subsurface Soil Sample Results at BSS
Petroleum Hydrocarbons and BTEX Compounds (mg/kg)

the absence of contaminants in the surface water samples collected from the petroleum sheen area on the West Fork of the Trinity River should be adequate to fulfill closure requirements at the BSS (IT Corporation, 1997a).

1.5 REMEDIAL ACTIONS

No past remedial actions have been completed within the investigation areas directly related to the fuel distribution pipelines. However, a number of remedial actions have taken place in relation to areas adjacent to or otherwise potentially associated with the pipelines. These include the following:

- Sediment removal from the Unnamed Stream;
- Risk-based remedial action for the bulk fueling station (ST-14) and the Abandoned Service Station site (SD-13); and
- Fuel tank removal at the BSS.

1.5.1 Unnamed Stream Sediment Removal

Geo-Marine, Inc. excavated contaminated surficial sediments from the Unnamed Stream. Dimensions for excavation were estimated to be 8 feet wide and 2 feet deep for a length of 250 feet. Post-excavation remediation verification sampling was conducted (Geo-Marine, 1997). It is anticipated that the levels of contamination remaining in the stream bed will allow closure of the site under TNRCC Risk Reduction Standard Number 1 or 2 Risk Based Closure Rules.

1.5.2 Risk-Based Remedial Action for ST-14 and SD-13

A risk-based approach to remediation is currently in progress at the bulk fueling station (ST-14) and the Abandoned Service Station site (SD-13). The Remedial Action Plan is being prepared by Parsons Engineering Science, Inc. and was therefore not available at the time this report was prepared.

1.5.3 Fuel Tank Removal at the Base Service Station

As indicated above, four 10,000-gallon petroleum fuel tanks were removed from the BSS as part of the COE Site Assessment. The tanks were removed on May 11-12, 1993, along with 75 feet of associated piping (COE, 1994).

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2.0 PROJECT ACTIVITIES

This section provides a synopsis of the objectives, activities, and methods used in the assessment, investigation, and characterization of the pipeline investigation area at NAS Fort Worth. The overall goals for the project are described, as are the phase-specific objectives for each of the potential source areas examined in the field. Also provided is an overall summary of the project field activities, laboratory analytical program, and data evaluation activities and methods. Results of each phase of the project for each of the main study areas are described in Section 3.0.

2.1 PROJECT OBJECTIVES

2.1.1 Overall Objectives and Approach

The overall goal of this project, as defined in the AFCEE Statement of Work (SOW) for Project Number 95-8021 (Contract Number F41624-95-D-8002, Delivery Order Number 003) dated January 25, 1996, is to "determine the presence or absence and nature and extent of contamination" (USAF, 1996) To accomplish this goal, TEC was directed to perform a phased evaluation consisting of an SA, SI, and SC.

As the initial steps in planning the project, several delivery order scoping and plan development tasks were performed. To begin with, all available background information pertaining to the study area was compiled and reviewed. Results of this effort, presented in Sections 1.2 through 1.4 of this report, were used to develop a preliminary conceptual model of the study area and its environs to help identify critical decision points and associated data gaps related to the overall projected goal. For each gap identified, specific types of information needed to fill the gap were then defined, anticipated uses of the data were described, and media-specific field characterization tasks were developed to ensure that the proper quantity and quality of information were generated to support future decision-making.

The quantity and quality of data required to fill the data gaps and to confidently accomplish the project objectives were determined based primarily on the intended data use(s), expected contaminants and levels of concern, required analytical detection limits, and preferred analytical quality levels. With respect to data quality, AFCEE defines two general data quality levels: screening and definitive. Screening data are generated by rapid methods of analysis with less rigorous sample preparation, calibration, and/or quality control (QC) requirements than are necessary to produce definitive data. Definitive data are produced using rigorous analytical methods, such as EPA reference methods. Definitive data are used in support of decisions of the highest relative importance to the project.

For example, decisions related to actual releases and off-site migration of contaminants, or exposures and risks to receptors, were expected to be of primary concern in the Pipeline Investigation project because of the potentially serious consequences associated with making an incorrect decision. Accordingly, chemical data for multimedia samples generally also required a relatively high level of quality. In contrast, data used as indirect indicators of contaminant release and migration potential (i.e., screening data and/or physical data used primarily for site characterization purposes) generally were of lesser quality.

Results of the initial project scoping and planning efforts are documented in TEC's project Work Plan (WP), dated July 1996 (TEC, 1996c), and Draft Work Plan Addendum (TEC, 1998a). Two primary companion documents also were developed and used in conjunction with the WP to implement the Pipeline SA/SI and SC: the Field Sampling Plan (FSP) (TEC, 1996a) and the

Quality Assurance Project Plan (QAPP) (TEC, 1996b). The remainder of Section 2.1 summarizes the specific objectives and approach of each project phase. Project samples, types, numbers, and quality requirements are summarized in Section 2.2.

2.1.2 SA/SI Phase Objectives and Approach

The AFCEE/TEC contract SOW defined three primary goals for the SA/SI phases of the project. They were to:

- Identify all potentially contaminated areas;
- Identify areas that potentially require emergency response; and
- Develop a conceptual site model of the Pipeline Investigation Area.

Three site assessment field tasks were identified in the WP to satisfy these objectives. These tasks included a land survey, a utility location survey, and a visual reconnaissance of site conditions. A passive soil gas survey was also planned for the site investigation.

2.1.3 SC Phase Objectives and Approach

Results from the SA/SI phase were used to define areas of concern (i.e., potential contaminant source areas) for focused attention during the SC phase. Accordingly, the SC phase was intended to characterize environmental conditions, to define the nature and extent of contamination, and to estimate the risk to human health and the environment at the potential source areas through the collection, analysis, and evaluation of site-specific environmental media samples.

Based on the SA/SI activities, four potential source areas were identified for further study during the SC phase of the project. These areas are the:

- Valve Box;
- Unnamed Stream;
- Farmers Branch Creek; and
- West Fork of the Trinity River.

To accomplish the SC phase objectives, subsurface soil samples were collected from each of the four potential source areas for physical/chemical analyses.

The SC for the Fuel Pipeline Investigation Area was initially conducted in conjunction with a field sampling effort in October 1996. All of the analytical chemistry data generated from this effort, however, were determined to be unusable due to laboratory error. These data, which related directly to determining whether the pipelines were a source of contamination, included TPH, BTEX compound, VOC, and SVOC analytical results. After considering the quality of the analytical results generated from the initial characterization efforts, representatives of the EPA and the TNRCC determined that project data for the Farmers Branch Creek area are not sufficient to support the "No Further Action" conclusion presented in the project report (TEC, 1998b). Therefore, a limited supplemental sampling effort was conducted in October 1998 to provide data needed to complete the characterization of the Farmers Branch Creek area. The data generated from this effort are presented in this report.

The agencies determined that existing data associated with the Valve Box area, Unnamed Stream area, and West Fork of the Trinity River area, consisting of historical information, hydrocarbon fingerprinting, lithology, and other site investigations, were sufficient to support a "No Further Action" conclusion for these areas. These data are discussed in Sections 1.0 and 3.0.

2.2 FIELD ACTIVITIES

This section summarizes the field activities performed in both the SA/SI (Section 2.2.1) and SC (Section 2.2.2) phases of the project. Included are brief descriptions of the sample/ measurement types, numbers, locations, methods, and rationale. Also included is a brief discussion of the project record keeping procedures (Section 2.2.3), a listing of the major responsibilities of field team members and subcontractors in implementing the field program (Section 2.2.4), a chronology of the field activities (Section 2.2.5), and a synopsis of key aspects of the field quality assessment/quality control (QA/QC) program (Section 2.2.6). Results of the field activities are discussed in Section 3.0.

All field investigative and support activities were performed as outlined in the SOW for Project No. 95-8021 and as described in the TEC WP, WP Addendum, FSP, and QAPP (TEC 1996a,b,c and 1998a), unless otherwise noted in this report. The work was conducted in accordance with the guidelines provided in the HQ AFCEE *Handbook for the Installation Restoration Program (IRP) Remedial Investigations and Feasibility Studies (RI/FS),* dated September 1993 (hereafter referred to as the AFCEE *Handbook*).

As described in the project WP, chemicals of potential concern (COPCs) in the study area in the immediate vicinity of the pipelines and the West Fork of the Trinity River area are limited to petroleum-related materials. Consequently, field activities in these areas were conducted in accordance with protocols set forth in Texas Administrative Code (TAC), Title 30, Chapter 334. The Unnamed Stream area is currently regulated as a Resource Conservation and Recovery Act (RCRA) site (SD-13). Therefore, the investigation of this area was assessed in accordance with TAC, Title 30, Chapter 335.

2.2.1 SA/SI Phase Field Program

Three field activities were performed during the SA. These include:

- Land Survey;
- Utility Location Survey; and
- Site Reconnaissance.

Based on results of these activities, a soil gas survey was performed in the SI. Table 2-1 summarizes the data quality objectives (DQOs) for each SA/SI task as presented in the project WP. The locations, types, numbers, and methods of collecting field measurements and samples during each task are described below.

2.2.1.1 Land Survey

A land survey was performed throughout the study area to identify existing easements, property boundaries, and adjacent landowners in anticipation of future field activities. The survey was performed by Baird, Hampton & Brown, Inc. (BHB), a State of Texas-registered land surveyor. BHB conducted a records search to identify the owners of land through which the pipeline passes as well as adjacent landowners. BHB also field staked and surveyed property boundaries within

50 feet of the centerline of the pipeline, the soil gas monitoring locations evaluated during the SA/SI, and the soil boring locations evaluated during SC activities.

Table 2-1. SA/SI Phase Data Quality Objectives

Activity	Data Type	Intended Use	Quality Category
Land Survey	State Plane Coordinates	Precisely Locate Easements, Sample Locations	Screening
Utility Location Survey	Field Reference Points	General Location of Underground Utilities	Screening
Site Reconnaissance	Visual Observations	Qualitatively Identify Areas of Stress or Other Abnormalities	Screening
Subsurface Soil Screen	Photoionization Detector (PID) Measurements	General Presence or Absence of VOCs	Screening
Soil Gas Survey	PID Measurements	General Presence or Absence of VOCs	Screening

2.2.1.2 Utility Location Survey

The utility location survey was performed by NAS Fort Worth personnel, using existing site plans and public utility locator services, to identify the location and orientation of all underground utilities in areas where soil gas sorbers were to be placed during SI activities. Utility locations were staked in the field and noted on project field maps and field log books. Results of this survey are documented in the Site Log Book archived at TEC's Issaquah, Washington office. In addition to the survey performed through NAS Fort Worth personnel, utility locations were verified by ULS Services Company (October 1996) and Little Bear Construction (October 1998) prior to subsurface intrusions conducted during the SC.

2.2.1.3 Site Reconnaissance

A visual reconnaissance of the overall study area was performed to note areas of stressed vegetation, discolored soils, and/or other indicators of contamination. These observations were used to focus later soil gas sampling and subsurface characterization activities. The visual reconnaissance consisted of a walk-over of key site areas suspected of being actual or potential sources of contamination. Observations of stressed conditions and also of overall site accessibility, use, sampling restrictions, security, and other logistical factors were recorded in the field log books.

2.2.1.4 Soil Gas Survey

The soil gas survey was conducted during the SI along the fuel distribution lines to further delineate areas of possible subsurface contamination and subsequently target soil boring locations for the SC. A total of 69 soil gas samples were collected from the general areas of concern illustrated in Figure 2-1. Samples were collected at 50-foot intervals along transect lines positioned in these areas as shown on the site drawing in Appendix A.

GORE-SORBER® Passive Sorbent Collection Devices (sorbers) were used to conduct the soil gas survey due to their affinity for a broad range of VOCs and SVOCs. The sorber contaminant-passive approach involves collecting a sample over time on an adsorbent material. This approach not only provides high sensitivity for VOCs and SVOCs, but also allows for better success on sites with low soil permeability and minimizes fluctuations in soil gas availability due to changing ambient and subsurface conditions.

Fifty sorbers were installed along the fuel distribution lines at 50-foot intervals, as described in the FSP. Three of the 50 sorbers were field duplicates of sorber locations GS-3, GS-39, and GS-56. Two of the sorbers (GS-65 and GS-66) were field check sorbers installed in an area of known contamination. The FSP specified that the sorbers would be installed directly above the centerline of the pipelines. However, because the pipelines were found to be within several feet of the ground surface in many areas, the soil gas probes were positioned off the pipeline centerline, typically by 2 feet. As noted in the FSP, an attempt was made to locate joints/couplings in the pipeline and install sorbers near these locations. However, none were found and the pipeline companies had no information as to the location of the joints/couplings.

Based on discussions with the Air Force Base Conversion Agency (AFBCA) site manager and the AFCEE Contracting Officer's Representative (COR), five sorbers were placed along the pipelines transecting the Unnamed Stream area and 14 sorbers were placed in a grid in the West Fork of the Trinity River area. These areas were included because of suspected contamination in the vicinity based on previously identified petroleum odors and past environmental investigations (see Section 1.3.2).

The soil gas screening modules were installed by initially advancing a 0.75 to 1 inch diameter pilot hole to an average depth of 2 to 3 feet bgs using a slam bar. After the pilot hole was advanced to the desired installation depth, the screening modules were inserted. The top of each cord was fastened to a cork, which was then tamped flush with the ground surface to facilitate retrieval of the module and to seal the annulus of the pilot hole.

The sorbers were retrieved from the site 14 days from the date of placement, sealed, and submitted with 6 trip blanks for laboratory analyses. Additional details regarding the GORE-SORBER® sample collection are provided in the project WP and FSP (TEC, 1996a,c), and in the *GORE-SORBER Screening Survey Final Report* (Gore, 1996) included in Appendix B.

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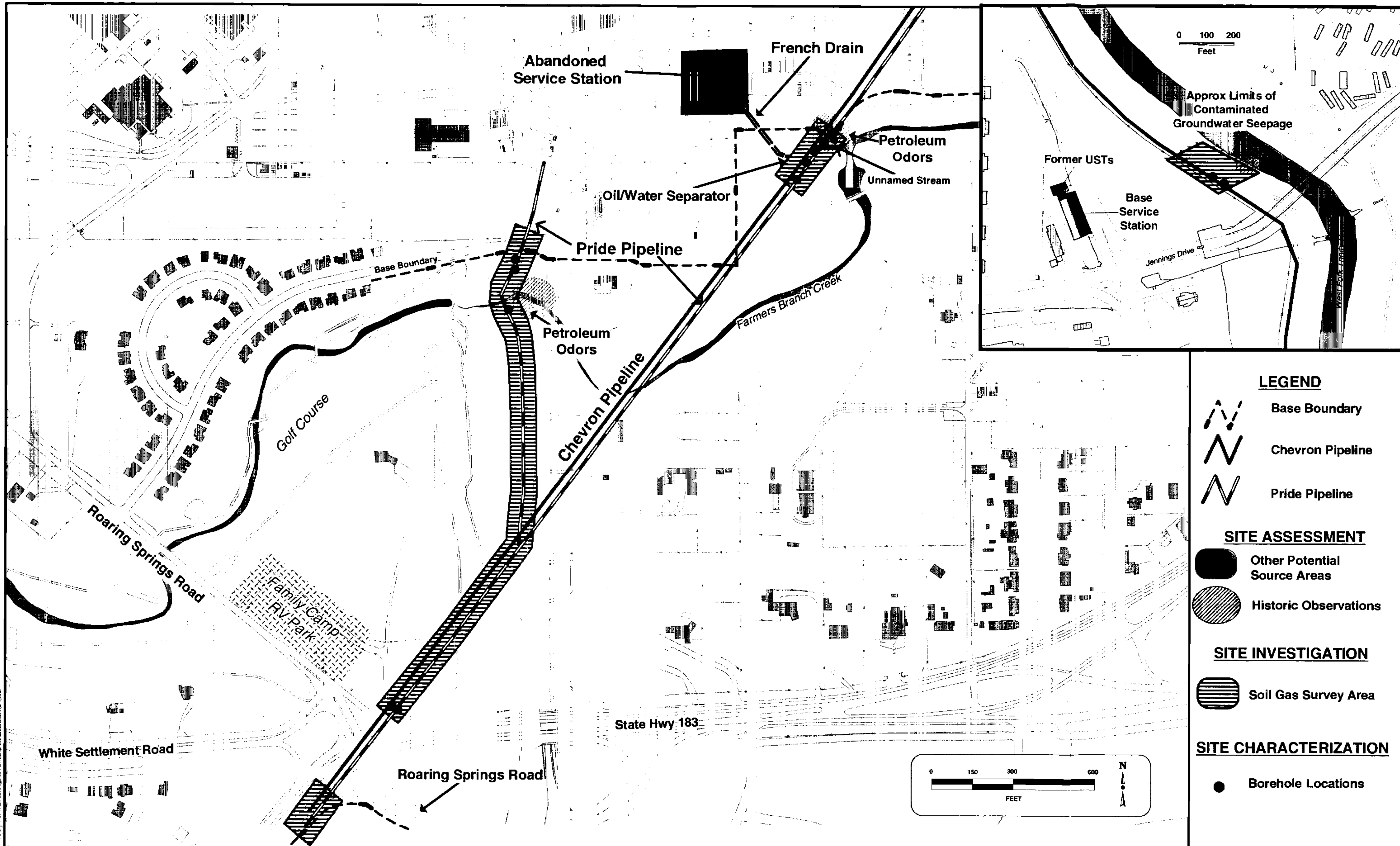

The Environmental Company, Inc.

Revision Date: 03/18/1999
Project Manager: B. Duffner
Prepared By: W. Mitchell
Project No: P-3101

Figure 2-1
Site Assessment, Investigation, and Characterization Areas

2.2.2 SC Phase Field Program

SA/SI results identified four areas in need of additional study during the SC phase. This was necessary to properly evaluate the magnitude and extent of potential contamination and evaluate potential risks to human health and the environment. Accordingly, a subsurface soil characterization was performed during the SC phase.

Table 2-2 summarizes the SC DQOs for the subsurface soil characterization task as presented in the project WP. The locations, types, numbers, and methods of collecting SC phase field measurements and samples are described below.

Table 2-2. SC Phase Data Quality Objectives

Activity	Data Type	Intended Use	Quality Category
Subsurface Soil Characterization	Physical Parameters	Characterize Geology and Contaminant Migration Potential	Screening
Subsurface Soil Characterization	Chemical Parameters	Magnitude and Extent of Chemical Contamination; Risk Assessment	Definitive
Subsurface Soil Characterization	Hydrocarbon Fingerprinting	Correlate Contaminant Type Identified in Environmental Samples to Product Type Used	Screening

2.2.2.1 Subsurface Characterization

Based on the cumulative results of all of the above-noted SA/SI phase activities and discussions with the regulating agencies (EPA and TNRCC), a subsurface soil investigation was performed in October 1996 at each of the four areas to characterize the near-surface lithology and to confirm the presence or absence of subsurface petroleum hydrocarbon contamination. This characterization included hydrocarbon fingerprinting to determine whether TPH present in the subsurface was associated with the fuel distribution pipelines. As discussed in Section 2.1.3, the analytical chemistry data other than the fingerprinting were determined to be unusable for characterization purposes due to laboratory error. Therefore, a supplemental sampling effort was conducted to complete the chemical characterization of the study areas. Soil sampling locations along the pipeline were selected for supplemental sampling based on a re-examination of the historical information, soil gas survey results, visual observation, and the fingerprinting results.

Coordinates and elevations of all subsurface soil sampling locations for the project are provided in Appendix A. SA/SI phase soil gas samples were intended for screening purposes only to help identify potentially contaminated areas requiring more definitive sample collection and analysis efforts. In general, screening data do not meet the objectives of the Installation Restoration Program Information Management System (IRPIMS). Consequently, the coordinates and elevations of these locations are not summarized in Appendix A.

Figure 2-1 depicts the soil boring locations. Borings SB-01 and SB-02 were drilled in the valve box area, one to the north of the valve box and the other to the south. Borings SB-03 to SB-07 were drilled in the Unnamed Stream area as close to the pipelines as possible. Three borings, SB-08 to SB-10, were drilled in the Farmers Branch Creek area, with one located on the south bank of Farmers Branch Creek and the other two located on the north bank. Borings SB-11 and SB-12 were drilled in the West Fork of the Trinity River.

Three boreholes were co-located during the supplemental sampling event at the previously established Farmers Branch Creek sampling locations. The previous locations include SB-08, SB-09, and SB-10. The new boreholes were identified as SB-118, SB-119, and SB-120, respectively.

The boreholes were advanced using the hollow-stem auger (HSA) drilling technique by Rone Engineers, Inc. (October 1996) and the direct push technique by Maxim Technologies (October 1998). All drilling activities conformed with state and local regulations and were supervised by a state-licensed geologist/engineer.

All soil borings were drilled to approximately 5 feet below the encountered groundwater table or refusal, whichever occurred first. All borings were properly abandoned according to procedures outlined in the FSP.

A total of five subsurface soil samples, excluding QA/QC samples, were collected as part of the supplemental sampling effort. Twenty-nine soil samples were collected from the initial SC sampling for photoionization detector (PID) screening and chemical analysis. Three of these samples were collected for hydrocarbon fingerprinting. Table 2-3 summarizes the type and number of subsurface soil samples collected during the supplemental sampling and for the fingerprinting and lists the general analytical requirements for each sample type. Appendix C provides a comprehensive summary and cross reference of all sample identification information collected during the SC phase of the project.

Table 2-3. SC Phase Sample Collection and Analysis Summary

		Analytical Method		
		BTEX	SVOCs	TPH
Sample Element	No. of Samples	8021A	8270C	GC
Unnamed Stream Area				
Field Samples	2			2
Farmers Branch Creek Area				
Field Samples	5	5	5	
Duplicates	1	1	1	
Trip Blanks	1	1		
Equipment Blanks	1	1	1	
Ambient Blanks	1	1		
West Fork of the Trinity River Area				
Field Samples	1			1

Note: Only one ambient sample was collected; it applies to all areas.

The October 1996 soil samples were collected at approximately 2.5-foot intervals using a 5-foot-long stainless steel, continuous drive, split-spoon sampler. Immediately upon retrieval and opening of the split-spoon, the soils were screened for organic vapors using the PID and a lithologic description of the sample was made. Field screening was performed by filling a precleaned glass jar approximately half full with a soil sample, quickly covering the jar top with aluminum foil, and securing the foil seal with the screw cap. The soil samples were then vigorously shaken for approximately 30 seconds and allowed to equilibrate a minimum of 15 minutes and a maximum of 2 hours (120 minutes) to a temperature of approximately 25°C. The jar headspace was then screened for organic vapors by puncturing the foil seal with the PID probe, inserting the tip to a distance approximately one-half the headspace depth, and recording the highest reading displayed on the instrument meter.

All information regarding field headspace screening results, soil texture, density, consistency, and color was recorded on soil boring logs. These logs are presented in Appendix D. PID screening results are discussed in Section 3.0.

One to two samples from Farmers Branch Creek boreholes were collected for chemical analysis during the October 1998 supplemental sampling effort. The samples were collected at intervals that would aid in identifying the contaminant source and characterizing contamination within unsaturated and saturated media. **The previous October 1996 organic vapor readings failed to indicate contamination at the Farmers Branch Creek area. Samples for chemical analyses were therefore collected directly below the assumed depth of the pipeline and groundwater in October 1998. Samples were collected in 2.5-foot split tube samplers driven to the desired interval.**

Split-spoon soil samples selected for definitive BTEX analyses were placed in appropriate sample containers in accordance with procedures defined in the FSP. These containers were filled to minimize headspace, affixed with a completed sample label, placed in a plastic bag, and placed in an iced cooler held at a temperature below 4°C. BTEX samples were not composited.

Samples collected for SVOC analysis were collected concurrently with the BTEX samples. Sample handling, packaging, and shipping procedures were as defined in the FSP. In some cases, composites were formed to provide sufficient sample volume for a particular analysis. The composite procedure involved mixing and homogenizing the soil from two consecutive depth locations in the same borehole using a stainless steel bowl and stainless steel trowel or scoop. The composite sample was then transferred into the appropriate sample container, sealed, labeled, and placed in an iced cooler at 4 degrees Celsius (°C). Samples were delivered to the laboratory and analyzed for selected compounds (Section 2.3.1).

Throughout the October 1996 drilling and sampling process, all drilling equipment that contacted samples was decontaminated in designated decontamination stations using procedures outlined in the FSP. Each station consisted of a pad that was lined with heavy-gauge plastic sheeting and designed with a collection system to capture decontamination waters. The drilling rigs and associated drilling equipment were steam-cleaned between borings to minimize the potential for cross-contamination. All decontamination fluids were contained and temporarily stored on Carswell AFB property. Other investigation-derived waste included soil cuttings generated during drilling, which were also collected and stored on AFB property. These wastes were characterized and disposed of as non-hazardous wastes in accordance with TNRCC regulations (Appendix E). **No investigative derived waste was generated during the**

October 1998 supplemental event due to the use of direct push sampling techniques.

2.2.3 General Record Keeping

Field records were maintained in sufficient detail to recreate all sampling and measurement activities and to meet all IRPIMS data loading and HQ AFCEE requirements. The types of hard copy field records developed included:

- Project log books, including the master Site Log Book, the Health and Safety Log Book, and the Geologic Log Book;
- Field Sampling/Data Forms; and
- Sample Chain-of-Custody forms.

The Site Log Book is the master field investigation document that is a bound book with a hard cover and sequentially numbered pages. The primary objective of the Site Log Book is to maintain, within one document, the actual field data or references to other field documents that contain a specific description of every activity that has occurred in the field on any given day. Any administrative occurrences, conditions, or activities that affected the field work were recorded in the Site Log Book. All field activities entered into the Site Log Book were signed and dated by the responsible party. Other appropriate information, as specified in the FSP, was also recorded in the Site Log Book.

The purpose of the Health and Safety Log Book is to document the proper use, maintenance, and calibration of health and safety instrumentation, record results of regular safety briefings, and describe conditions relating to potential worker and/or site visitor health and safety-related issues during the performance of field work. The Geologic Log Book is used to document drilling procedures, site conditions, lithologic observations, subcontractor performance, and other issues related to the subsurface soil characterization effort. The log books contain all of the information specified in the FSP, including:

- Location;
- Date and time;
- Persons performing activity;
- Weather conditions;
- Sample type and sampling method;
- Sample identity and depth(s);
- Amount of each sample;
- Sample description (e.g., color, odor, clarity);
- Identification of sampling devices; and
- Identification of conditions that might affect the representativeness of a sample (e.g., refueling operations, damaged casing).

For field measurements, the numerical value and units of each measurement and the identity of and calibration results for each field instrument were also recorded.

In addition to the above-referenced log books, standardized field data forms for all field activities were maintained. As specified in the FSP, the forms consist of the following:

- Soil Gas Survey Data Sheet;

- Boring Log;
- Waste Inventory Tracking Form;
- Field Sampling Report;
- Chain-of-Custody Form;
- Health and Safety Monitoring Sheet;
- Instrument Calibration Log; and
- Equipment Decontamination Log Sheet.

Completed field data forms are presented in Appendix F. Chain-of-Custody forms are provided in Appendix G. Original copies of all field records and project log books are maintained at TEC's Issaquah, Washington office. These log books are in an easily accessible form that can be made immediately available to the Air Force upon request.

Procedures for completing and maintaining field records were as specified in the FSP (TEC, 1996a). Records were kept for all field activities as a means to maintain full documentation of project QA/QC procedures and compliance. Errors in records were corrected by crossing them out with a single line and then dating and initialing. The documents used during the SA/SI and SC field investigations remained on site during the entire effort so that they could be reviewed by interested parties. Forms were organized and kept in a central file also located on site.

2.2.4 Project Team Members

The site assessment, inspection, and characterization efforts were performed by TEC personnel, as well as task-specific subcontractor specialists operating under the direct supervision of the TEC Project Manager. Key project personnel and specialty subcontractors included in this effort are identified below along with their respective project responsibilities.

- Project Director - Jack Wilson, P.E.
- Project Manager - Bob Duffner, P.E.
- Principal Geologist - King Troensegaard, CPG
- Senior Chemist - Glenn Metzler
- Senior Toxicologist - Dawn Nelson
- Surveying Subcontractor - Baird, Hampton and Brown
- Analytical Subcontractor – Severn Trent Laboratories
- Drilling Subcontractor - Rone Engineers, Inc. and Maxim Technologies
- Geophysical Subcontractor - ULS Services Company

2.2.5 Chronology of Field Work

Field work associated with the Pipeline Investigation occurred in August and October 1996. The chronology of specific SA/SI and SC phase field tasks is as follows:

- Land Survey - August 14, 1996 to August 16, 1996
- Utility Location Survey - August 14, 1996 to August 16, 1996
- Site Reconnaissance - August 14, 1996 to August 16, 1996
- Soil Gas Sampling
  - Sorber Installation - August 14, 1996 to August 16, 1996
  - Sorber Retrieval - August 28, 1996 to August 29, 1996
- Initial Subsurface Soil Characterization - October 22, 1996 to October 30, 1996

- Supplemental Subsurface Soil Characterization - October 24, 1998

2.2.6 Field Quality Assurance/Quality Control

To ensure that sampling and monitoring activities regularly meet the prescribed DQOs, TEC maintains a formal, comprehensive field QA/QC program for field measurements and environmental sampling and analysis. Key components of the program include developing a project-specific QA Project Plan in accordance with USEPA and AFCEE guidance; establishing DQOs; applying pre-defined standard operating procedures (SOPs) for field sampling, record keeping, and laboratory analysis; conducting multiple levels of technical review of project activities, results, and deliverables; and implementing independent QA audits/corrective actions.

For this project, QC responsibility rested primarily with the project manager and field task leaders. These individuals were closest to the field tasks and were therefore most capable of controlling the overall quality of the work. They implemented their QC responsibility through five primary methods: clear and accurate instructions, integrated planning, close coordination/communication with the client, spot checking of work in progress, and review of all products and deliverables.

QA, in comparison, is oriented toward ensuring that quality products are developed. QA is therefore best applied by personnel who are not directly connected to the specific activities being evaluated. For the pipeline investigation, QA was the responsibility of TEC's Project Director. He ensured that all AFCEE policies, procedures, and objectives were met in all project tasks. To accomplish this, he received and reviewed copies of all written correspondence, audited office-based activities as appropriate, documented audit findings, and recommended corrective actions. Additional detail pertaining to specific QA/QC program activities, problems encountered, and corrective actions taken is provided below.

2.2.6.1 Quality Control Activities

To ensure that samples of appropriate quality and reliability were obtained, all pipeline investigation field activities included the following QC elements:

- Use of AFCEE- and USEPA-approved sample collections, field measurement methods, and containers;
- Use of properly calibrated and maintained field instruments appropriate for the anticipated task and DQO;
- Calibration of field instruments to within acceptable limits according to USEPA and/or manufacturers' recommendations before, during, and after use in the field;
- Routine periodic inspection and maintenance of all equipment and instruments in accordance with manufacturer's recommendations;
- Use of USEPA-accepted sample-handling, preparation, and preservation methods;
- Collection of all important associated environmental data (e.g., weather conditions, sample location observations, unique or abnormal conditions) using acceptable and applicable methods and equipment;
- Use of Department of Transportation (DOT)-approved sample shipment procedures;
- Use of formal chain-of-custody procedures in the field and during shipment;
- Collection of appropriate numbers and types of field QC samples; and
- Maintenance of adequate records and logs of all field-related activity.

In addition to adhering to well-defined SOPs, a number of equipment and/or field measurement-specific QC checks were performed. These included periodic calibration of field instruments and operational checks performed according to the manufacturer's instrument manuals and the AFCEE IRP *Handbook* (1993).

All field instruments were calibrated on a daily basis when in use. The PID was calibrated at least twice per day. In some instances, calibration was performed more frequently. Calibration, repair, and service records were kept in individual site log books as described above, and on Instrument Calibration Log Sheets (Appendix F). Each instrument's individual identification number was transcribed on field data records when it was used for a sampling event. Calibration data were compared to the manufacturer's equipment calibration control limits. Field equipment that consistently failed to meet calibration standards or exceeded the manufacturer's control limits was promptly repaired or replaced.

Field QC samples included trip, equipment, and ambient blanks. Table 2-3 summarizes the type and number of field QC samples collected. Appendix H illustrates the correlation between the various field QC sample types and the environmental samples collected in each of the four study areas.

One trip blank was used to assess potential cross contamination of environmental samples during transportation and storage. The trip blank was submitted (Table 2-3) with the cooler of samples sent to the laboratory for analysis of BTEX. The trip blank consisted of a BTEX sample vial filled in the laboratory with ASTM Type II reagent grade water, transported to the sampling site, handled like an environmental sample, and returned to the laboratory for analysis. The trip blank was not opened in the field and was prepared only when environmental samples were collected and submitted for BTEX analysis. Consequently, the trip blank sample was analyzed only for BTEX analytes.

One equipment blank was collected to assess the effectiveness of equipment decontamination procedures. The equipment blank was created by pouring a sample of American Society of Testing and Materials (ASTM) Type II reagent grade water into or over the decontaminated split-spoon sampler, collecting the water in an appropriate sample container, and packaging/transporting the sample to the laboratory for analysis. The equipment blank was analyzed for BTEX and SVOCs.

Ambient blanks are used to assess the potential introduction of contaminants from ambient sources (e.g., active runways, engine test cells, internal combustion motors in operation) to the samples during collection. A single ambient blank was collected during the SC field investigation at the Farmers Branch Creek area. The sample was collected downwind of potential VOC sources that could have impacted the field samples. Furthermore, because the study area is located in a commercial area of the City of Fort Worth, numerous potential sources of airborne contamination are possible. The ambient blank consisted of ASTM Type II reagent grade water poured into a VOC sample vial at the sampling site. It was handled like an environmental sample and transported to the laboratory for BTEX analysis.

2.2.6.2 Quality Assurance Activities

Two types of QA audits are typically performed as a part of TEC's overall QA program: generic and project-specific. Generic audits are performed periodically for each engineering or environmental program and technical services area in the company. Their frequency is determined by the results of previous audits, with a minimum of one per environmental program/technical service area per year. The need for more frequent audits is determined based on the following considerations:

- The importance of the activity to the successful completion of stated corporate objectives;
- Significant changes in the functional areas of the quality assurance program, such as significant reorganization or procedural revisions;
- A suspected nonconformance in an item or service; or
- The necessity to verify implementation of required corrective action.

Project-specific audits are performed at a frequency dictated by contractual agreements and as noted in the project QAPPs. No project-specific audit was performed for this investigation.

2.2.6.3 Problems Detected and Corrective Actions Taken

Comparison of equipment calibration records (Appendix F) with manufacturer-specified calibration control limits indicated no significant problems with field equipment and/or instrumentation that required corrective action.

2.3 LABORATORY ANALYSIS

This section describes the analytical program developed to accomplish the objectives of the Pipeline Investigation SA/SI and SC project. Included are brief descriptions of the overall analytical program including the laboratories involved, and the analytical parameters and methods specified, the chronology of the laboratory analyses, and the QA/QC program that supported the analytical program.

2.3.1 Analytical Program

As noted previously, two types of analytical data quality levels were identified for this project: screening and definitive. Screening analytical data included field measurements of organic vapors in the headspace of subsurface soil samples, particle size distributions for subsurface soil samples, and qualitative measurements of VOCs in subsurface soil gas and hydrocarbon fingerprinting analysis. Definitive data consisted of chemical characteristics of subsurface soil samples.

The soil gas samples collected during the SA/SI Phase were analyzed at W.L. GORE & Associates Screening Module Laboratory (GORE) for a general fuel hydrocarbon list including BTEX, alkanes, and certain SVOCs. Appendix I provides a complete listing of the soil gas analytical parameters. Analytical techniques included thermal desorption, gas chromatography, and mass spectroscopy. Soil gas analytical results are presented in Appendix B.

Hydrocarbon fingerprinting of subsurface soil samples collected in the Unnamed Stream and West Fork of the Trinity River areas was performed by Friedman and Bruya. The hydrocarbon fingerprinting technique was used to differentiate between multiple potential contaminant sources. In this technique, contaminants were extracted from sample media and injected into a gas chromatograph (GC). The contaminant was disassociated into its individual constituents based primarily on the boiling points of the constituents. The individual constituents were then separately detected using a flame ionization detector (FID) and an electron capture detector (ECD). Based on the retention time of the constituents in the instrument, and a comparison of the resulting chromatographic patterns with a reference library of products (e.g., gasoline, diesel, JP4, JP8), it was possible for the analytical laboratory to identify the type of product present in the contaminated sample media. Results of the fingerprint analyses are presented in Appendix J and summarized in Section 3.0.

The subsurface soil samples collected for definitive characterization were analyzed for BTEX and SVOCs. The analytical work was performed utilizing the *United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846, Third Edition). Appendix I provides a comprehensive list of the analytical parameters and analytical methods for each sample. Table 2-3 summarizes the general analytical requirements for each subsurface soil sample. All laboratory analyses for definitive quality level data were performed by Severn Trent Laboratories. A summary of extraction and analysis dates listed by field sample number and laboratory number is provided in Appendix K. Raw data are provided in Appendix L.

2.3.2 Chronology of Laboratory Analyses

Environmental samples associated with definitive chemical analyses were collected in October 1998. Samples collected for hydrocarbon fingerprinting analysis were collected in October 1996. Appendix K provides a comprehensive chronology of associated laboratory extraction and analysis dates for each field sample.

2.3.3 Quality Assurance/Quality Control Program

For all analytical work, whether carried out in the laboratory or in the field, strict adherence to established analytical program QA/QC is required. Analytical QC checks for both screening and definitive data are defined in the project QAPP and included blank, spike surrogate, replicate, and matrix spike duplicates samples in accordance with a predetermined schedule. The results are tabulated and placed on control charts so that any deviations from routine analytical performance can be identified and rectified. Procedures for routine instrument tuning, calibration, and maintenance are also carefully applied and documented.

Appendix H provides a summary of laboratory QA/QC samples collected for this project. QC procedures for screening samples are summarized in Table 2-4.

2.4 DATA EVALUATION

This section briefly discusses the procedures used to identify, reduce, interpret, and use field and analytical data generated during the project. Included are discussions of the methodology for data quality assessment, methodology for risk evaluation, and data analysis and interpretation.

2.4.1 Methodology for Data Quality Assessment

QC field samples (i.e., trip, equipment, and ambient blanks) were collected and analyzed to support a quality assessment review of the field and definitive laboratory data. A formal validation of the analytical data was not performed because of the limited scope of the site characterization. For soil gas data, the screening laboratory's QA/QC controls and data reporting formats were checked. Results of the data quality assessment for the soil gas survey are discussed in Section 3.2.

Table 2-4. Summary of Calibration and QC Procedures for Screening Methods

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action[a]
None	Org. vapor conc (FID and PID)	2 point calibration	Monthly	Response ± 20% of expected value	Recalibrate; replace if necessary
		Calibration verification and check	Twice daily at beginning and end of day	Response ± 20% of expected value	Correct problem, recalibrate
None	Passive soil gas	See Section 6.2.1 of QAPP	See Section 6.2.1	See Section 6.2.1	Correct problem, repeat measurement
8015 M	Hydrocarbon fingerprint	See Section 6.2.2 of QAPP	See Section 6.2.2	See Section 6.2.2	Correct problem, repeat measurement

[a] All corrective actions were documented in field records.

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2.4.2 Data Analysis and Interpretation

Data collected during the SA/SI phase included background information primarily obtained through a review of existing investigation documents, records, and other undocumented reports. This information was reviewed to identify potential areas of concern associated with the pipeline areas. The historic data were also reviewed to identify other contaminant sources that could impact areas traversed by the pipeline.

The general quality and reliability of these data sources were evaluated through examining items such as the relative age of the data, considering the methods by which the data were obtained, and assessing of the degree of comparability of data from different sources. Data judged to be representative of site conditions and of suitable quality for the purposes of this study were then compared to pipeline product characteristics and evaluated for evidence of contaminant release and migration potential with respect to the pipeline location.

As necessary and appropriate, data generated during this project were evaluated by preparing descriptive statistics, charts, graphs, tables, and other interpretive tools, many of which are presented in this report. These included:

- Boring logs;
- Vertical cross sections depicting geologic conditions;
- Aerial maps illustrating site hydrology/geology, contaminant types, contaminant concentrations, and spatial/temporal relationships; and
- Tabulated data summarizing sample physical/chemical evaluations, trends, spatial relationships, and statistics.

SI data were primarily limited to the soil gas survey results. The volatile and semivolatile soil gas screening results were initially analyzed by comparing field data directly against values obtained from trip blanks and method blanks. In addition, a qualitative graphical analysis was performed on the field data in an attempt to identify factors impacting the data, but not associated with the pipeline. For example, low-level concentrations present in samples collected at all locations were interpreted as being associated with background or ambient conditions. Concentrations exceeding those found in the blanks and/or the assumed background/ambient conditions were interpreted as indications of contamination that is potentially associated with the pipeline(s). Results are discussed in Section 3.0.

During the SC subsurface soil investigation, samples were collected and characterized with respect to lithology, organic vapors, and chemical constituents. Lithologic data were plotted as geologic cross sections and interpreted with respect to the location of the pipeline and contaminants detected through organic vapors and/or chemical analyses. Chemical data were compared to screening levels, developed as part of the risk evaluation (Section 2.4.3). Results of these evaluations, discussed in Section 3.0, were used to refine the conceptual model of the site and to identify potential contaminant release and migration routes (Sections 3.0 and 4.0).

Organic vapor readings were analyzed relative to background and ambient conditions. Organic vapor readings of ambient conditions collected by the PID meter were found to be influenced by soil moisture. Subsurface soil organic vapor readings exceeding background and/or ambient conditions were interpreted as indications of contamination. These readings were used directly in selecting samples for chemical characterization as described in Section 2.2.2.1.

2.4.3 Methodology for Risk Evaluation

The risk evaluation for the pipeline investigation was performed to meet the objectives of the project, which were to identify the nature and magnitude of contamination associated with the pipelines and to evaluate corresponding potential risks. **Because the SC supports other investigations at NAS Fort Worth, a streamlined approach for the risk evaluation was taken in an effort to focus on potential contamination that was not previously identified in the other studies. In addition, based on the data compiled from the activities associated with the SA/SI phase of the investigation and the lithological and hydrocarbon fingerprinting characterization (discussed in Sections 3.0 and 4.0), a risk evaluation was not necessary for the Valve Box, Unnamed Stream, and West Fork of the Trinity River areas. Risk assessments have been performed for sites that encompass the Unnamed Stream and West Fork of the Trinity River areas under separate contracts (Benson, 1997b; IT, 1996, 1997b). Therefore, the methodology discussed in this section is only relevant for the Farmers Branch Creek area.**

Ecological risks were semi-quantitatively evaluated using a conservative screening level assessment as part of a tiered approach. In this approach, site concentrations were compared to established ecological benchmark concentrations to evaluate the potential impact of the detected compounds on ecological receptors. The ecological risk assessment tiered approach is consistent with methods provided in the *Framework for Ecological Risk Assessment* (EPA, 1992a) and the *Draft Guidance for Conducting Ecological Risk Assessment Under The Texas Risk Reduction Program* (McBee et al., 1996).

The human health risk evaluation presented in this report is consistent with the approaches and methods outlined in the AFCEE *Handbook* (USAF, 1993), TNRCC's *Risk-Based Corrective Action for Leaking Storage Tank Sites* (TNRCC, 1994, RG-36), and *Guidance for Risk-Based Assessments at LPST Sites in Texas* (TNRCC, 1995, RG-175). All of these references, as well as this risk evaluation, generally follow standard risk assessment procedures, which include identifying COPCs, identifying potential receptors and exposure pathways, evaluating the toxicity of the COPCs, and characterizing risks (EPA, 1989).

The PSTD RBCA methods rely on a multi-tiered approach to evaluating potential threats to human health and the environment. In the first tier, identified as Plan A, precalculated risk-based target concentrations are provided in the PSTD guidance for use in screening. If exceedances exist, Plan B procedures may be used to develop CULs based on promulgated standards/criteria or risk-based concentrations (RBCs). The screening levels derived under Plan A are based on conservative exposure assumptions for the residential scenario, although limited site-specific information may be used to determine appropriate concentrations. These levels are intended to be protective of human health and the environment in most site conditions (TNRCC, 1994). Plan A relies on promulgated standards/criteria and risk-based concentrations for use as target action levels. Chemicals exceeding Plan A target concentrations may be evaluated under a Plan B site-specific risk-assessment.

The general purpose of Plan A is to clean sites to levels that ensure adequate protection of human health and the environment without the use of institutional controls and to provide a mechanism for eliminating a more costly and time-consuming site-specific risk assessment if site concentrations are below the Plan A concentrations. Plan A provides little flexibility in developing cleanup levels, but helps eliminate the time and expense needed to conduct a full-scale risk assessment.

The methods for developing the Plan A concentrations are discussed in the section below. As discussed in Sections 4.0 and 5.1 COPCs were not identified for the Farmers Branch Creek based on the screening level assessment conducted in Section 3.0. Therefore, Plan B cleanup levels (CULs) were not established and no further discussion on development of these values is provided.

Plan A Target Screening Levels

This section describes the Plan A concentrations determined for the Farmers Branch Creek area. Table 2-5 summarizes the Plan A concentrations for each detected analyte. These concentrations were used in Section 3.0 to identify a list of chemicals to be carried forward to the risk evaluation.

Table 2-5. Plan A Concentrations for Detected Compounds

Method/Detected Compound	Plan A Target Concentration
BTEX	
Toluene	69 mg/kg
Semivolatiles	
Bis(2-ethylhexyl)phthalate	0.6 mg/kg

The screening levels derived under Plan A methods were based on guidance-specified methods and conservative exposure assumptions. Detected concentrations in the PSTD areas were compared to screening levels that were based on the lower of either the protection of Category I groundwater or residential soil ingestion Plan A concentrations provided in Appendix A, Table A-1 of TNRCC (1994). TNRCC (1998) was consulted in the absence of a value provided in this table for bis(2-ethylhexyl)phthalate. In each case, the groundwater protection concentration was the lower value. Groundwater protection as a basis for developing screening levels was considered appropriate because compounds were detected within 15 feet bgs (TNRCC, 1994). Groundwater protection concentrations corresponding to the beneficial use Category I were applied as a conservative measure.

The groundwater protection concentrations were based on Federal Maximum Concentration Levels (MCLs), if available; otherwise health-based residential drinking water concentrations were calculated (TNRCC, 1994). Plan A concentrations were calculated assuming a $1x10^{-6}$ risk level for carcinogens and a hazard quotient of 1 for noncarcinogens, as specified in TNRCC (1994).

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3.0 PROJECT INVESTIGATIONS

The sections below present the findings of the project investigations. Findings of the SA/SI were used to define the site environmental setting, identify potentially contaminated areas, and assess potential sources of contamination along the pipelines.

An SC was performed in areas identified in the SA/SI as having potential contamination associated with the pipelines. The objective of this phase of the field investigation was to confirm the pressure of contamination, delineate its nature and magnitude, identify the sources of contamination, and characterize environmental site conditions.

3.1 SITE ASSESSMENT

The SA consisted of three activities. The first activity was a land survey. The land survey reports include a site drawing showing prominent study area features and boundaries, as well as the sampling locations identified above, and tabulated summaries of state plane coordinates for the surveyed features. The site drawing is presented in Appendix A. The second activity was a utility location survey. The third activity was a walk-through survey of the site to document visual observations of potential contamination of soil. The background search to assemble all available information related to the pipeline, including interviews with Carswell AFBCA personnel, is detailed in Section 1.0. The following summarizes the findings of the background search:

- Petroleum-related odors were reported on two occasions in the vicinity of the Pride pipeline near Farmers Branch Creek (Long, 1996).
- The Pride pipeline service line, which crosses Farmers Branch Creek, reportedly carried JP4 from 1983 to 1994 and has carried JP8 since 1994 (Duggan, 1997).
- Releases from the Abandoned Service Station and associated French drain system and oil/water separator have contributed to subsurface soil and groundwater POL contamination at the Unnamed Stream area near the Pride and Chevron pipelines.
- Petroleum-related odors were reported on one occasion at the Unnamed Stream area near the Pride and Chevron pipeline stream crossings.
- The section of the Pride pipeline crossing the Unnamed Stream area reportedly carried crude oil from the 1950s to 1983, when it was abandoned (Duggan, 1997).
- Releases from the BSS have contributed to subsurface soil and groundwater contamination between the BSS and the West Fork of the Trinity River in the vicinity of the Chevron pipeline (COE, 1994).
- Visual inspection and pressure testing of the Chevron pipeline in the BSS area indicated no signs of leaks from the pipeline in 1992 (Ernst, 1997).
- The Chevron pipeline, which crosses the Unnamed Stream area and lies along the West Fork of the Trinity River, reportedly carried multiple commercial fuels and was abandoned in 1988 (Powell, 1997).

The only finding of the walk-through survey was the observation of stained soils within the Valve Box. The exposed pipelines crossing the Unnamed Stream were also noted. However, there were no signs of contamination at the pipe crossings. No other visible evidence of surface soil contamination along the pipelines was noted.

3.2 SITE INVESTIGATION

The SI consisted of a soil gas survey of the site. The sections below discuss the survey and data quality assessment results, as well as identification of potentially contaminated areas based on the survey results.

3.2.1 Soil Gas Survey Data Quality Assessment

This section discusses the field and laboratory data quality of the soil gas survey based on field records (Appendix F) and the soil gas laboratory report (Appendix B). The assessment of the data quality is performed in accordance with the criteria outlined in the AFCEE *Handbook*. Because the soil gas survey was a screening procedure, some of the data quality assessment criteria specified in the AFCEE *Handbook* are not applicable.

3.2.1.1 Field Records Quality Assessment

Requirements for field sampling activities specified in the SOW (TEC, 1995) for the area of study were fulfilled. With the few exceptions discussed in Section 2.2.1.4, field activities, including installation of the sorbers, are consistent with the procedures and methods outlined in the FSP and QAPP (TEC, 1996a,b). The field records are complete for each sampling event and are consistent with the procedures specified in the FSP and QAPP (TEC, 1996a,b). Soil gas sample data sheets were completed for all installed sorbers. These data sheets include the sample number, sample type, time and date installed, depth of installation, and sampling horizon conditions. The installation field procedures, as well as environmental conditions, generally were consistent for all the sorbers. A chain of custody for the survey was also completed in accordance with procedures outlined in the QAPP (TEC, 1996b).

Field records were evaluated for the validity of soil gas samples. With one exception, the field log book indicates that installation of soil gas probes was successful and there were no problems that may impair the equipment's ability to detect contamination. Field records note that the tile probe on the sorber at sample location GS-40 broke during installation because of extremely hard ground; a back-up sorber was installed. During retrieval of the probes, several of the corks on the sorber modules used to retrieve the devices were disturbed; however, all of the sorbers were recovered and appeared to be intact. This anomaly is not expected to affect the results of the sampling. In addition, one sorber installed at sample location GS-08 was lost in the field and not retrieved. Because other sorbers were installed in the vicinity of GS-08, the loss of the GS-08 sorber is not expected to impact the objectives of the SI. No other method was used to collect soil gas.

Sixty-nine of the 70 installed soil gas sorbers were retrieved from the site 14 days from the date of placement (as noted above, one sorber was irretrievable). Once retrieved, the sorbers, along with six trip blank sorbers and four duplicates, were placed in a cooler, sealed with custody tape, and delivered to the laboratory with a chain-of-custody record and retrieval log. The chain-of-custody form(s) delivered with the sorbers is provided in the Soil Gas Report found in Appendix B.

3.2.1.2 Laboratory Data Quality Assessment

Because the soil gas data are screening data, a formal data validation was not performed. However, an internal data check was performed to review the laboratory's QA/QC controls and consistency in the data reporting.

All of the retrieved sorbers (69) and trip blanks (6) were analyzed by thermal desorption (Perkin-Elmer ATD-400) coupled with gas chromatography (HP 5890 gas chromatographs) and mass spectroscopy (5971A mass selective). GORE laboratory practices are consistent with Good Laboratory Practices (GLP) guidelines and ISO Guide 25 (GORE, 1996). QA/QC measures were undertaken to ensure sample representativeness, as specified in the QAPP (TEC, 1996b). Laboratory QA/QC controls included instrument, manufacturing, and method blanks, as well as calibration standards. Three method blanks were analyzed prior to each run sequence, as well as after every 30 samples and/or trip blanks (GORE, 1996). In addition, standards containing the selected compounds at three calibration levels (5, 20, 50 μg) were analyzed prior to each run and a second-source reference standard, at a level of 20 μg of each compound, was analyzed after every 10 samples and/or trip blanks (GORE, 1996). Control limits did not fall outside of the acceptable range, and the traceability and instrument performance are reproducible and accurate (GORE, 1996).

As specified in the QAPP, positive identification of target compounds was determined by the presence of the target ion and at least two secondary ions, retention time versus reference standard, and the analyst's judgment (GORE, 1996). The Soil Gas Report is provided in Appendix B.

3.2.2 Soil Gas Survey Results and Data Summary

Eighteen of the 24 compounds analyzed for were detected in the soil gas samples. Analytical results of the detected compounds in soil gas are presented in Table 3-1. Four of these compounds, the chlorinated solvents chloroform, 1,1,1-trichloroethane, trichloroethylene (TCE), and tetrachloroethene (PCE), are not considered to be related to contamination that may be associated with the pipelines.

To identify potential values of concern, the contaminant masses desorbed were compared to the method detection limits and masses reported in the trip and method blanks in a manner that is consistent with EPA guidelines (EPA, 1989, 1992b). Method detection limits (MDLs) and the results of trip and method blanks are presented in Table 3-1.

Practical quantitation limits (PQLs) were not assigned by the laboratory. Therefore, to identify potential values of concern, a factor of five times the MDL was used. Reported values less than this were not considered a concern. A factor was also applied to values for those compounds detected in trip and/or method blanks. Four of the 26 analytes were detected in the blanks. These included toluene, undecane, m,p-xylene, and petroleum hydrocarbons. Detected masses of these compounds in the field samples that were less than 10 times the maximum detected masses in the trip and/or method blanks were not considered as a value of concern. Potential values of concern are identified in Table 3-1.

Statistical analyses were performed on the detected results to identify data trends. As shown in Table 3-2, all compounds except PCE, ethylbenzene, and o-xylene were detected in less than 10 percent of the samples collected. Most were detected less than 5 percent of the time. In interpreting these results, it was assumed that low frequency of detection of petroleum-related compounds would indicate the presence of isolated anomalies and areas of potential concern as opposed to more extensive contamination along the entire length of the pipeline. As shown in Table 3-2, parameter results are generally represented by average detected masses several orders of magnitude lower than the maximum mass detected, and a low frequency of detection. The few anomalous

Table 3-1. Analytical Data Summary of Detected Compounds from the Soil Gas Survey, continued

			Parameters																	
			Chloroform	1,1,1-Trichloroethane	Benzene b	Trichloroethylene	Toluene b	Octane b	Tetrachloroethene	Ethylbenzene b	m-,p-Xylene b	o-Xylene b	1,3,5-Trimethylbenzene b	1,2,4-Trimethylbenzene b	Undecane b	Naphthalene b	Tridecane b	2-Methylnaphthalene b	Pentadecane b	Petroleum Hydrocarbons b
Units: µg		MDL:	0.03	0.08	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.01	0.01	0.02	0.03	0	0.01	0.01	0.01	NA
Field ID[a]	Lab ID	Sample Date																		
GS-1	125685	9/12/96	ND	ND	ND	ND	ND	ND	ND	0.11	0.32	0.18	ND	ND	ND	ND	ND	ND	ND	ND
GS-2	125686	9/12/96	0.06	ND	ND	ND	ND	ND	ND	0.10	0.28	0.13	ND	ND	ND	ND	ND	ND	ND	ND
GS-3-1	125687	9/12/96	ND	ND	ND	ND	ND	0.13	ND	ND	ND	ND	ND	ND	1.46	ND	1.16	ND	0.42	173.13
GS-3-2	125688	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-4	125689	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	ND	ND	ND	ND	ND	ND	ND	ND
GS-5	125690	9/12/96	ND	ND	ND	ND	ND	ND	ND	0.03	ND	0.05	ND	ND	ND	ND	ND	ND	ND	ND
GS-6	125691	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-7	125692	9/12/96	0.12	ND	ND	ND	ND	ND	ND	ND	ND	0.03	ND	ND	ND	ND	ND	ND	ND	ND
GS-9	125694	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-10	125695	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-11	125696	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-12	125697	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-13	125698	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-14	125699	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-15	125700	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-16	125701	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-17	125702	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-18	125703	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-19	125704	9/13/96	ND	ND	ND	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-20	125708	9/13/96	ND	ND	ND	ND	ND	ND	0.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-21	125709	9/13/96	ND	0.03	ND	ND	ND	ND	0.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-22	125710	9/13/96	ND	ND	ND	ND	ND	ND	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-23	125711	9/13/96	ND	ND	ND	ND	ND	ND	0.12	ND	ND	0.04	0.26	0.58	0.35	0.73	ND	ND	ND	ND
GS-24-1	125712	9/13/96	ND	ND	ND	ND	ND	ND	0.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-24-2	125713	9/13/96	ND	ND	ND	ND	ND	ND	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-25	125714	9/13/96	ND	ND	ND	ND	ND	ND	0.16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-26	125715	9/13/96	ND	ND	ND	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-27	125716	9/13/96	ND	ND	ND	ND	ND	ND	0.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-28	125717	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-29	125718	9/13/96	ND	ND	ND	ND	ND	ND	0.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-30	125719	9/13/96	ND	ND	ND	ND	ND	ND	0.10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-31	125720	9/13/96	ND	ND	ND	ND	ND	ND	0.12	ND	ND	ND	0.02	ND	ND	ND	ND	ND	ND	ND
GS-32	125721	9/13/96	ND	ND	ND	ND	ND	ND	0.10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-33	125722	9/13/96	ND	ND	ND	ND	ND	ND	0.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-34	125723	9/13/96	ND	ND	ND	ND	ND	ND	0.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-35	125724	9/13/96	ND	ND	ND	ND	ND	ND	0.06	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-36	125725	9/13/96	ND	ND	ND	ND	ND	ND	0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-37	125726	9/13/96	ND	ND	ND	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-38	125727	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-39-1	125728	9/13/96	ND	ND	ND	ND	ND	ND	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-39-2	125729	9/13/96	ND	ND	ND	ND	ND	ND	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-40	125730	9/13/96	ND	ND	ND	ND	ND	ND	ND	0.13	0.45	0.21	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

MDL - Method Detection Limit

ND - Not Detected above the MDL

NA - not available

a The soil gas sorber placed at GS-08 was lost in the field.

b Petroleum-related analyte.

Boxed values indicate potential concentration of concern based on reported value greater than 5 times the MDL and 10 times blank concentrations.

Table 3-1. Analytical Data Summary of Detected Compounds from the Soil Gas Survey, continued

			Parameters																	
			Chloroform	1,1,1-Trichloroethane	Benzene[b]	Trichloroethylene	Toluene [b]	Octane[b]	Tetrachloroethene	Ethylbenzene[b]	m-,p-Xylene[b]	o-Xylene[b]	1,3,5-Trimethylbenzene[b]	1,2,4-Trimethylbenzene[b]	Undecane [b]	Naphthalene[b]	Tridecane[b]	2-Methylnaphthalene[b]	Pentadecane[b]	Petroleum Hydrocarbons[b]
Units: µg		MDL:	0.03	0.08	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.01	0.01	0.02	0.03	0	0.01	0.01	0.01	NA
Field ID[a]	Lab ID	Sample Date																		
GS-41	125731	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-42	125732	9/13/96	0.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-43	125733	9/13/96	ND	ND	ND	ND	ND	ND	0.04	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-44	125734	9/13/96	ND	ND	ND	ND	ND	ND	0.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-45	125735	9/13/96	ND	ND	ND	ND	ND	ND	0.05	ND	ND	0.03	ND	ND	ND	ND	ND	ND	ND	ND
GS-46	125736	9/13/96	ND	ND	ND	ND	ND	ND	0.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-47	125737	9/13/96	ND	ND	ND	ND	ND	ND	ND	$\boxed{0.18}$	$\boxed{0.72}$	$\boxed{0.36}$	ND	ND	ND	ND	ND	ND	ND	ND
GS-48	125738	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-49	125739	9/13/96	ND	ND	ND	ND	ND	ND	0.68	$\boxed{0.09}$	$\boxed{0.33}$	$\boxed{0.16}$	ND	ND	ND	ND	ND	ND	ND	ND
GS-50	125740	9/13/96	ND	ND	ND	ND	ND	ND	1.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-51	125741	9/13/96	ND	ND	ND	ND	ND	ND	0.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-52	125742	9/14/96	ND	ND	ND	ND	ND	ND	5.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-53	125743	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-54	125744	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-55	125745	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-56-1	125746	9/14/96	ND	ND	ND	ND	ND	ND	ND	0.03	ND	0.09	ND	ND	ND	ND	ND	ND	ND	ND
GS-56-2	125748	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-57	125747	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-58	125749	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-59	125750	9/14/96	ND	ND	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	$\boxed{0.21}$	ND	ND	ND	ND	ND
GS-60	125751	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-61	125752	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-62	125753	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-63	125754	9/14/96	0.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GS-64	125755	9/14/96	0.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.01	ND	ND	ND	ND	ND
GS-65[c]	125756	9/14/96	ND	ND	$\boxed{42.56}$	ND	105.34	$\boxed{7.49}$	ND	$\boxed{2.70}$	$\boxed{84.89}$	$\boxed{35.63}$	$\boxed{38.61}$	$\boxed{14.70}$	$\boxed{4.57}$	$\boxed{0.64}$	$\boxed{0.42}$	$\boxed{0.18}$	$\boxed{0.06}$	$\boxed{819.64}$
GS-66[c]	125757	9/14/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TB-1	125758	9/12/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.75
TB-2	125759	9/13/96	ND	ND	ND	ND	0.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.79
TB-3	125760	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.16
TB-4	125761	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.52
TB-5	125762	9/13/96	ND	ND	ND	ND	0.06	ND	ND	ND	ND	ND	ND	ND	0.03	ND	ND	ND	ND	2.11
TB-6	125763	9/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.17
MB-1	NA	9/12/96	ND	ND	ND	ND	0.12	ND	ND	ND	0.03	ND	ND	ND	ND	ND	ND	ND	ND	2.49
MB-2	NA	9/13/96	ND	ND	ND	ND	0.26	ND	ND	ND	0.04	ND	ND	ND	ND	ND	ND	ND	ND	3.71
MB-3	NA	9/13/96	ND	ND	ND	ND	0.26	ND	ND	ND	0.04	ND	ND	ND	ND	ND	ND	ND	ND	0.41

Notes:

MDL - Method Detection Limit

ND - Not Detected above the MDL

NA - not available

a The soil gas sorber placed at GS-08 was lost in the field.

b Petroleum-related analyte.

c These were test sorbers intentionally installed in an area with known contamination (Base Service Station site) not related to the site.

Boxed values indicate potential concentration of concern based on reported value greater than 5 times the MDL and 10 times blank concentrations.

Table 3-2. Summary Statistics of Detected Compounds from the Soil Gas Survey

Parameter	No. of Detects/ No. of Samples	FOD	Minimum Mass (µg)	Maximum Mass (µg)	Average Mass (µg)	Median Mass (µg)
Chloroform	5/69	7%	0.06	0.22	0.02	MDL
1,1,1-Trichloroethane	1/69	1%	0.03	0.04	0.04	MDL
Benzene	2/69	3%	0.05	42.56	0.63	MDL
Trichloroethylene	1/69	1%	0.05	0.05	0.01	MDL
Toluene[a]	1/69	1%	105.34	105.34	1.54	MDL
Octane	2/69	3%	0.13	7.49	0.12	MDL
Tetrachloroethene	28/69	41%	0.02	5.71	0.16	MDL
Ethylbenzene	8/69	12%	0.03	2.7	0.05	MDL
m-,p-Xylene[a]	6/69	9%	0.28	84.89	1.26	MDL
o-Xylene	12/69	17%	0.02	35.63	0.54	MDL
1,3,5-Trimethylbenzene	3/69	4%	0.02	38.61	0.57	MDL
1,2,4-Trimethylbenzene	2/69	3%	0.58	14.7	0.23	MDL
Undecane[a]	5/69	7%	0.21	4.57	0.12	MDL
Naphthalene	2/69	3%	0.64	0.73	0.02	MDL
Tridecane	2/69	3%	0.42	1.16	0.03	MDL
2-Methylnaphthalene	1/69	1%	0.18	0.18	0.01	MDL
Pentadecane	2/69	3%	0.06	0.42	0.01	MDL
Petroleum Hydrocarbons[a,b]	2/69	3%	173.13	819.64	14.4	0

Notes:

FOD - frequency of detect

One-half the method detection limit (MDL) was used for non-detects in calculations.

A detected concentration represents the mass desorbed from the GORE-Sorber modules.

[a] Because compound was detected in the blanks, data points < 10x the maximum blank concentration were treated as non-detects (EPA 1989, 1992b).

[b] No MDL was available for petroleum hydrocarbons; as a result, the non-detects were set to zero.

results with relatively higher reported masses generally indicate low to no soil gas contamination along the Pride and Chevron pipelines, with the exception of a few distinct areas where values are elevated. These areas are discussed in the section below.

Soil gas sorber locations that contained analyte masses at potential levels of concern include GS-3-1, GS-23, GS-40, GS-47, GS-49, GS-59, and GS-65. Sorber locations are identified on the Site Base Map provided in Appendix A. GS-3-1 was located adjacent to the Pride and Chevron pipelines near the Valve Box adjacent to Highway 183. GS-23, GS-40, and GS-47 were located along the Pride pipeline serving the NAS Fort Worth fuel distribution tanks. GS-49 was located along the Pride and Chevron pipelines in the Unnamed Stream area. GS-59 was located along the West Fork of the Trinity River. GS-65 was located near the BSS-removed USTs in a known area of contamination for comparative purposes.

Sorbers from two locations, GS-3-1 and GS-65, contained multiple analytes at masses that were significantly greater than all others. Sorbers from the Valve Box area (GS-31) and the BSS (GS-65) contained petroleum hydrocarbon masses of 173.13 μg and 819.64 μg, respectively. Petroleum hydrocarbons were not detected in any other sample.

Prior to the soil gas survey, reports of petroleum-related odors and historical investigation results suggested that contamination of soil may exist in the Farmers Branch Creek area directly west of Pumphrey Drive, the Unnamed Stream area, and the West Fork of the Trinity River area, as discussed in Section 1.3. These locations correspond to sorber locations GS-40, GS-49, and GS-59, respectively. Low levels of petroleum-related compounds (ethylbenzene and xylenes) were detected in soil gas sorber GS-40 located at the edge of the Farmers Branch Creek area. Low levels of these same compounds were detected in soil gas sorber GS-49 located in the Unnamed Stream area. Sorber GS-59, located along the West Fork of the Trinity River, contained only undecane at relatively low levels.

The soil gas survey results, along with the historical information presented in Figure 2-1, were used to locate the most appropriate areas for additional investigation during the SC. These areas include the following:

- Valve Box area;
- Farmers Branch Creek area directly west of Pumphrey Drive;
- Unnamed Stream area; and
- West Fork of the Trinity River area.

3.3 SITE CHARACTERIZATION

Based on the results of the SA/SI, an SC was conducted in areas identified as needing additional investigation. The SC consisted of a subsurface soil investigation performed through the advancement of boreholes and the collection of samples for organic vapor screening and lithologic characterization. **Hydrocarbon fingerprinting, BTEX, and SVOC analyses were also performed at selected SC locations.** The sections below provide discussions of the field and laboratory data, lithology of each area, organic soil vapor screening results, hydrocarbon fingerprinting results, and selection of borehole locations for the supplemental sampling, followed by a discussion of the analytical chemistry results. The discussion regarding the analytical results includes a comparison of the results with screening levels.

3.3.1 Field and Laboratory Data Quality Assessment

A field and laboratory data quality assessment was performed through collection of field QC blanks and analysis of laboratory QC samples. This section summarizes the results of the field blanks. A summary table that identifies individual field samples associated with each blank sample is provided in Appendix H.

One trip blank (TB-101) was analyzed by the BTEX method (8021). Toluene was the only analyte reported above the detection limit in TB-101. Toluene was also identified in the equipment blank. No contaminants of concern were identified in the ambient blank. Toluene is considered by USEPA to be a common laboratory contaminant (EPA, 1989). Since the compound was identified in both the equipment blank and the trip blank, it is assumed that toluene was introduced during sample transport or in the laboratory during extraction and/or analysis.

Table 3-3. Summary of Quality Control Sample Results

Sample Number:	AB-100	EB-100	TB-101
Parameters[a]			
Semivolatiles	NA	ND	NA
BTEX- (ug/L)			
Toluene	0.16U	0.84	1.1

F - The compound was positively identified, but the associated numerical value is below the PQL.
NA - not analyzed
U - The compound was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.
[a]Parameters limited to those detected in at least one sample (see Appendix H).

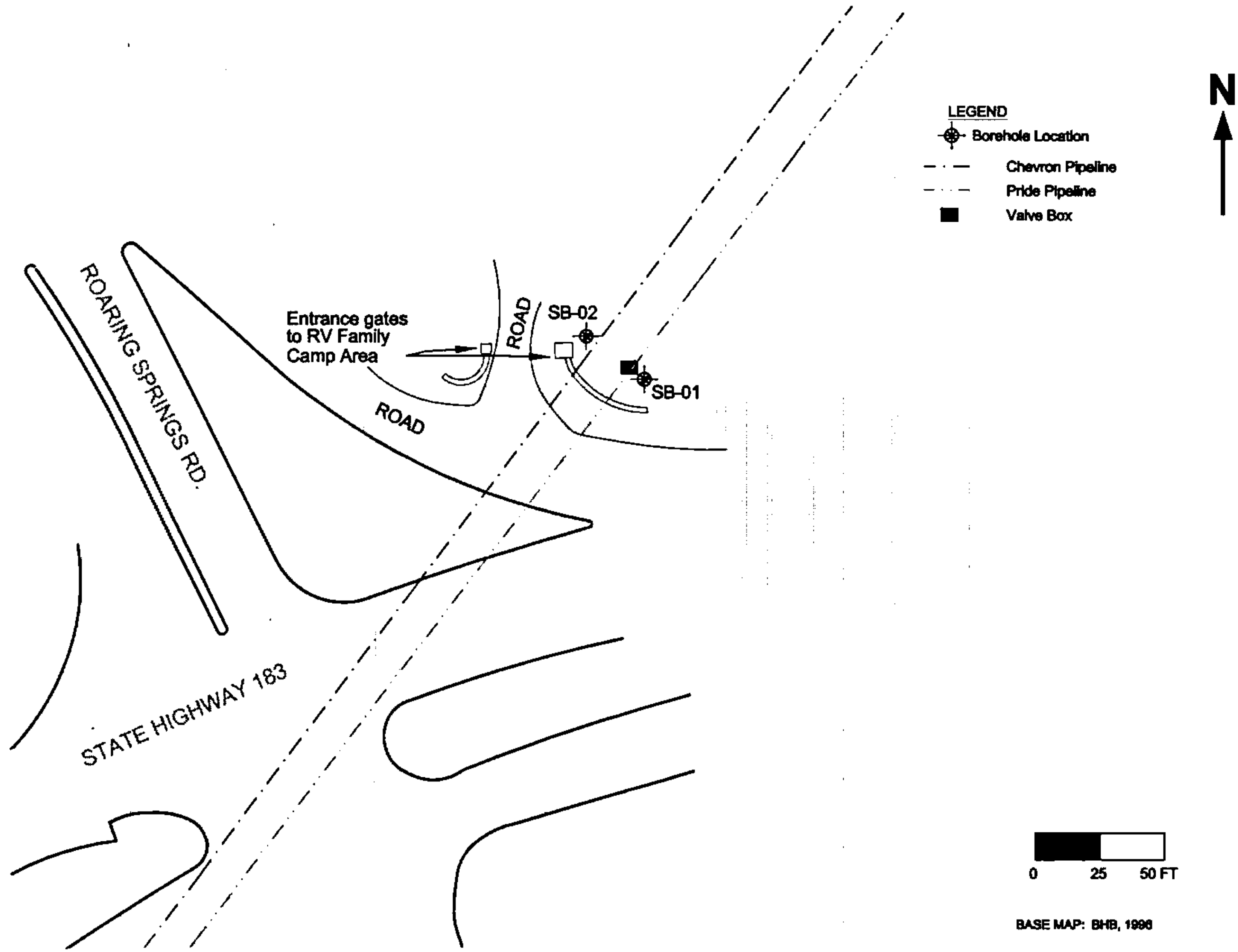
3.3.2 Initial Borehole Locations and Area-Specific Lithology

The following sections describe the borehole locations established in the initial SC sampling effort. These boreholes were used to characterize the lithology of each area.

3.3.2.1 Valve Box

Borings SB-01 and SB-02 were advanced on either side of the Valve Box to the point of refusal, which occurred at 17 feet bgs in each boring. The borehole locations are shown in Figure 3-1. Logs for each borehole are provided in Appendix D.

The boreholes were advanced in the sediments and in the decomposed limestone soils that were developed by the weathering regimen and depositional activity influenced by the intermittent stream. Depth to bedrock at this area is 10 to 12 feet deeper than the area underlying the RV Fam Camp area, which is approximately 200 yards to the northwest.



The Environmental Company, Inc.

Figure 3-1 –Valve Box Area Soil Boring Location
NAS Fort Worth JRB
Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prepared By: L. Myers / A. Long
Project No: P-3103

A similar profile was intersected in both borings. The profile consisted of a 2-foot-thick layer of organic silty-clay topsoil followed by 10 feet of light-gray silts with a significant clay content. These soils are the weathering product of the underlying shaley limestone that is first intersected at 12 to 13 feet bgs. The last few feet above refusal are dominated by increasing amounts of limestone and shale fragments.

In boring SB-01, a slight petroleum odor was noted at 5 feet, which increased in intensity in the 5- to 7.5-foot interval and then decreased slightly with depth. Similarly, in boring SB-02, petroleum odors were noted in the 8- to 10-foot range but not below 10 feet. No obvious petroleum staining was observed in either boring. No water was observed at the time of drilling.

3.3.2.2 Farmers Branch Creek

Three borings, SB-08, SB-09, and SB-10, were advanced in this area. SB-08 was located on the south bank of Farmers Branch Creek, while the other two borings were located on the north bank (Figure 3-2). Borehole logs for each hole are provided in Appendix D. All the borings were advanced in alluvial deposits of Farmers Branch Creek, which consisted of silts and fine sands in the upper portions of the boreholes, followed by medium-grained sands and gravels at the base. The silts of SB-09 and SB-10 were moderately to strongly cemented by caliche in the 7-foot interval above the water table. Water was encountered in all boreholes at a depth corresponding to the elevation of Farmers Branch Creek (10.1 feet bgs in SB-08, 15 feet bgs in SB-09, and 15.5 feet bgs in SB-10). No petroleum odors were observed in any of the borings.

3.3.2.3 Unnamed Stream

Five borings, SB-03, SB-04, SB-05, SB-06, and SB-07, were advanced in this area (Figure 3-3). Borehole logs are provided in Appendix D. Two previously existing monitoring wells along with the estimated location of the removed French drain and oil/water separator are also shown for reference. Also shown is the general uppermost groundwater flow direction as inferred by Law (1995). All borings were placed as close as possible to the pipelines, which are buried approximately 4 feet bgs. Silts and clays containing freshwater mussel, land snail shells, and varying amounts of caliche were encountered in all five borings. These soils resulted from sediments deposited by Farmers Branch Creek. The dark brown color of the soils suggests a relatively high carbon content, indicating that they were possibly deposited in a swamp or an isolated lagoon-like environment. Clay lenses up to 9 feet thick were encountered in SB-05 and SB-06, which were advanced directly on the banks of the Unnamed Stream. The lower portions of borings SB-05 and SB-06 passed through lighter colored clays and are mixed with fragments of decomposed limestone.

Borehole refusal was met at depths varying from 7 to 21 feet. Two of the borings intersected a limestone shelf at 7 feet (SB-07) and 8.5 feet (SB-04). It is assumed, based on elevation, that the shallow limestone encountered extends to the south across to Farmers Branch Creek where it is exposed and forms a 5- to 10-foot high ledge across the creek. The other three boreholes were situated in alluvial depositional environments (SB-03; refusal at 21 feet) and were advanced to refusal at 21 feet bgs (SB-03 and SB-05) and 17 feet bgs (SB-06).

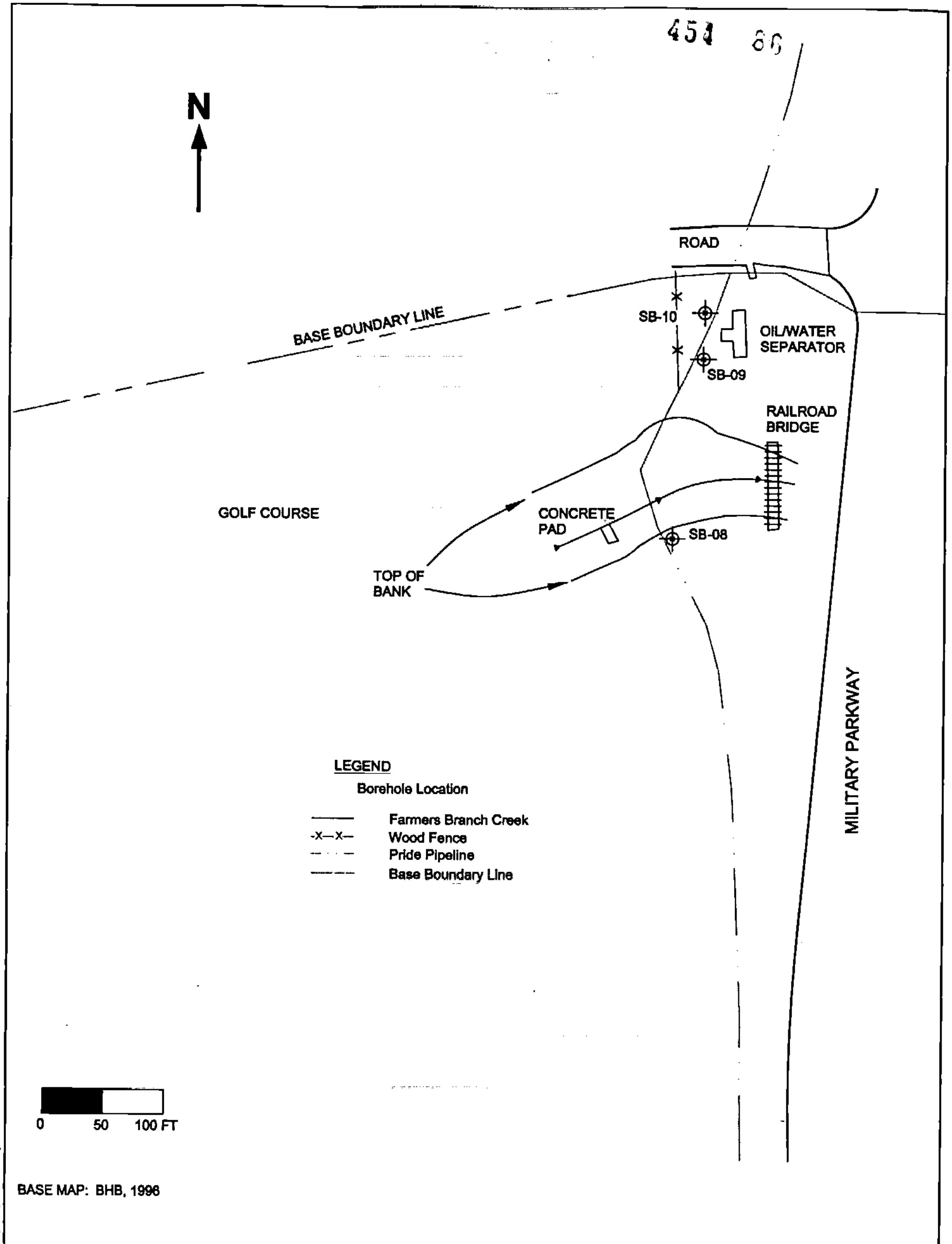


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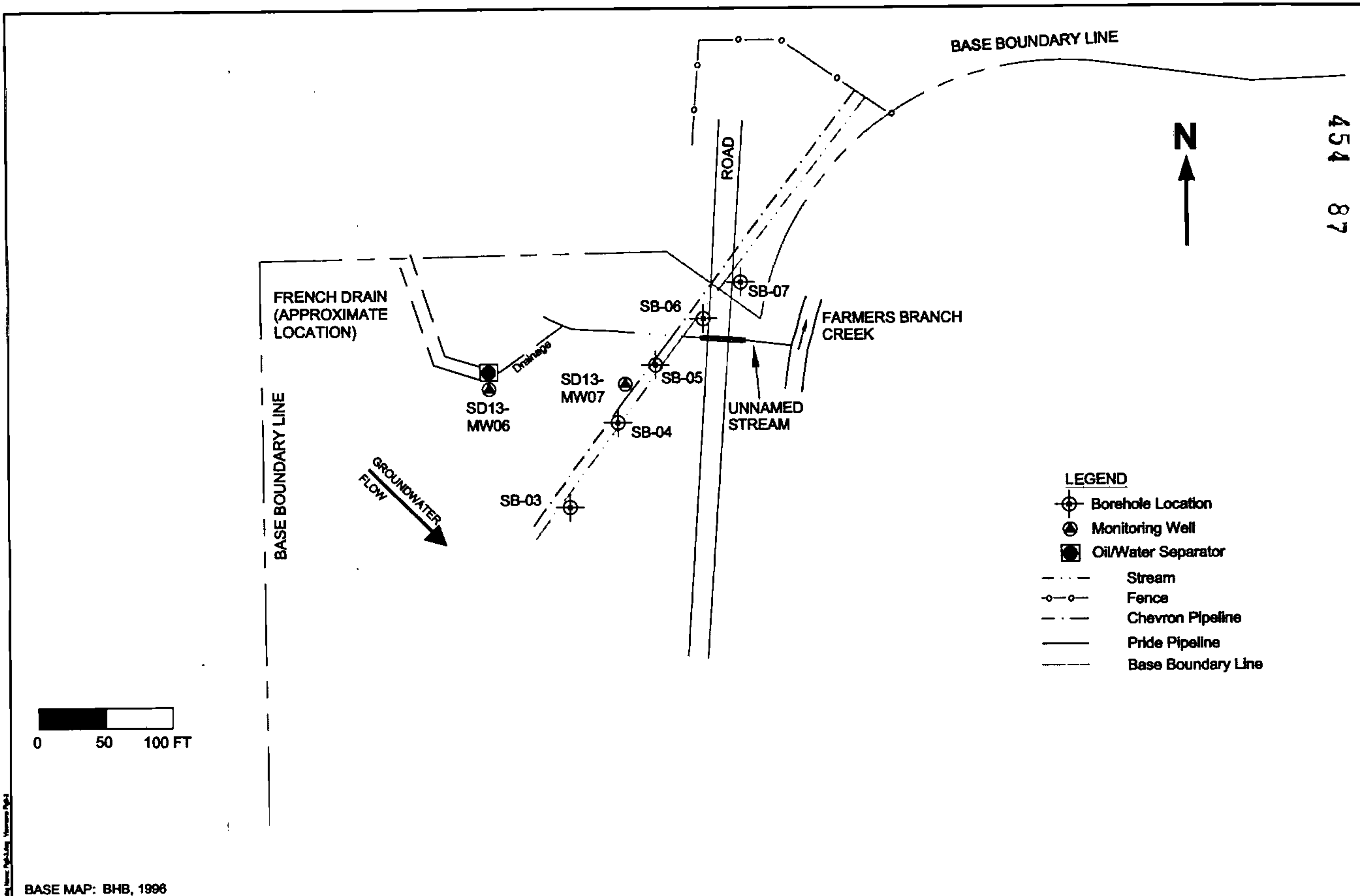
Figure 3-2 --Farmers Branch Creek Soil Boring Locations
NAS Forth Worth JRB
Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prepared By: L. Myers / A. Long
Project No: P-3103



The Environmental Company, Inc.

Figure 3-3 -- Unnamed Stream Area Soil Organic Boring Locations
NAS Fort Worth JRB
Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prepared by: L. Myers / A. Long
Project: P-3103

Moderate to strong petroleum odor was observed in borings SB-03 and SB-05 in the intervals between 10 feet and refusal. Both of these borings were located to the south of the Unnamed Stream. No odor was observed in boring SB-06 on the north side of the stream or in the two shallow borings, SB-04 and SB-07.

In the area below the zone affected by recent rains, the soils were dry and firm to stiff in consistency. Water was encountered in all three boreholes situated in the thicker alluvial deposits. Water levels were at 15.5 feet bgs in SB-03, 16.3 feet bgs in SB-05, and 8.7 feet bgs in SB-06. Water encountered in SB-06 may have been localized on the clay lenses and associated with the stream rather than the shallow groundwater table encountered in the other borings. No floating petroleum products were detected by the interface probe.

3.3.2.4 West Fork of the Trinity River

Two boreholes (SB-11 and SB-12) were drilled on the south bank of the West Fork of the Trinity River, along the Chevron pipeline, as shown in Figure 3-4. Logs for each borehole are provided in Appendix G. The boreholes were placed within a contamination zone reportedly associated with the BSS and/or the Base Gas Station sites. The groundwater contamination zone along the river bank was projected by the COE in 1994 to span a length of approximately 600 feet based on TPH concentrations, with the center of the plume extending from monitoring well BSSB to monitoring well MW10 and the historic seep location (Figure 3-4). The two boreholes were installed approximately 30 feet and 80 feet southeast of the center of the projected plume.

Both boreholes were drilled to 25 feet bgs without encountering refusal. Both penetrated a column of interbedded silts and sands of the Trinity River alluvial plain and encountered the water table at approximately 19 feet bgs. These sediments were generally moist and friable but firm-to-stiff in their consistency. There were no indications of contamination directly below the pipeline at 4 feet bgs. At 16 feet bgs in SB-11 and 15 feet bgs in SB-12, moderate petroleum odors and staining were observed. Odor and staining increased in intensity with depth and persisted to the base of both boreholes. No visual evidence of petroleum contamination was noted between the ground surface and 15 to 16 feet bgs.

3.3.3 Subsurface Soil Organic Vapor Screening

Table 3-4 summarizes the organic vapor soil screening readings. Elevated organic vapor was recorded at all intervals in SB-01 with an increase recorded at 7.5 to 12.5 feet bgs. Similar readings at slightly shallower depths (5 to 10 feet bgs) were recorded for SB-02.

Organic vapors generally remained consistently at ambient conditions throughout the soil boreholes established in the Farmers Branch Creek area, with a few minor fluctuations. Readings above 0.0 parts per million (ppm) (12 ppm to 27 ppm) were shown to be attributed to moisture buildup within the headspace, which increases PID meter readings.

Elevated organic vapor readings in SB-03 and SB-05 (Unnamed Stream) indicated the presence of contamination in these boreholes. In SB-03, organic vapor remained at ambient conditions (less than 30 ppm) until 10 to 20 feet bgs, where readings

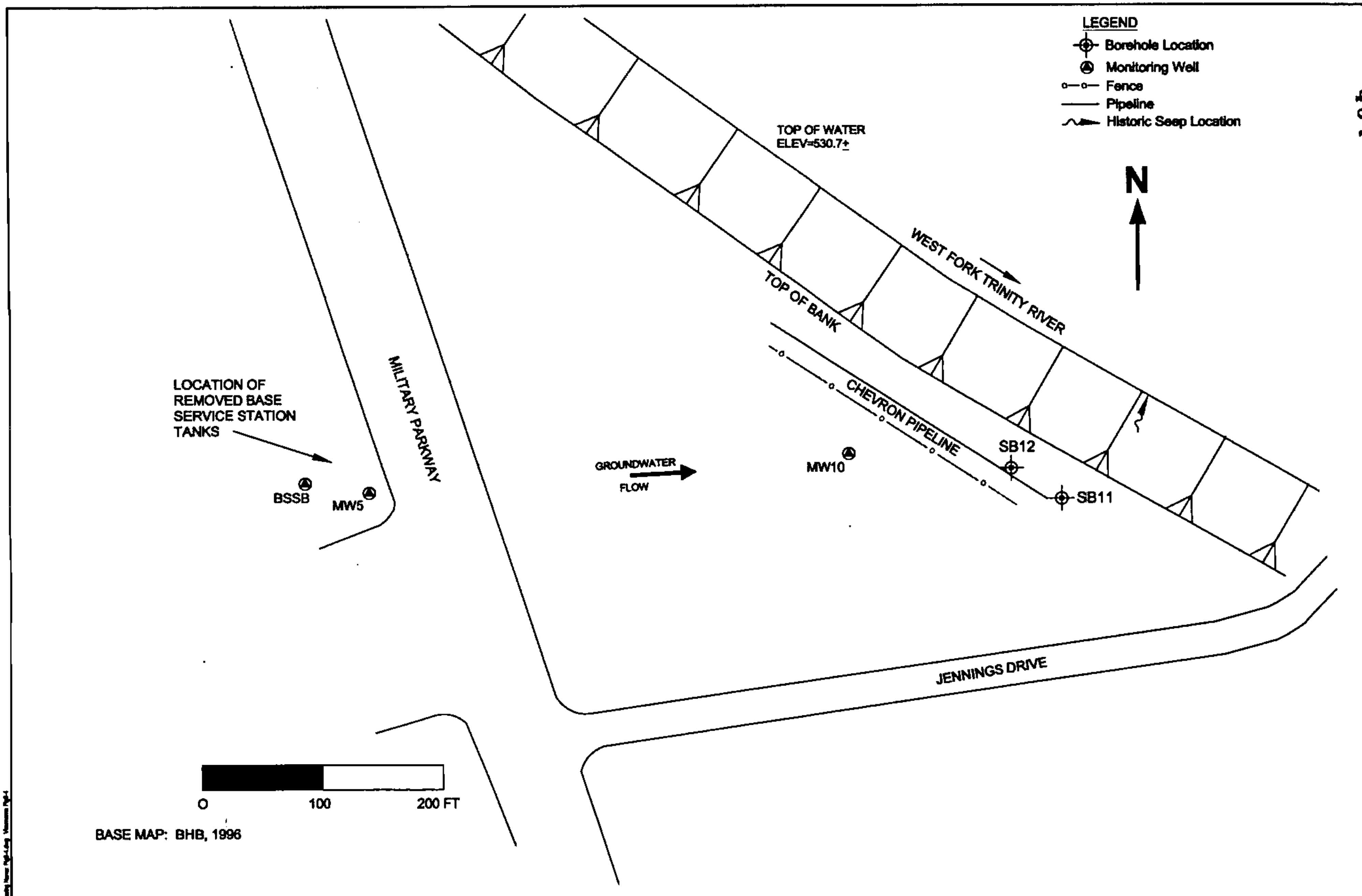


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Figure 3-4 --West Fork of the Trinity River Area Soil Boring Locations
NAS Fort Worth JRB
Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prepared: L. Myers / A. Long
Project: P-3103

Table 3-4. Organic Vapor Soil Screening Summary, continued

Investigation Area	Location	Analytical Sample Number	Sample Depth Interval (feet)	Relative Moisture Content[a]	Organic Vapor[b] (ppm)
Valve Box	SB-01	NS	0.0 to 2.5	M	49.5
		NS	2.5 to 5.0	D	47.0
		NS	5.0 to 7.5	M	21.0
		-01	7.5 to 10.0	M	152.0
		-02	10.0 to 12.5	M	329.0
		-03	12.5 to 15.0	M	74.0
		NS	15.0 to 17.0	M	41.0
	SB-02	NS	0.0 to 2.5	M	15.0
		NS	2.5 to 5.0	D	32.0
		-01	5.0 to 7.5	D	159.0
		-02	7.5 to 10.0	D	370.0
		-03	10.0 to 12.5	M	69.0
		NS	12.5 to 15.0	M	35.0
		NS	15.0 to 17.5	M	24.5
Unnamed Stream	SB-03	NS	0.0 to 2.5	M	24.0
		NS	2.5 to 5.0	D	21.0
		NS	5.0 to 7.5	D	16.0
		NS	7.5 to 10.0	D	15.0
		-01	10.0 to 12.5	D	701.0
		NS	12.5 to 15.0	D	674.0
		-02	15.0 to 17.5	M	704.0
		NS	17.5 to 20.0	M	754.0
		-03	20.0 to 21.5	S	124.0
	SB-04	NS	0.0 to 2.5	M	32.0
		NS	2.5 to 5.0	M	29.0
		-01	5.0 to 7.5	M	22.0
		-02	7.5 to 10.0	D	10.0
	SB-05	NS	0.0 to 2.5	M	1.0
		NS	2.5 to 5.0	D	1.0
		NS	5.0 to 7.5	D	7.0
		-01	7.5 to 10.0	M	5.0
		NS	10.0 to 13.5	M	497.0/540.0
		-02	13.5 to 16.0	M	660.0
		NS	16.0 to 18.5	M	615.0
		-03	18.5 to 21.0	S	58.0
	SB-06	NS	0.0 to 2.5	M	0.0
		NS	2.5 to 5.0	M	0.0
		NS	5.0 to 7.5	M	0.0
		-01	7.5 to 10.0	M	0.0
		-02	10.0 to 12.5	M	16.0
		NS	12.5 to 15.0	M	0.0
		-03	15.0 to 17.5	M	0.0
	SB-07	NS	0.0 to 2.5	M	0.0
		NS	2.5 to 5.0	M	0.0
		-01	5.0 to 7.0	M	0.0
Farmers Branch Creek	SB-08	NS	0.0 to 3.5	M	0.0
		NS	3.5 to 8.5	M	0.0
		-01	8.5 to 12.0	D	0.0
	SB-09	NS	5.0 to 7.5	D	25.0

NS: No sample collected for chemical characterization

[a] Relative Moisture Content: D=Dry, M=Slightly to very moist, S=Saturated.

[b] Measured with a photoionization detector (PID).

Table 3-4. Organic Vapor Soil Screening Summary, continued

Investigation Area	Location	Analytical Sample Number	Sample Depth Interval (feet)			Relative Moisture Content[a]	Organic Vapor[b] (ppm)
Farmers Branch Creek		NS	7.5	to	10.0	D	21.0
		-01	10.0	to	12.5	D	27.0
		NS	12.5	to	15.0	M	19.0
		-02	15.0	to	17.5	M	18.5
		NS	17.5	to	19.0	S	15.0
	SB-10	NS	5.0	to	7.5	D	23.0
		-01	7.5	to	10.0	D	18.0
		NS	10.0	to	12.5	D	14.0
		NS	12.5	to	15.0	M	12.0
		-02	15.0	to	19.0	S	12.0
West Fork of the Trinity River	SB-11	NS	0.0	to	2.5	M	0.0
		NS	2.5	to	5.0	M	0.0
		NS	5.0	to	7.5	M	0.0
		NS	7.5	to	10.0	M	0.0
		-01	10.0	to	12.5	M	0.0
		NS	12.5	to	15.0	M	3.0
		NS	15.0	to	17.5	M	36.0
		-02	17.5	to	20.0	M	85.0
		NS	20.0	to	22.5	S	350.0
		-03	22.5	to	25.0	S	940.0
	SB-12	NS	0.0	to	2.5	M	30.0
		NS	2.5	to	5.0	M	17.0
		NS	5.0	to	7.5	D	22.0
		NS	7.5	to	10.0	D	26.0
		-01	10.0	to	12.5	M	25.0
		NS	12.5	to	15.0	M	36.0
		NS	15.0	to	17.5	M	495.0
		-02	17.5	to	20.0	M	610.0
		NS	20.0	to	22.5	S	625.0
		-03	22.5	to	25.0	S	479.0

NS: No sample collected for chemical characterization

[a] Relative Moisture Content: D=Dry, M=Slightly to very moist, S=Saturated.

[b] Measured with a photoionization detector (PID).

increased an order of magnitude. Levels decreased seven-fold in saturated soils at the 20 to 21 feet bgs depth range. Similarly, organic vapor readings in SB-05 increased two orders of magnitude in the 10 to 18 feet bgs depth range. Constant low readings were observed throughout the borehole columns in SB-04 and SB-07. Although readings in SB-06 generally were low, a relative increase was noted at 10 to 12 feet bgs.

The organic vapor readings from the West Fork of the Trinity River indicate that the upper 16 feet of soil at both borehole locations (SB-11 and SB-12) were free of contamination. Readings indicate an increase in the presence of contamination with depth, beginning at approximately 15 to 20 feet bgs in both boreholes.

Based on this screening, locations and depths were selected for soil boring sample collection and laboratory analyses. This selection is discussed in Section 3.3.5.

3.3.4 Hydrocarbon Fingerprinting

Hydrocarbon fingerprinting analysis was performed on two samples collected from the Unnamed Stream area and one sample collected from the West Fork of the Trinity River. The depths from which these samples were collected are summarized in Table 3-5. The results of the analysis are presented below.

Hydrocarbon fingerprinting of the samples collected from SB-03 and SB-05, located in the Unnamed Stream area, indicated that the TPH present in these boreholes is evaporatively weathered light naphtha, such as JP4. There was no evidence of a regular pattern of *n*-alkanes, suggesting that the petroleum material has been extensively biodegraded. Hydrocarbon fingerprinting on soil samples previously collected from a hydraulically upgradient sample at the Abandoned Service Station site (SD-13) was also indicative of JP4 (Benson, 1997a). The JP4 characterization does not correspond to the type of fuel reportedly carried in the Pride and Chevron pipelines in the Unnamed Stream area. As discussed in Section 1.3, this section of the Pride pipeline carried crude oil from its time of construction until abandonment in 1983. The Chevron pipeline reportedly carried various commercial petroleum products such as gasoline, leaded gasoline, and diesel. The hydrocarbon fingerprinting characterization report is provided in Appendix J.

One sample from the West Fork of the Trinity River was collected from the borehole at the interval with the highest PID reading and submitted for hydrocarbon fingerprinting analysis. This interval was within the uppermost zone of saturation. The hydrocarbon fingerprinting results for this sample indicate that the TPH detected in borehole SB-12 was characteristic of gasoline (Appendix J). Although the Chevron pipeline reportedly carried various commercial petroleum products such as gasoline, leaded gasoline, and diesel, the presence of hydrocarbon concentrations in seasonally saturated soils hydraulically downgradient from known upgradient sources of POL suggests that the contamination is most likely associated with sources other than the pipeline.

3.3.5 Potential Source Identification and Sample Location Selection

This section discusses whether the four areas studied thus far are considered potential source areas based on historical evidence, visual observations, the soil gas survey results, and the hydrocarbon fingerprinting analysis. The basis for selecting the sample locations established during the supplemental SC field effort is also discussed.

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Table 3-5. Subsurface Soil Sample Summary

Investigation Area	Analytical Sample Number		Sample Depth Interval (feet)			BTEX	SVOCs	TPH Fingerprint
Unnamed Stream	SB-03	-01	10.0	to	12.5			√
	SB-05	-02	13.5	to	16.0			√
Farmers Branch Creek	SB-108	-01	8.5	to	11.5	√	√	
	SB-109	-01	10.0	to	13.0	√	√	
		-03 (Dup)	10.0	to	13.0	√	√	
		-02	16.0	to	17.2	√	√	
	SB-110	-01	7.0	to	10.0	√	√	
		-02	15.0	to	17.5	√	√	
West Fork of the Trinity River	SB-12	-03	22.5	to	25.0			√

Notes:
TPH: Total Petroleum Hydrocarbons
BTEX: Benzene, Toluene, Ethyl Benzene, Xylenes
SVOCs: Semivolatile Organic Compounds

Based on the discussions provided in the following sections, it was determined that the Farmers Branch Creek area was the only area where supplemental sampling was needed to complete the Fuel Pipeline Investigation characterization.

3.3.5.1 Valve Box

No historical documentation related to potential contamination associated with the Valve Box was identified during the SA/SI. The only evidence of potential contamination was a visual observation of stained soils in the vicinity of the Valve Box during the site survey. The source of staining is assumed to be the pipelines because no other potential sources were identified during the project.

Both the soil gas survey and the PID organic vapor screening indicated that hydrocarbon contamination is vertically localized around the pipelines. The PID readings showed that organic vapor was primarily found above 10 feet bgs in silty clay soil and decreased with depth (Table 3-4). Although contamination has most likely not reached the point of borehole refusal (17 feet bgs at limestone bedrock), any further vertical migration would be restricted by the bedrock. Any horizontal contaminant migration would be limited to unsaturated soil because groundwater is not present in the area above the limestone. The horizontal extent of contamination is, therefore, expected to be limited. A geologic cross - section of the area is shown in Figure 3-5.

Because of the localized nature of the petroleum hydrocarbon in soil and the limited potential for horizontal or vertical contaminant migration, supplemental sampling of the Valve Box area was not performed.

3.3.5.2 Farmers Branch Creek

The Pride pipeline crosses Farmers Branch Creek on the west side of Pumphrey Drive, south of Ascol Drive. The pipeline depth increases as it drops below the creek bed, which is 10 to 15 feet below its banks (see Section 4.0). Based on historical reports of petroleum-related odors, the soil gas survey results, and the absence of other potential sources in the vicinity of Farmers Branch Creek, supplemental subsurface soil samples were collected from the area in October 1998.

The results of the PID screening were used to determine the appropriate depths from which to collect samples for definitive analysis. Table 3-5 presents the depths selected for soil boring sample collection and the laboratory analyses specified for each sample. Only one to two samples were collected from each borehole (SB-108, SB-109, and SB-110) because of the apparent lack of significant levels of contamination. Samples were collected at intervals below the projected depth of the pipeline and at the bottom of the borehole. A total of five soil borehole samples plus a duplicate were collected and submitted for laboratory analysis of BTEX and SVOCs.

3.3.5.3 Unnamed Stream

As discussed in Section 1.3.2, while surveying the area in the early 1990s, Carswell AFB personnel accompanied by regulatory personnel noted petroleum-type odors near the stream (Long, 1996). Historical investigations have shown that petroleum-related subsurface contamination exists in this area.

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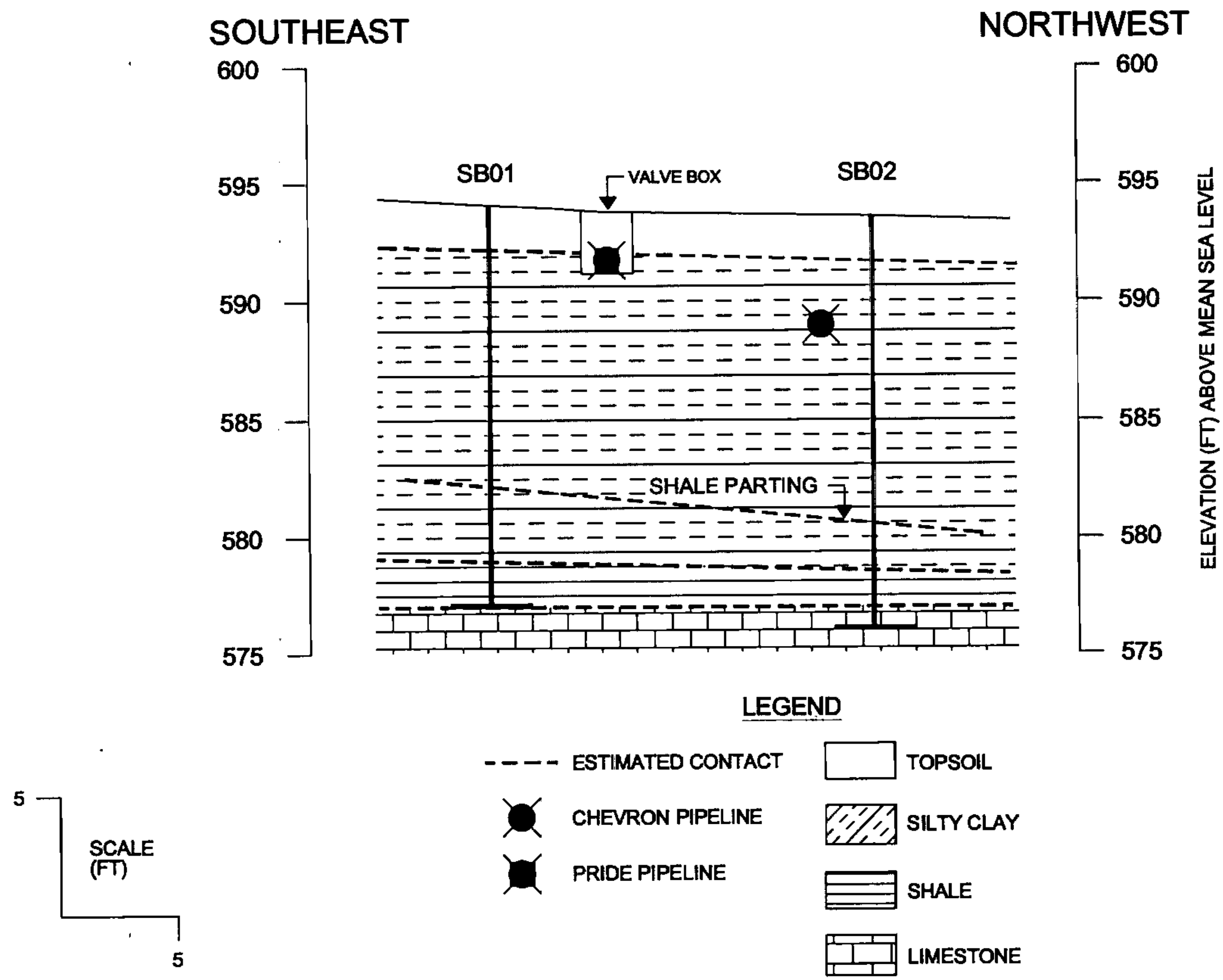


The Environmental Company, Inc.

Figure 3-5 – Valve Box Area Geologic Cross Section
NAS Fort Worth JRB, Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prepared: L. Myers / A. Long
Project: P-3103

In addition to the Pride and Chevron pipelines, potential sources include the oil/water separator, the French drain, and in general the upgradient IRP sites ST-14 and SD-13. Borehole SB-03 was drilled southeast of the excavated oil/water separator and French drain associated with IRP site SD-13 (Figure 3-6).

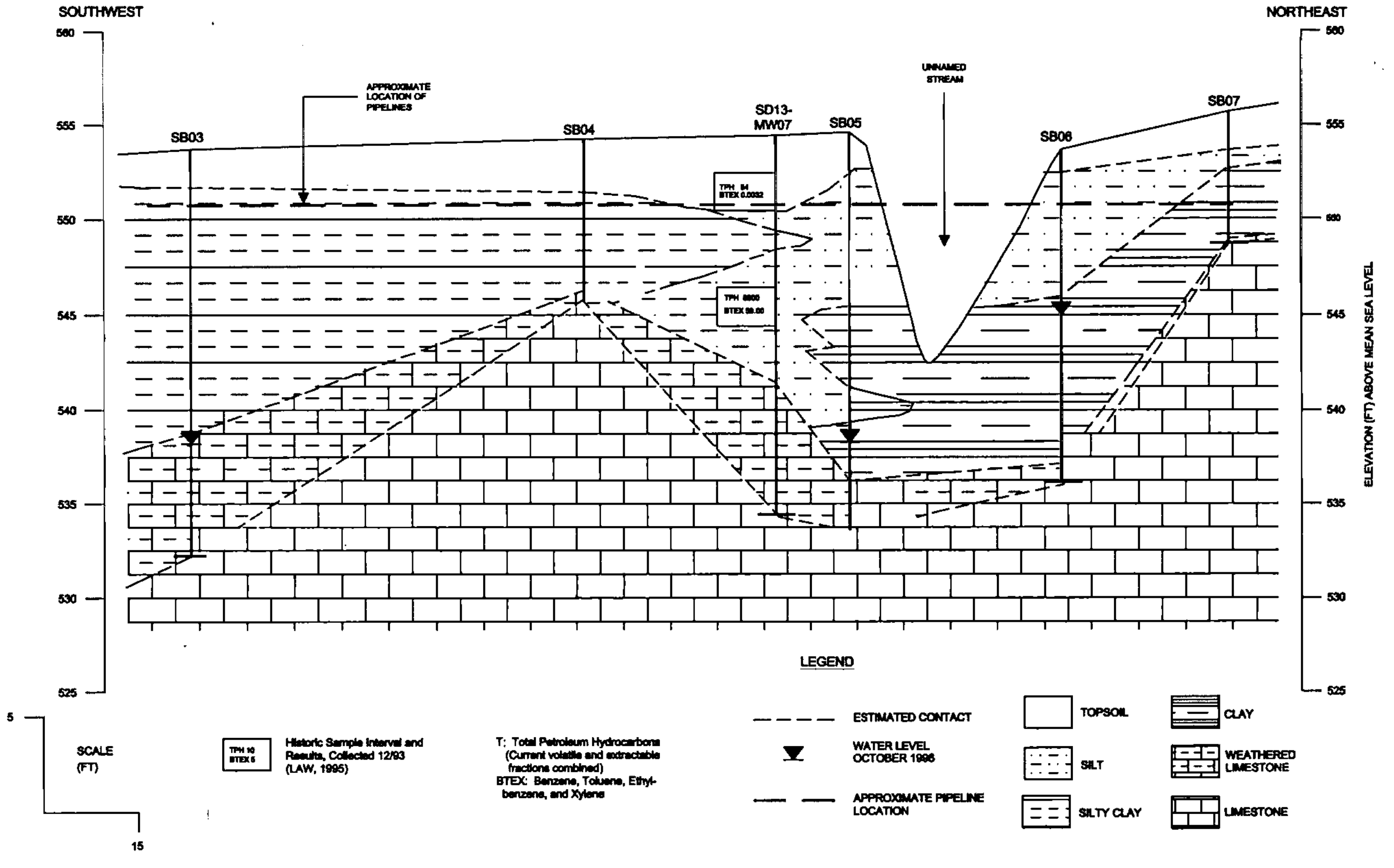
POL contamination was not identified in the borehole installed in the Unnamed Stream area beneath the pipelines. Organic vapor readings generally indicated a lack of contamination between the surface and a depth of 10 feet bgs. Hydrocarbons were detected in borehole soil samples collected below 10 feet. Leaks from the 4-foot-deep pipeline would most likely have been detected in soils between 4 and 10 feet bgs.

Other data collected during the SC that support source identification include the hydrocarbon fingerprinting analysis performed on sample SB-03-01. The fingerprinting analysis indicated that the hydrocarbon was of an evaporatively weathered light naphtha such as JP4. Hydrocarbon fingerprinting on soil samples previously collected from a hydraulically upgradient sample at the Abandoned Service Station site (SD-13) was also indicative of JP4 (Benson, 1997a). The JP4 characterization does not correspond to the type of fuel reportedly carried in the Pride and Chevron pipelines in the Unnamed Stream area. As discussed in Section 1.3, this section of the Pride pipeline carried crude oil from its time of construction until abandonment in 1983. The Chevron pipeline reportedly carried various commercial petroleum products such as gasoline, leaded gasoline, and diesel.

The lack of contamination between pipelines at 4 feet bgs and 10 feet bgs and the hydrocarbon characterization of a fuel type not carried by the pipelines suggests that the contamination identified at the Unnamed Stream area is most likely associated with sources other than the pipeline. As stated above, other sources in the immediate area include the French drain, oil/water separator, and the Abandoned Service Station site.

Contamination from previous investigations (Law, 1995 and Hydrogeologic, 1998) was primarily found below an elevation of 544 feet Above Mean Sea Level (AMSL). This was in samples collected in 1994 during the installation of monitoring well SD-MW07. Reported water table elevations within the immediate vicinity of the pipelines and the removed oil/water separator indicate that levels may fluctuate above the identified zone of contamination. Elevations in 1996 in MW06 and MW07 vary as much as 8 feet to 546.88 feet AMSL (4th quarter 1996 at MW06) to 538.07 feet AMSL (3rd quarter 1996 at MW07). This association suggests that the contamination identified in the SC boreholes may have been transported to the area via groundwater from upgradient sources.

The previous observations, together with the soil gas survey and TPH fingerprinting results, formed the basis for not collecting supplemental soil samples during the October 1998 field event. A complete chemical and physical characterization and analysis of the potential risks associated with this area are evaluated under a separate contract (Benson, 1997b).



The Environmental Company, Inc.

Figure 3-6 --Unnamed Stream Area Geologic Cross Section
NAS Fort Worth JRB, Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prepared by: L. Myers / A. Long
Project No.: P-3103

3.3.5.4 West Fork of the Trinity River Area

As described in Section 1.4, extensive investigations have been conducted on the site of the former BSS, which is located 500 feet upgradient to the southwest of the West Fork of the Trinity River area. Significant releases of petroleum product from leaking USTs and connecting pipes have been described at this site. The Chevron pipeline runs along the south river bank through this area at a depth of approximately 4 feet bgs.

In addition to the Chevron pipeline, potential sources of POL contamination in the vicinity of the West Fork of the Trinity River investigation area include the BSS and the Base Gas Station.

A geological cross section of the area in Figure 3-7 illustrates the lenticular nature of the deposits in the immediate area. Most notable is the sand lens that apparently extends to MW10, the upgradient monitoring well. Organic vapor readings indicated that contamination was primarily identified below 17.5 feet (537.61 feet AMSL) and extended down into the transmissive sand layer. There was no evidence of contamination between the surface and 15 feet bgs (540.11 feet AMSL). The lack of contamination in the upper soils is consistent with historical results obtained during the installation of upgradient monitoring well MW10.

In October 1996, groundwater was identified in the borehole at an elevation of approximately 536 feet AMSL. Based on measurements collected between May 1993 and January 1994, groundwater elevations in this area can be expected to vary as much as 5 feet (COE, 1994). Such a variation would place the uppermost zone of contamination found in the SC borehole below the seasonal high water table.

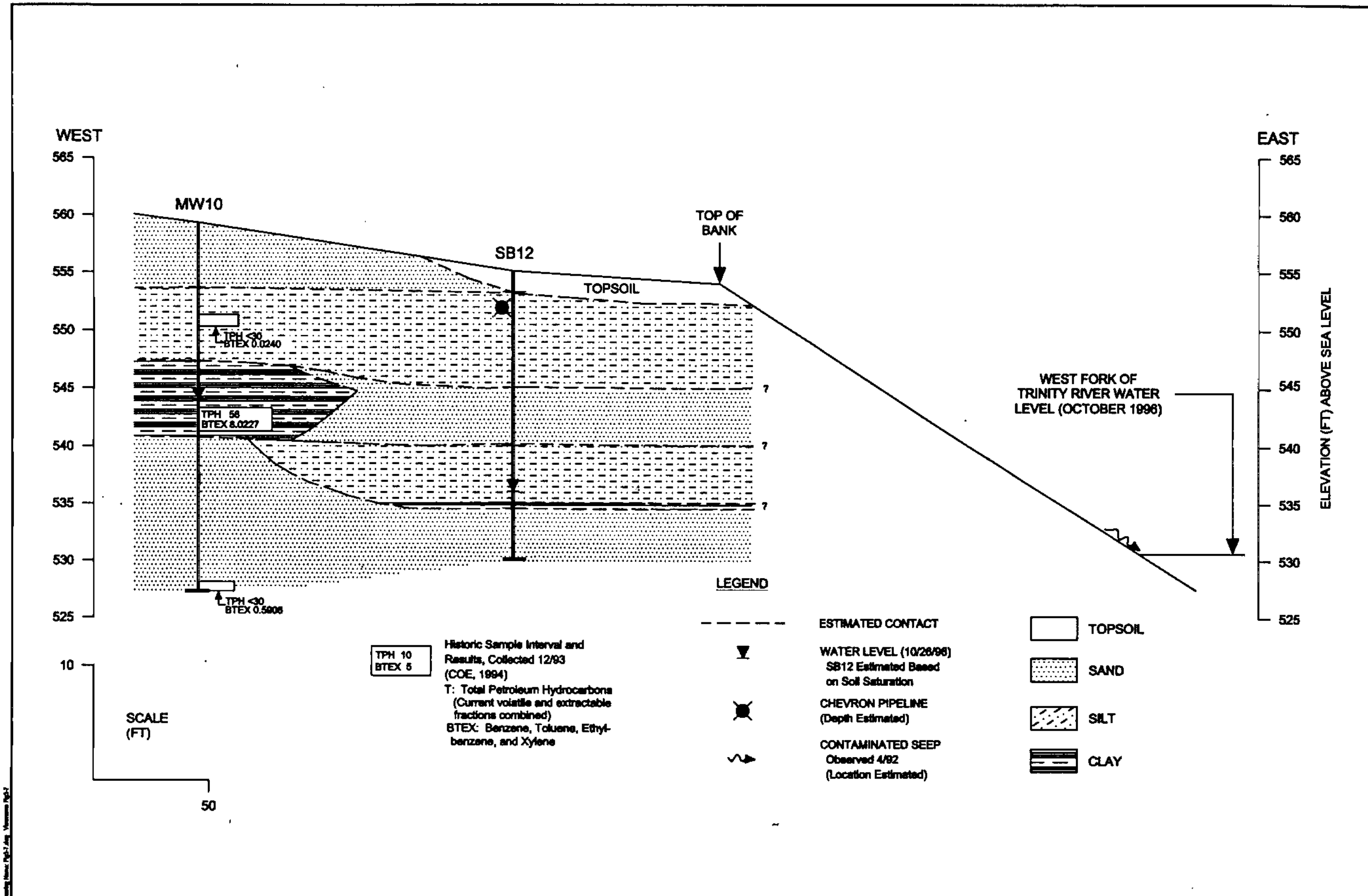
The presence of hydrocarbon concentrations in seasonally saturated soils hydraulically downgradient from known upgradient sources of POL suggests that the contamination is most likely associated with sources other than the pipeline. This assumption is supported by the visual observations made by Chevron personnel and overseen by Tarrant County Water and Improvement District personnel. As indicated in Section 1.3, excavation and inspection in 1992 revealed no signs of leaks or contamination. The pipeline has been abandoned since 1988.

The above observations and the soil gas survey results formed the basis for not collecting supplemental soil samples during the October 1998 field event.

3.3.6 Analytical Results Summary

This section summarizes the analytical results for the supplemental samples collected from the Farmers Branch Creek area.

The subsurface soil results of detected compounds for the three borings advanced adjacent to Farmers Branch Creek are presented in Table 3-6. Sample locations are shown in Figure 3-2. Two compounds, bis(2-ethylhexyl)phthalate and toluene, were detected in the Farmers Branch Creek samples. Bis(2-ethylhexyl)phthalate was reported in one sample, while toluene was reported in four of the five samples. Toluene



The Environmental Company, Inc.

Figure 3-7 – West Fork of the Trinity River Area Geologic Cross Section
NAS Fort Worth JRB, Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prepared: L. Myers / A. Long
Project: P-3103

Table 3-6. Summary of Pipeline Investigation Soil Sample Results

Location:	SB-108	SB-109			SB-110	
Sample Number:	SB-108-01	SB-109-01	SB-109-03	SB-109-02	SB-110-01	SB-110-02
Depth (ft bgs):	8.5 to 11.5	10.0 to 13.0	10.0 to 13.0	16.0 to 17.2	7.0 to 10.0	15.0 to 17.5
Parameters[a]			DUP			
Semivolatiles-(mg/kg)						
Bis(2-ethylhexyl) phthalate	0.17 U	0.18 U	0.28 F	0.19 U	0.19 U	0.19 U
BTEX-(mg/Kg)						
Toluene	0.0032 F	0.00027 U	0.0015 F	0.00042 F	0.00094 F	0.0012 F

F - The compound was positively identified, but the associated numerical value is below the PQL.

NA - not analyzed

U - The compound was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

[a]Parameters limited to those detected in at least one sample (see Appendix H).

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was also reported in the trip and equipment blanks, suggesting that this compound may have been introduced into the soil samples during sample transport or in the laboratory. As shown in Table 3-6, the concentrations of both compounds are well below the TNRCC Plan A target (toluene) and RRSN2 (bis[2-ethylhexyl]phthalate) screening concentrations, 69 mg/kg and 0.69 mg/kg, respectively.

TAB

4

4.0 POTENTIAL CONTAMINANT SOURCE AND MIGRATION PATHWAYS

The SA/SI and SC results and findings presented in Section 3.0 are interpreted in this section to identify potential sources of the detected constituents in the subsurface soil at Farmers Branch Creek.

Petroleum-related contamination was not identified in the subsurface soils of this area in either the saturated or unsaturated zones. All detected compounds had concentrations below screening levels. For reference, a geologic cross section of the area has been included in Figure 4-1. As shown, the pipeline is presumed to lie within saturated soils beneath the Farmers Branch Creek.

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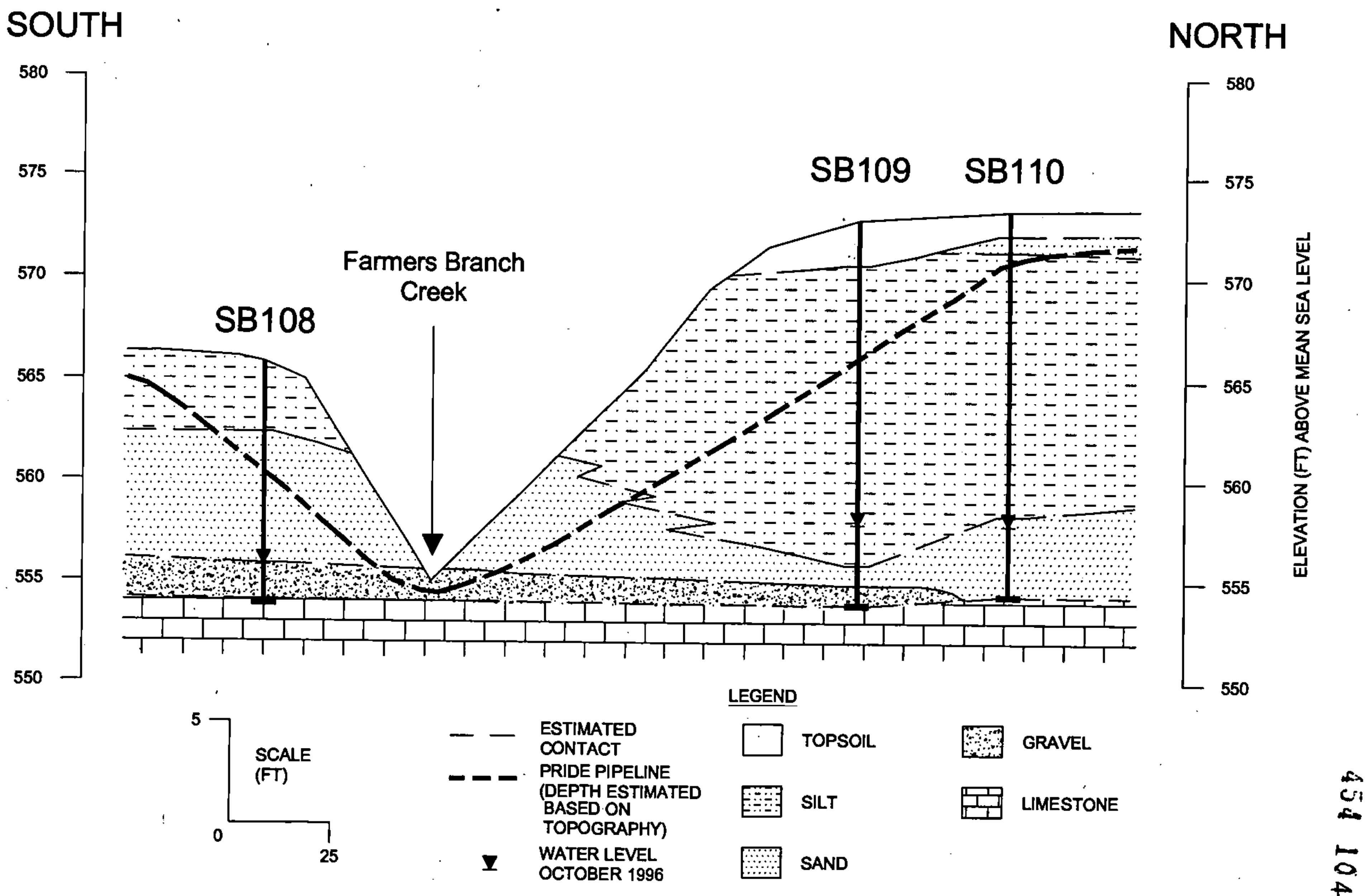

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The Environmental Company, Inc.

Figure 4-1 – Farmers Branch Creek Geologic Cross Section
NAS Fort Worth JRB, Fort Worth, Texas

Date: April 1999
Project Manager: B. Duffner
Prepared By: L. Myers / A. Long
Project No: P-3103

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TAB

5

5.0 RISK EVALUATION

The risk evaluation focuses on risks associated with subsurface soil in the Farmers Branch Creek areas. A risk evaluation on the West Fork of the Trinity River and Unnamed Stream areas was not performed as part of this site characterization because, as discussed in Section 4.0, the current study findings indicate that the petroleum-related contamination is not associated with the pipelines. Risk assessments have been performed for sites that encompass these areas under separate contracts (Benson, 1997b; IT, 1996, 1997b). In these investigations, the petroleum-related contamination identified at the sites has been attributed to the Abandoned Service Station and oil/water separator near the Unnamed Stream area and the BSS/Base Gas Station near the West Fork of the Trinity River area.

The risk evaluation is divided into the Human Health Evaluation (Section 5.1) and the Ecological Evaluation (Section 5.2).

5.1 HUMAN HEALTH EVALUATION

Based on the screening performed on the Farmers Branch Creek analytical results, in Section 3.3.6 no COPCs related to the pipelines were identified in this investigation. Therefore, no human health risk evaluation was conducted. Table 5-1 summarizes the conceptual site model for the Pipeline Investigation area.

5.2 ECOLOGICAL EVALUATION

The sections below describe the biological resources in the vicinity of the Farmers Branch Creek area, identify potential receptors and exposure pathways, and compare study area concentrations with screening benchmarks.

5.2.1 Biological Resources

Biological resources in the Pipeline Investigation areas are expected to be limited because of their industrial or disturbed nature. However, vegetated areas within or adjacent to the study area may provide habitat for wildlife.

5.2.1.1 Vegetation

NAS Fort Worth and the study area are located in the Grand Prairie portion of the Black Prairies section of the Central Lowlands Physiographic Province. This province is characterized by broad terraces that slope to the east. The topography in the vicinity of the pipelines is relatively flat.

Vegetated areas in the study area are predominantly mowed grasses and weedy herbaceous species. Most of the native habitat and species have been replaced by introduced ornamental or invasive weedy species. Grasses in the vicinity of the Valve Box area are typical of undeveloped industrial areas. According to ETC (1994), these grasses include little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum avenaceum*), big bluestem (*Andropogon gerardi*), and buffalo grass (*Buchloe dactyloides*). Grasses along Farmers Branch Creek in the pipeline corridor are Bermuda grass and buffalo grass (Figure 1-3). These species are also found on the golf course. Introduced trees on the golf course include catalpa (*Catalpa bignonioides*) and chinaberry (*Melia azedarach*).

Table 5-1. Conceptual Site Model Summary

Site ID	Site Description	Contaminated Media and Detected Compounds	COPCs	Potential Migration Pathway	Potential Receptor(s)	Exposure Pathway
Farmers Branch Creek	Pipeline crossover	Subsurface soil: Toluene Bis(2-ethylhexyl)phthalate	None	None	None	Incomplete because no COPCs identified from Section 3.0 screening.
Unnamed Stream	Pipeline adjacent to stream	Subsurface soil: TPH	ND	Contamination from sources other than pipeline	ND	ND
West Fork of the Trinity River	Pipeline parallels river	Subsurface soil: TPH	ND	Contamination from sources other than pipeline	ND	ND

ND - not determined; risk assessment conducted under separate contract
COPC - chemical of potential concern; identified in Section 3.0 screening
TPH - total petroleum hydrocarbon

A riparian habitat is located to the east along Farmers Branch Creek (Figure 1-3). Trees and shrubs located in this area include blackjack oak (*Quercus marilandica*), cedar elm (*Ulmus crassiflia*), American elm (*Ulmus americana*), hackberry (*Celtis laevigata*), and sumac (*Rhus* spp.) (ETC, 1994).

Although water periodically flows through Farmers Branch Creek and the golf course contains several small ponds, hydrophytic (wetland) vegetation is limited to a few emergent species such as cattails, sedges (*Carex* spp.), and rushes (*Juncus* spp.).

5.2.1.2 Wildlife

Wildlife in the vicinity of the study area includes a variety of birds, mammals, and reptiles. Wildlife typically found in the grassy areas includes common bird species such as grackle (*Quiscalus quiscula*), starling (*Starnus vulgaris*), western meadowlark (*Sturnella neglecta*), and mourning dove (*Zenaidura macroura*). Mammals that may use the general area are coyote (*Canis latrans*) and black-tailed hare (*Lepus californicus*). Vegetation along Farmers Branch Creek may provide habitat for Eastern cotton-tailed rabbit (*Sylvilagus floridanus*), fox squirrel (*Sciurus niger*), and opossum (*Didelphis virginiana*). Other mammals that could be found in the study area include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), nine-banded armadillo (*Dasypus novemcinctus*), red fox (*Vulpes fulva*), and gray fox (*Urocyon cinereargenteus*) (ETC, 1994).

The study area may also provide habitat for reptiles and amphibians. Reptiles may include snakes, including Western cottonmouth (*Agkistrodon piscivorus*), Western diamondback (*Crotalus atrox*), Western milk (*Lampropeltis triangulum gentillis*), and Western ribbon (*Thamnophis proximus proximus*). Bullfrog (*Rana catesbeiana*) and softshell turtle (*Trionyx* spp.) are the dominant water-dependent species known to live in the ponds on the golf course and along the Trinity River (ETC, 1994).

Some stretches of the Trinity River contain habitat for waterfowl and shorebirds. Waterfowl known to use the West Fork of the Trinity River and nearby Lake Worth include wood duck (*Aix sponsa*), mallard (*Anas platyphynchos*), pintail (*Anas acuta*), American golden-eye (*Buchepala clangula*), and merganser (*Mergus merganser*) (ETC, 1994). Common shorebirds are the killdeer (*Charadrius vociferus*) and great blue heron (*Ardea herodias*).

5.2.1.3 Threatened and Endangered Species

There are no known Federal or state threatened or endangered plant or wildlife species or sensitive habitats within or adjacent to the Pipeline Investigation Area. However, NAS Fort Worth is located in the Central North American Migratory Flyway, through which several threatened and endangered species migrate, including the Arctic peregrine falcon (Falco peregrinus tundrius), bald eagle (Haliaeetus), and whooping crane (Grus americana) (ETC, 1994). These species are attracted to Lake Worth, which is located approximately 1.5 miles north of the study area. These species are migratory and are not expected to reside in the vicinity of the study area.

The Silver Creek heron rookery is located along the northeast side of the lake, approximately 5 to 6 miles north of the study area. The rookery is protected as a sensitive wildlife area by the Texas Parks and Wildlife Department.

Two federally listed candidate reptiles may exist in Tarrant County. They are the Texas horned lizard (*Phrynosoma cornutum*) and the Texas garter snake (*Thamnophis sirtailis annectens*). The Texas horned lizard prefers grassy upland areas, while the Texas garter snake prefers seeps and wet grass areas. Either of these species could inhabit the grassy areas surrounding the golf course, along the banks of the Trinity River, or in portions of Farmers Branch Creek. However, to date they have not been identified on NAS Fort Worth or in the project vicinity. Suitable habitat in the study area is fragmented and routinely maintained by mowing and herbicides. Therefore, it is not anticipated that these species exist within or adjacent to the study area.

5.2.2 Potential Receptors and Exposure Pathways

Chemicals detected in the Farmers Branch Creek area were found in soil samples collected at depths greater than 5 feet bgs. Given that these depths are below the root zone of most plants, contaminants in these areas are not likely to be absorbed by the vegetation (McBee et al., 1996). Herbivorous wildlife consuming these plants are also not expected to be exposed. Both insects and burrowing animals generally inhabit the root zone and are therefore not expected to be exposed to the chemicals detected in these areas (McBee et al., 1996). In addition, the area in the vicinity of the pipelines is maintained such that deep rooting plants (trees and shrubs) are not able to become established and therefore are not exposed to chemicals present in the subsurface soils.

5.2.3 Screening Benchmark Comparison

In the absence of exposure pathways for ecological receptors to come in contact with contaminants, no ecological benchmarks for the Farmers Branch Creek areas were developed.

5.3 RISK EVALUATION SUMMARY

No subsurface soil COPCs for human health were identified for the Farmers Branch Creek area. No COPCs related to the pipelines were identified at the Unnamed Stream and West Fork of the Trinity River areas. Risk assessments for sites encompassing these two areas are being performed under separate contracts. Exposure pathways are incomplete for ecological receptors at the Farmers Branch Creek area. Therefore, cleanup levels were not derived for any of the Pipeline Investigation areas.

TAB

6

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the SA/SI activities of this project, four potential source areas were identified for further study in the site characterization phase of the investigation. These areas included:

- Valve Box area;
- Farmers Branch Creek area directly west of Pumphrey Drive;
- Unnamed Stream area; and
- West Fork of the Trinity River west of the Jennings Drive bridge.

As indicated in Section 3.0, the only indication of contamination directly related to the pipelines was found at the Valve Box area located north of Highway 183. Volatile organic vapors above ambient conditions were found in the upper 10 feet of the soil localized around the valve box. The potential for horizontal or vertical contaminant migration is very limited because of geological barriers and the absence of a saturated zone in the area. No supplemental soil samples were collected from this area.

Only two compounds were detected in subsurface soil samples collected from the Farmers Branch Creek area, both of which may be attributable to field sampling or laboratory contamination rather than leaks or discharges from the pipelines. Detected concentrations of both compounds were well below TNRCC screening levels.

Other potential pipeline areas of concern evaluated during this investigation included the Unnamed Stream area and the area along the West Fork of the Trinity River west of the Jennings Drive bridge. The presence of hydrocarbon-related contamination identified at the Unnamed Stream area and along the West Fork of the Trinity River is most likely attributable to other upgradient sources. This determination is based on previous investigation results, visual observations, the soil gas survey results, and the hydrocarbon fingerprinting analysis. Separate investigations are currently addressing these source areas and the associated contamination. Risk evaluations and the need for further action will be addressed in those reports.

Three site categories are identified in AFCEE guidance with respect to further action at a site. These categories are defined below.

Category 1 - No further action because no significant impact to human health or the environment exists.

Category 2 - Further study is required to categorize the site.

Category 3 - Remedial action is required.

Based on the results of this investigation, it is recommended that the areas adjacent to the pipelines between Highway 183 and the base boundary (includes the Valve Box area), the Farmers Branch Creek area, in the Unnamed Stream area, and along the West Fork of the Trinity River directly west of the Jennings Bridge be included in Category 1 with respect to the pipeline. As indicated above, further study and/or action at the Unnamed Stream area and areas along the West Fork of the Trinity River may be recommended by other ongoing studies with respect to upgradient sources.

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TAB

7

7.0 REFERENCES

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TAB

A

APPENDIX A

SURVEYING DATA

Coordinates and Elevations

Site Drawing

Coordinates and Elevations

Soil Borehole Coordinates and Elevations

Location	Northing	Easting	Elevation (ft)
SB-01	6961092.73	2299473.27	594.08
SB-02	6961109.22	2299450.68	593.58
SB-03	6963073.73	2300967.99	553.71
SB-04	6963136.27	2301003.71	554.23
SB-05	6963178.87	2301032.44	554.58
SB-06	6963212.68	2301068.38	553.67
SB-07	6963239.43	2301096.70	555.70
SB-08	6962584.94	2299886.15	565.87
SB-09	6962733.15	2299910.48	572.85
SB-10	6962770.93	2299911.39	573.31
SB-11	6965798.31	2300719.51	555.01
SB-12	6965823.69	2300677.47	555.11

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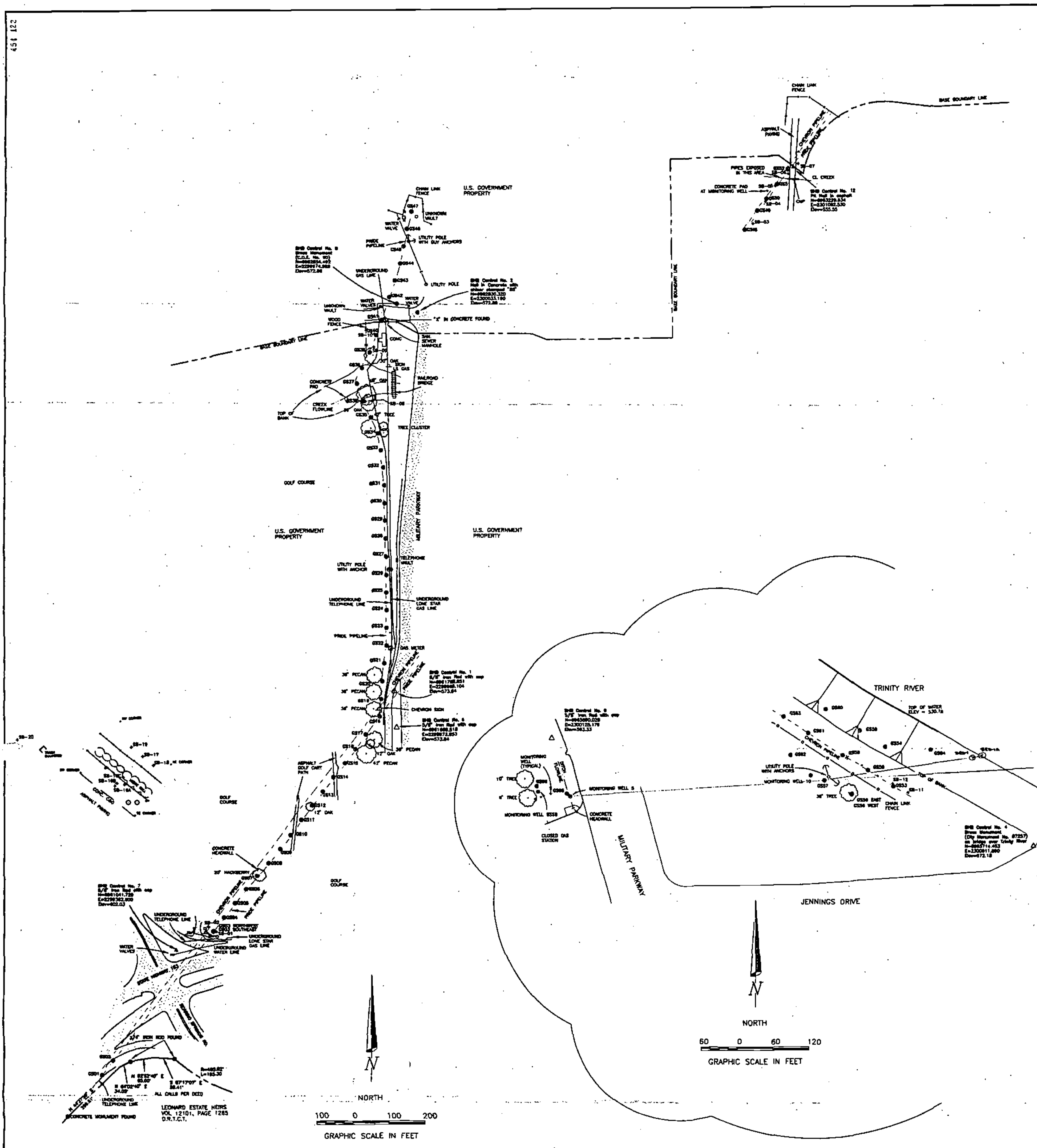
Site Drawing



COORDINATE VALUE & ELEVATION OF SOIL BORE STATIONS

Northing	Easting	Elevation	Description
6961082.73	2299473.27	594.09	SB-01
6961109.22	2299430.69	593.56	SB-02
6963073.73	2300967.97	563.71	SB-03
6963136.27	2301003.71	554.23	SB-04
6963178.87	2301032.44	554.56	SB-05
6963215.48	2301068.39	553.67	SB-06
6963236.43	2301098.70	555.70	SB-07
6962394.84	2299898.19	565.87	SB-08
6962733.15	2299910.48	572.80	SB-09
6962770.83	2299911.39	573.31	SB-10
6965798.31	2300719.91	509.81	SB-11
6965823.00	2300677.47	555.11	SB-12
6961506.09	2298181.89	601.61	SB-16A
6961513.61	2298187.17	601.80	SB-16B
6961530.96	2298213.76	601.46	SB-16C
6961587.61	2298288.65	600.09	SB-17
6961562.30	2298299.33	598.68	SB-18
6961615.30	2298236.68	601.05	SB-19
6961635.23	2298118.98	599.87	SB-20
6961421.34	2298248.40	596.80	SE CORNER
6961542.88	2298095.34	603.31	SW CORNER
6961663.73	2298203.83	601.86	NW CORNER
6961565.15	2298347.58	597.86	NE CORNER

COORDINATE VALUE & ELEVATION OF GS MONITORING STATIONS

Northing	Easting	Elevation	Description	Northing	Easting	Elevation	Description
6960985.74	2299155.41	603.38	GS01	6962484.53	2299921.96	566.81	GS34
6960733.88	2299185.48	602.07	GS02	6962541.12	2299902.79	567.47	GS35
6961098.01	2299464.71	591.88	GS03 NORTHWEST	6962586.08	2299880.71	565.40	GS36
6961094.87	2299463.84	591.29	GS03 SOUTHEAST	6962631.89	2299864.03	558.60	GS37
6961134.08	2299494.46	591.84	GS04	6962678.07	2299877.48	565.60	GS38
6961173.78	2299524.84	590.35	GS05	6962720.37	2299899.29	572.58	GS39
6961213.25	2299565.08	588.22	GS06	6962767.51	2299918.45	572.83	GS40
6961253.33	2299586.02	584.33	GS07	6962809.82	2299932.30	572.53	GS41
6961290.15	2299618.36	584.82	GS08	6962873.68	2299953.64	573.15	GS42
6961330.03	2299650.67	582.22	GS09	6962921.31	2299968.56	573.46	GS43
6961368.88	2299679.88	579.84	GS10	6962969.32	2299983.06	573.76	GS44
6961408.75	2299708.34	579.36	GS11	6963018.31	2299991.66	573.76	GS45
6961448.75	2299730.37	578.09	GS12	6963067.47	2300002.13	573.82	GS46
6961488.31	2299769.74	575.61	GS13	6963118.18	2300014.32	573.63	GS47
6961528.73	2299799.04	578.08	GS14	6963098.63	2300044.41	553.61	GS48
6961567.51	2299830.63	579.90	GS15	6963111.02	2300080.82	554.18	GS49
6961607.83	2299850.86	579.20	GS16	6963144.18	2301006.87	554.15	GS50
6961647.81	2299869.79	578.16	GS17	6963183.94	2301037.52	554.73	GS51
6961688.52	2299927.18	576.17	GS18	6963224.77	2301067.48	554.30	GS52
6961744.48	2299931.41	575.25	GS19	[illegible]	[illegible]	554.89	GS53
6961798.33	2299934.86	575.08	GS20	[illegible]	[illegible]	553.67	GS54
6961844.20	2299938.65	574.43	GS21	6965643.44	2300637.42	555.02	GS55
6961893.61	2299945.54	574.18	GS22	6965804.30	2300610.09	558.53	GS56 EAST
6961946.73	2299944.42	573.06	GS23	6965803.45	2300608.01	559.57	GS56 WEST
6961995.82	2299944.78	571.86	GS24	6965827.28	2300564.57	568.67	GS57
6962045.83	2299945.46	570.80	GS25	6965888.58	2300593.22	554.87	GS58
6962095.80	2299945.26	569.77	GS26	6965909.45	2300623.63	552.28	GS59
6962145.43	2299944.08	568.50	GS27	6965945.08	2300546.81	552.30	GS60
6962196.79	2299944.21	567.84	GS28	6965908.60	2300530.83	555.07	GS61
6962245.30	2299942.38	567.67	GS29	6965888.99	2300507.53	558.71	GS62
6962295.18	2299940.84	567.34	GS30	6965833.77	2300484.94	545.18	GS63
6962345.42	2299938.24	567.28	GS31	6965677.63	2300741.28	540.34	GS64
6962395.22	2299936.84	567.20	GS32	6965807.87	2300134.70	541.75	GS65
6962443.33	2299930.37	566.89	GS33	6965820.48	2300083.62	546.40	GS66

NOTE:
All coordinate values are NAD83 SPC, NCZ. Combined scale factor of 0.99985748.

Vertical control utilizing GPS technology and verified using City of Fort Worth vertical monument network.

Baird, Hampton & Brown, Inc. master control established August, 14, 1996 utilizing real time GPS technology provided by Sempco, Inc.,

NAS FORT WORTH JRB ENVIRONMENTAL MONITORING WELL LOCATIONS

BHB Baird, Hampton & Brown, Inc. Engineering & Surveying

TARRANT COUNTY, TEXAS

JOB # 9508.30 AUGUST 22, 1996 REVISED NOVEMBER 5, 1996
DRAWN BY: JPH
SHEET NO: 1 1

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TAB

B

APPENDIX B

SOIL GAS ANALYSIS REPORT

W. L. GORE & ASSOCIATES, INC.

101 LEWISVILLE ROAD • P.O. BOX 1100 • ELKTON, MARYLAND 21922-1100 PHONE: 410/392-3300
FAX: 410/996-3325 • TELEX 467637 GORE FB ELKT
ENVIRONMENTAL PRODUCTS GROUP

Creative Technologies Worldwide

GORE-SORBER^{SM} Screening Survey Final Report

Naval Air Station
Ft. Worth, TX

September 24, 1996

Prepared For:
The Environmental Company, Inc.
1230 Cedars Court, Suite 100
Charlottesville, VA 22905

W.L. Gore & Associates, Inc.
Written/Submitted by

Ray Fenstermacher, P.G.
Associate

W.L. Gore & Associates, Inc.
Reviewed/Approved by

Jay W. Hodny, M.S.
Associate

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FORM 11R.3
Rev 06/13/96

GORE-SORBER℠ Screening Survey Final Report

REPORT DATE: September 24, 1996 **AUTHOR:** RFF

SITE INFORMATION

Site Reference: Naval Air Station, Ft. Worth, TX
Customer Purchase Order Number: 2100
Gore Production Order Number: 069552 **Gore Site Code:** SL

FIELD PROCEDURES

 # Modules shipped: 76
Installation Date(s): August 15 - 16, 1996 **# Modules Installed:** 70
Field work performed by: The Environmental Co., Inc.

Retrieval date(s): August 28 - 29, 1996 **Exposure Time:** 13-14 [days]
 # Modules Retrieved: 69 **# Trip Blanks Returned:** 6
 # Modules Lost in Field: 1 **# Unused Modules Returned:** -0-

Date/Time Received by Gore: August 30, 1996 @ 12:00 **By:** CJ Fondren
Recorded Cooler/Water Temperature Control Blank temperature: 1.4 [°C]
Chain of Custody Form attached: √
Chain of Custody discrepancies: None
Comments: None

GORE-SORBER℠ Screening Survey Final Report

ANALYTICAL PROCEDURES

W.L. Gore & Associates' Screening Module Laboratory operates under the guidelines of its Quality Assurance Manual, Operating Procedures and Methods. The quality assurance program is consistent with Good Laboratory Practices (GLP) and ISO Guide 25, "General Requirements for the Competence of Calibration and Testing Laboratories", third edition, 1990. The Laboratory is audited regularly by a quality system design, development and auditing company.

Instrumentation consists of Hewlett-Packard 5890 gas chromatographs and 5971 mass selective detectors, as well as Perkin-Elmer ATD 400 automated thermal desorption units. Sample preparation simply involves cutting the tip off the bottom of the sample module and transferring one or more exposed sorbent containers (sorbers, each containing 40mg of a suitable granular adsorbent) to a thermal desorption tube for analysis. Sorbers remain clean and protected from dirt, soil, and ground water by the insertion/retrieval cord, and require no further sample preparation.

Screening Method Quality Assurance:

Before each run sequence, two instrument blanks, a sorber containing 5µg BFB (Bromofluorobenzene), and a method blank are analyzed. The BFB mass spectra must meet the criteria set forth in our methods before samples can be analyzed. A sorber containing BFB is also analyzed after every 30 samples and/or trip blanks, as is a method blank. Standards containing the selected target compounds at three calibration levels of 5, 20, and 50µg are analyzed at the beginning of each run. The criterion for each target compound is less than 35% RSD (relative standard deviation). If this criterion is not met for any target compound, the analyst has the option of generating second- or third-order standard curves, as appropriate. A second-source reference standard, at a level of 20µg per target compound, is analyzed after every ten samples and/or trip blanks, and at the end of the run sequence. Positive identification of target compounds is determined by the presence of the target ion and at least two secondary ions, retention time versus reference standard, and the analyst's judgment.

NOTE: **All data have been archived. Any replicate sorbers not used in the initial analysis will be discarded fifteen (15) days from the date of analysis.**

Laboratory analysis: thermal desorption, gas chromatography, mass selective detection
Quality Assurance Level: 2 (ANA-4)
Instrument ID: # 3 **Chemist:** JW **Data Subdirectory:** 069552
Compounds/mixtures requested: A1: Gore Standard Target Compound List (A1) plus estimated Petroleum Hydrocarbons.
Deviations from Standard Method: None
Comments: Soil vapor analytes and abbreviations are tabulated in the Data Table Key (page 4).

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GORE-SORBER^{sm} Screening Survey Final Report

DATA TABULATION

 # CONTOUR MAPS ENCLOSED: None
LIST OF MAPS ENCLOSED:

- Not Applicable

NOTE: All data values presented in Appendix A represent masses of compound(s) desorbed from the GORE-SORBER Screening Modules received and analyzed by W.L. Gore, as identified in the Chain of Custody (Appendix A). The measurement traceability and instrument performance are reproducible and accurate for the measurement process documented. Semi-quantitation of the compound mass is based on either a single-level (QA Level 1) or three-level (QA Level 2) standard calibration.

Comments:

- None

GORE-SORBER℠ Screening Survey Final Report

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KEY TO DATA TABLE
Naval Air Station, Ft. Worth, TX

UNITS	
µg	micrograms (per sorber), reported for compounds for which we run external standards.
MDL	method detection limit
ANALYTES	
MTBE	methyl t-butyl ether
t12DCE	trans-1,2-dichloroethene
11DCA	1,1-dichloroethane
c12DCE	cis-1,2-dichloroethene
$CHCl_3$	chloroform
111TCA	1,1,1-trichloroethane
12DCA	1,2-dichloroethane
BENZ	benzene
CCl_4	carbon tetrachloride
TCE	trichloroethylene
TOL	toluene
OCT	octane
PCE	tetrachloroethene
ClBENZ	chlorobenzene
EtBENZ	ethylbenzene
mpXYL	m-, p-xylene
oXYL	o-xylene
135TMB	1,3,5-trimethylbenzene
124TMB	1,2,4-trimethylbenzene
14DCB	1,4-dichlorobenzene
UNDEC	undecane
NAPH	naphthalene
TRIDEC	tridecane
2MeNAPH	2-methyl naphthalene
PENTADEC	pentadecane
BLANKS	
TBn	unexposed trip blanks, which traveled with the exposed modules
BLKn	method blank, retained at Gore

APPENDIX A:

1. CHAIN OF CUSTODY
2. DATA TABLE

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GORE-SORBER® Screening Survey Chain of Custody

For W.L. Gore & Associates use only
Production Order # 19552

GORE Creative Technologies Worldwide

W. L. Gore & Associates, Inc., Environmental Products Group
101 Lewisville Road • Elkton, Maryland 21921 • Tel: (410) 392-3300 • Fax (410) 996-3325

Instructions: Customer must complete ALL shaded cells

Customer Name: ENVIRONMENTAL COMPANY	Site Name: NAVAL AIR STATION
Address: 6550 WHITE SETTLEMENT RD	Site Address:
FT WORTH TX 76114	FT WORTH TX
	Project Manager: ALLEN FLOOD / GLEN METZLER
Phone: 804 295 4444	Customer Project No.:
FAX: 804 295 5535	Customer P.O. #: 2100 Quote #: BK5723

Serial # of Modules Shipped			
# 125685	through	# 125704	# of Modules for Installation 70 # of Trip Blanks 6
# 125708	through	# 125763	Total Modules Shipped: 76 Pieces
#	through	#	Total Modules Received: 76 Pieces
#	through	#	Total Modules Installed: 70 Pieces

# through #	Serial # of Trip Blanks (*Client Decides*)		# 125758
# through #	# 125759	# 125760	# 125761
# through #	# 125762	# 125763	#
# through #	#	#	#

Installation Performed By:	Installation Method(s) (*circle those that apply*):
Name (*please print*): Glenn Metzler / Steve Bliley	Slide Hammer Hammer Drill Auger
Company/Affiliation: The Environmental Co., Inc.	Other:
Installation Start Date and Time: 8/15/96 7:30 AM	
Installation Complete Date and Time: 8/16/96 5:25 PM	
Retrieval Performed By:	Total Modules Retrieved: 69 Pieces
Name (*please print*): Steve Bliley	Total Modules Lost in Field: 1 Pieces
Company/Affiliation: The Environmental Co. Inc.	Total Unused Modules Returned: 6 Pieces
Retrieval Start Date and Time: 28 AUG 1996 / / 2:30 PM	
Retrieval Complete Date and Time: 29 AUG 1996 / / 3:20 PM	

Target Analytes to be Mapped (*Check Options or List as appropriate*):	To Be Determined Pending Completion of Lab Analysis [ ] or write "None", if applicable. None	
Analyte #1:	Analyte #2:	Analyte #3:

Other Instructions, if any: Fed Ex Shipment Airbill # 1315508670

Relinquished By	Date	Time	Received By	Date	Time
Relinquished By: C J Fordren Affiliation: W.L. Gore & Associates, Inc.	8/8/96	15:00	Received By: Glenn Metzler Affiliation: The Environmental Co Inc.	8-12-96	1530
Relinquished By: Stephen B Bliley Affiliation: The Environmental Co. Inc.	29 AUG 96	1930	Received By: Affiliation:		
Relinquished By Affiliation			Received By: C J Fordren Affiliation: W.L. Gore & Associates, Inc.	8/30/96	12:00
			Temperature of Samples When Received By Gore	1.4	°C

GORE ... 4/J 454 132

GORE-SORBER® Screening Survey Installation and Retrieval Log

___ of ___

SITE NAME & LOCATION
Naval Air Station
Ft. Worth, TX.

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate): LPH	ODOR	NONE	MODULE IN WATER (check one): YES	NO	COMMENTS
1.	125685 ✓	8/15/96 0730	28 AUG. 96 1430			✓	✓		GS-01
2.	125686 ✓	8/15/96 0800	1445			✓	✓		GS-02
3.	125687 ✓	8/15/96 0840	1500			✓		✓	GS-03
4.	125688 ✓	8/15/96 0845	1505			✓		✓	GS-03-02
5.	125689 ✓	8/15/96 0910	1512			✓		✓	GS-04
6.	125690 ✓	8/15/96 0925	1518			✓		✓	GS-05
7.	125691 ✓	8/15/96 0940	1523			✓		✓	GS-06
8.	125692 ✓	8/15/96 0945	1532			✓	✓		GS-07
9.	125693 ✓	8/15/96 1000	Lost	iN	Field				GS-08
10.	125694 ✓	8/15/96 1020	1541			✓		✓	GS-09
11.	125695 ✓	8/15/96 1030	1548			✓		✓	GS-10
12.	125696 ✓	8/15/96 1040	1553			✓		✓	GS-11
13.	125697 ✓	8/15/96 1050	1650			✓		✓	GS-12
14.	125698 ✓	8/15/96 1105	1654			✓		✓	GS-13
15.	125699 ✓	8/15/96 1115	1708			✓		✓	GS-14
1[illegible]	125700 ✓	8/15/96 1130	1710			✓		✓	GS-15
1[illegible]	125701 ✓	8/15/96 1140	1715			✓		✓	GS-16
18.	125702 ✓	8/15/96 1145	1718			✓		✓	GS-17
19.	125703 ✓	8/15/96 1155	1723			✓		✓	GS-18
20.	125704 ✓	8/15/96 1330	1727			✓		✓	GS-19
21.	125708 ✓	8/15/96 1335	1734			✓		✓	GS-20
22.	125709 ✓	8/15/96 1340	1738			✓		✓	GS-21
23.	125710 ✓	8/15/96 1350	1742			✓		✓	GS-22
24.	125711 ✓	8/15/96 1355	1745			✓		✓	GS-23
25.	125712 ✓	8/15/96 1410	29 AUG. '96 - 0802			✓		✓	GS-24
26.	125713 ✓	8/15/96 1415	0806			✓		✓	GS-24-02
27.	125714 ✓	8/15/96 1420	0811			✓		✓	GS-25
28.	125715 ✓	8/15/96 1430	0814			✓		✓	GS-26
29.	125716 ✓	8/15/96 1440	0835			✓		✓	GS-27
30.	125717 ✓	8/15/96 1450	0837			✓		✓	GS-28
31.	125718 ✓	8/15/96 1500	0840			✓		✓	GS-29
32.	125719 ✓	8/15/96 1505	0843			✓		✓	GS-30
33.	125720 ✓	8/15/96 1515	0845			✓		✓	GS-31
34.	125721 ✓	8/15/96 1535	0902			✓		✓	GS-32
35.	125722 ✓	8/15/96 1545	0905			✓		✓	GS-33
36.	125723 ✓	8/15/96 1555	0907			✓		✓	GS-34
3[illegible]	125724 ✓	8/15/96 1625	0910			✓		✓	GS-35
[illegible]	125725 ✓	8/15/96 1635	0913			✓		✓	GS-36
39.	125726 ✓	8/15/96 1645	0932			✓		✓	GS-37
40.	125727 ✓	8/15/96 1700	0936			✓		✓	GS-38
41.	125728 ✓	8/15/96 1710	0938			✓		✓	GS-39
42.	125729 ✓	8/15/96 1715	0941			✓		✓	GS-39-02

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GORE-SORBER® Screening Survey Installation and Retrieval Log

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SITE NAME & LOCATION

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate)			MODULE IN WATER (check one)		COMMENTS
				LPH	ODOR	NONE	YES	NO	
43.	125730 ✓	8/15/96 1725	29 AUG. 96 · 0958			✓		✓	GS-40
44.	125731 ✓	8/15/96 1800	1002			✓		✓	GS-41
45.	125732 ✓	8/15/96 1835	1006			✓	✓		GS-42
46.	125733 ✓	8/16/96 0735	1010			✓		✓	GS-43
47.	125734 ✓	8/16/96 0800	1013			✓		✓	GS-44
48.	125735 ✓	8/16/96 0820	1015			✓		✓	GS-45
49.	125736 ✓	8/16/96 0830	1026			✓		✓	GS-46
50.	125737 ✓	8/16/96 0840	1030			✓		✓	GS-47
51.	125738 ✓	8/16/96 0925	1104			✓	✓		GS-48
52.	125739 ✓	8/16/96 0935	1108			✓	✓		GS-49
53.	125740 ✓	8/16/96 0950	1112			✓		✓	GS-50
54.	125741 ✓	8/16/96 1015	1115			✓		✓	GS-51
55.	125742 ✓	8/16/96 1020	1118			✓		✓	GS-52
56.	125743 ✓	8/16/96 1250	1447			✓		✓	GS-53
57.	125744 ✓	8/16/96 1315	1512			✓		✓	GS-54
58.	125745 ✓	8/16/96 1330	1449			✓		✓	GS-55
9.	125746 ✓	8/16/96 1600	1420			✓		✓	GS-56
0.	125748 ✓	8/16/96 1620	1422			✓		✓	GS-56-02
1.	125747 ✓	8/16/96 1610	1425			✓		✓	GS-57
2.	125749 ✓	8/16/96 1345	1452			✓		✓	GS-58
3.	125750 ✓	8/16/96 1700	1507			✓		✓	GS-59
4.	125751 ✓	8/16/96 1725	1503			✓		✓	GS-60
5.	125752 ✓	8/16/96 1400	1455			✓	✓		GS-61
6.	125753 ✓	8/16/96 1625	1428			✓		✓	GS-62
7.	125754 ✓	8/16/96 1415	1458			✓		✓	GS-63
8.	125755 ✓	8/16/96 1305	1518			✓		✓	GS-64
9.	125756 ✓	8/16/96 1445	1146			✓	✓		GS-65
).	125757 ✓	8/16/96 1430	1151			✓		✓	GS-66
.	125758 ✓								Trip Bl
2.	125759 ✓								Trip Bl.
.	125760 ✓								Trip Bl.
.	125761 ✓								Trip Bl.
.	125762 ✓								Trip Bl
.	125763 ✓								Trip Bl

GORE SORBER SCREENING SURVEY ANALYTICAL RESULTS
ENVIRONMENTAL COMPANY, FT. WORTH, TX
GORE STANDARD TARGET VOCs/SVOCs (A1)
NAVAL AIR STATION, FT. WORTH, TX
SITE SL - PRODUCTION ORDER #069552

SAMPLE NAME	DATE ANALYZED	MTBE, ug	t12DCE, ug	11DCA, ug	c12DCE, ug	CHCl3, ug	111TCA, ug	12DCA, ug	BENZ, ug	CCl4, ug	TCE, ug	TOL, ug	OCT, ug	PCE, ug	ClBENZ,
MDL =		0.10	0.06	0.06	0.02	0.03	0.08	0.02	0.02	0.07	0.02	0.02	0.02	0.02	0.0
125685	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.0
125686	09/12/96	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.0
125687	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.0
125688	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125689	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.0
125690	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125691	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.0
125692	09/12/96	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.0
125694	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125695	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125696	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125697	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125698	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125699	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125700	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125701	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125702	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125703	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.0
125704	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.09	0.0
125708	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.39	0.0
125709	09/13/96	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.12	0.00	0.24	0.0
125710	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.14	0.0
125711	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.12	0.0
125712	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.0
125713	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.04	0.0
125714	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.16	0.0
125715	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.0
125716	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.0
125717	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125718	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.0
125719	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.0
125720	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.12	0.0
125721	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.10	0.0

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GORE SORBER SCREENING SURVEY ANALYTICAL RESULTS
ENVIRONMENTAL COMPANY, FT. WORTH, TX
GORE STANDARD TARGET VOCs/SVOCs (A1)
NAVAL AIR STATION, FT. WORTH, TX
SITE SL - PRODUCTION ORDER #069552

SAMPLE NAME	DATE ANALYZED	MTBE, ug	t12DCE, ug	11DCA, ug	c12DCE, ug	CHCl3, ug	111TCA, ug	12DCA, ug	BENZ, ug	CCl4, ug	TCE, ug	TOL, ug	OCT, ug	PCE, ug	ClBENZ, u
MDL =		0.10	0.06	0.06	0.02	0.03	0.08	0.02	0.02	0.07	0.02	0.02	0.02	0.02	0.0
125722	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.0
125723	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.0
125724	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.06	0.0
125725	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.02	0.0
125726	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.14	0.00	0.00	0.0
125727	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.0
125728	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.04	0.0
125729	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.0
125730	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
125731	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.0
125732	09/13/96	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.0
125733	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.04	0.0
125734	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.0
125735	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.05	0.00
125736	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00
125737	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125738	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
125739	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00
125740	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	0.00
125741	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
125742	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	5.71	0.00
125743	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00
125744	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125745	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125746	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00
125747	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00
125748	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00
125749	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00
125750	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	2.54	0.00	0.00	0.00
125751	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.00
125752	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
125753	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00
125754	09/14/96	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

GORE SORBER SCREENING SURVEY ANALYTICAL RESULTS
ENVIRONMENTAL COMPANY, FT. WORTH, TX
GORE STANDARD TARGET VOCs/SVOCs (A1)
NAVAL AIR STATION, FT. WORTH, TX
SITE SL - PRODUCTION ORDER #069552

SAMPLE NAME	DATE ANALYZED	MTBE, ug	t12DCE, ug	11DCA, ug	c12DCE, ug	CHCl3, ug	111TCA, ug	12DCA, ug	BENZ, ug	CCl4, ug	TCE, ug	TOL, ug	OCT, ug	PCE, ug	ClBENZ,
MDL =		0.10	0.06	0.06	0.02	0.03	0.08	0.02	0.02	0.07	0.02	0.02	0.02	0.02	0.
125755	09/14/96	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.
125756	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.56	0.00	0.00	105.34	7.49	0.00	0.
125757	09/14/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.
Max. Detected		0.00	0.00	0.00	0.00	0.22	0.03	0.00	42.56	0.00	0.05	105.34	7.49	5.71	0.
TB1 - 125758	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
TB2 - 125759	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.
TB3 - 125760	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
TB4 - 125761	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
TB5 - 125762	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.
TB6 - 125763	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
method blank	09/12/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.
method blank	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.
method blank	09/13/96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.

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GORE SORBER SCREENING SURVEY ANALYTICAL RESULTS
ENVIRONMENTAL COMPANY, FT. WORTH, TX
GORE STANDARD TARGET VOCs/SVOCs (A1)
NAVAL AIR STATION, FT. WORTH, TX
SITE SL - PRODUCTION ORDER #069552

SAMPLE												Petroleum
NAME	EtBENZ, ug	mpXYL, ug	oXYL, ug	135TMB, ug	124TMB, ug	14DCB, ug	UNDEC, ug	NAPH, ug	TRIDEC, ug	2MeNAPH, ug	PENTADEC, ug	Hydrocarbons, est. ug
MDL =	0.01	0.03	0.01	0.01	0.02	0.01	0.03	0.01	0.01	0.01	0.01	
125685	0.11	0.32	0.18	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	3.00
125686	0.10	0.28	0.13	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	2.65
125687	0.00	0.00	0.00	0.00	0.00	0.00	1.46	0.00	1.16	0.00	0.42	173.13
125688	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77
125689	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.12
125690	0.03	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11
125691	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80
125692	0.00	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25
125694	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	1.80
125695	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.15
125696	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	7.00
125697	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41
125698	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56
125699	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
125700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16
125701	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
125702	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
125703	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12
125704	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13
125708	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	2.41
125709	0.00	0.03	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	2.42
125710	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.86
125711	0.00	0.07	0.04	0.26	0.58	0.00	0.35	0.73	0.00	0.00	0.00	2.40
125712	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
125713	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	2.22
125714	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	2.82
125715	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
125716	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
125717	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51
125718	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78
125719	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
125720	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77
125721	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37

GORE SORBER SCREENING SURVEY ANALYTICAL RESULTS
ENVIRONMENTAL COMPANY, FT. WORTH, TX
GORE STANDARD TARGET VOCs/SVOCs (A1)
NAVAL AIR STATION, FT. WORTH, TX
SITE SL - PRODUCTION ORDER #069552

SAMPLE NAME	EtBENZ, ug	mpXYL, ug	oXYL, ug	135TMB, ug	124TMB, ug	14DCB, ug	UNDEC, ug	NAPH, ug	TRIDEC, ug	2MeNAPH, ug	PENTADEC, ug	Petroleum Hydrocarbons, est. ug
MDL =	0.01	0.03	0.01	0.01	0.02	0.01	0.03	0.01	0.01	0.01	0.01	
125722	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.0
125723	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.6
125724	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.3
125725	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.4
125726	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	2.0
125727	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.4
125728	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.3
125729	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.3
125730	0.13	0.45	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.4
125731	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.6
125732	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.5
125733	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	3.6
125734	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.0
125735	0.00	0.04	0.03	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	2.5
125736	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.3
125737	0.18	0.72	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.0
125738	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.7
125739	0.09	0.33	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.5
125740	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.3
125741	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.9
125742	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.5
125743	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.2
125744	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.8
125745	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.9
125746	0.03	0.13	0.09	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	2.2
125747	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	2.0
125748	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.3
125749	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.6
125750	0.00	0.04	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	5.2
125751	0.00	0.03	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	3.7
125752	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.8
125753	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.7
125754	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	1.1

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GORE SORBER SCREENING SURVEY ANALYTICAL RESULTS
ENVIRONMENTAL COMPANY, FT. WORTH, TX
GORE STANDARD TARGET VOCs/SVOCs (A1)
NAVAL AIR STATION, FT. WORTH, TX
SITE SL - PRODUCTION ORDER #069552

SAMPLE NAME	EtBENZ, ug	mpXYL, ug	oXYL, ug	135TMB, ug	124TMB, ug	14DCB, ug	UNDEC, ug	NAPH, ug	TRIDEC, ug	2MeNAPH, ug	PENTADEC, ug	Petroleum Hydrocarbons, est. ug
MDL =	0.01	0.03	0.01	0.01	0.02	0.01	0.03	0.01	0.01	0.01	0.01	
125755	0.00	0.07	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.00	0.00	3.83
125756	2.70	84.89	35.63	38.61	14.70	0.00	4.57	0.64	0.42	0.18	0.06	819.64
125757	0.00	0.04	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	2.03
Max. Detected	2.70	84.89	35.63	38.61	14.70	0.00	4.57	0.73	1.16	0.18	0.42	819.64
TB1 - 125758	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75
TB2 - 125759	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
TB3 - 125760	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16
TB4 - 125761	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52
TB5 - 125762	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	2.11
TB6 - 125763	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17
method blank	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.49
method blank	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.71
method blank	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41

TAB

C

APPENDIX C

SAMPLE IDENTIFICATION CROSS REFERENCE

SAMPLE IDENTIFICATION CROSS REFERENCE

PIPELINE AREA DRILLING PROJECT

NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE	SAMPLE MATRIX	SAMPLE DEPTHS (FT) START	END	FIELD SAMPLE NO	FIELD LOT CONTROL NO	LABORATORY SAMPLE NO	ANALYTICAL METHOD	LAB LOT CONTROL NO
SB-108	24-Oct-1998	1000	N1	SO	8.50	11.50	SB-108-01	101A	A8477102	SW8021	A9B00283
SB-108	24-Oct-1998	1000	N1	SO	8.50	11.50	SB-108-01	101A	A8477102	SW8270	A8B09035
SB-109	24-Oct-1998	1355	N1	SO	10.00	13.00	SB-109-01	101A	A8477106	SW8021	A9B00283
SB-109	24-Oct-1998	1355	N1	SO	10.00	13.00	SB-109-01	101A	A8477106	SW8270	A8B09035
SB-109	24-Oct-1998	1355	FD1	SO	10.00	13.00	SB-109-03	101A	A8477107	SW8021	A9B00283
SB-109	24-Oct-1998	1355	FD1	SO	10.00	13.00	SB-109-03	101A	A8477107	SW8270	A8B09035
SB-109	24-Oct-1998	1505	N1	SO	16.00	17.20	SB-109-02	101A	A8477108	SW8021	A9B00283
SB-109	24-Oct-1998	1505	N1	SO	16.00	17.20	SB-109-02	101A	A8477108	SW8270	A8B09035
SB-110	24-Oct-1998	1115	N1	SO	7.00	10.00	SB-110-01	101A	A8477104	SW8021	A9B00283
SB-110	24-Oct-1998	1115	N1	SO	7.00	10.00	SB-110-01	101A	A8477104	SW8270	A8B09035
SB-110	24-Oct-1998	1115	MS1	SO	7.00	10.00	SB-110-01	101A	A8477104MS	SW8270	A8B09035
SB-110	24-Oct-1998	1115	SD1	SO	7.00	10.00	SB-110-01	101A	A8477104SD	SW8270	A8B09035
SB-110	24-Oct-1998	1210	N1	SO	15.00	17.50	SB-110-02	101A	A8477105	SW8021	A9B00283
SB-110	24-Oct-1998	1210	N1	SO	15.00	17.50	SB-110-02	101A	A8477105	SW8270	A8B09035
FIELDQC	24-Oct-1998	1040	AB1	WQ	0.00	0.00	AB-100	100A	A8477103	SW8021	A9B00285
FIELDQC	24-Oct-1998	1040	AB1	WQ	0.00	0.00	AB-100	100A	A8477103	SW8260	A9B00536
FIELDQC	24-Oct-1998	935	TB1	WQ	0.00	0.00	TB-101	001A	A8477101	SW8021	A9B00285

454 143

454 144

TAB

D

APPENDIX D

BOREHOLE LOGS

GEOLOGIC BOREHOLE LOG

454 146

Borehole (Location) ID: SB06

AFIID	CRSWL	SiteID	16	Location Type	Borehole (BH)
Description	Unnamed Stream				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	553.67 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (Inches)	7	Total Depth (Feet)	17.5
Date/Time Drilling Started	10/23/96 13:56			Date/Time Total Depth Reached	10/23/96 15:20

Depth (feet)	Sampling: Recov (feet)	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
0–1	2.5	0-2.5		0		OL	STCL	0-1' <u>Topsoil</u>: dark brown, silt and clay, 10 YR 2/3		1st run to 2.5'
1–2.5								1-7.5' <u>Silt</u>: medium brown silt, firm, slightly moist, non-plastic, friable, 7.5 YR 4/3		14:16
2										
2.5–5	1.1	2.5-5		0		MH	SILT			Core loss due to shale-plugged shoe
4										
5–7.5		5-7.5		0						14:35
6										
7.5–10	5.0	7.5-10		0		CH	CLAY	7.5-16.5' <u>Clay</u>: very dark gray, fat clay with caliche veins, trace freshwater mussel shells, soft, slightly moist, plastic, 2.5 Y 3/1		*FC-SB06-01* 7.5-10': BTEX, SVOA, TPH-D, TPH-G; *MS/MSD taken in this interval
8								Water at 8.7 ft, 7:45 10/24/96		
10–12.5		10-12.5		16						*FC-SB06-02* 10-12.5': BTEX, SVOA, TPH-D, TPH-G, inorganics 14:50
12										
12.5–15	5.0	12.5-15		0						
14										
15–17.5		15-17.5		0				Fairly abundant limestone pebbles in last 2 feet		*FC-SB06-03* 15-17.5': BTEX, TPH-D, TPH-G
16										
16.5–17.5						CM	LS	16.5-17.5' <u>Weathered Limestone</u>: partially decomposed, mixed with silty clay		15:20
18								Refusal at 17.5' in limestone		
20										

454 147

GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB05

AFIID	CRSWL	SiteID	16	Location Type	Borehole (BH)
Location Description	Unnamed Stream				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	554.58 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	21.0
Date/Time Drilling Started	10/23/96 10:00			Date/Time Total Depth Reached	10/23/96 11:50

Depth (feet)	Sampling % Recov	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
						CL	GVCL	As above		11:50
22								Refusal at 21' against limestone		*FC-SB05-03* 18.5-21': BTEX, TPH-D, TPH-G
24										
26										
28										
30										
32										
34										
36										
38										
40										

GEOLOGIC BOREHOLE LOG

454 148

Borehole (Location) ID: SB05

AFIID	CRSWL	SiteID	16	Location Type	Borehole (BH)
Location Description	Unnamed Stream				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	554.58 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	21.0
Date/Time Drilling Started	10/23/96 10:00	Date/Time Total Depth Reached	10/23/96 11:50		

Depth (feet)	Sampling: Recov (feet)	Sampling: Sample Depth	Sampling: Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description: SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
2	4.0	0-2.5		1		OL	STCL	0-1.8' <u>Topsoil</u>: organic-rich silt and clay with ~ 5% limestone chips, slightly moist, firm, slightly plastic, 2.5 Y 3/1		1st run: 0-4'
4		2.5-5		1		OL	STCL	1.8-7.5' <u>Silt</u>: moderately organic, silt with some clay, firm, dry, non-plastic (friable), 10 YR 2/4		10:15
6	3.6	5-7.5		7						2nd Run: 4-8.5'
8		7.5-10		5		ML	SILT	7.5-9' <u>Silt</u>: non-organic silt, very stiff, dry, friable, probably decomposed shaly limestone		10:35
10, 12	4.8	10-13.5		497 540		CH	CLAY	9-13.5' <u>Clay</u>: dark chocolate brown clay veined with caliche, firm, slightly moist, very plastic, 2.5 Y 1/4, moderate petroleum odor at 9' and below		3rd Run: 8.5-13.5' *FC-SB05-01* 7.5-10': BTEX, SVOA, TPH-D, TPH-G *FC-SB05-04* Field duplicate of *FC-SB05-01* 11:15
14	4.9	13.5-16		660		MH	SILT	13.5-15' <u>Silt</u>: dark brown clay-rich silt, veined with caliche, firm, slightly moist, sl. plastic, moderate pet. odor, 2.5 Y 4/1		*FC-SB05-02* 13.5-16': VOA, SVOA, TPH-D, TPH-G, inorganics, grain size analysis
16, 18		16-18.5		615		CH	CLAY	15-18.5' <u>Clay</u>: dark chocolate brown clay veined with caliche, firm, slightly moist, very plastic, moderate petroleum odor, 2.5 Y 4/1		Water at 16.3' 10/24/96 7:45 11:35
20	2.0	18.5-21		58		CL	GVCL	18.5-21' <u>Mixed limestone and clay</u>: gray-tan, soft; hard at base, saturated		Water at 18.5' at time of drilling

GEOLOGIC BOREHOLE LOG

454 149

Borehole (Location) ID: SB04

AFIID	CRSWL	SiteID	16	Location Type	Borehole (BH)
Location Description	Unnamed Stream				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	554.23 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (Inches)	7	Total Depth (Feet)	8.5
Date/Time Drilling Started	10/23/96 08:00			Date/Time Total Depth Reached	10/23/96 08:40

Depth (feet)	Sampling: Recov (feet)	Sampling: Sample Depth	Sampling: Blow Counts	Sampling: PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
2	4.8	0-2.5		32		OL	STCL	0-2.8' Topsoil: silt and clay, medium brown, moist, firm, slightly plastic, 10 YR 2/4		Clear, cool, ~45F
4		2.5-5		29		OH	STCL	2.8-8' Silt and Clay: organic, dark gray-brown, slightly moist, firm, slightly plastic, with 10% limestone chips up to 0.25" and ~2% freshwater mussel shells		8:15
6	3.3	5-7.5		22						FC-SB04-01 5-7.5': BTEX, SVOA, TPH-D, TPH-G
8		7.5-8.5		10		CM	LS	8-8.5' Weathered limestone		8:40
10								Refusal at 8.5'		FC-SB04-02 7.5-8.5': VOA, SVOA, TPH-D, TPH-G, inorganics
12										No water in boring
14										
16										
18										
20										

GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB03

454 150

CRSWL		SiteID	16	Location Type	Borehole (BH)
Location Description	Unnamed Stream				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	553.71 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	21.5
Date/Time Drilling Started	10/22/96 16:10			Date/Time Total Depth Reached	10/22/96 17:45

Depth (feet)	Sampling % Recov	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
	1.5	20-21.5		124		CL	CVCL	20-21.5': Same as 15-20' above, but soft, saturated, moderately plastic, moderate petroleum odor		17:45
22								Refusal at 21.5' against limestone Note: Water at 20' at time of drilling		*FC-SB03-03* 20-21.5': BTEX, TPH-D, TPH-G, grain size analysis
24										
26										
28										
30										
32										
34										
36										
38										
40										

454 151

GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB03

AFIID	CRSWL	SiteID	16	Location Type	Borehole (BH)
Location Description	Unnamed Stream				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	553.71 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	21.5
Date/Time Drilling Started	10/22/96 16:10			Date/Time Total Depth Reached	10/22/96 17:45

Depth (feet)	Sampling: Recov (feet)	Sampling: Sample Depth	Sampling: Blow Counts	Sampling: PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description (SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing)	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
0–2	5.0	0-2.5		24		OH	STCL	0-2' Topsoil: organic rich silt and clay, moist, soft, slightly plastic, 10 YR 3/3		
2–5		2.5-5		21				2-5' Silty clay: Dark brown/gray silty clay with ~15% fine limestone chips and pebbles, dry, stiff, slightly plastic, 2.5 Y 3/1, freshwater mussel and land snail shells		16:20
5–10	2.5	5-7.5		16		OL	STCL	5-10' As above, slight petroleum odor at base		
		7.5-10		15						16:45
10–15	4.8	10-12.5		701				10-15' As above, moderate petroleum odor		*FC-SB03-01* 10-12.5': BTEX, SVOA, TPH-D, TPH-G, grain size analysis
		12.5-15		674						17:10
15–20	2.0	15-17.5		704		CL	CVCL	15-20' Decomposed limestone: clay and limestone chips, light gray, stiff, moist, slightly plastic, moderate to strong petroleum odor, 2.5 Y 6/1		*FC-SB03-02* 15-17.5': VOA, SVOA, TPH-D, TPH-G, inorganics, grain size analysis. Water at 15.5', 7:45 on 10/24/96
		17.5-20		754						17:25

GEOLOGIC BOREHOLE LOG

454 152

Borehole (Location) ID: SB02

AFIID	CRSWL	SiteID		Location Type	Borehole (BH)
Lc Description	Near Highway 183 at white painted gates, 15 feet north of valve box				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	593.58 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	17.5
Date/Time Drilling Started	10/22/96 12:50			Date/Time Total Depth Reached	10/22/96 14:30

Depth (feet)	Sampling: Recov (feet)	Sampling: Sample Depth	Sampling: Blow Counts	Sampling: PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
0–2	5.0	0-2.5		15		OH	STCL	0-1.9' Topsoil: Dark gray-brown organic silt and clay, firm, moist, moderately plastic, 7.5 YR 3/1		
2						CL	STCL	1.9-2.7' Silt and Clay: mixed organic/ non-organic silt and clay		
4		2.5-5		32				2.7-5' Silty clay: Light gray non-organic silty clay with limestone pebbles (0.1-0.25") dry, stiff, slightly plastic 2.5 Y 6/1		13:00
6	2.0	5-7.5		159		CL	STCL	5-8' As above		FC-SB02-01 5-7.5' : BTEX, SVOA, TPH-D, TPH-G
8		7.5-10		370				8-10' As above, but with slight petroleum odor		FC-SB02-02 7.5-10' : BTEX, SVOA, TPH-D, TPH-G 13:20
10	1.7	10-12.5		69		CL	STCL	10-14.8' Silty Clay: medium gray-brown with 0.25-0.5" limestone pebbles, firm, slightly moist, moderately plastic, no petroleum odor, 10 YR 5/4		FC-SB02-03 10-12.5': BTEX, TPH-D, TPH-G
12–14		12.5-15		35				13' Hard shale parting, caused loss of core		14:30
16	2.8	15-17.5		24.5		CM	SHLE	14.8-16.5' Shale: dark gray, well bedded, highly fissile, organic shale, 5Y 4/1		
						CM	LSSL	16.5-17.5' Limestone: light gray, silty, 2.5 Y 7/1		14:30
18–20								Refusal at 17.5 feet		No water in boring

GEOLOGIC BOREHOLE LOG

454 153

Borehole (Location) ID: SB01

AFIID	CRSWL	SiteID		Location Type	Borehole (BH)
Location Description	Near Highway 183 at white painted gates, 8 feet south of valve box				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	594.08 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	17.0
Date/Time Drilling Started	10/22/96 08:45			Date/Time Total Depth Reached	10/22/96 11:02

Depth (feet)	Sampling: Recov (feet)	Sampling: Sample Depth	Sampling: Blow Counts	Sampling: PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
2	4.9	0-2.5		49.5		OH	STCL	0-1.9' Organic topsoil: Dark gray silty clay firm, moist, moderately plastic, 7.5 YR 3/1		Clear, cool, windy approx 40 deg. F
4		2.5-5		47		ML	STCL	1.9-5' Silt/Clay: Light olive gray, firm, slightly moist to dry, speckled with decomposed limestone chips, 10 YR 6/2		09:05
6	3.8	5-7.5		21		CL	STCL	5-7.5' Clay and Silt: light gray silty clay with 0.25-0.5 inch limestone pebbles, firm, slightly moist, slightly to moderately plastic, trace petroleum odor, 10YR 7/2		
8, 10		7.5-10		152		CL	STCL	7.5-10' Clay and Silt: Medium gray silty clay with limestone pebbles up to 1 inch, moist, soft, moderately plastic, moderate petroleum odor, 5Y 6/1		*FC-SB01-01* 7.5-10' : BTEX, SVOA, TPH-D, TPH-G 09:40
12, 14	2.0	10-12.5; 12.5-15		329; 74		CL	STCL	10-15' Clay and Silt: Light to medium gray-brown silty clay with limestone pebbles, sl. moist, moderately plastic, stiff to hard, 5Y 5/2 at 12', shale layers which plugged bit and caused poor recovery		*FC-SB01-02* 10-12.5': VOA, SVOA, TPH-D, TPH-G, INORG *FC-SB01-03* 12.5-15': BTEX, TPH-D, TPH-G 10:20
16	1.4	15-17		41		CM	SHLE	15-17' Shale: Dark gray, silty/limy shale, very stiff to hard, slightly moist, non-plastic, 5Y 4/1		11:02
18, 20								Refusal at 17.0 feet No water encountered		10/28/1996 8:30 No water in boring

GEOLOGIC BOREHOLE LOG

454 154

Borehole (Location) ID: SB12

AP	CRSWL	SiteID	7	Location Type	Borehole (BH)
Location Description	Trinity River, 2nd boring from the east, Base Service Station				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	555.11 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	25.0
Date/Time Drilling Started	10/26/96 10:31			Date/Time Total Depth Reached	10/26/96 12:05

Depth (feet)	Sampling % Recov	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
						CH	CLAY	20-20.5' Clay layer, moderate petroleum odor and staining		Strong petroleum contamination, partially degraded
22		20-22.5		625				20.5-25' Sand: strong petroleum contamination, dark gray, 2.5 Y 4/1, strong odor, strong staining		
	4.2					SM	SDSL			FC-SB12-03
24		22.5-25		479						22.5-25': VOA, SVOA, TPH-D, TPH-G, inorganics 12:05
26								Total Depth 25'		
28										
30										
32										
34										
36										
38										
40										

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GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB12

AFID	CRSWL	SiteID	7	Location Type	Borehole (BH)
Location Description	Trinity River, 2nd boring from the east, Base Service Station				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	555.11 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	25.0
Date/Time Drilling Started	10/26/96 10:31			Date/Time Total Depth Reached	10/26/96 12:05

Depth (feet)	Sampling: Recov (feet)	Sample Depth	Blow Counts	PD	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
2	4.5	0-2.5		30		OL	STCL	0-1.8' <u>Topsoil</u>: Silt with some clay, med. brown, soft, moist, friable, organic, 10 YR 3/3		Cloudy, partially sunny, humid, warm (70's)
4		2.5-5		17		MLOL	SILT	1.8-6' <u>Silt</u>: well bedded light to medium brown silt with some very fine sand, firm, slightly moist, friable, 10 YR 3/4. Slightly organic to 4'		10:35
6	3.1	5-7.5		22		ML		6-10' As above, but dry, stiff to very stiff		Hard drilling to 10'
8 / 10		7.5-10		26						10:50
12	3.8	10-12.5		25		SM	SDSL	10-15' <u>Sand</u>: fine grained silty sand, light brown, moist, soft, friable, no petroleum odor, 10 YR 5/4		*FC-SB12-01* 10-12.5' : BTEX, SVOA, TPH-D, TPH-G
14		12.5-15		36						11:20
16	4.6	15-17.5		495		SMML	SILT	15-20' <u>Silt and fine sand</u>: interbedded layers of silt and fine silty sand, medium brown to gray-brown (due to petroleum staining), soft, moist, friable, moderate to strong petroleum odor and stain, 10 YR 5/3 to 5/2		Petroleum contamination, partially degraded
18 / 20		17.5-20		610				Water at 19' at time of drilling		*FC-SB12-02* 17.5-20' : BTEX, SVOA, TPH-D, TPH-G 11:40

GEOLOGIC BOREHOLE LOG

454 156

Borehole (Location) ID: SB11

AFID	CRSWL	SiteID	7	Location Type	Borehole (BH)
Location Description	Trinity River, easternmost boring, Base Service Station				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	555.01 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (Inches)	7	Total Depth (Feet)	25.0
Date/Time Drilling Started	10/26/96 8:20		Date/Time Total Depth Reached	10/26/96 9:40	

Depth (feet)	% Recov	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description: SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
22	5.0	20-22.5		350		SM	SDMD	moderate to strong petroleum odor and slight to moderate petroleum staining, 10 YR 5/3		
24		22.5-25		940						FC-SB11-03 22.5-25': VOA, SVOA, TPH-D, TPH-G, inorganics 9:40
26								Total Depth 25'		
30										
32										
34										
36										
38										
40										

454 157

GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB11

AFIID	CRSWL	SiteID	7	Location Type	Borehole (BH)
Location Description	Trinity River, easternmost boring, Base Service Station				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	555.01 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	25.0
Date/Time Drilling Started	10/26/96 8:20	Date/Time Total Depth Reached	10/26/96 9:40		

Depth (feet)	Recov (feet)	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description (SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing)	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
2	5.0	0-2.5		0		OL	STCL	0-2.2' Topsoil: medium brown, mixed silt & clay, moist, soft, slightly plastic, 7.5 YR 3/2		Cloudy, very humid warm, 60's, abundant mosquitos
4		2.5-5		0				2.2-19' Silt: silt and very fine sand, light brown, slightly moist, firm, friable, with occasional freshwater mussel shells, 7.5 YR 5/2		8:30
6	2.3	5-7.5		0				@ 7 ft, change from firm to stiff		
8		7.5-10		0		ML	SILT			Hard drilling to 10' 8:45
10										
12	2.5	10-12.5		0				@ 12 ft, moist, still stiff		FC-SB11-01 10-12.5' : BTEX, SVOA, TPH-D, TPH-G
14		12.5-15		3						9:05
16	5.0	15-17.5		36				@ 16 ft, becomes very moist and has mod. petroleum odor with gray petroleum staining		Petroleum contamination below this point
18		17.5-20		85				Water at 19' at time of drilling		FC-SB11-02 17.5-20' : BTEX, SVOA, TPH-D, TPH-G
20					• • •	SM	SDMD	19-25' Sand: fine to medium grained, med. tan, soft, saturated, non-plastic, with		9:25

GEOLOGIC BOREHOLE LOG

454 158

Borehole (Location) ID: SB10

AFIID	CRSWL	SiteID		Location Type	Borehole (BH)
Description	Golf Course, Farmers Branch Creek				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	573.31 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	19.0
Date/Time Drilling Started	10/24/96 14:15			Date/Time Total Depth Reached	10/24/96 15:25

Depth (feet)	Recov (feet)	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description: SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
0-2	2.8	No samples				OL	STCL	0-1.2' Topsoil: silt and clay, organic, moist, soft, slightly plastic, 10 YR 3/2		Cloudy, mild, ~65F Light rain
						SW	SDMD	1.2-2' Sand: medium gray & orange sand, slightly moist, friable, soft, 10 YR 6/7		
2-5						ML	SILT	2-8' Silt: Limy silt with ~15% pebbles, limestone clasts, and CaCO3 concretions, moderately cemented with CaCO3, stiff, dry, friable, 2.5 Y 6/2		14:20
5-7.5		5-7.5		23						
7.5-10	2.4	7.5-10		18		ML	SILT	8-15' Silt: CaCO3 cemented silt and some clay, dry, very stiff, indurated, no pebbles, very homogeneous, possible caliche layer 10 YR 6/2		FC-SB10-01 7.5-10' : BTEX, SVOA, TPH-D, TPH-G 14:35
10-12.5		10-12.5		14						
12.5-15	3.1	12.5-15		12				@ 13' as above, but moist and slightly plastic		15:06
15-19	1.8	15-19		12		SW	SDMD	15-19' Sand: medium grained, yellow-brown, saturated, soft, friable, 10 YR 6/6 Water at 15.5' ; 10/24/96 17:15		FC-SB10-02 15-19' : BTEX, SVOA, TPH-D, TPH-G 15:25
19-20								Refusal at 19.0 feet against limestone		

454 159

GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB09

AFIID	CRSWL	SiteID		Location Type	Borehole (BH)
Location Description	Golf Course, Farmers Branch Creek				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	572.85 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	19.0
Date/Time Drilling Started	10/24/96 13:00			Date/Time Total Depth Reached	10/24/96 13:54

Depth (feet)	Recov (feet)	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
0–2	4.2	No samples				OL	STCL	0-2.2' Topsoil: medium brown, organic silt and clay, soft, moist, slightly to moderately plastic, 7.5 YR 4/2		Cloudy, mild, 60's
2–5						ML	SILT	2.2-8' Silt: light brown silt with chips and small pebbles of white decomposed limestone, firm, dry, friable, no odor, 10 YR 6/3		13:07
5–7.5	2.1	5-7.5		25						
7.5–10		7.5-10		21		ML	SILT	8-12' Silt: light gray silt cemented with CaCO3, 0.125 - 0.25" lime concretions common, possible caliche layer, very stiff, dry, friable, no odor, 2.5 Y 7/1		13:25
10–12.5	2.4	10-12.5		27						FC-SB09-01 10-12.5' : BTEX, SVOA, TPH-D, TPH-G
12.5–15		12.5-15		19		ML	SILT	12-17' Silt: light grey limy silt, cemented with CaCO3, slightly moist, stiff, friable, no odor, 10 YR 7/2		FC-SB09-03 Field duplicate of FC-SB09-01 13:40
15–17	3.2	15-17		18.5				Water at 15', 10/24/96 15:00		FC-SB09-02 15-17.5' : BTEX, SVOA, TPH-D, TPH-G
17–18		17-19		15		SP	SDFN	17-18' Sand: fine, lt ylw-brn sand w/~5% peb., soft, saturated, friable, no odor, 10 YR 7/4		17.5': Water at time of drilling
18–19						GP	SDGR	18-19' Gravel: coarse sand, gravel, fossil shells, & cobbles, soft, saturated, no cement		13:54
19–20								Refusal at 19.0 feet on limestone		

GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB08 454 160 Page 1 of 1

AFIID CRSWL	SiteID	Location Type Borehole (BH)
Lo_ Description Golf Course, Farmers Branch Creek		
Establishing Company The Environmental Co	Geologist K. Troensegaard	Drilling Company Rone Engineers, Inc.
Drilling Foreman Tim Branco	Ground Surface Elevation 565.87 ft	Datum Mean Sea Level
Sampling Device Split Spoon (5 ft)	Borehole Diameter (inches) 7	Total Depth (Feet) 12.0
Date/Time Drilling Started 10/24/96 10:15	Date/Time Total Depth Reached 10/24/96 11:05	

Depth (feet)	Recov (feet)	Sample Depth	Blow Counts	PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
0–3.5	2.6	0-3.5				ML	SILT	0-3.5' Silt: Medium brown, silt and fine sand, firm, dry, friable, no petroleum odors, 10 YR 4/3		Partly cloudy, cool, 50's 1st Run: 0-3.5' due to 1.5' stick-up 10:26
3.5–8.5	2.1	3.5-8.5		0		SM	SDMD	3.5-10' Sand: fine to medium sand with fine gravel at base, medium tan, soft, dry, no petroleum odors, 10 YR 6/4 NB: No samples collected from 0 to 8.5' as this interval is above the pipeline.		10:45
8.5–12	2.3	8.5-12		0		SP	GVCL	10-12' Gravel: clay-cemented tan gravel, soft, water-saturated, no petroleum odor, 10 YR 5/3 Last 0.2' gray, fine-grained limestone		Water at 10.1' 10/24/96 15:00 11:05
12–20								Refusal at 12' against limestone		FC-SB08-01 8.5-12': VOA, SVOA, TPH-D, TPH-G, inorganics

Depth scale: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

GEOLOGIC BOREHOLE LOG

454 161

Borehole (Location) ID: SB07

AFIID	CRSWL	SiteID	16	Location Type	Borehole (BH)
Location Description	Unnamed Stream				
Establishing Company	The Environmental Co	Geologist	K. Troensegaard	Drilling Company	Rone Engineers, Inc.
Drilling Foreman	Tim Branco	Ground Surface Elevation	555.70 ft	Datum	Mean Sea Level
Sampling Device	Split Spoon (5 ft)	Borehole Diameter (inches)	7	Total Depth (Feet)	7.0
Date/Time Drilling Started	10/24/96 08:05			Date/Time Total Depth Reached	10/24/96 08:45

Depth (feet)	Sampling: Recov (feet)	Sampling: Sample Depth	Sampling: Blow Counts	Sampling: PID	GRAPH	ASTM CODE	Lithologic Codes	Lithology Description: SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
0-2	4.2	0-2.5		0		OH	STCL	0-2' Topsoil: mixed silt and clay, medium brown, soft, slightly moist, slightly plastic, 10 YR 2/4		
2-3						MH	SILT	2-3' Silt: medium brown silt, trace clay, soft, sl. moist, friable, 10 YR 5/3		
3-5		2.5-5		0		CH	CLAY	3-7' Clay: very dark brown clay with some silt, firm, slightly moist, moderately plastic, 2.5 YR 2.5/1, limestone in last 0.2'		8:20
5-7	2.0	5-7		0						8:45
7-20								Refusal at 7.0'		FC-SB07-01 5-7': VOA, SVOA, TPH-D, TPH-G, inorganics No water in boring

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TAB

E

APPENDIX E

INVESTIGATION DERIVED WASTE MANAGEMENT DOCUMENTATION

TEXAS
NON-HAZARDOUS SPECIAL WASTE MANIFEST

NO. 500636

454 161

GENERATOR

GENERATOR NAME Air Force Base Conversion Agency | GENERATING LOCATION Air Force Base Conversion Agency

ADDRESS 6550 White Settlement Rd | ADDRESS 6550 White Settlement Rd.

Fort Worth, TX 76114-3520 | Fort Worth, TX 76114-3520

PHONE NO. 817 731 8973

STATE GENERATOR ID NUMBER 65004

T.N.R.C.C.	DESCRIPTION OF WASTE	QUANTITY	UNITS
	Investigative Derived Waste Water	90002	D
WASTE CODE TX 759 980826 25764D			
	Investigative Derived Waste Soil	90010	D
WASTE CODE TX 759 980826 257641			
WASTE CODE			

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

SOLIDIFICATION

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Alan Flolo — GENERATOR AUTHORIZED AGENT NAME | SIGNATURE | 090297 SHIPMENT DATE

TRANSPORTER

TRUCK NO. T10 | PHONE NO. 972 446 0200

TRANSPORTER NAME CACTUS UTS | DRIVER NAME (PRINT) DANNY Moorehan

ADDRESS 159 W ROCK ISLAND Rd | VEHICLE LICENSE NO./STATE R171734

GRAND PRAIRE TX | STATE TRANSPORTER ID NO. 40041

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

DRIVER SIGNATURE | 090297 SHIPMENT DATE

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

DRIVER SIGNATURE | 090297 DELIVERY DATE

DESTINATION

SITE NAME BROWNING FERRIS - ITASCA GARDENS LANDFILL | PHONE NO.

ADDRESS ROUTE 1 BOX 23 K ITASCA, TEXAS 76055

PHONE 254-687-2466

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

TNRCC # 261-B E.P.A. # TXD980648419

BFI David Young — NAME OF AUTHORIZED AGENT | SIGNATURE | 090297

REORDER ONLY THROUGH BFI / UARCO CONTRACT

109-780TX (8/90)

DESTINATION RETAIN

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TAB

F

Soil Gas Survey Data Sheets

GORE-SORBER® Screening Survey Chain of Custody

For W.L. Gore & Associates use only
Production Order # 69552

W. L. Gore & Associates, Inc., Environmental Products Group
101 Lewisville Road • Elkton, Maryland 21921 • Tel: (410) 392-3300 • Fax (410) 996-3325

Instructions: Customer must complete ALL shaded cells

Customer Name: ENVIRONMENTAL COMPANY	Site Name: NAVAL AIR STATION
Address: 6550 WHITE SETTLEMENT RD, FT WORTH TX 76114	Site Address: FT WORTH TX
	Project Manager: ALLEN FLOLO / GLEN METZLER
Phone: 804 295 4446	Customer Project No.:
FAX: 804 295 5535	Customer P.O. #: 2100 Quote #: BK5723

Serial # of Modules Shipped				# of Modules for Installation 70	# of Trip Blanks 6	
# 125685	through	# 125704		Total Modules Shipped: 76 Pieces		
# 125708	through	# 125763		Total Modules Received: 76 Pieces		
#	through	#		Total Modules Installed: 70 Pieces		
#	through	#		Serial # of Trip Blanks (Client Decides)		# 125758
#	through	#		# 125759	# 125760	# 125761
#	through	#		# 125762	# 125763	#
#	through	#		#	#	#

Installation Performed By: Name (please print): Glenn Metzler / Steve Bliley; Company/Affiliation: The Environmental Co, Inc.	Installation Method(s) (circle those that apply): Slide Hammer, Hammer Drill, Auger; Other:
Installation Start Date and Time: 8/15/96 7:30 AM PM	
Installation Complete Date and Time: 8/16/96 5:25 AM PM	
Retrieval Performed By: Name (please print): Steve Bliley; Company/Affiliation: The Environmental Co, Inc.	Total Modules Retrieved: 69 Pieces; Total Modules Lost in Field: 1 Pieces; Total Unused Modules Returned: 6 Pieces
Retrieval Start Date and Time: 28 AUG 1996 2:30 AM PM	
Retrieval Complete Date and Time: 29 AUG 1996 3:20 AM PM	
Target Analytes to be Mapped (Check Options or List as appropriate):	To Be Determined Pending Completion of Lab Analysis [ ] or write "None", if applicable: None
Analyte #1:	Analyte #2: / Analyte #3:
Other Instructions, if any: Fed Ex Shipment Airbill # 1315508670	

Relinquished By	Date	Time	Received By	Date	Time
C J Fondren; Affiliation: W.L. Gore & Associates, Inc.	8/8/96	15:00	Glenn Metzler; Affiliation: The Environmental Co. Inc.	8-12-96	1530
Stephen A B Bliley; Affiliation: The Environmental Co. Inc.	29 AUG 96	1930	Received By: ; Affiliation:		
Relinquished By: ; Affiliation:			Received By: ; Affiliation: W.L. Gore & Associates, Inc.		
			Temperature of Samples When Received By Gore		°C

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TEC Office Copy

GORE-SORBER® Screening Survey Installation and Retrieval Log	SITE NAME & LOCATION
Page 1 of 2	NAS Ft. Worth Fam Camp

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate) LPH	ODOR	NONE	MODULE IN WATER (check one) YES	NO	COMMENTS
1.	125685	8/15/96 0730	28AUG.96 1430			✓	✓		GS-01
2.	125686	8/15/96 0800	1445			✓	✓		GS-02
3.	125687	8/15/96 0840	1500			✓		✓	GS-03
4.	125688	8/15/96 0845	1505			✓		✓	GS-03-02
5.	125689	8/15/96 0910	1512			✓		✓	GS-04
6.	125690	8/15/96 0925	1518			✓		✓	GS-05
7.	125691	8/15/96 0940	1523			✓		✓	GS-06
8.	125692	8/15/96 0945	1532			✓	✓		GS-07
9.	125693	8/15/96 1000	— Lost in	Field	—	—	—	—	GS-08
10.	125694	8/15/96 1020	1541			✓		✓	GS-09
11.	125695	8/15/96 1030	1548			✓		✓	GS-10
12.	125696	8/15/96 1040	1553			✓		✓	GS-11
13.	125697	8/15/96 1050	1650			✓		✓	GS-12
14.	125698	8/15/96 1105	1654			✓		✓	GS-13
15.	125699	8/15/96 1115	1708			✓		✓	GS-14
16.	125700	8/15/96 1130	1710			✓		✓	GS-15
17.	125701	8/15/96 1140	1715			✓		✓	GS-16
18.	125702	8/15/96 1145	1718			✓		✓	GS-17
19.	125703	8/15/96 1155	1723			✓		✓	GS-18
20.	125704	8/15/96 1330	1727			✓		✓	GS-19
21.	125708	8/15/96 1335	1734			✓		✓	GS-20
22.	125709	8/15/96 1340	1738			✓		✓	GS-21
23.	125710	8/15/96 1350	1742			✓		✓	GS-22
24.	125711	8/15/96 1355	1745			✓		✓	GS-23
25.	125712	8/15/96 1410	29AUG.96 - 0802			✓		✓	GS-24
26.	125713	8/15/96 1415	- 0806			✓		✓	GS-24-(2)
27.	125714	8/15/96 1420	0811			✓		✓	GS-25
28.	125715	8/15/96 1430	0814			✓		✓	GS-26
29.	125716	8/15/96 1440	0835			✓		✓	GS-27
30.	125717	8/15/96 1450	0837			✓		✓	GS-28
31.	125718	8/15/96 1500	0840			✓		✓	GS-29
32.	125719	8/15/96 1505	0843			✓		✓	GS-30
33.	125720	8/15/96 1515	0845			✓		✓	GS 31
34.	125721	8/15/96 1535	0902			✓		✓	GS-32
35.	125722	8/15/96 1545	0905			✓		✓	GS-33
36.	125723	8/15/96 1555	0907			✓		✓	GS-34
37.	125724	8/15/96 1625	0910			✓		✓	GS-35
38.	125725	8/15/96 1635	0913			✓		✓	GS-36
39.	125726	8/15/96 1645	0932			✓		✓	GS-37
40.	125727	8/15/96 1700	0936			✓		✓	GS-38
41.	125728	8/15/96 1710	0938			✓		✓	GS-39
42.	125729	8/15/96 1715	0941			✓		✓	GS-39-(2)

GORE-SORBER® Screening Survey Installation and Retrieval Log

2 of 2

SITE NAME & LOCATION
NAS Ft. Worth
Fan Camp

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME 29Aug-96-0958	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate) LPH	ODOR	NONE	MODULE IN WATER (check one) YES	NO	COMMENTS
43.	125730	8/15/96 1725	~~[illegible]~~			✓		✓	GS-40
44.	125731	8/15/96 1800	1002 ~~[illegible]~~			✓		✓	GS-41
45.	125732	8/15/96 1835	1006 ~~[illegible]~~			✓	✓		GS-42
46.	125733	8/16/96 0735	1010 ~~[illegible]~~			✓		✓	GS-43
47.	125734	8/16/96 0800	1013 ~~[illegible]~~			✓		✓	GS-44
48.	125735	8/16/96 0820	1015 ~~[illegible]~~			✓		✓	GS-45
49.	125736	8/16/96 0830	1026 ~~[illegible]~~			✓		✓	GS-46
50.	125737	8/16/96 0840	1030 ~~[illegible]~~			✓		✓	GS-47
51.	125738	8/16/96 0925	1104			✓	✓		GS-48
52.	125739	8/16/96 0935	1108			✓	✓		GS-49
53.	125740	8/16/96 0950	1112			✓		✓	GS-50
54.	125741	8/16/96 1015	1115			✓		✓	GS-51
55.	125742	8/16/96 1020	1118			✓		✓	GS-52
56.	125743	8/16/96 1250	1447			✓		✓	GS-53
57.	125744	8/16/96 1315	1512			✓		✓	GS-54
[illegible]	125745	8/16/96 1330	1449			✓		✓	GS-55
[illegible]	125746	8/16/96 1600	1420			✓		✓	GS-56
60.	125748	8/16/96 1620	1422			✓		✓	GS-56-02
61.	125747	8/16/96 1610	1425			✓		✓	GS-57
62.	125749	8/16/96 1345	1452			✓		✓	GS-58
63.	125750	8/16/96 1700	1507			✓		✓	GS-59
64.	125751	8/16/96 1725	1503			✓		✓	GS-60
65.	125752	8/16/96 1400	1455			✓	✓		GS-61
66.	125753	8/16/96 1625	1428			✓		✓	GS-62
67.	125754	8/16/96 1415	1458			✓		✓	GS-63
68.	125755	8/16/96 1305	1518			✓		✓	GS-64
69.	125756	8/16/96 1445	1146			✓	✓		GS-65
70.	125757	8/16/96 1430	1151			✓		✓	GS-66
71.	125758								Trip Bl
72.	125759								Trip Bl.
73.	125760								Trip Bl.
74.	125761								Trip Bl.
75.	125762								Trip Bl
76.	125763								Trip Bl
77.									
78.									
79.									
[illegible]									
82.									
83.									
84.									
85.									

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-01

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ______ Volumes purged: ______ Sample volume: ______

Sample depth ______ Sampling rate ______

Date of Reading (Active Approach):: ______, 199___ Time: ______(AM/PM)

Passive Approach

Sorbent device: Installed 0730 (AM/PM), 8-15, 1996

Recovered ______ (AM/PM), ______, 199__

Depth of hole for sorbent device: 15"

PID reading at surface of hole punched: ______

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125685

Surface conditions (pavement, wet, frost, etc.) dry, grass - roadside

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 50 %
Silt 20 %
Sand 20 %
Gravel 10 %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
Very hard
Parked road bed

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-02

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ____________ Sampling rate ______________

Date of Reading (Active Approach):: ______________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 0800 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 18"

PID reading at surface of hole punched: ____________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125686

Surface conditions (pavement, wet, frost, etc.) dry, gravelly - roadside

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill (✓) Rock

Soil composition:

Clay ____%
Silt 60 %
Sand 30 %
Gravel 10 %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments Dry roadside - hole not staying open

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-03

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 0840 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), ___________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125687

Surface conditions (pavement, wet, frost, etc.) Moist

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay ____%
Silt 80 %
Sand 20 %
Gravel ____%

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
~~(Damp)~~
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
Probe placed in access box
depth from ground surf to
probes ~3'

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

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Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-03-02

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

( ) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
(✓) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 0845 (AM/PM), 8-15, 1996

Recovered _________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125688

Surface conditions (pavement, wet, frost, etc.) ______________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay ______%
Silt 80 %
Sand 20 %
Gravel ______%

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly
(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
Same as GS-03

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. 65-04

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: _______________, 199___ Time: _____________(AM/PM)

Passive Approach

Sorbent device: Installed 0910 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125689

Surface conditions (pavement, wet, frost, etc.) ______________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay ______%
Silt 80 %
Sand 20 %
Gravel ______%

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-05

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ____________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 0525 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), ___________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125690

Surface conditions (pavement, wet, frost, etc.) grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 20 %
Silt 70 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

____

____

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS - D6

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):
( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)
( ) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
(✓) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 0940 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM). __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ____________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125691

Surface conditions (pavement, wet, frost, etc.) grass golf course

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:
Clay 10 %
Silt 80 %
Sand 60 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):
( ) Very
( ) Slightly
(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-07

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
(✓) Sorbed contaminants-passive approach
( ) Whole air-passive approach
( ) Headspace or extraction approach
( ) Sorbed contaminants-active approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Field blank
( ) Travel blank
( ) Sample container blank
( ) Sample probe blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 0945 (AM/PM), 8-15, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125692

Surface conditions (pavement, wet, frost, etc.) grass - golf course

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly
(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Free product present
( ) Contaminant odors
( ) Indurated
( ) Poor perm. to vapors
( ) Soil discoloration
( ) Near slope or vent
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-08

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199___ Time: _____________(AM/PM)

Passive Approach

Sorbent device: Installed 10:00 (AM/PM), 8-15, 1996

Recovered _________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125693

Surface conditions (pavement, wet, frost, etc.) ______________________________

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 20 %
Silt 70 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

____

____

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-09

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: _______________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 10:20 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125694

Surface conditions (pavement, wet, frost, etc.) ______________________________

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-10

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Field blank
( ) Travel blank
( ) Sample container blank
( ) Sample probe blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate __________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 10:30 (AM/PM), 8-15, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125695

Surface conditions (pavement, wet, frost, etc.) ______________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
____
____

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-11

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ______ Volumes purged: ______ Sample volume: ______

Sample depth ______ Sampling rate ______

Date of Reading (Active Approach):: ______, 199___ Time: ______(AM/PM)

Passive Approach

Sorbent device: Installed 10:40 (AM/PM), 6-15, 1996

Recovered ______ (AM/PM), ______, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ______

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125696

Surface conditions (pavement, wet, frost, etc.) ______

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-12

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ______ Volumes purged: ______ Sample volume: ______

Sample depth ______ Sampling rate ______

Date of Reading (Active Approach):: ______, 199__ Time: ______(AM/PM)

Passive Approach

Sorbent device: Installed 10:50 (AM/PM), 8-15, 1996

Recovered ______ (AM/PM), ______, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ______

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125697

Surface conditions (pavement, wet, frost, etc.) ______

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Investigator Signature

8-15-96
Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-13

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
( ) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

( ) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: _______________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 11:05 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125698

Surface conditions (pavement, wet, frost, etc.) ____________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______%

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-14

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Field blank
( ) Travel blank
( ) Sample container blank
( ) Sample probe blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 11:15 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125699

Surface conditions (pavement, wet, frost, etc.) ____________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly
(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature] 8-15-96

Investigator Signature Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-15

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):
- ( ) Whole air-active approach
- ( ) Whole air-passive approach
- ( ) Sorbed contaminants-active approach
- (✓) Sorbed contaminants-passive approach
- ( ) Headspace or extraction approach
- ( ) Soil pore liquid headspace approach

Sample Type (check one)
- (✓) Direct field sample
- ( ) Sample container blank
- ( ) Field blank
- ( ) Sample probe blank
- ( ) Travel blank
- ( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ____________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 11:30 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 40z glass Sample container no. 125700

Surface conditions (pavement, wet, frost, etc.) ____________

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:
- Clay 10 %
- Silt 80 %
- Sand 10 %
- Gravel ____%

Moisture content of sampling horizon (qualitative):
- ( ) Very
- ( ) Slightly
- (Dry)
- (Damp)
- (Moist)
- (Wet)

Other characteristics of the sampling horizon:

Comments
- ( ) Free water present
- ( ) Contaminant odors
- ( ) Poor perm. to vapors
- ( ) Near slope or vent
- ( ) Free product present
- ( ) Indurated
- ( ) Soil discoloration
- ( ) Other

[signature] 8-15-96

Investigator Signature Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-16

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 11:40 (AM/PM), 8-15, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125701

Surface conditions (pavement, wet, frost, etc.) ____________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glen Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-17

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________ (AM/PM)

Passive Approach

Sorbent device: Installed 11:45 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. AS 702

Surface conditions (pavement, wet, frost, etc.) ______________________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly
(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glen Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

b.7u.

Project No. P3103 NAS Ft. Worth RV/FAM Camp · Sample No. GS-178

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 11:55 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125703

Surface conditions (pavement, wet, frost, etc.) ______________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-19

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ____________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 13:30 (AM/PM), 8-15, 1996

Recovered ________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 402 9455 Sample container no. 125704

Surface conditions (pavement, wet, frost, etc.) ____________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

454 191

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS 20

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: / Volumes purged: ____ Sample volume: ____

Sample depth ____ Sampling rate ____

Date of Reading (Active Approach):: ____, 199__ Time: ____(AM/PM)

Passive Approach

Sorbent device: Installed 13:35 (AM/PM), 8-15, 1996

Recovered ____ (AM/PM), ____, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ____

Sample/Location Data

Sample container type: 40 ZG glass Sample container no. 625708

Surface conditions (pavement, wet, frost, etc.) ____

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
Sample no. skips from
-5704 to -5708

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-21

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________ (AM/PM)

Passive Approach

Sorbent device: Installed 13:40 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4022/932 Sample container no. 125709

Surface conditions (pavement, wet, frost, etc.) ______________________

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-22

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ______ Volumes purged: ______ Sample volume: ______

Sample depth ______ Sampling rate ______

Date of Reading (Active Approach):: ______, 199___ Time: ______(AM/PM)

Passive Approach

Sorbent device: Installed 13:50 (AM/PM), 8/15, 1996

Recovered ______ (AM/PM), ______, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ______

Sample/Location Data

Sample container type: 4oz glass Sample container no. 12570

Surface conditions (pavement, wet, frost, etc.) ______

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ___ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-23

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

- ( ) Whole air-active approach
- ( ) Whole air-passive approach
- ( ) Sorbed contaminants-active approach
- (✓) Sorbed contaminants-passive approach
- ( ) Headspace or extraction approach
- ( ) Soil pore liquid headspace approach

Sample Type (check one)

- (✓) Direct field sample
- ( ) Sample container blank
- ( ) Field blank
- ( ) Sample probe blank
- ( ) Travel blank
- ( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 13:55 (AM/PM), 8/15, 1996

Recovered _________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 40z glass Sample container no. 125711

Surface conditions (pavement, wet, frost, etc.) grass - golf course

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

- (✓) Very
- ( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

- ( ) Free water present
- ( ) Contaminant odors
- ( ) Poor perm. to vapors
- ( ) Near slope or vent
- ( ) Free product present
- ( ) Indurated
- ( ) Soil discoloration
- ( ) Other

[signature]

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

454 195

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-24

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Field blank
( ) Travel blank
( ) Sample container blank
( ) Sample probe blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 14:10 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4/72 glass Sample container no. 125712

Surface conditions (pavement, wet, frost, etc.) ______________________

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments ______________________

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-24-02

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
(✓) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 14:15 (AM/PM), 8-15, 1996

Recovered _________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: _______________ Sample container no. 125713

Surface conditions (pavement, wet, frost, etc.) grass - golf course

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-25

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate __________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________ (AM/PM)

Passive Approach

Sorbent device: Installed 14:30 (AM/PM), 8-15, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125714

Surface conditions (pavement, wet, frost, etc.) grass - golf course

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-26

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: _______________, 199___ Time: _____________(AM/PM)

Passive Approach

Sorbent device: Installed 14:30 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125715

Surface conditions (pavement, wet, frost, etc.) grass - golf course

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

____

____

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

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IMPORTANT -- READ THIS FIRST

GORE-SORBER® Screening Survey
Module Storage, Installation, and Retrieval Information

NOTE: If you have any questions regarding installation and retrieval of your modules, please call Mark Wrigley, Ray Fenstermacher, Jay Hodny or Barbara Keaveney (410) 392-3300

STORAGE
GORE-SORBER Modules are specially cleaned and stored after manufacturing. They must remain sealed in their vials in the shipping coolers until deployment. **DO NOT** store them near potential sources of organic vapors, including petroleum fuels, fuel exhaust, solvents, or in areas of new construction or remodeling where paints, adhesives, foam insulating materials, etc. may be present.

REQUIRED TOOLS/SUPPLIES
GORE-SORBER Modules can be installed at any depth. Usually they require only a narrow pilot hole (approximately 1/2-inch to 3/4-inch in diameter) typically drilled or driven to a depth of 2 to 3 feet using hand tools (depending on project objectives, installation depth may vary at your site).

The following items are provided by GORE:
- Shipping coolers containing individually numbered passive soil gas collectors (Modules), including trip blanks;
- Stainless steel insertion rod, in threaded sections (for placement of modules in pre-drilled/driven pilot holes);
- Corks with screw eyes attached;
- Chain of Custody and Installation/Retrieval Log;
- Cooler temperature control blank and blue-ice packs (for use when returning the modules to GORE for analysis).

Additional tools (to be supplied by the customer) required for installation may include:
- Equipment to lay out and mark sample locations (scaled map, measuring tapes, pin flags, spray paint);
- Disposable gloves and equipment decontamination supplies
- Slide hammer/tile probe (slam bar) or electric rotary hammer drill (AC power outlet or portable generator and extension cords required) with carbide-tipped bits or augers (1/2 to 1-inch diameter up to 36 inches long) - information on where these items can be purchased is provided below as a courtesy and does not represent any endorsement of these products or suppliers:

Item	Supplier	Phone No.
Slide Hammer/Tile Probes	Forestry Supplies	(800) 647-5368
Carbide Drill Bits (36" long)	KV Associates, Inc.	(508) 540-0561
Rotary Hammer Drill	SKILL-BOSCH Power Tools	(800) 334-5730

GORE
Creative Technologies Worldwide

W. L. Gore & Associates
101 Lewisville Rd., P.O. Box 1100, Elkton, MD 21922-1100
Phone: 410-392-3300 Fax: 410-996-3325

Form 18 R2
5/28/96

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-27

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 14:40 (AM/PM), 8-15, 1996

Recovered _________ (AM/PM), ___________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 12571/6

Surface conditions (pavement, wet, frost, etc.) grass - gold caliche

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

454 2:1

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-28

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ______ Volumes purged: ______ Sample volume: ______

Sample depth ______ Sampling rate ______

Date of Reading (Active Approach):: ______, 199__ Time: ______ (AM/PM)

Passive Approach

Sorbent device: Installed 14:50 (AM/PM), 8-15, 1996

Recovered ______ (AM/PM), ______, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ______

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125717

Surface conditions (pavement, wet, frost, etc.) ______

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 40 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-29

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 15:00 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 12578

Surface conditions (pavement, wet, frost, etc.) soil ro..

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

____

____

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-30

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 1505 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 12579

Surface conditions (pavement, wet, frost, etc.) grass · golf course

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-31

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ______________

Date of Reading (Active Approach):: ______________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 15:15 (AM/PM) 8-15, 1996

Recovered _________ (AM/PM), _________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: _______________ Sample container no. 125720

Surface conditions (pavement, wet, frost, etc.) golf course grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______%

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-32

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ________________, 199___ Time: _____________(AM/PM)

Passive Approach

Sorbent device: Installed 15:35 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 125721

Surface conditions (pavement, wet, frost, etc.) grass - golf course

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

____

____

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-33

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 15:45 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ____________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125722

Surface conditions (pavement, wet, frost, etc.) grass - golf course

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
May have hit part of rocks?

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-34

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 15:55 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: Gore Sorber Sample container no. 125723

Surface conditions (pavement, wet, frost, etc.) golf course - grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-35

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ______________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 10:25 (AM/PM) 8-15, 1996

Recovered __________ (AM/PM). ___________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125724

Surface conditions (pavement, wet, frost, etc.) golf course - grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-36

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ______ Volumes purged: ______ Sample volume: ______

Sample depth ______ Sampling rate ______

Date of Reading (Active Approach):: ______, 199__ Time: ______(AM/PM)

Passive Approach

Sorbent device: Installed 10:35 (AM/PM), 8-15, 1996

Recovered ______ (AM/PM), ______, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ______

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125725

Surface conditions (pavement, wet, frost, etc.) grass-golf course

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 5 %
Gravel 5 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments At South Bank of Fairway Branch

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-37

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________ (AM/PM)

Passive Approach

Sorbent device: Installed 16:45 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125706

Surface conditions (pavement, wet, frost, etc.) grass - golf course

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 5 %
Gravel 5 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-38

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: _______________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 17:00 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), ___________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 125727

Surface conditions (pavement, wet, frost, etc.) ______________________________

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-39

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________ (AM/PM)

Passive Approach

Sorbent device: Installed 17:10 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 125728

Surface conditions (pavement, wet, frost, etc.) grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-39-02

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

( ) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
(✓) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________ (AM/PM)

Passive Approach

Sorbent device: Installed 17:15 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 125739

Surface conditions (pavement, wet, frost, etc.) grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

454 214

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-40

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):
( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)
(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 17:25 (AM/PM) 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125730

Surface conditions (pavement, wet, frost, etc.) grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:
Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):
(✓) Very
( ) Slightly
(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments Broke Tile Probe (very hard surf. soil).

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-41

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ________ Sampling rate ________

Date of Reading (Active Approach):: ________, 199___ Time: ________(AM/PM)

Passive Approach

Sorbent device: Installed 18:00 (AM/PM), 8-15, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125731

Surface conditions (pavement, wet, frost, etc.) grass near Pavement

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 5 %
Gravel 5 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-15-96
Date

The Environmental Company, Inc.
Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-42

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):
( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)
(✓) Direct field sample
( ) Field blank
( ) Travel blank
( ) Sample container blank
( ) Sample probe blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ____________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 18:35 (AM/PM), 8-15, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ___________

used 1" auger for top 1 foot

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125732

Surface conditions (pavement, wet, frost, etc.) gravel Parking area

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 60 %
Sand 17 %
Gravel 13 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-15-96

Date

The Environmental Company, Inc.

Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-43

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 7:35 (AM/PM), 8-16, 1996 - Used auger (1") for first 1 foot

Recovered ________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ________ - cork recessed in ground several inches

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 125733

Surface conditions (pavement, wet, frost, etc.) Hard packed ground-gravel

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 60 %
Sand 15 %
Gravel 15 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
This site an old road bed

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-16-96
Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-44

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ____________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 8:00 (AM/PM), 8-16, 199__

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ___________

used auger for top 6"

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125734

Surface conditions (pavement, wet, frost, etc.) old roadbed of just next to it

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]
Investigator Signature

8-16-96
Date

The Environmental Company, Inc.
Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-45

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 8:30 (AM/PM), 8/16, 1996 — Cork recessed in ground ~1"

Recovered __________(AM/PM), __________, 199__

Depth of hole for sorbent device: _______________

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 175735

Surface conditions (pavement, wet, frost, etc.) near old road bed

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______%

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

Some asphalt in upper 6" ?

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-16-95

Date

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Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-46

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ______ Volumes purged: ______ Sample volume: ______

Sample depth ______ Sampling rate ______

Date of Reading (Active Approach):: ______, 199__ Time: ______(AM/PM)

Passive Approach

Sorbent device: Installed 8:30 (AM/PM), 8-16, 1996 - 1" auger used for top 8"

Recovered ______ (AM/PM), ______, 199__ - cork (crushed) in ground

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ______

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125736

Surface conditions (pavement, wet, frost, etc.) grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand ~~5~~ 5 %
Gravel 5 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-16-96
Date

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Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-47

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199____ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 8:40 (AM/PM), 8-16, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

1 inch auger used for top 8"

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125737

Surface conditions (pavement, wet, frost, etc.) grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-16-96

Date

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Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-48

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 9:25 (AM/PM), 8-14, 1996 Top 1 foot augered with 1" auger.

Recovered ________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125738

Surface conditions (pavement, wet, frost, etc.) ____________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 70 %
Sand 15 %
Gravel 75 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-14-96

Date

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Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-49

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ____________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 9:35 (AM/PM), 8-16, 1996

Recovered __________ (AM/PM), __________, 1996

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125739

Surface conditions (pavement, wet, frost, etc.) ______________________

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-16-96
Date

The Environmental Company, Inc.
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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-50

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):
( ) Whole air-active approach (✓) Sorbed contaminants-passive approach
( ) Whole air-passive approach ( ) Headspace or extraction approach
( ) Sorbed contaminants-active approach ( ) Soil pore liquid headspace approach

Sample Type (check one)
(✓) Direct field sample ( ) Field blank ( ) Travel blank
( ) Sample container blank ( ) Sample probe blank ( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 9:50 (AM/PM), 8-16, 1996 Cork recessed in ground 2"

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125740

Surface conditions (pavement, wet, frost, etc.) gravel road bed

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:
Clay 10 %
Silt 70 %
Sand 15 %
Gravel 15 %

Moisture content of sampling horizon (qualitative):
(✓) Very (Dry)
( ) Slightly (Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
( ) Free water present ( ) Free product present
( ) Contaminant odors ( ) Indurated
( ) Poor perm. to vapors ( ) Soil discoloration
( ) Near slope or vent ( ) Other

Glenn Metzler 8-16-96

Investigator Signature Date

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-51

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 10:15 (AM/PM), 8-16, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 2' 6"

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125741

Surface conditions (pavement, wet, frost, etc.) sparse vegetation near Unnamed Cr.

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments 5' from creek bank
pipeline ~ 7' deep

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Investigator Signature [signature]

Date 8-16-96

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-52

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ________________, 199____ Time: _____________(AM/PM)

Passive Approach

Sorbent device: Installed 10:20 (AM/PM), 8-16, 1996

Recovered _________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125742

Surface conditions (pavement, wet, frost, etc.) Side of gravel road, sparse veg.

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-16-96
Date

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-53

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):
( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)
(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ______ Volumes purged: ______ Sample volume: ______

Sample depth ______ Sampling rate ______

Date of Reading (Active Approach):: ______, 199__ Time: ______(AM/PM)

Passive Approach

Sorbent device: Installed 12:50 (AM/PM), 8-16, 1996

Recovered ______ (AM/PM), ______, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ______

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125743

Surface conditions (pavement, wet, frost, etc.) grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):
(✓) Very
( ) Slightly
(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-16-96

Date

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Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-54

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 1315 (AM/PM), 8/6, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 105744

Surface conditions (pavement, wet, frost, etc.) rocky soil - ~~bank of creek~~ / near top of bank

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 60 %
Sand 15 %
Gravel 15 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

____

____

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]
Investigator Signature

8/6/96
Date

The Environmental Company, Inc.
Investigator Affiliation

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SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-55

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 13:30 (AM/PM), 8-16, 1995

Recovered _________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: Yuz-ss Sample container no. 125745

Surface conditions (pavement, wet, frost, etc.) Grass - above pipeline

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-16-95
Date

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Investigator Affiliation

454 230

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-56

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 16:05 (AM/PM), 8-16, 1996

Recovered __________(AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 125746

Surface conditions (pavement, wet, frost, etc.) grass - under tree

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-16-96
Date

The Environmental Company, Inc.
Investigator Affiliation

454 231

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-56-02

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
(✓) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ____________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 16:20 (AM/PM), 5-11, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2

PID reading at surface of hole punched: ____________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125748

Surface conditions (pavement, wet, frost, etc.) grass under tree

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

[signature]
Investigator Signature

5-16-96
Date

The Environmental Company, Inc.
Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-57

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 16:10 (AM/PM) 8-16, 1996

Recovered _________ (AM/PM), _________, 199__

Depth of hole for sorbent device: ______________

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125747

Surface conditions (pavement, wet, frost, etc.) gravel - near MW-10

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____%

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-16-96

Date

The Environmental Company, Inc.

Investigator Affiliation

454 233

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-58

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 1345 (AM/PM), 8-16, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. ___________

Surface conditions (pavement, wet, frost, etc.) 125749

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-16-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-59

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ______________, 199___ Time: _____________(AM/PM)

Passive Approach

Sorbent device: Installed 17:02 (AM/PM), 8/6, 1995

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 18"

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 125750

Surface conditions (pavement, wet, frost, etc.) side of bank - stony

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 60 %
Sand 15 %
Gravel 15 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8/6/96

Date

The Environmental Company, Inc.

Investigator Affiliation

451 235

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-60

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ____ Volumes purged: ____ Sample volume: ____

Sample depth ____ Sampling rate ____

Date of Reading (Active Approach):: ____, 199__ Time: ____(AM/PM)

Passive Approach

Sorbent device: Installed 17:35 (AM/PM), 8-16, 1996

Recovered ____ (AM/PM), ____, 199__

Depth of hole for sorbent device: ____

PID reading at surface of hole punched: ____

Sample/Location Data

Sample container type: 4 oz glass Sample container no. 125751

Surface conditions (pavement, wet, frost, etc.) side of bank - stony

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 60 %
Sand 15 %
Gravel 15 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-16-96

Date

The Environmental Company, Inc.

Investigator Affiliation

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-61

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: _______________, 199___ Time: _____________(AM/PM)

Passive Approach

Sorbent device: Installed 14:00 (AM/PM), 8-16, 1996

Recovered _________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125752

Surface conditions (pavement, wet, frost, etc.) grass - over pipeline

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-16-96

Date

The Environmental Company, Inc.

Investigator Affiliation

454 237

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-102

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 11:35 (AM/PM), 8-16, 1996

Recovered _________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: Glass Sample container no. 125753

Surface conditions (pavement, wet, frost, etc.) grass

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ______ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler
Investigator Signature

8-16-96
Date

The Environmental Company, Inc.
Investigator Affiliation

454 238

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-63

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate _____________

Date of Reading (Active Approach):: ______________, 199___ Time: ______________ (AM/PM)

Passive Approach

Sorbent device: Installed 14:15 (AM/PM), 8-16, 1996

Recovered __________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 2

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 4oz jar Sample container no. 125754

Surface conditions (pavement, wet, frost, etc.) grass. Pool p-yard

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

8-16-96

Date

The Environmental Company, Inc.

Investigator Affiliation

454 239

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-64

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ______________

Date of Reading (Active Approach):: ________________, 199____ Time: ______________(AM/PM)

Passive Approach

Sorbent device: Installed 13:05 (AM/PM) 8-16, 1996

Recovered __________ (AM/PM), ___________, 199__

Depth of hole for sorbent device: 1'

PID reading at surface of hole punched: ___________

Sample/Location Data

Sample container type: 4oz glass Sample container no. 125755

Surface conditions (pavement, wet, frost, etc.) rocky soil - bank of river

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 60 %
Sand 15 %
Gravel 15 %

Moisture content of sampling horizon (qualitative):

( ) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments
very rocky - refusal at 1' to 1.5'

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler 8-16-96

Investigator Signature Date

The Environmental Company, Inc.

Investigator Affiliation

454 240

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-65

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth __________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 14:45 (AM/PM), 8-11, 1996

Recovered ________ (AM/PM), ________, 199__

Depth of hole for sorbent device: 3'

PID reading at surface of hole punched: ________

Sample/Location Data

Sample container type: 1/2" glass Sample container no. 125756

Surface conditions (pavement, wet, frost, etc.) ______________________

Sample horizon data-visual estimates:

Vadose zone make-up: (✓) Native soil+rock ( ) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 80 %
Sand 10 %
Gravel ____ %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Investigator Signature

Date 8-16-96

The Environmental Company, Inc.

Investigator Affiliation

454 241

SOIL GAS SAMPLE DATA SHEET

Project No. P3103 NAS Ft. Worth RV/FAM Camp Sample No. GS-66

Sampled by: Glenn Metzler, Steve Bliley

Sampling System (check one):

( ) Whole air-active approach
( ) Whole air-passive approach
( ) Sorbed contaminants-active approach
(✓) Sorbed contaminants-passive approach
( ) Headspace or extraction approach
( ) Soil pore liquid headspace approach.

Sample Type (check one)

(✓) Direct field sample
( ) Sample container blank
( ) Field blank
( ) Sample probe blank
( ) Travel blank
( ) Sample duplicate

Active Approach

System purge volume: ________ Volumes purged: ________ Sample volume: ______

Sample depth ___________ Sampling rate ____________

Date of Reading (Active Approach):: ______________, 199___ Time: ____________(AM/PM)

Passive Approach

Sorbent device: Installed 14:30 (AM/PM), 8-16, 1996

Recovered ________ (AM/PM), __________, 199__

Depth of hole for sorbent device: 18"

PID reading at surface of hole punched: __________

Sample/Location Data

Sample container type: 1/2 glass Sample container no. 125757

Surface conditions (pavement, wet, frost, etc.) Grass

Sample horizon data-visual estimates:

Vadose zone make-up: ( ) Native soil+rock (✓) Fill ( ) Rock

Soil composition:

Clay 10 %
Silt 70 %
Sand 10 %
Gravel 10 %

Moisture content of sampling horizon (qualitative):

(✓) Very
( ) Slightly

(Dry)
(Damp)
(Moist)
(Wet)

Other characteristics of the sampling horizon:

Comments

____

____

( ) Free water present
( ) Contaminant odors
( ) Poor perm. to vapors
( ) Near slope or vent
( ) Free product present
( ) Indurated
( ) Soil discoloration
( ) Other

Glenn Metzler

Investigator Signature

Glenn Metzler 8-16-96

Date

The Environmental Company, Inc.

Investigator Affiliation

Waste Inventory Tracking Forms

WASTE INVENTORY TRACKING FORM

LOCATION: NAS Fort Worth JRB Carswell Field, TX

PROJECT NAME: RV Fam Camp Area

ACTIVITIES: Soil Borings 10/22/96 – 10/26/96

Date Waste Generated	Activity Generating Waste (borehole # / well #)	Description of Waste	Field Evidence of Contamination	Estimated Volume gal.	Type of Container (storage ID#) Drums	Location of Container	Waste Characterization	Comments
10/22 96	SB01 SB02	Soil	None	20	FC-D-1	On-site		SB01 75% SB02 25%
10/22 96	SB01 SB02	"	odor	50	FC-D-2	"		SB01 20% SB02 80%
10/23 96	SB03	"	odor	50	FC-D-3	"		SB03 100%
10/23 96	SB04 SB05	"	odor	50	FC-D-4	"		SB04 20% SB05 80%
10/23 96	SB06	"	None	50	FC-D-5	"		SB06 100%
10/24 96	SB07 SB08	"	None	30	FC-D-6	"		SB07 40% SB08 60%
10/24 96	SB09 SB10	"	None	50	FC-D-7	"		SB09 50% SB10 50%
10/25 96	SB16–SB20	"	None	40	FC-D-8 55 gal	"		SB16-19 50% SB20 50%
10/26 96	SB-11 SB-12	"	PET Odor	55	FC-D-9	"		SB11 - 75% SB12 - 25%
10/26 96	SB12	"	Odor	20	FC-D-10	"		SB12 100%
10/25 96	~~Decon~~ SB-01 – SB10	Water	None	30	FC-D-11	"		SB1 thru SB10
10/26 96	Decon SB11&12	Water	None	10	FC-D-12	"		SB 11 & SB 12

Note: Describe whether soil or water samples have been collected for waste characterization, include date, if known.

KW Troensegaard Site Geologist

Signature: [signature] 10/29/96

Soils collected as 3 composites 10/28/96
One water composite collected 10/28/96

Field Sampling Reports

454 244

FIELD SAMPLING REPORT

454 245

LOCATION: SB-108 PROJECT: 3103

SITE: 34 (Fuel Pipeline)

SAMPLE INFORMATION

MATRIX: SO SAMPLE ID: SB-108-01

SAMPLING METHOD: SS DUP./REP. OF: ———

BEGINNING DEPTH: 8.5 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH: ~~10.0~~ 11.5 YES: ____ NO: ✓

GRAB: X COMPOSITE: ____ DATE: 10/24 TIME: 1000

CONTAINER			PRESERVATIVE/	EXTRACTION	ANALYTICAL	
SIZE	TYPE	#	PREPARATION	METHOD	METHOD	ANALYSIS
4 oz	Glass	1	Ice	SW5035	SW8021	BTEX
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics

NOTABLE OBSERVATIONS

WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR: light brown silt mixed with limestone	
Temp	ODOR: gravel, @ hit water (material in spoon is wet)	
EC	OTHER: at approx. 11.5 ft bgs	
PID: 0.0 ppm		

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ CLOUDY/RAIN ___ WIND DIRECTION ___ TEMPERATURE 60's

SHIPMENT VIA: FED-X X HAND DELIVER ___ COURIER ___ OTHER ___

SHIPPED TO: RECRA Environmental, Inc.

COMMENTS:

SAMPLER: L. Myers OBSERVER: ____

454 246

FIELD SAMPLING REPORT

LOCATION: SB-109 PROJECT: 3103

SITE: 34 (Fuel Pipeline)

SAMPLE INFORMATION

MATRIX: SO SAMPLE ID: SB-109-01

SAMPLING METHOD: SS DUP./REP. OF: —

BEGINNING DEPTH: 10.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH: 13.0 YES: ____ NO: ✓

GRAB: X COMPOSITE: ____ DATE: 10/24/98 TIME: 1355

CONTAINER SIZE	CONTAINER TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4 oz	Glass	1	Ice	SW5035	SW8021	BTEX
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics

NOTABLE OBSERVATIONS

WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR: Upper 1 ft is silty clay; below 11 ft, it's	
Temp	ODOR: almost all sand. All material is tan to	
EC	OTHER: light brown.	
PID = 0.0 ppm		

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ CLOUDY/RAIN ____ WIND DIRECTION ____ TEMPERATURE 70's

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: RECRA Environmental, Inc.

COMMENTS:

SAMPLER: L. Myers OBSERVER: ____

454 247

FIELD SAMPLING REPORT

LOCATION: SB-109 PROJECT: 3103

SITE: 34 (Fuel Pipeline)

SAMPLE INFORMATION

MATRIX: SO SAMPLE ID: SB-109-02

SAMPLING METHOD: SS DUP./REP. OF: ____

BEGINNING DEPTH: 16.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH: 17.2 YES: ____ NO: ✓

GRAB: X COMPOSITE: ____ DATE: 10/24/98 TIME: 1505

CONTAINER SIZE	CONTAINER TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4 oz	Glass	1	Ice	SW5035	SW8021	BTEX
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics

NOTABLE OBSERVATIONS

WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR: Mottled pale gray and orange-brown	
Temp	ODOR: sand with gravel & much gravel at	
EC	OTHER: base.	
PID = 0.0 ppm		

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ CLOUDY/RAIN ____ WIND DIRECTION ____ TEMPERATURE 70's

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: RECRA Environmental, Inc.

COMMENTS: ____

SAMPLER: L. Myers OBSERVER: ____

454 248

FIELD SAMPLING REPORT

LOCATION: SB-109 PROJECT: 3103

SITE: 34 (Fuel Pipeline)

SAMPLE INFORMATION

MATRIX: SO SAMPLE ID: SB- 109-03

SAMPLING METHOD: SS DUP./REP. OF: SB-109-01

BEGINNING DEPTH: 10.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH: 13.0 YES: ____ NO: ✓

GRAB: X COMPOSITE: ____ DATE: 10/24/98 TIME: 1355

CONTAINER SIZE	CONTAINER TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4 oz	Glass	1	Ice	SW5035	SW8021	BTEX
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics

NOTABLE OBSERVATIONS

WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR: See SB-109-01 form	
Temp	ODOR:	
EC	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ CLOUDY/RAIN___ WIND DIRECTION ___ TEMPERATURE 70's

SHIPMENT VIA: FED-X X HAND DELIVER ___ COURIER ___ OTHER ___

SHIPPED TO: RECRA Environmental, Inc.

COMMENTS:

SAMPLER: L. Myers OBSERVER:

454 249

FIELD SAMPLING REPORT

LOCATION: SB-~~010~~ 110 LLM PROJECT: 3103

SITE: 34 (Fuel Pipeline)

SAMPLE INFORMATION

MATRIX: SO SAMPLE ID: SB-~~010~~ 110 LLM -01

SAMPLING METHOD: SS DUP./REP. OF: ———

BEGINNING DEPTH: 7.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH: 10.0 YES: ✓ NO: ____

GRAB: X COMPOSITE: ____ DATE: 10/24/98 TIME: 1115

CONTAINER SIZE	CONTAINER TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4 oz	Glass	3 1	Ice	SW5035	SW8021	BTEX
8 oz	Glass	3 1	Ice	SW3540	SW8270	Semivolatile Organics

NOTABLE OBSERVATIONS

WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR: Orange brown to brown silts, some clay, some	
Temp	ODOR: gravel. Most of the gravel is limestone. Some	
EC	OTHER: calcite cementation. Below 9.5 ft, is mostly	
PID = 0.0 ppm		silt with some clay (lose the gravel).

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ CLOUDY/RAIN ___ WIND DIRECTION ___ TEMPERATURE 60's

SHIPMENT VIA: FED-X X HAND DELIVER ___ COURIER ___ OTHER ___

SHIPPED TO: RECRA Environmental, Inc.

COMMENTS:

SAMPLER: L. Myers OBSERVER: ____

454 250

FIELD SAMPLING REPORT

LOCATION: SB - ~~010~~ 110 LLM PROJECT: 3103

SITE: 34 (Fuel Pipeline)

SAMPLE INFORMATION

MATRIX: SO SAMPLE ID: SB- ~~0~~110-02 LLM

SAMPLING METHOD: SS DUP./REP. OF: ______

BEGINNING DEPTH: 15.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH: 17.5 (TD) YES: ____ NO: ✓

GRAB: X COMPOSITE: ____ DATE: 10/24/98 TIME: 1210

CONTAINER SIZE	TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
4 oz	Glass	1	Ice	SW5035	SW8021	BTEX
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics

NOTABLE OBSERVATIONS

WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR: Orange to pale gray ~~or~~ sand, damp at 14.7	
Temp	ODOR: ft, wet at approx. 15 ft bgs. Hit gravel	
EC	OTHER: layers (small, rounded gravel & pebbles) below	
PID = 0.0 ppm	16 ft bgs.	

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ CLOUDY/RAIN ____ WIND DIRECTION ____ TEMPERATURE 60's

SHIPMENT VIA: FED-X X HAND DELIVER ____ COURIER ____ OTHER ____

SHIPPED TO: RECRA Environmental, Inc.

COMMENTS:

SAMPLER: L. Myers OBSERVER: ______

454 251

FIELD SAMPLING REPORT

LOCATION: FIELDQC PROJECT: 3103

SITE: 34 (RV Fam Camp & Pipeline)

SAMPLE INFORMATION

MATRIX: WQ SAMPLE ID: AB-100

SAMPLING METHOD: NA DUP./REP. OF: ——

BEGINNING DEPTH: NA MATRIX SPIKE/MATRIX SPIKE DUPLICATE

END DEPTH: NA YES: ____ NO: ✓

GRAB: X COMPOSITE: ____ DATE: 10/24/98 TIME: 1040

CONTAINER SIZE	TYPE	#	PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
40ml	Glass	2	HCL to pH<2		SW8021	GC Volatiles (BTEX)
40ml	Glass	2	" "		SW8260	Volatiles

NOTABLE OBSERVATIONS

WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR:	
Temp	ODOR:	
EC	OTHER:	

GENERAL INFORMATION

WEATHER: SUN/CLEAR ✓ CLOUDY/RAIN ___ WIND DIRECTION ___ TEMPERATURE 60's

SHIPMENT VIA: FED-X X HAND DELIVER ___ COURIER ___ OTHER ___

SHIPPED TO: RECRA Environmental, Inc.

COMMENTS:

SAMPLER: L. Myers OBSERVER:

Health and Safety Monitoring Sheets

HEALTH & SAFETY EXPOSURE MONITORING

PROJECT #: 3103
PROJECT LOCATION: Fam Camp
PROJECT ACTIVITY: Drilling

454 253

DATE: Oct. 23, 1996
LOCATION MONITORED: Breathing Zone at Drill Rig
ACTIVITY MONITORED: Drilling

DRILL RIG TYPE/NO: Hollow Stm Auger
PERSONNEL AT THIS LOCATION: 8
PERSONNEL AFFECTED BY H&S MONITORING: 4

TIME (24 hr clock)	BACK-GROUND	MONITOR INTERVAL (boreholes depth)	FID (ppm)	PID (ppm)	%O2 (%)	% LEL (%)	H2S (ppm)	RAM (ppm)	OTHER	SAMPLES INITIALS
0830				0.0						LLM
1030				0.0						LLM
1140				0.0						LLM
1430				0.0						LLM
1530				0.0						LLM

Field activities not occurring during hours not recorded.

INSTRUMENT	MFGR/ MODEL #	INSTRUMENT SERIAL #	CALIBRATION STANDARD CAL GAS	STD (ppm)	LOT #	END OF DAY CALIBRATION CHECK	END OF DAY CALIBRATION CHECK
FID							
PID							
%O2							
%LEL							
H2S							
RAM							

FIELD TEAM LEADER SIGNATURE ______________________

454 254

HEALTH & SAFETY EXPOSURE MONITORING

PROJECT #: 3103
PROJECT LOCATION: Fam Camp
PROJECT ACTIVITY: Drilling

DATE: Oct. 24, 1996
LOCATION MONITORED: Breathing Zone at Drill Rig
ACTIVITY MONITORED: Drilling

DRILL RIG TYPE/NO: Hollow Stem Auger
PERSONNEL AT THIS LOCATION: 8
PERSONNEL AFFECTED BY H&S MONITORING: 4

TIME (24 hr clock)	BACK-GROUND	MONITOR INTERVAL (boreholes depth)	FID (ppm)	PID (ppm)	%O2 (%)	% LEL (%)	H2S (ppm)	RAM (ppm)	OTHER	SAMPLES INITIALS
0840				0.0						LLM
1045				0.0						LLM
1305				0.0						LLM
1400				0.0						LLM
1500				1.5						LLM

Field activities not occurring during hours not recorded.

INSTRUMENT	MFGR/MODEL #	INSTRUMENT SERIAL #	CALIBRATION STANDARD CAL GAS	STD (ppm)	LOT #	END OF DAY CALIBRATION CHECK	END OF DAY CALIBRATION CHECK
FID							
PID							
%O2							
%LEL							
H2S							
RAM							

FIELD TEAM LEADER SIGNATURE ______________________

HEALTH & SAFETY EXPOSURE MONITORING

454 255

PROJECT #: 3103
PROJECT LOCATION: Fam Camp
PROJECT ACTIVITY: Drilling

DATE: 10/25/96
LOCATION MONITORED: Breathing Zone at Drill Rig
ACTIVITY MONITORED: Drilling

DRILL RIG TYPE/NO: Hollow Stem Auger
PERSONNEL AT THIS LOCATION: 8
PERSONNEL AFFECTED BY H&S MONITORING: 4

TIME (24 hr clock)	BACK-GROUND	MONITOR INTERVAL (boreholes depth)	FID (ppm)	PID (ppm)	%O2 (%)	% LEL (%)	H2S (ppm)	RAM (ppm)	OTHER	SAMPLES INITIALS
0825				2.0						LLM
0915				0.4						LLM
1040				0.0						LLM
1140				0.0						LLM
1355				0.0						LLM

Field activities not occurring during hours not recorded.

INSTRUMENT	MFG/MODEL #	INSTRUMENT SERIAL #	CAL GAS	STD (ppm)	LOT #	END OF DAY CALIBRATION CHECK	END OF DAY CALIBRATION CHECK
FID							
PID							
%O2							
%LEL							
H2S							
RAM							

FIELD TEAM LEADER SIGNATURE ______________________

AFCEE\M20002\FLDLOG.WK3 CAR-J04-05K69904-M2-(1X12

451 256 HEALTH & SAFETY EXPOSURE MONITORING

PROJECT #: 3103
PROJECT LOCATION: Fam Camp
PROJECT ACTIVITY: Drilling

DATE: Oct. 26, 1996
LOCATION MONITORED: Breathing zone at drill rig
ACTIVITY MONITORED: Drilling

DRILL RIG TYPE/NO: Hollow stem Auger
PERSONNEL AT THIS LOCATION: 6
PERSONNEL AFFECTED BY H&S MONITORING: 4

TIME (24 hr clock)	BACK-GROUND	MONITOR INTERVAL (boreholes depth)	FID (ppm)	PID (ppm)	%O2 (%)	% LEL (%)	H2S (ppm)	RAM (ppm)	OTHER	SAMPLES INITIALS
0840				0.0						LLM
0940				0.0						LLM
1050				5.6						LLM
1135				0.0						LLM

Field activities were not occurring when readings not recorded.

INSTRUMENT	MFGR/ MODEL #	INSTRUMENT SERIAL #	CALIBRATION STANDARD CAL GAS	STD (ppm)	LOT #	END OF DAY CALIBRATION CHECK	END OF DAY CALIBRATION CHECK
FID							
PID							
%O2							
%LEL							
H2S							
RAM							

FIELD TEAM LEADER SIGNATURE ____________

Instrument Calibration Logs

454 257

EQUIPMENT CALIBRATION LOG SHEET

EQUIPMENT NUMBER: Ser. no. 167060

EQUIPMENT DESCRIPTION: H-Nu-DL101 - PID

DATE	TIME	MANUFACTURER OF STANDARD	LIQUID/GAS NAME	STANDARD CONCENTRATION	STANDARD LOT NO.	EXPIRATION DATE	INITIAL READING	CORRECTED READING	OPERATORO SIGNATURE	COMMENTS
22 Oct	0830	RAE Systems	Isobutylene	100 PPM	44136	11/96	114 Ppm	99.5 PPm	SABiley	High Humidity - USED HNU GAS Humidifier Kit
23 Oct	0740	"	"	"	"	"	107 PPm	100 ppm	SABiley	" "
"	1600	"	"	"	"	"	107 ppm	100 ppm	SABiley	Did not use Humidifier
25 Oct	0730	"	"	"	"	"	96.0 ppm	100 ppm	SABiley	" " " "
25 Oct	8:10	"	"	"	"	"	103 Ppm	100-99.5 ppm	SABiley	" " " "
26 Oct	0740	"	"	"	"	"	85.4 Ppm	100 ppm	SABiley	" " " "

454 259

EQUIPMENT CALIBRATION LOG SHEET

EQUIPMENT NUMBER: Ser # 9105088-113

EQUIPMENT DESCRIPTION: Explosivimeter - Industrial Scientific MX251

DATE	TIME	MANUFACTURER OF STANDARD	LIQUID/GAS NAME	STANDARD CONCENTRATION	STANDARD LOT NO.	EXPIRATION DATE	INITIAL READING	CORRECTED READING	OPERATORO SIGNATURE	COMMENTS
22 Oct.	0730	Industrial Scientific	N-PENTANE	.350% / LEL 25%	29309-70	Not Avail	24-25%	25%	SABlulz	

454 259

Equipment Decontamination Log Sheet

EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/A

EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sampler & 2 stainless Steel Bowls

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
22Oct	0900	✓	✓	Methanol, Hexane ✓	Deionized	✓	N/A		SAB	
"	0930	✓	✓	✓	✓	✓	N/A		"	
"	1000	✓	✓	✓	✓	✓	N/A		"	
"	1045	✓	✓	✓	✓	✓	N/A		"	
"	1120	✓	✓	✓	✓	✓	N/A	* FCWQ-EB-01	"	
"	1245	✓	✓	✓	✓	✓	N/A		"	
"	1335	✓	✓	✓	✓	✓	N/A		"	
"	1410	✓	✓	✓	✓	✓	N/A		"	
"	1450	✓	✓	✓	✓	✓	N/A		"	
"	1600	✓	✓	✓	✓	✓	N/A		"	
"	1645	✓	✓	✓	✓	✓	N/A		"	

ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE
DETERGENT	Alconox	Alconox Inc.	AS G6	N/A
SOLVENT	Methanol	Burdick & Jackson	BN244	N/A
WATER	ASTM I	RICCA Chem Corp	G281	Aug 97
	Pentane	Burdick & Jackson	BM801	N/A

454 260

454 261

EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/A

EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sampler & Two Stainless Steel Bowls

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
22 Oct	1735	✓	✓	methanol ✓ Pentane	ASTM Type I	✓	N/A		SAB	
"	1810	✓	✓	✓	✓	✓	N/A		SAB	
23 Oct	0830	✓	✓	✓	✓	✓	N/A		SAB	
"	0900	✓	✓	✓	✓	✓	N/A		SAB	
"	1010	✓	✓	✓	✓	✓	N/A		SAB	
"	1040	✓	✓	✓	✓	✓	N/A		SAB	
"	1120	✓	✓	✓	✓	✓	N/A		SAB	
"	1145	✓	✓	✓	✓	✓	N/A		SAB	
"	1215	✓	✓	✓	✓	✓	N/A		SAB	
"	1400	✓	✓	✓	✓	✓	N/A		SAB	
"	1445	✓	✓	✓	✓	✓	N/A		SAB	

ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE
DETERGENT	Alconox	Alconox Inc	AS G6	N/A
SOLVENT	Methanol	Burdick & Jackson	BN 244	N/A
WATER	ASTM I	RICCA Chem Corp	G 281	Aug 97
	Pentane	Burdick & Jackson	BM801	N/A

EQUIPMENT DECONTAMINATION LOG SHEET

Page 3 of 5

EQUIPMENT NUMBER: N/A

EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sampler - Two Stainless Steel Bowls

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
23 Oct	1300	✓	✓	Methanol ✓ Hexane	✓	✓	N/A		[signature]	
"	1555	✓	✓	✓	✓	✓	"	FC-WQ EB-02	"	
24 Oct	0840	✓	✓	✓	✓	✓	"		"	
"	0905	✓		✓	✓	✓	"		"	
"	1150	✓	✓	✓	✓	✓	"		"	
"	1345	✓	✓	✓	✓	✓	N/A		"	
"	1410	✓	✓	✓	✓	✓	N/A		"	
"	1440	✓	✓	✓	✓	✓	N/A		"	
"	1510	✓	✓	✓	✓	✓	N/A		"	
"	1530	✓	✓	✓	✓	✓	N/A	* FC-WQ EB-03	"	
25 Oct	0815	✓	✓	✓	✓	✓	N/A		[signature]	

ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE
DETERGENT	Alconox	Alconox Inc	AS 66	N/A
SOLVENT	Methanol	Burdick's Jackson	BN-244	N/A
WATER	ASTM I	Bicca Chem Corp	G-281	Aug 98
	Pentane	Burdick's Jackson	BM 801	N/A

454

454 283

EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/A

EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Samplers & 2 Stainless Steel Bowls

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
25 Oct	0835	✓	✓	methanol hexane ✓	ASTM I ✓	✓	N/A		[signature]	
"	0930	✓	✓	✓	✓	✓	N/A		"	
"	1030	✓	✓	✓	✓	✓	N/A		"	
"	1100	✓	✓	✓	✓	✓	N/A		"	
"	1120	✓	✓	✓	✓	✓	N/A		"	
"	1150	✓	✓	✓	✓	✓	N/A		"	
"	1210	✓	✓	✓	✓	✓	N/A		"	
"	1330	✓	✓	✓	✓	✓	N/A		"	
"	1415	✓	✓	✓	✓	✓	N/A		"	
"	1450	✓	✓	✓	✓	✓	N/A	*FC-WQ EB-04	"	
26 Oct	0815	✓	✓	✓	✓	✓	N/A		"	

ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE
DETERGENT	Alconox	Alconox Inc	A5G6	N/A
SOLVENT	methanol	Burdick & Jackson	BN-244	N/A.
WATER	ASTM I	Ricca Chem Corp	G281	Aug '97
	Pentane	Burdick & Jackson	BM801	N/A

EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/A

EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sampler & 2 Stainless Steel Bowls

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
26 Oct	0845	✓	✓	methanol ✓ Hexane ✓	✓	✓	N/A		SHBailey	
"	0915	✓	✓	✓	✓	✓	N/A		"	
"	0940	✓	✓	✓	✓	✓	N/A		"	
"	1000	✓	✓	✓	✓	✓	N/A		"	
"	1050	✓	✓	✓	✓	✓	N/A		"	
"	1110	✓	✓	✓	✓	✓	N/A		"	
"	1135	✓	✓	✓	✓	✓	N/A		"	
"	1155	✓	✓	✓	✓	✓	N/A		"	
"	1230	✓	✓	✓	✓	✓	N/A	FC-WQ SB-05		

ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE
DETERGENT	Alconox	Alconox Inc	AS-G6	N/A
SOLVENT	Methanol	Burdick & Jackson	BN-244	N/A
WATER	ASTM I	Ricca Corp	G-281	Aug 97
	Pentane	Burdick & Jackson	BM-801	N/A

454 264

454 265

TAB

6

APPENDIX G

CHAIN-OF-CUSTODY FORMS

Recra Project # NY7A6919

RECRA LABNET, a divisi n of Recra Environmental, Inc. 1012 CHAIN OF CUSTODY RECORD

PROJECT NO: 3103
SITE NAME: Caswell Pipeline
SAMPLERS (SIGNATURE): Lesley Myers

STATION NO	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO OF CONTAINERS	8021A	8270	SW8260B			REMARKS
	10/24 98	935		WQ	TB 101	3	3					Preserved with HCL
		1000		SO	SB-108-01	2	1	1				
		1040		WQ	AB-100	4	2		2			Preserved with HCL
		1115		SO	SB-110-01	6	3	3				MS/MSD
		1210			SB-110-02	2	1	1				
		1355			SB-109-01	2	1	1				
		1355			SB-109.03	2	1	1				
		1505			SB-109-02	2	1	1				

RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
Karen Kane	10/24/98 1557				
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED FOR LABORATORY BY (SIGNATURE)	DATE/TIME	REMARKS	

Distribution: Original accompanies shipment copy to coordinator field files

454 267

454 268

TAB

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APPENDIX H

QUALITY ASSURANCE/QUALITY CONTROL SAMPLE SUMMARY

Quality Assurance/Quality Control Sample Summary

Field Sample[a]	Location	Equipment Blank[a]	Trip Blank[a]	Method Blank[b]	Ambient Blank[a]
FC-SB-08-01 FC-SB-09-01 FC-SB-09-02 FC-SB-09-03 FC-SB-10-01 FC-SB-10-02	Farmer's Branch Creek	FC-WQ-EB-100	FC-WQ-TB-101	A9B0028301 (soil) A9B0028501 (liquid)	FC-WQ-AB-100

a: Field Sample ID number

b: Lab Sample ID number

Note: Matrix Spike/Matrix Duplicate analyses completed on sample FC-SB-110-01.

TAB

I

APPENDIX I

LIST OF ANALYTICAL PARAMETERS

Soil Gas Screening Analyte List

Soil Borehole Sample Analyte List

Soil Gas Screening Analyte List

Soil Gas Screening Analyte List

Parameters	Method Detection Limit (ug)
Methyl t-butyl ether	0.1
Trans-1,2-dichloroethene	0.06
1,1-Dichloroethane	0.06
Cis-1,2-dichloroethene	0.02
Chloroform	0.03
1,1,1-Trichloroethane	0.08
1,2-Dichloroethane	0.02
Benzene	0.02
Carbon tetrachloride	0.07
Trichloroethylene	0.02
Toluene	0.02
Octane	0.02
Tetrachloroethene	0.02
Chlorobenzene	0.01
Ethylbenzene	0.01
m-,p-Xylene	0.03
o-Xylene	0.01
1,3,5-Trimethylbenzene	0.01
1,2,4-Trimethylbenzene	0.02
1,4-Dichlorobenzene	0.01
Undecane	0.03
Naphthalene	0.01
Tridecane	0.01
2-Methyl naphthalene	0.01
Pentadecane	0.01
Petroleum Hydrocarbons	NA

NA: Not Available

Soil Borehole Sample Analyte List

Soil Borehole Sample Analyte List

Base/Neutral and Acid Extractable Organics by GC/MS, Method 8270B

1,2,4-Trichlorobenzene	Dibenz (a,h)anthracene
1,2-Dichlorobenzene	Dibenzofuran
1,3-Dichlorobenzene	Diethyl phthalate
1,4-Dichlorobenzene	Dimethyl phthalate
2,4-Dinitrotoluene	Fluoranthene
2,6-Dinitrotoluene	Fluorene
2-Chloronaphthalene	Hexachlorobenzene
2-Methylnaphthalene	Hexachlorobutadiene
2-Nitroaniline	Hexachlorocyclopentadiene
3-Nitroaniline	Hexachloroethane
3,3'-Dichlorobenzidine	Indeno (1,2,3-cd) pyrene
4-Bromophenyl phenyl ether	Isophorone
4-Chloroaniline	N-Nitrosodiephenylamine
4-Chlorophenyl phenyl ether	N-Nitrosodi-n-propylamine
4-Nitroaniline	Naphthalene
Acenaphthylene	Nitrobenzene
Acenaphthene	Phenanthrene
Anthracene	Pyrene
Benzo (a) anthracene	2,4,5-Trichlorophenol
Benzo (a) pyrene	2,4,6-Trichlorophenol
2,4-Dichlorophenol	2,4-Dimethylphenol
Benzo (b) fluoranthene	2,4-Dinitrophenol
Benzo (k) fluoranthene	2-Chlorophenol
Benzo (g,h,i) perylene	2-Methylphenol
Benzyl alcohol	2-Nitrophenol
Bis (2-chloroethyl) ether	4,6-Dinitro-2-methyphenol
Bis (2-chloroethoxy) methane	4-Chloro-3-methylphenol
Bis (2-chloroisopropyl) ether	4-Methylphenol
Bis (2-ethylhexyl) phthalate	4-Nitrophenol
Butyl benzyl phthalate	Benzoic acid
Chrysene	Pentachlorophenol
Di-n-butylphthalate	Phenol
Di-n-octylphthalate	

BTEX Volatile Aromatics by GC, Method 8020A

Benzene	m.p.-xylenes
Toluene	o-Xylenes
Ethyl Benzene	Methyl tert-Butyl Ether

TAB

J

APPENDIX J

FINGERPRINT CHARACTERIZATION REPORT

Date of Report: November 13, 1996
Date Received: October 31, 1996
Project: Carswell Fam Camp
Date Samples Extracted: October 31, 1996

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

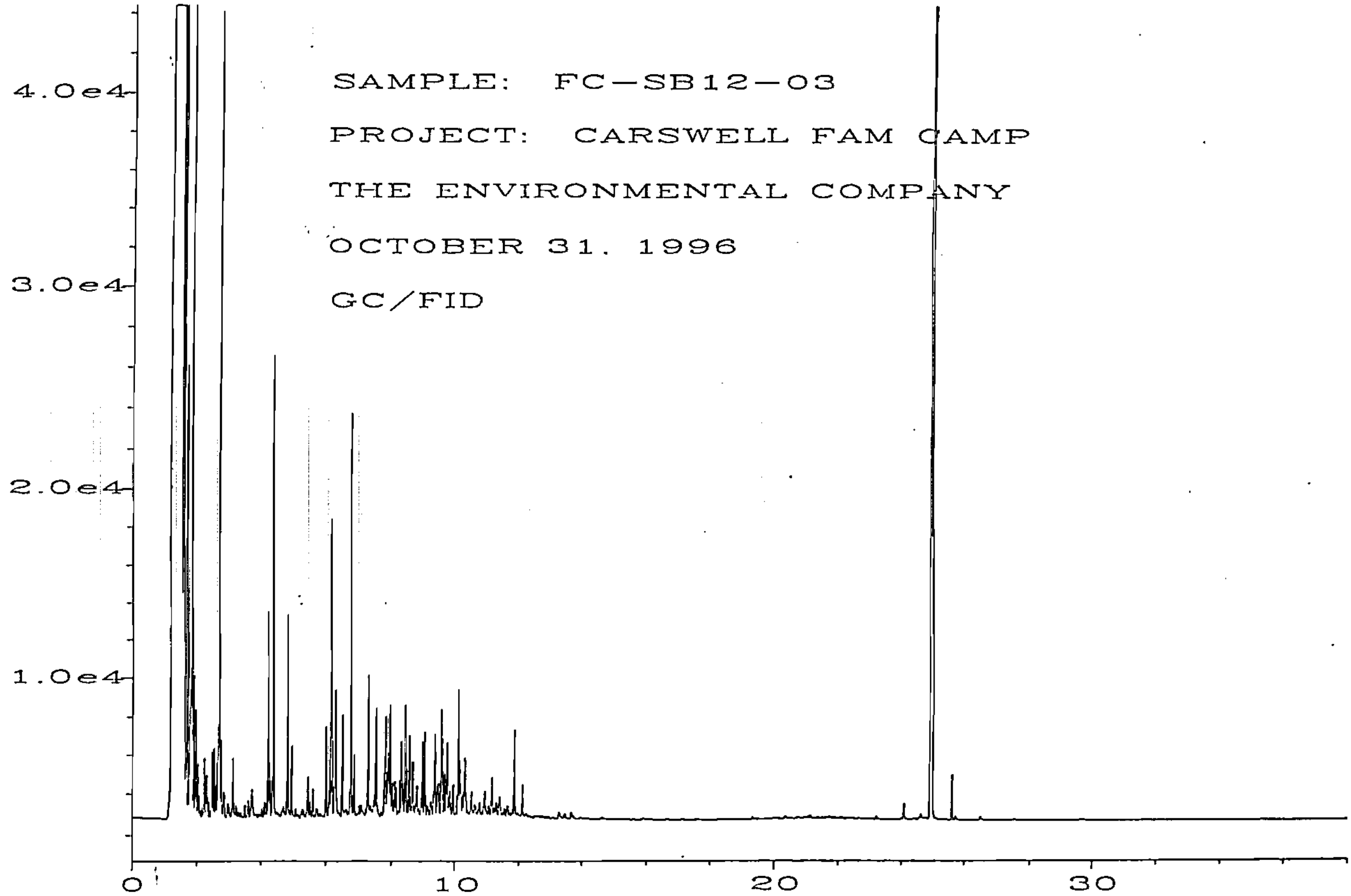
Sample ID	GC Characterization
FC-SB12-03	The GC trace using the flame ionization detector (FID) showed the presence of low boiling compounds. The patterns displayed by these peaks are indicative of gasoline. The low boiling compounds appeared as a regular pattern of peaks eluting from n-C_7 to n-C_{13} showing a maximum near n-C_8. The GC/FID trace showed the presence of peaks that appeared to be indicative of benzene, toluene, ethylbenzene, the xylenes and C_3-benzenes. These compounds are characteristic of the constituents commonly found in gasoline. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second surrogate present that is seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.
FC-SB03-01	The GC trace using the flame ionization detector (FID) showed the presence of low boiling compounds. The patterns displayed by these peaks are indicative of an evaporatively weathered light naphtha such as JP-4. The low boiling compounds appeared as a regular pattern of peaks eluting from n-C_7 to n-C_{17} showing a maximum near n-C_{10}. There is no evidence of a regular pattern of n-alkanes. This suggests that this material has been subjected to extensive bio-degradation. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second surrogate present that is seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.

454 230

Date of Report: November 13, 1996
Date Received: October 31, 1996
Project: Carswell Fam Camp
Date Samples Extracted: October 31, 1996

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

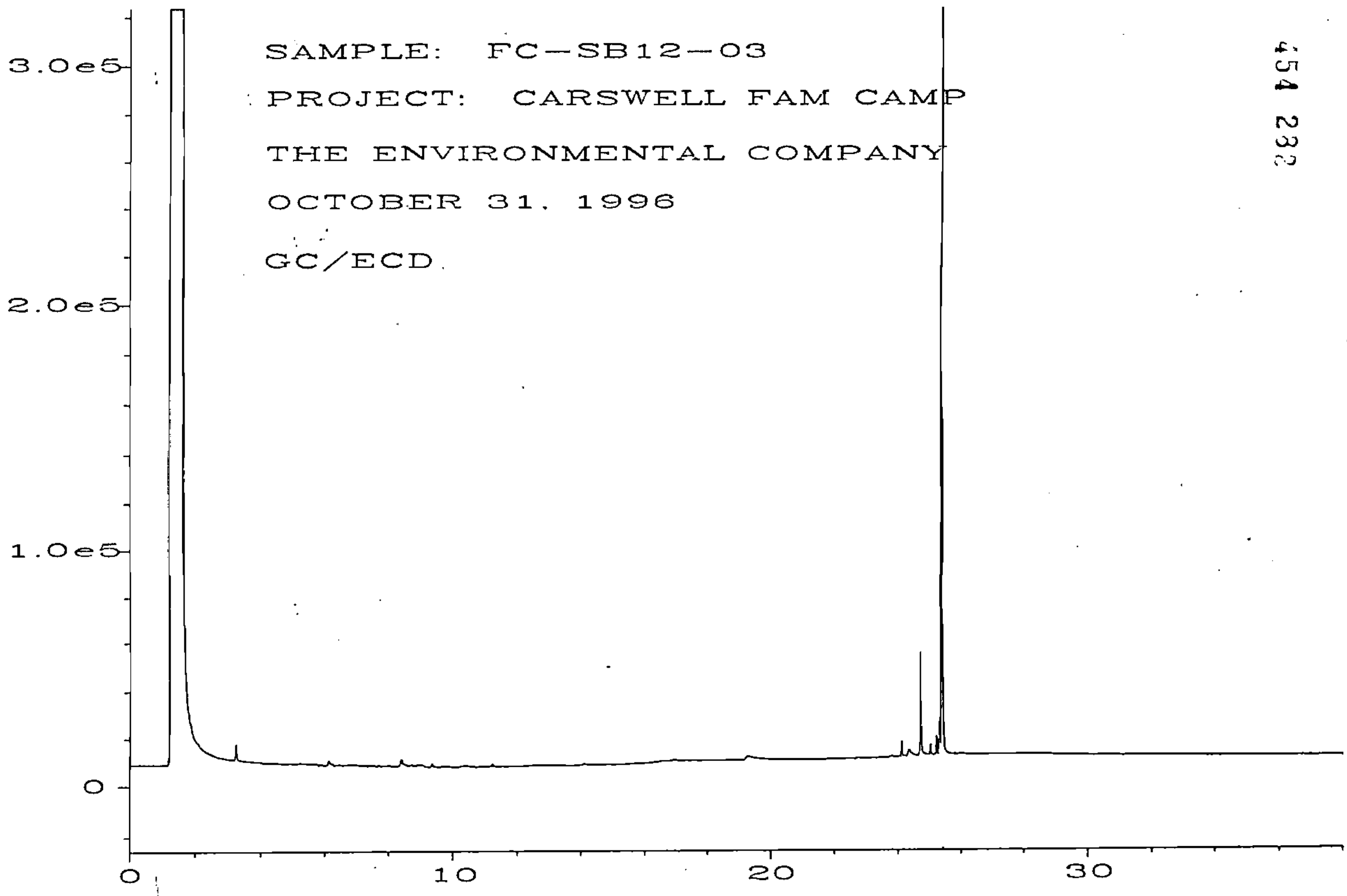
Sample ID	GC Characterization
FC-SB05-02	The GC trace using the flame ionization detector (FID) showed the presence of low boiling compounds. The patterns displayed by these peaks are indicative of an evaporatively weathered light naphtha such as JP-4. The low boiling compounds appeared as a regular pattern of peaks eluting from n-C_8 to n-C_{17} showing a maximum near n-C_{13}. There is no evidence of a regular pattern of n-alkanes. This suggests that this material has been subjected to extensive bio-degradation. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis. There is a second surrogate present that is seen on the GC/ECD trace at about 26 minutes which is dibutyl chlorendate.



Sig. 1 in C:\HPCHEM\4\DATA\10-31-96\011F1201.D

454 281

454 232



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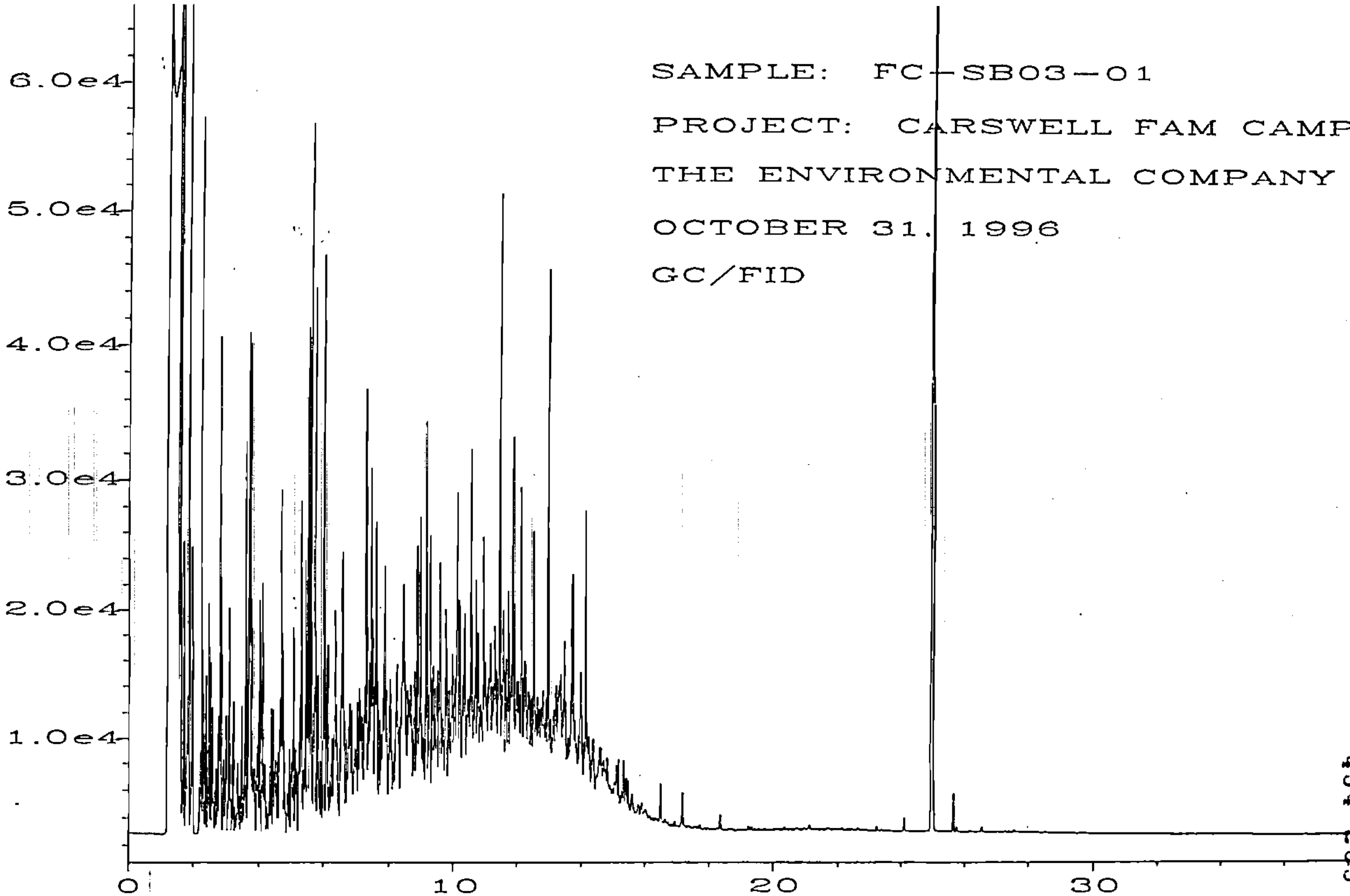

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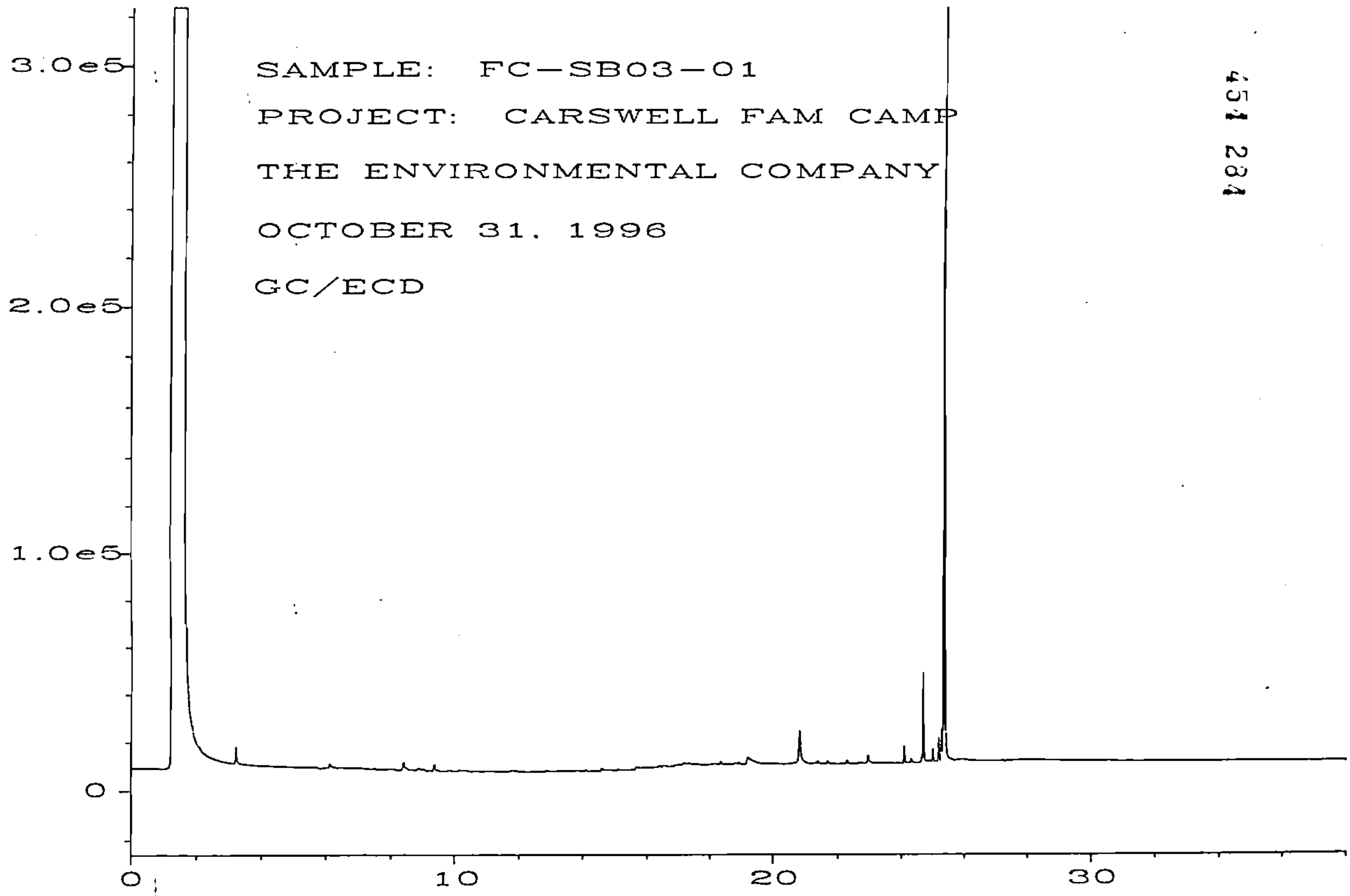
454 284



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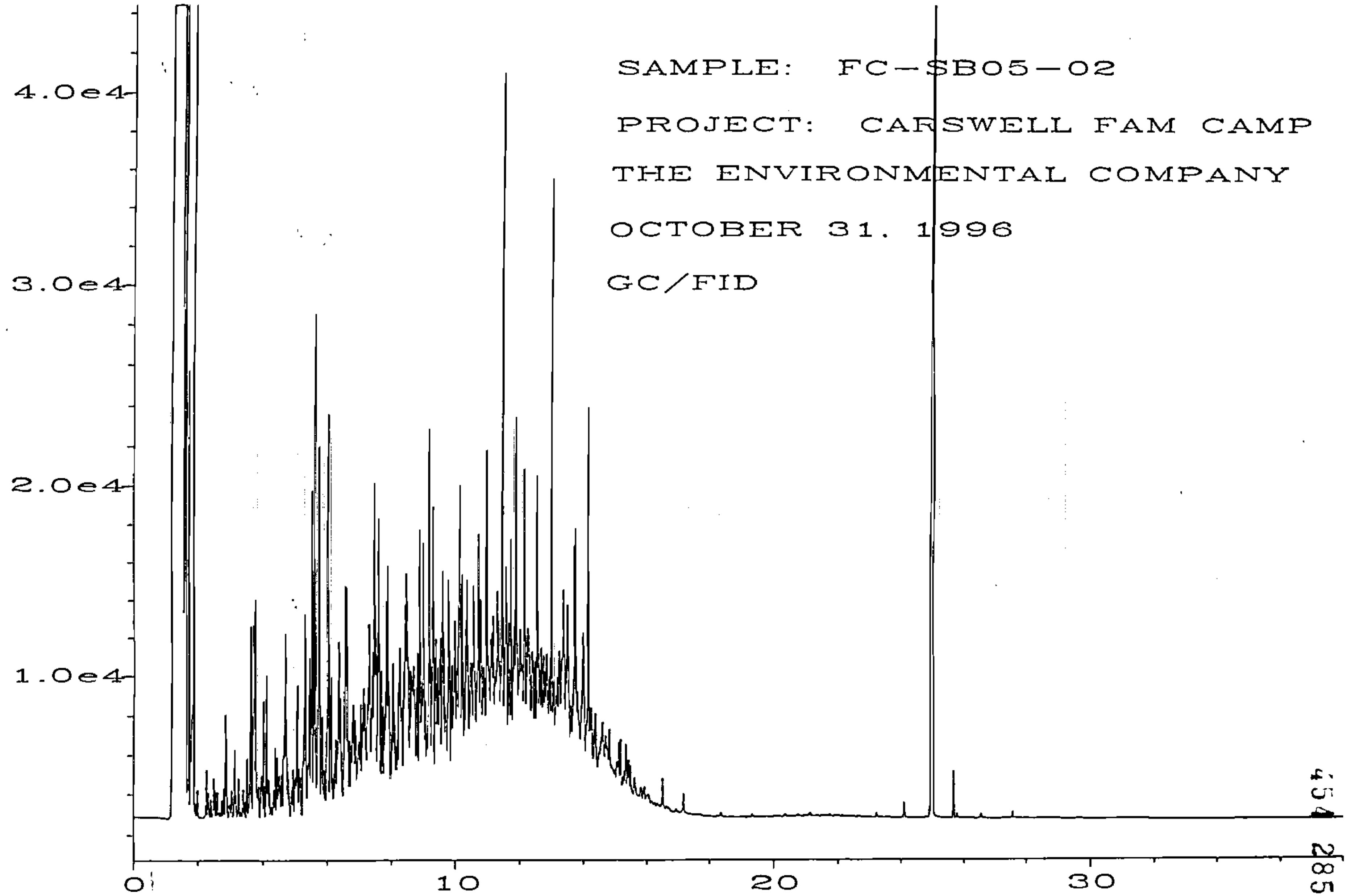

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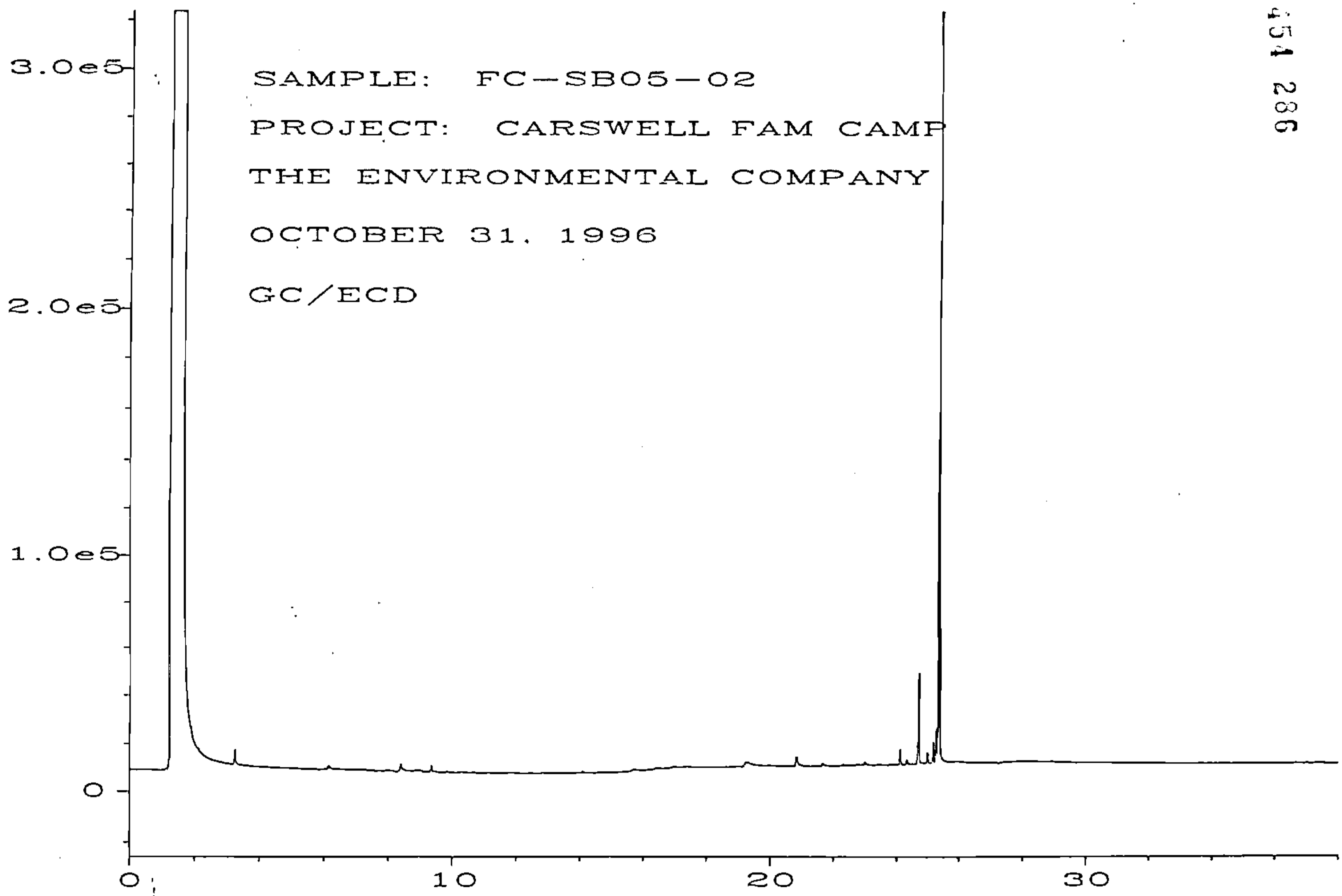

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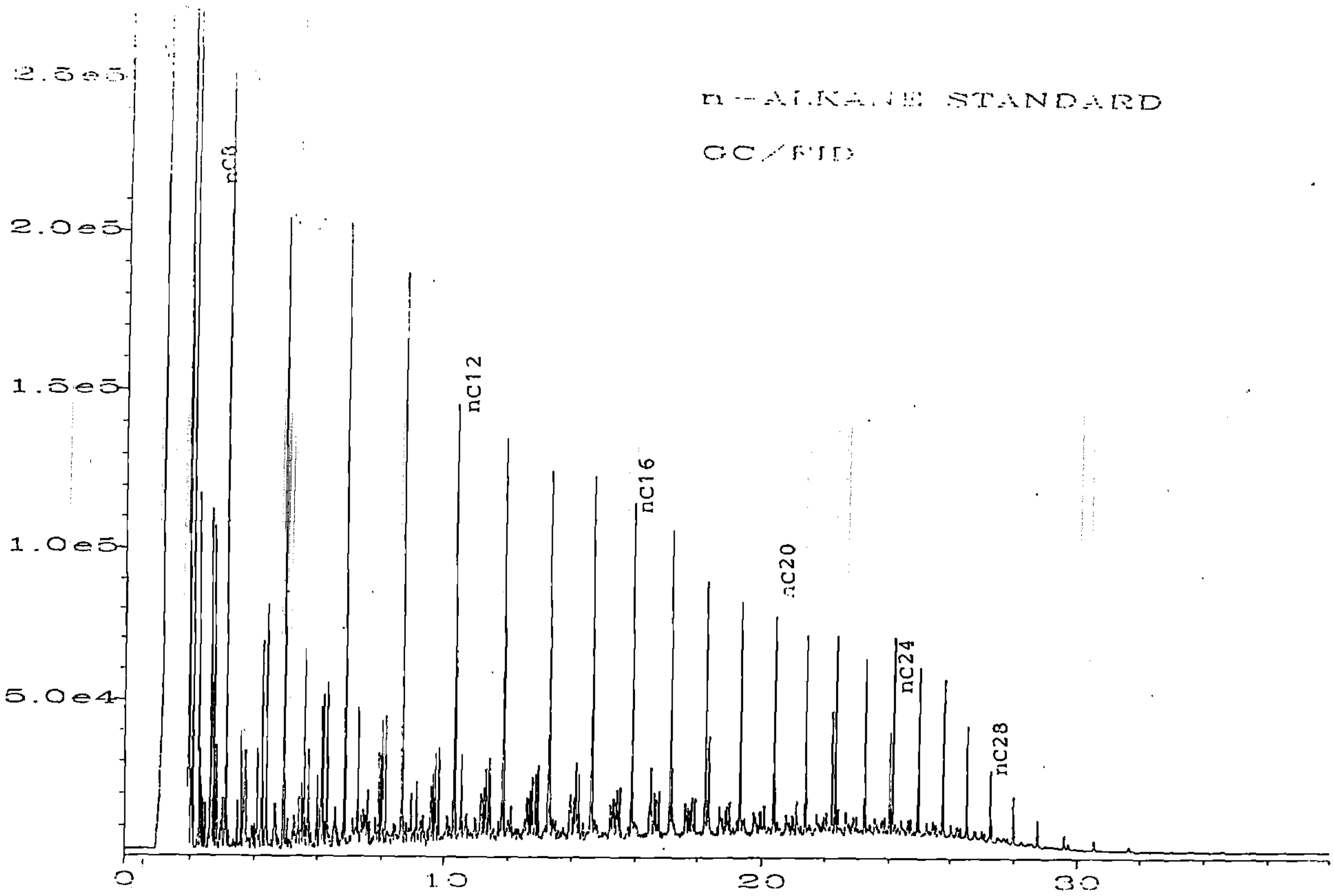
454 286



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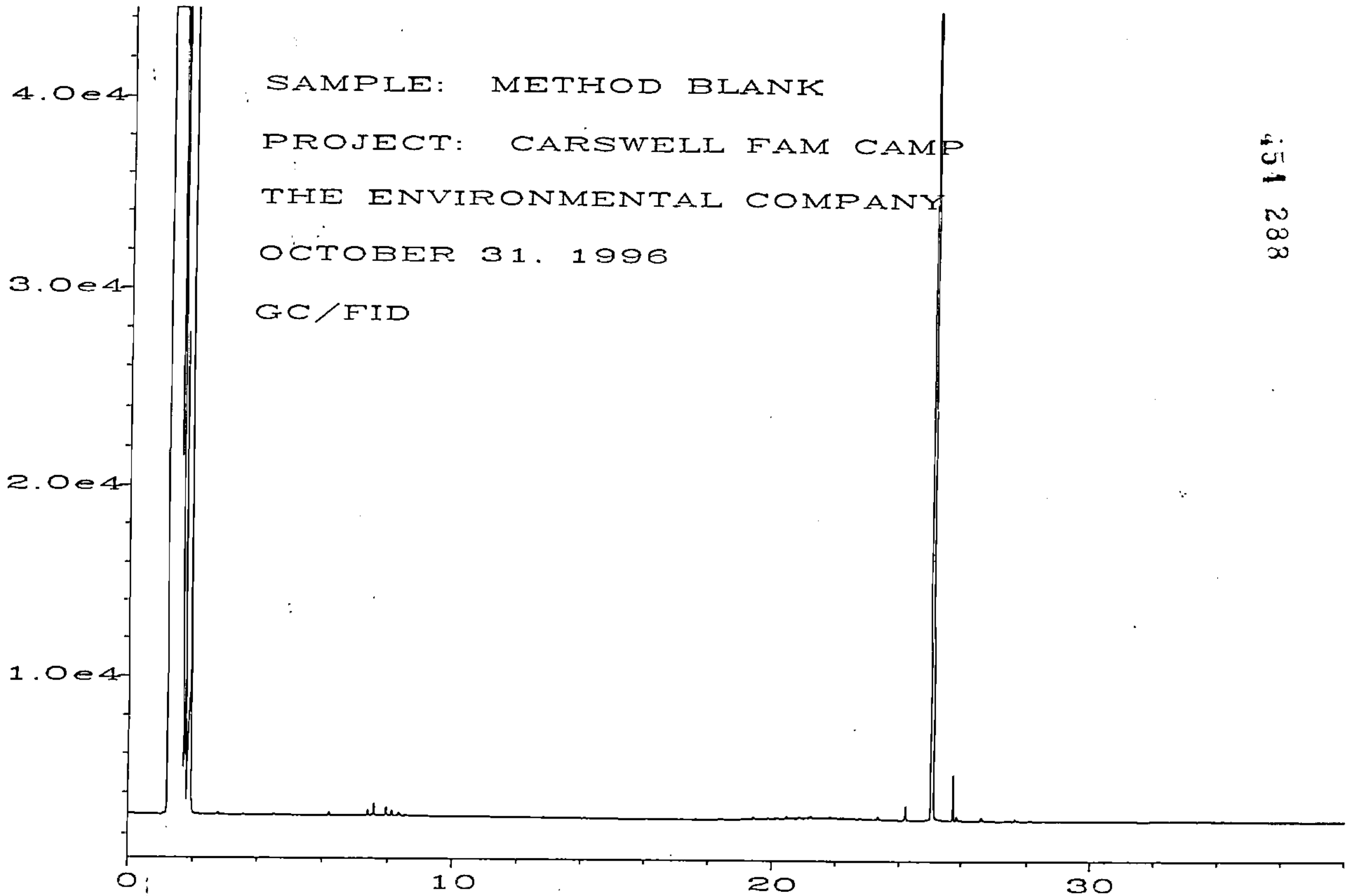
451 288



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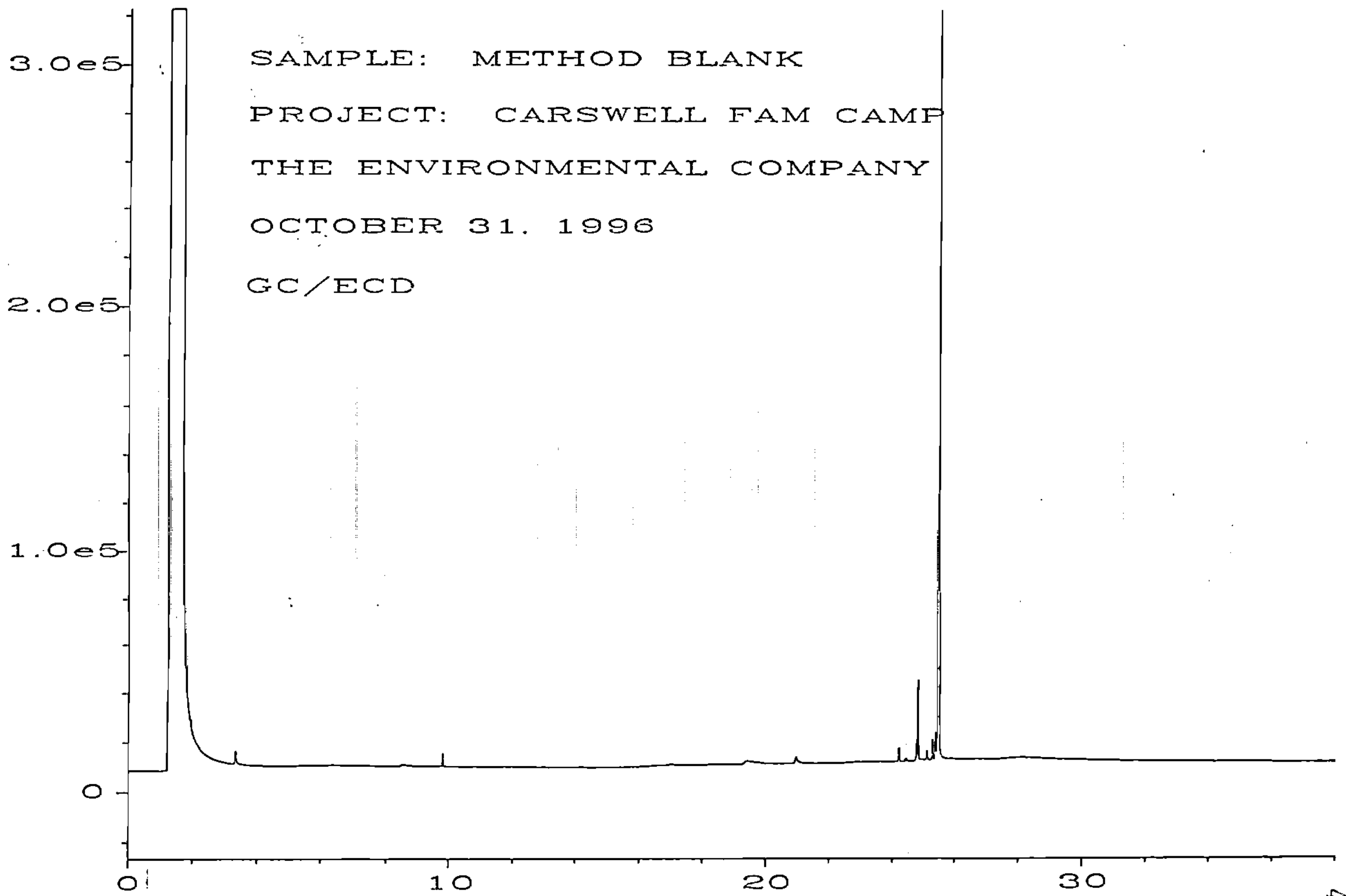

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454 289

FRIEDMAN & BRUYA, INC.
3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282 454 290

10·31·96
12:16PM

SAMPLE CHAIN OF CUSTODY

Send Report To:
Company The Environmental Com[...] Contact Bob Duffner
Address 24997 SE 155th Pl.
City, State, Zip Issaquah WA 98027
Phone # 206-391-2785 Date 10/31/96
557 7849
fax 557 7878

SITE NO.	PROJECT NAME	PURCHASE ORDER #
3:03-010	CARSWELL FARM CAP	

SAMPLERS (signature)	PROJECT LOCATION
Bob Duffner	FT. WORTH TX

REMARKS	SAMPLE DISPOSAL INFORMATION
	☒ Dispose after 30 days ☐ Return Samples ☐ Call for Instructions

Sample #	Date/Time Sampled	Type of Sample	# of Jars	Lab Sample #	Analyses Requested
FC-SB12-03	10/26 12:05	Soil	1	73633	HFS
FC-SB03-01	10/22 1710	Soil	1	73634	HFS
FC-SB05-02	10/23 11:35	Soil	1	73635	HFS

SIGNATURE	PRINT NAME	COMPANY	Date	Time
Relinquished by: B Duffner	Bob Duffner	The Env. Co.	10/31/96	10:45
Received by: Bradley T Benson	Bradley T Benson	F&B Inc	10/31/96	10:45 Am
Relinquished by:				
Received by:				

454 291

TAB

K

APPENDIX K

SUMMARY OF EXTRACTION AND ANALYSIS TIME

SUMMARY OF EXTRACTION AND ANALYSIS DATES

PIPELINE AREA DRILLING PROJECT

NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION ID	FIELD SAMPLE NO	LABORATORY SAMPLE NO	SAMPLE MATRIX	SAMPLE TYPE	ANALYSIS METHOD	SAMPLE DATE	EXTRACTION DATE	ELAPSED TIME (DAYS)	ANALYSIS DATE	ELAPSED TIME (DAYS)
SB-108	SB-108-01	A8477102	SO	N1	SW8021	24-Oct-1998	26-Oct-1998	2	26-Oct-1998	2
SB-109	SB-109-01	A8477106	SO	N1	SW8021	24-Oct-1998	26-Oct-1998	2	26-Oct-1998	2
SB-109	SB-109-02	A8477108	SO	N1	SW8021	24-Oct-1998	27-Oct-1998	3	27-Oct-1998	3
SB-109	SB-109-03	A8477107	SO	FD1	SW8021	24-Oct-1998	26-Oct-1998	2	26-Oct-1998	2
SB-110	SB-110-01	A8477104	SO	N1	SW8021	24-Oct-1998	26-Oct-1998	2	26-Oct-1998	2
SB-110	SB-110-02	A8477105	SO	N1	SW8021	24-Oct-1998	26-Oct-1998	2	26-Oct-1998	2
FIELDQC	AB-100	A8477103	WQ	AB1	SW8021	24-Oct-1998	26-Oct-1998	2	26-Oct-1998	2
FIELDQC	TB-101	A8477101	WQ	TB1	SW8021	24-Oct-1998	26-Oct-1998	2	26-Oct-1998	2
FIELDQC	AB-100	A8477103	WQ	AB1	SW8260	24-Oct-1998	2-Nov-1998	9	2-Nov-1998	9
SB-108	SB-108-01	A8477102	SO	N1	SW8270	24-Oct-1998	6-Nov-1998	13	23-Nov-1998	30
SB-109	SB-109-01	A8477106	SO	N1	SW8270	24-Oct-1998	6-Nov-1998	13	24-Nov-1998	31
SB-109	SB-109-02	A8477108	SO	N1	SW8270	24-Oct-1998	6-Nov-1998	13	16-Dec-1998	53
SB-109	SB-109-03	A8477107	SO	FD1	SW8270	24-Oct-1998	6-Nov-1998	13	24-Nov-1998	31
SB-110	SB-110-01	A8477104MS	SO	MS1	SW8270	24-Oct-1998	6-Nov-1998	13	24-Nov-1998	31
SB-110	SB-110-01	A8477104	SO	N1	SW8270	24-Oct-1998	6-Nov-1998	13	24-Nov-1998	31
SB-110	SB-110-01	A8477104SD	SO	SD1	SW8270	24-Oct-1998	6-Nov-1998	13	24-Nov-1998	31
SB-110	SB-110-02	A8477105	SO	N1	SW8270	24-Oct-1998	6-Nov-1998	13	24-Nov-1998	31

TAB

2

APPENDIX L

Laboratory Analyses Data Sheet

AFCEE
ORGANIC ANALYSES DATA PACKAGE

Analytical Method: 8270-A98

AAB #: A8B09035 454 296

Lab Name: STL Buffalo

Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap

Prime Contractor: The Environmental Company

Field Sample ID	Lab Sample ID
SB-108-01	A8477102
SB-109-01	A8477106
SB-109-02	A8477108
SB-109-03	A8477107
SB-110-01	A8477104
SB-110-01 MS	A8477104MS
SB-110-01 SD	A8477104SD
SB-110-02	A8477105

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: K E Kasperek

Name: Kenneth E. Kasperek

Date: 1/26/99

Title: Laboratory Director

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

451 297

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-108-01

Lab Sample ID: A8477102

Matrix: SOIL

% Solids: 91.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.12	0.700	0.12	U
1,3-DICHLOROBENZENE	0.12	0.700	0.12	U
1,4-DICHLOROBENZENE	0.13	0.700	0.13	U
2,4-DINITROTOLUENE	0.13	0.700	0.13	U
2,6-DINITROTOLUENE	0.12	0.700	0.12	U
2-CHLORONAPHTHALENE	0.13	0.700	0.13	U
2-METHYLNAPHTHALENE	0.10	0.700	0.10	U
2-NITROANILINE	0.12	3.3	0.12	U
3-NITROANILINE	0.11	3.3	0.11	U
3,3'-DICHLOROBENZIDINE	0.14	1.3	0.14	U
4-BROMOPHENYL PHENYL ETHER	0.16	0.700	0.16	U
4-CHLOROANILINE	0.11	1.3	0.11	U
4-CHLOROPHENYL PHENYL ETHER	0.11	0.700	0.11	U
4-NITROANILINE	0.16	3.3	0.16	U
ACENAPHTHYLENE	0.14	0.700	0.14	U
ACENAPHTHENE	0.12	0.700	0.12	U
ANTHRACENE	0.16	0.700	0.16	U
BENZO(a)ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)PYRENE	0.17	0.700	0.17	U
BENZO(b)FLUORANTHENE	0.15	0.700	0.15	U
BENZO(g,h,i)PERYLENE	0.15	0.700	0.15	U
BENZYL ALCOHOL	0.12	1.3	0.12	U
bis(2-CHLOROETHOXY) METHANE	0.13	0.700	0.13	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.19	0.700	0.19	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-108-01

Lab Sample ID: A8477102

Matrix: SOIL

% Solids: 91.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.035	0.700	0.035	U
bis(2-ETHYLHEXYL) PHTHALATE	0.17	0.700	0.17	U
BENZYL BUTYL PHTHALATE	0.16	0.700	0.16	U
CHRYSENE	0.14	0.700	0.14	U
DI-n-BUTYL PHTHALATE	0.17	0.700	0.17	U
DI-n-OCTYL PHTHALATE	0.18	0.700	0.18	U
DIBENZ(a,h)ANTHRACENE	0.16	0.700	0.16	U
DIBENZOFURAN	0.12	0.700	0.12	U
DIETHYL PHTHALATE	0.12	0.700	0.12	U
DIMETHYL PHTHALATE	0.13	0.700	0.13	U
FLUORANTHENE	0.18	0.700	0.18	U
FLUORENE	0.13	0.700	0.13	U
HEXACHLOROBENZENE	0.13	0.700	0.13	U
HEXACHLOROBUTADIENE	0.13	0.700	0.13	U
HEXACHLOROCYCLOPENTADIENE	0.067	0.700	0.067	U
HEXACHLOROETHANE	0.12	0.700	0.12	U
INDENO(1,2,3-c,d)PYRENE	0.17	0.700	0.17	U
ISOPHORONE	0.14	0.700	0.14	U
N-NITROSODIPHENYLAMINE	0.15	0.700	0.15	U
N-NITROSODI-n-PROPYLAMINE	0.11	0.700	0.11	U
NAPHTHALENE	0.12	0.700	0.12	U
NITROBENZENE	0.12	0.700	0.12	U
PHENANTHRENE	0.17	0.700	0.17	U
PYRENE	0.15	0.700	0.15	U
2,4,5-TRICHLOROPHENOL	0.22	3.3	0.22	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

000050

454 290

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-108-01

Lab Sample ID: A8477102

Matrix: SOIL

% Solids: 91.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.19	0.300	0.19	U
2,4-DICHLOROPHENOL	0.28	0.300	0.28	U
2,4-DIMETHYLPHENOL	0.28	0.300	0.28	U
2,4-DINITROPHENOL	0.32	3.3	0.32	U
2-CHLOROPHENOL	0.31	0.300	0.31	U
2-METHYLPHENOL (o-CRESOL)	0.32	0.300	0.32	U
2-NITROPHENOL	0.23	0.300	0.23	U
4,6-DINITRO-2-METHYLPHENOL	0.44	3.3	0.44	U
4-CHLORO-3-METHYLPHENOL	0.21	1.3	0.21	U
4-METHYLPHENOL (p-CRESOL)	0.31	0.300	0.31	U
4-NITROPHENOL	0.20	1.6	0.20	U
BENZOIC ACID	0.39	1.6	0.39	U
PENTACHLOROPHENOL	0.30	3.3	0.30	U
PHENOL	0.30	0.300	0.30	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: SB-109-01 Lab Sample ID: A8477106 Matrix: SOIL

% Solids: 89.5 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.12	0.700	0.12	U
1,3-DICHLOROBENZENE	0.12	0.700	0.12	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.13	0.700	0.13	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.12	3.3	0.12	U
3-NITROANILINE	0.11	3.3	0.11	U
3,3'-DICHLOROBENZIDINE	0.14	1.3	0.14	U
4-BROMOPHENYL PHENYL ETHER	0.16	0.700	0.16	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.17	3.3	0.17	U
ACENAPHTHYLENE	0.14	0.700	0.14	U
ACENAPHTHENE	0.12	0.700	0.12	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.18	0.700	0.18	U
BENZO(a)PYRENE	0.17	0.700	0.17	U
BENZO(b)FLUORANTHENE	0.15	0.700	0.15	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.13	1.3	0.13	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

Lab Name: STL Buffalo

Field Sample ID: SB-109-01

% Solids: 89.5

Date Received: 26-Oct-98

AAB #: A8B09035

Contract #: F46162495D80

Lab Sample ID: A8477106

Matrix: SOIL

Dilution: 1.00

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.036	0.700	0.036	U
bis(2-ETHYLHEXYL) PHTHALATE	0.18	0.700	0.18	U
BENZYL BUTYL PHTHALATE	0.16	0.700	0.16	U
CHRYSENE	0.15	0.700	0.15	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.19	0.700	0.19	U
DIBENZ(a,h)ANTHRACENE	0.17	0.700	0.17	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.13	0.700	0.13	U
DIMETHYL PHTHALATE	0.13	0.700	0.13	U
FLUORANTHENE	0.19	0.700	0.19	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.070	0.700	0.070	U
HEXACHLOROETHANE	0.13	0.700	0.13	U
INDENO(1,2,3-c,d)PYRENE	0.18	0.700	0.18	U
ISOPHORONE	0.15	0.700	0.15	U
N-NITROSODIPHENYLAMINE	0.15	0.700	0.15	U
N-NITROSODI-n-PROPYLAMINE	0.11	0.700	0.11	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.12	0.700	0.12	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.16	0.700	0.16	U
2,4,5-TRICHLOROPHENOL	0.23	3.3	0.23	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-109-01 Lab Sample ID: A8477106 Matrix: SOIL

% Solids: 89.5 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	0.20	U
2,4-DICHLOROPHENOL	0.29	0.300	0.29	U
2,4-DIMETHYLPHENOL	0.30	0.300	0.30	U
2,4-DINITROPHENOL	0.34	3.3	0.34	U
2-CHLOROPHENOL	0.32	0.300	0.32	U
2-METHYLPHENOL (o-CRESOL)	0.33	0.300	0.33	U
2-NITROPHENOL	0.24	0.300	0.24	U
4,6-DINITRO-2-METHYLPHENOL	0.46	3.3	0.46	U
4-CHLORO-3-METHYLPHENOL	0.22	1.3	0.22	U
4-METHYLPHENOL (p-CRESOL)	0.32	0.300	0.32	U
4-NITROPHENOL	0.21	1.6	0.21	U
BENZOIC ACID	0.41	1.6	0.41	U
PENTACHLOROPHENOL	0.31	3.3	0.31	U
PHENOL	0.31	0.300	0.31	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-109-02

Lab Sample ID: A8477108

Matrix: SOIL

% Solids: 85.8

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 16-Dec-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.13	0.700	0.13	U
1,3-DICHLOROBENZENE	0.13	0.700	0.13	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.14	0.700	0.14	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.13	3.3	0.13	U
3-NITROANILINE	0.12	3.3	0.12	U
3,3'-DICHLOROBENZIDINE	0.15	1.3	0.15	U
4-BROMOPHENYL PHENYL ETHER	0.17	0.700	0.17	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.17	3.3	0.17	U
ACENAPHTHYLENE	0.15	0.700	0.15	U
ACENAPHTHENE	0.13	0.700	0.13	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.19	0.700	0.19	U
BENZO(a)PYRENE	0.18	0.700	0.18	U
BENZO(b)FLUORANTHENE	0.16	0.700	0.16	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.14	1.3	0.14	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: SB-109-02 Lab Sample ID: A8477108 Matrix: SOIL

% Solids: 85.8 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 16-Dec-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.038	0.700	0.038	U
bis(2-ETHYLHEXYL) PHTHALATE	0.19	0.700	0.19	U
BENZYL BUTYL PHTHALATE	0.17	0.700	0.17	U
CHRYSENE	0.16	0.700	0.16	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.20	0.700	0.20	U
DIBENZ(a,h)ANTHRACENE	0.18	0.700	0.18	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.14	0.700	0.14	U
DIMETHYL PHTHALATE	0.14	0.700	0.14	U
FLUORANTHENE	0.20	0.700	0.20	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.072	0.700	0.072	U
HEXACHLOROETHANE	0.14	0.700	0.14	U
INDENO(1,2,3-c,d)PYRENE	0.19	0.700	0.19	U
ISOPHORONE	0.16	0.700	0.16	U
N-NITROSODIPHENYLAMINE	0.16	0.700	0.16	U
N-NITROSODI-n-PROPYLAMINE	0.12	0.700	0.12	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.13	0.700	0.13	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.17	0.700	0.17	U
2,4,5-TRICHLOROPHENOL	0.24	3.3	0.24	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-109-02 Lab Sample ID: A8477108 Matrix: SOIL

% Solids: 85.8 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 16-Dec-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	0.20	U
2,4-DICHLOROPHENOL	0.30	0.300	0.30	U
2,4-DIMETHYLPHENOL	0.31	0.300	0.31	U
2,4-DINITROPHENOL	0.35	3.3	0.35	U
2-CHLOROPHENOL	0.34	0.300	0.34	U
2-METHYLPHENOL (o-CRESOL)	0.34	0.300	0.34	U
2-NITROPHENOL	0.24	0.300	0.24	U
4,6-DINITRO-2-METHYLPHENOL	0.48	3.3	0.48	U
4-CHLORO-3-METHYLPHENOL	0.23	1.3	0.23	U
4-METHYLPHENOL (p-CRESOL)	0.33	0.300	0.33	U
4-NITROPHENOL	0.22	1.6	0.22	U
BENZOIC ACID	0.43	1.6	0.43	U
PENTACHLOROPHENOL	0.32	3.3	0.32	U
PHENOL	0.33	0.300	0.33	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-109-03

Lab Sample ID: A8477107

Matrix: SOIL

% Solids: 90.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.12	0.700	0.12	U
1,3-DICHLOROBENZENE	0.12	0.700	0.12	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.13	0.700	0.13	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.12	3.3	0.12	U
3-NITROANILINE	0.11	3.3	0.11	U
3,3'-DICHLOROBENZIDINE	0.14	1.3	0.14	U
4-BROMOPHENYL PHENYL ETHER	0.16	0.700	0.16	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.17	3.3	0.17	U
ACENAPHTHYLENE	0.14	0.700	0.14	U
ACENAPHTHENE	0.12	0.700	0.12	U
ANTHRACENE	0.16	0.700	0.16	U
BENZO(a)ANTHRACENE	0.18	0.700	0.18	U
BENZO(a)PYRENE	0.17	0.700	0.17	U
BENZO(b)FLUORANTHENE	0.15	0.700	0.15	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.13	1.3	0.13	U
bis(2-CHLOROETHOXY) METHANE	0.13	0.700	0.13	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.19	0.700	0.19	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

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Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-109-03

Lab Sample ID: A8477107

Matrix: SOIL

% Solids: 90.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.036	0.700	0.036	U
bis(2-ETHYLHEXYL) PHTHALATE	0.18	0.700	0.28	F
BENZYL BUTYL PHTHALATE	0.16	0.700	0.16	U
CHRYSENE	0.15	0.700	0.15	U
DI-n-BUTYL PHTHALATE	0.17	0.700	0.17	U
DI-n-OCTYL PHTHALATE	0.19	0.700	0.19	U
DIBENZ(a,h)ANTHRACENE	0.17	0.700	0.17	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.13	0.700	0.13	U
DIMETHYL PHTHALATE	0.13	0.700	0.13	U
FLUORANTHENE	0.19	0.700	0.19	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.13	0.700	0.13	U
HEXACHLOROBUTADIENE	0.13	0.700	0.13	U
HEXACHLOROCYCLOPENTADIENE	0.069	0.700	0.069	U
HEXACHLOROETHANE	0.13	0.700	0.13	U
INDENO(1,2,3-c,d)PYRENE	0.18	0.700	0.18	U
ISOPHORONE	0.15	0.700	0.15	U
N-NITROSODIPHENYLAMINE	0.15	0.700	0.15	U
N-NITROSODI-n-PROPYLAMINE	0.11	0.700	0.11	U
NAPHTHALENE	0.12	0.700	0.12	U
NITROBENZENE	0.12	0.700	0.12	U
PHENANTHRENE	0.17	0.700	0.17	U
PYRENE	0.16	0.700	0.16	U
2,4,5-TRICHLOROPHENOL	0.23	3.3	0.23	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-109-03 Lab Sample ID: A8477107 Matrix: SOIL

% Solids: 90.6 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.19	0.300	0.19	U
2,4-DICHLOROPHENOL	0.29	0.300	0.29	U
2,4-DIMETHYLPHENOL	0.30	0.300	0.30	U
2,4-DINITROPHENOL	0.34	3.3	0.34	U
2-CHLOROPHENOL	0.32	0.300	0.32	U
2-METHYLPHENOL (o-CRESOL)	0.33	0.300	0.33	U
2-NITROPHENOL	0.24	0.300	0.24	U
4,6-DINITRO-2-METHYLPHENOL	0.46	3.3	0.46	U
4-CHLORO-3-METHYLPHENOL	0.22	1.3	0.22	U
4-METHYLPHENOL (p-CRESOL)	0.32	0.300	0.32	U
4-NITROPHENOL	0.21	1.6	0.21	U
BENZOIC ACID	0.41	1.6	0.41	U
PENTACHLOROPHENOL	0.31	3.3	0.31	U
PHENOL	0.31	0.300	0.31	U

Comments:

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RESULTS

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Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: SB-110-01 Lab Sample ID: A8477104 Matrix: SOIL

% Solids: 85.4 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.13	0.700	0.13	U
1,2-DICHLOROBENZENE	0.13	0.700	0.13	U
1,3-DICHLOROBENZENE	0.13	0.700	0.13	U
1,4-DICHLOROBENZENE	0.15	0.700	0.15	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.14	0.700	0.14	U
2-CHLORONAPHTHALENE	0.14	0.700	0.14	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.13	3.3	0.13	U
3-NITROANILINE	0.12	3.3	0.12	U
3,3'-DICHLOROBENZIDINE	0.15	1.3	0.15	U
4-BROMOPHENYL PHENYL ETHER	0.17	0.700	0.17	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.18	3.3	0.18	U
ACENAPHTHYLENE	0.15	0.700	0.15	U
ACENAPHTHENE	0.13	0.700	0.13	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.19	0.700	0.19	U
BENZO(a)PYRENE	0.18	0.700	0.18	U
BENZO(b)FLUORANTHENE	0.16	0.700	0.16	U
BENZO(g,h,i)PERYLENE	0.17	0.700	0.17	U
BENZYL ALCOHOL	0.14	1.3	0.14	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-110-01 Lab Sample ID: A8477104 Matrix: SOIL

% Solids: 85.4 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.038	0.700	0.038	U
bis(2-ETHYLHEXYL) PHTHALATE	0.19	0.700	0.19	U
BENZYL BUTYL PHTHALATE	0.17	0.700	0.17	U
CHRYSENE	0.16	0.700	0.16	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.20	0.700	0.20	U
DIBENZ(a,h)ANTHRACENE	0.18	0.700	0.18	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.14	0.700	0.14	U
DIMETHYL PHTHALATE	0.14	0.700	0.14	U
FLUORANTHENE	0.20	0.700	0.20	U
FLUORENE	0.15	0.700	0.15	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.073	0.700	0.073	U
HEXACHLOROETHANE	0.14	0.700	0.14	U
INDENO(1,2,3-c,d)PYRENE	0.19	0.700	0.19	U
ISOPHORONE	0.16	0.700	0.16	U
N-NITROSODIPHENYLAMINE	0.16	0.700	0.16	U
N-NITROSODI-n-PROPYLAMINE	0.12	0.700	0.12	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.13	0.700	0.13	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.17	0.700	0.17	U
2,4,5-TRICHLOROPHENOL	0.24	3.3	0.24	U

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RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-110-01

Lab Sample ID: A8477104

Matrix: SOIL

% Solids: 85.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.21	0.300	0.21	U
2,4-DICHLOROPHENOL	0.31	0.300	0.31	U
2,4-DIMETHYLPHENOL	0.31	0.300	0.31	U
2,4-DINITROPHENOL	0.36	3.3	0.36	U
2-CHLOROPHENOL	0.34	0.300	0.34	U
2-METHYLPHENOL (o-CRESOL)	0.35	0.300	0.35	U
2-NITROPHENOL	0.25	0.300	0.25	U
4,6-DINITRO-2-METHYLPHENOL	0.49	3.3	0.49	U
4-CHLORO-3-METHYLPHENOL	0.23	1.3	0.23	U
4-METHYLPHENOL (p-CRESOL)	0.34	0.300	0.34	U
4-NITROPHENOL	0.23	1.6	0.23	U
BENZOIC ACID	0.44	1.6	0.44	U
PENTACHLOROPHENOL	0.33	3.3	0.33	U
PHENOL	0.33	0.300	0.33	U

Comments:

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RESULTS

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Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-110-01 MS

Lab Sample ID: A8477104MS

Matrix: SOIL

% Solids: 85.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.13	0.700	2.8	
1,2-DICHLOROBENZENE	0.13	0.700	2.6	
1,3-DICHLOROBENZENE	0.13	0.700	2.5	
1,4-DICHLOROBENZENE	0.15	0.700	2.5	
2,4-DINITROTOLUENE	0.14	0.700	3.1	
2,6-DINITROTOLUENE	0.14	0.700	3.0	
2-CHLORONAPHTHALENE	0.14	0.700	2.7	
2-METHYLNAPHTHALENE	0.11	0.700	2.9	
2-NITROANILINE	0.13	3.3	2.6	F
3-NITROANILINE	0.12	3.3	2.9	F
3,3'-DICHLOROBENZIDINE	0.15	1.3	3.2	
4-BROMOPHENYL PHENYL ETHER	0.17	0.700	3.8	
4-CHLOROANILINE	0.12	1.3	2.6	
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	3.5	
4-NITROANILINE	0.18	3.3	2.7	F
ACENAPHTHYLENE	0.15	0.700	2.8	
ACENAPHTHENE	0.13	0.700	3.0	
ANTHRACENE	0.18	0.700	3.4	
BENZO(a)ANTHRACENE	0.19	0.700	3.6	
BENZO(a)PYRENE	0.18	0.700	3.5	
BENZO(b)FLUORANTHENE	0.16	0.700	4.0	
BENZO(g,h,i)PERYLENE	0.17	0.700	2.6	
BENZYL ALCOHOL	0.14	1.3	2.8	
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	2.2	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	1.9	

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-110-01 MS

Lab Sample ID: A8477104MS

Matrix: SOIL

% Solids: 85.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.038	0.700	3.4	
bis(2-ETHYLHEXYL) PHTHALATE	0.19	0.700	2.6	
BENZYL BUTYL PHTHALATE	0.17	0.700	2.6	
CHRYSENE	0.16	0.700	3.6	
DI-n-BUTYL PHTHALATE	0.18	0.700	3.2	
DI-n-OCTYL PHTHALATE	0.20	0.700	2.9	
DIBENZ(a,h)ANTHRACENE	0.18	0.700	3.0	
DIBENZOFURAN	0.13	0.700	3.2	
DIETHYL PHTHALATE	0.14	0.700	3.1	
DIMETHYL PHTHALATE	0.14	0.700	3.2	
FLUORANTHENE	0.20	0.700	3.8	
FLUORENE	0.15	0.700	3.3	
HEXACHLOROBENZENE	0.14	0.700	4.0	
HEXACHLOROBUTADIENE	0.14	0.700	3.0	
HEXACHLOROCYCLOPENTADIENE	0.074	0.700	1.9	
HEXACHLOROETHANE	0.14	0.700	2.2	
INDENO(1,2,3-c,d)PYRENE	0.19	0.700	2.9	
ISOPHORONE	0.16	0.700	2.4	
N-NITROSODIPHENYLAMINE	0.16	0.700	3.4	
N-NITROSODI-n-PROPYLAMINE	0.12	0.700	2.6	
NAPHTHALENE	0.13	0.700	2.7	
NITROBENZENE	0.13	0.700	2.8	
PHENANTHRENE	0.18	0.700	3.8	
PYRENE	0.17	0.700	3.2	
2,4,5-TRICHLOROPHENOL	0.24	3.3	2.8	F

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: SB-110-01 MS Lab Sample ID: A8477104MS Matrix: SOIL

% Solids: 85.4 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.21	0.300	2.8	
2,4-DICHLOROPHENOL	0.31	0.300	2.9	
2,4-DIMETHYLPHENOL	0.32	0.300	2.8	
2,4-DINITROPHENOL	0.36	3.3	0.70	F
2-CHLOROPHENOL	0.34	0.300	2.6	
2-METHYLPHENOL (o-CRESOL)	0.35	0.300	2.7	
2-NITROPHENOL	0.25	0.300	2.6	
4,6-DINITRO-2-METHYLPHENOL	0.49	3.3	2.2	F
4-CHLORO-3-METHYLPHENOL	0.23	1.3	2.9	
4-METHYLPHENOL (p-CRESOL)	0.34	0.300	2.8	
4-NITROPHENOL	0.23	1.6	1.7	
BENZOIC ACID	0.44	1.6	0.44	U
PENTACHLOROPHENOL	0.33	3.3	2.8	F
PHENOL	0.33	0.300	2.6	

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-110-01 SO Lab Sample ID: A8477104SO Matrix: SOIL

% Solids: 85.4 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	3.0	
1,2-DICHLOROBENZENE	0.13	0.700	2.8	
1,3-DICHLOROBENZENE	0.13	0.700	2.6	
1,4-DICHLOROBENZENE	0.14	0.700	2.6	
2,4-DINITROTOLUENE	0.14	0.700	3.5	
2,6-DINITROTOLUENE	0.13	0.700	2.9	
2-CHLORONAPHTHALENE	0.14	0.700	2.8	
2-METHYLNAPHTHALENE	0.11	0.700	3.3	
2-NITROANILINE	0.13	3.3	2.8	F
3-NITROANILINE	0.12	3.3	2.9	F
3,3'-DICHLOROBENZIDINE	0.15	1.3	3.4	
4-BROMOPHENYL PHENYL ETHER	0.17	0.700	4.0	
4-CHLOROANILINE	0.12	1.3	3.0	
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	3.6	
4-NITROANILINE	0.17	3.3	3.0	F
ACENAPHTHYLENE	0.15	0.700	3.2	
ACENAPHTHENE	0.13	0.700	3.0	
ANTHRACENE	0.17	0.700	3.8	
BENZO(a)ANTHRACENE	0.18	0.700	3.7	
BENZO(a)PYRENE	0.18	0.700	3.4	
BENZO(b)FLUORANTHENE	0.16	0.700	4.3	
BENZO(g,h,i)PERYLENE	0.16	0.700	2.4	
BENZYL ALCOHOL	0.14	1.3	3.1	
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	2.4	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	2.1	

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: SB-110-01 SD Lab Sample ID: A8477104SD Matrix: SOIL

% Solids: 85.4 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.038	0.700	3.6	
bis(2-ETHYLHEXYL) PHTHALATE	0.19	0.700	2.8	
BENZYL BUTYL PHTHALATE	0.17	0.700	2.7	
CHRYSENE	0.16	0.700	3.6	
DI-n-BUTYL PHTHALATE	0.18	0.700	3.3	
DI-n-OCTYL PHTHALATE	0.19	0.700	3.0	
DIBENZ(a,h)ANTHRACENE	0.18	0.700	2.9	
DIBENZOFURAN	0.13	0.700	3.2	
DIETHYL PHTHALATE	0.14	0.700	3.2	
DIMETHYL PHTHALATE	0.14	0.700	3.3	
FLUORANTHENE	0.20	0.700	4.3	
FLUORENE	0.14	0.700	3.7	
HEXACHLOROBENZENE	0.14	0.700	4.0	
HEXACHLOROBUTADIENE	0.14	0.700	3.3	
HEXACHLOROCYCLOPENTADIENE	0.072	0.700	2.0	
HEXACHLOROETHANE	0.14	0.700	2.4	
INDENO(1,2,3-c,d)PYRENE	0.19	0.700	2.8	
ISOPHORONE	0.16	0.700	2.6	
N-NITROSODIPHENYLAMINE	0.16	0.700	3.5	
N-NITROSODI-n-PROPYLAMINE	0.12	0.700	2.5	
NAPHTHALENE	0.13	0.700	2.9	
NITROBENZENE	0.13	0.700	3.3	
PHENANTHRENE	0.18	0.700	3.7	
PYRENE	0.17	0.700	3.1	
2,4,5-TRICHLOROPHENOL	0.24	3.3	3.2	F

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

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Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495D080

Field Sample ID: SB-110-01 SD Lab Sample ID: A8477104SD Matrix: SOIL

% Solids: 85.4 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	3.1	
2,4-DICHLOROPHENOL	0.30	0.300	3.2	
2,4-DIMETHYLPHENOL	0.31	0.300	2.8	
2,4-DINITROPHENOL	0.35	3.3	0.75	F
2-CHLOROPHENOL	0.33	0.300	2.8	
2-METHYLPHENOL (o-CRESOL)	0.34	0.300	2.9	
2-NITROPHENOL	0.24	0.300	3.0	
4,6-DINITRO-2-METHYLPHENOL	0.48	3.3	2.2	F
4-CHLORO-3-METHYLPHENOL	0.23	1.3	3.1	
4-METHYLPHENOL (p-CRESOL)	0.33	0.300	3.1	
4-NITROPHENOL	0.22	1.6	2.0	
BENZOIC ACID	0.43	1.6	0.43	U
PENTACHLOROPHENOL	0.32	3.3	3.4	
PHENOL	0.32	0.300	2.6	

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-110-D2

Lab Sample ID: A8477105

Matrix: SOIL

% Solids: 85.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.13	0.700	0.13	U
1,3-DICHLOROBENZENE	0.13	0.700	0.13	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.14	0.700	0.14	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.13	3.3	0.13	U
3-NITROANILINE	0.12	3.3	0.12	U
3,3'-DICHLOROBENZIDINE	0.15	1.3	0.15	U
4-BROMOPHENYL PHENYL ETHER	0.17	0.700	0.17	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.17	3.3	0.17	U
ACENAPHTHYLENE	0.15	0.700	0.15	U
ACENAPHTHENE	0.13	0.700	0.13	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.18	0.700	0.18	U
BENZO(a)PYRENE	0.18	0.700	0.18	U
BENZO(b)FLUORANTHENE	0.16	0.700	0.16	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.14	1.3	0.14	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-110-02

Lab Sample ID: A8477105

Matrix: SOIL

% Solids: 85.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.038	0.700	0.038	U
bis(2-ETHYLHEXYL) PHTHALATE	0.19	0.700	0.19	U
BENZYL BUTYL PHTHALATE	0.17	0.700	0.17	U
CHRYSENE	0.16	0.700	0.16	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.19	0.700	0.19	U
DIBENZ(a,h)ANTHRACENE	0.18	0.700	0.18	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.14	0.700	0.14	U
DIMETHYL PHTHALATE	0.14	0.700	0.14	U
FLUORANTHENE	0.20	0.700	0.20	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.072	0.700	0.072	U
HEXACHLOROETHANE	0.14	0.700	0.14	U
INDENO(1,2,3-c,d)PYRENE	0.19	0.700	0.19	U
ISOPHORONE	0.16	0.700	0.16	U
N-NITROSODIPHENYLAMINE	0.16	0.700	0.16	U
N-NITROSODI-n-PROPYLAMINE	0.12	0.700	0.12	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.13	0.700	0.13	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.17	0.700	0.17	U
2,4,5-TRICHLOROPHENOL	0.24	3.3	0.24	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: SB-110-02 Lab Sample ID: A8477105 Matrix: SOIL

% Solids: 85.6 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	0.20	U
2,4-DICHLOROPHENOL	0.30	0.300	0.30	U
2,4-DIMETHYLPHENOL	0.31	0.300	0.31	U
2,4-DINITROPHENOL	0.35	3.3	0.35	U
2-CHLOROPHENOL	0.33	0.300	0.33	U
2-METHYLPHENOL (o-CRESOL)	0.34	0.300	0.34	U
2-NITROPHENOL	0.24	0.300	0.24	U
4,6-DINITRO-2-METHYLPHENOL	0.48	3.3	0.48	U
4-CHLORO-3-METHYLPHENOL	0.23	1.3	0.23	U
4-METHYLPHENOL (p-CRESOL)	0.33	0.300	0.33	U
4-NITROPHENOL	0.22	1.6	0.22	U
BENZOIC ACID	0.43	1.6	0.43	U
PENTACHLOROPHENOL	0.32	3.3	0.32	U
PHENOL	0.32	0.300	0.32	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

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Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A880903501

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: ________

Date Extracted: 6-Nov-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.11	0.700	2.6	
1,2-DICHLOROBENZENE	0.11	0.700	2.3	
1,3-DICHLOROBENZENE	0.11	0.700	2.3	
1,4-DICHLOROBENZENE	0.12	0.700	2.3	
2,4-DINITROTOLUENE	0.12	0.700	2.9	
2,6-DINITROTOLUENE	0.12	0.700	2.6	
2-CHLORONAPHTHALENE	0.12	0.700	2.4	
2-METHYLNAPHTHALENE	0.097	0.700	2.8	
2-NITROANILINE	0.11	3.3	2.2	F
3-NITROANILINE	0.10	3.3	2.4	F
3,3'-DICHLOROBENZIDINE	0.13	1.3	2.5	
4-BROMOPHENYL PHENYL ETHER	0.15	0.700	3.3	
4-CHLOROANILINE	0.10	1.3	1.8	
4-CHLOROPHENYL PHENYL ETHER	0.10	0.700	3.0	
4-NITROANILINE	0.15	3.3	2.5	F
ACENAPHTHYLENE	0.13	0.700	2.7	
ACENAPHTHENE	0.11	0.700	2.7	
ANTHRACENE	0.15	0.700	2.8	
BENZO(a)ANTHRACENE	0.16	0.700	2.7	
BENZO(a)PYRENE	0.16	0.700	2.7	
BENZO(b)FLUORANTHENE	0.14	0.700	3.0	
BENZO(g,h,i)PERYLENE	0.14	0.700	2.2	
BENZYL ALCOHOL	0.12	1.3	2.6	
bis(2-CHLOROETHOXY) METHANE	0.12	0.700	2.1	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.17	0.700	1.7	

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

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454 322

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A880903501

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: ________

Date Extracted: 6-Nov-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.033	0.700	3.1	
bis(2-ETHYLHEXYL) PHTHALATE	0.16	0.700	2.1	
BENZYL BUTYL PHTHALATE	0.15	0.700	2.0	
CHRYSENE	0.14	0.700	3.0	
DI-n-BUTYL PHTHALATE	0.16	0.700	2.5	
DI-n-OCTYL PHTHALATE	0.17	0.700	2.2	
DIBENZ(a,h)ANTHRACENE	0.15	0.700	2.6	
DIBENZOFURAN	0.11	0.700	2.8	
DIETHYL PHTHALATE	0.12	0.700	2.7	
DIMETHYL PHTHALATE	0.12	0.700	2.8	
FLUORANTHENE	0.17	0.700	3.2	
FLUORENE	0.12	0.700	3.0	
HEXACHLOROBENZENE	0.12	0.700	3.2	
HEXACHLOROBUTADIENE	0.12	0.700	2.9	
HEXACHLOROCYCLOPENTADIENE	0.062	0.700	2.1	
HEXACHLOROETHANE	0.12	0.700	2.1	
INDENO(1,2,3-c,d)PYRENE	0.16	0.700	2.5	
ISOPHORONE	0.13	0.700	2.2	
N-NITROSODIPHENYLAMINE	0.14	0.700	2.7	
N-NITROSODI-n-PROPYLAMINE	0.10	0.700	2.5	
NAPHTHALENE	0.11	0.700	2.5	
NITROBENZENE	0.11	0.700	2.7	
PHENANTHRENE	0.16	0.700	2.9	
PYRENE	0.14	0.700	2.5	
2,4,5-TRICHLOROPHENOL	0.20	3.3	2.6	F

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A8B0903501

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: ________

Date Extracted: 6-Nov-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.18	0.300	2.6	
2,4-DICHLOROPHENOL	0.26	0.300	2.7	
2,4-DIMETHYLPHENOL	0.27	0.300	2.4	
2,4-DINITROPHENOL	0.30	3.3	0.55	F
2-CHLOROPHENOL	0.29	0.300	2.4	
2-METHYLPHENOL (o-CRESOL)	0.30	0.300	2.5	
2-NITROPHENOL	0.21	0.300	2.5	
4,6-DINITRO-2-METHYLPHENOL	0.42	3.3	1.7	F
4-CHLORO-3-METHYLPHENOL	0.20	1.3	2.6	
4-METHYLPHENOL (p-CRESOL)	0.29	0.300	2.6	
4-NITROPHENOL	0.19	1.6	1.4	F
BENZOIC ACID	0.37	1.6	2.0	
PENTACHLOROPHENOL	0.28	3.3	1.3	F
PHENOL	0.28	0.300	2.3	

Comments:

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Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap Prime Contractor: The Environmental Company

Field Sample ID	Lab Sample ID
SB-116-01	A8477201
SB-117-01	A8477202
SB-118-01	A8477203
SB-119-01	A8477204
SB-119-01 MS	A8477204MS
SB-119-01 SD	A8477204SD
SB-119-02	A8477205
SB-120-01	A8477206

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: K E Kasperek Name: Kenneth E. Kasperek

Date: 1/26/99 Title: Laboratory Director

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-116-01 Lab Sample ID: A8477201 Matrix: SOIL

% Solids: 89.6 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.12	0.700	0.12	U
1,3-DICHLOROBENZENE	0.12	0.700	0.12	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.13	0.700	0.13	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.12	3.3	0.12	U
3-NITROANILINE	0.11	3.3	0.11	U
3,3'-DICHLOROBENZIDINE	0.14	1.3	0.14	U
4-BROMOPHENYL PHENYL ETHER	0.16	0.700	0.16	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.17	3.3	0.17	U
ACENAPHTHYLENE	0.14	0.700	0.14	U
ACENAPHTHENE	0.12	0.700	0.12	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.18	0.700	0.18	U
BENZO(a)PYRENE	0.17	0.700	0.17	U
BENZO(b)FLUORANTHENE	0.15	0.700	0.15	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.13	1.3	0.13	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

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Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-116-01

Lab Sample ID: A8477201

Matrix: SOIL

% Solids: 89.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.037	0.700	0.037	U
bis(2-ETHYLHEXYL) PHTHALATE	0.18	0.700	0.18	U
BENZYL BUTYL PHTHALATE	0.16	0.700	0.16	U
CHRYSENE	0.15	0.700	0.15	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.19	0.700	0.19	U
DIBENZ(a,h)ANTHRACENE	0.17	0.700	0.17	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.13	0.700	0.13	U
DIMETHYL PHTHALATE	0.13	0.700	0.13	U
FLUORANTHENE	0.19	0.700	0.19	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.070	0.700	0.070	U
HEXACHLOROETHANE	0.13	0.700	0.13	U
INDENO(1,2,3-c,d)PYRENE	0.18	0.700	0.18	U
ISOPHORONE	0.15	0.700	0.15	U
N-NITROSODIPHENYLAMINE	0.15	0.700	0.15	U
N-NITROSODI-n-PROPYLAMINE	0.11	0.700	0.11	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.12	0.700	0.12	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.16	0.700	0.16	U
2,4,5-TRICHLOROPHENOL	0.23	3.3	0.23	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

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Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-116-01

Lab Sample ID: A8477201

Matrix: SOIL

% Solids: 89.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	0.20	U
2,4-DICHLOROPHENOL	0.29	0.300	0.29	U
2,4-DIMETHYLPHENOL	0.30	0.300	0.30	U
2,4-DINITROPHENOL	0.34	3.3	0.34	U
2-CHLOROPHENOL	0.32	0.300	0.32	U
2-METHYLPHENOL (o-CRESOL)	0.33	0.300	0.33	U
2-NITROPHENOL	0.24	0.300	0.24	U
4,6-DINITRO-2-METHYLPHENOL	0.47	3.3	0.47	U
4-CHLORO-3-METHYLPHENOL	0.22	1.3	0.22	U
4-METHYLPHENOL (p-CRESOL)	0.32	0.300	0.32	U
4-NITROPHENOL	0.22	1.6	0.22	U
BENZOIC ACID	0.41	1.6	0.41	U
PENTACHLOROPHENOL	0.31	3.3	0.31	U
PHENOL	0.32	0.300	0.32	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

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Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-117-01 Lab Sample ID: A8477202 Matrix: SOIL

% Solids: 89.4 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.12	0.700	0.12	U
1,3-DICHLOROBENZENE	0.12	0.700	0.12	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.13	0.700	0.13	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.12	3.3	0.12	U
3-NITROANILINE	0.11	3.3	0.11	U
3,3'-DICHLOROBENZIDINE	0.14	1.3	0.14	U
4-BROMOPHENYL PHENYL ETHER	0.16	0.700	0.16	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.17	3.3	0.17	U
ACENAPHTHYLENE	0.14	0.700	0.14	U
ACENAPHTHENE	0.12	0.700	0.12	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.18	0.700	0.18	U
BENZO(a)PYRENE	0.17	0.700	0.17	U
BENZO(b)FLUORANTHENE	0.15	0.700	0.15	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.13	1.3	0.13	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-117-01

Lab Sample ID: A8477202

Matrix: SOIL

% Solids: 89.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.037	0.700	0.037	U
bis(2-ETHYLHEXYL) PHTHALATE	0.18	0.700	0.18	U
BENZYL BUTYL PHTHALATE	0.16	0.700	0.16	U
CHRYSENE	0.15	0.700	0.15	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.19	0.700	0.19	U
DIBENZ(a,h)ANTHRACENE	0.17	0.700	0.17	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.13	0.700	0.13	U
DIMETHYL PHTHALATE	0.13	0.700	0.13	U
FLUORANTHENE	0.19	0.700	0.19	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.070	0.700	0.070	U
HEXACHLOROETHANE	0.13	0.700	0.13	U
INDENO(1,2,3-c,d)PYRENE	0.18	0.700	0.18	U
ISOPHORONE	0.15	0.700	0.15	U
N-NITROSODIPHENYLAMINE	0.15	0.700	0.15	U
N-NITROSODI-n-PROPYLAMINE	0.11	0.700	0.11	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.12	0.700	0.12	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.16	0.700	0.16	U
2,4,5-TRICHLOROPHENOL	0.23	3.3	0.23	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495D080

Field Sample ID: SB-117-01 Lab Sample ID: A8477202 Matrix: SOIL

% Solids: 89.4 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	0.20	U
2,4-DICHLOROPHENOL	0.29	0.300	0.29	U
2,4-DIMETHYLPHENOL	0.30	0.300	0.30	U
2,4-DINITROPHENOL	0.34	3.3	0.34	U
2-CHLOROPHENOL	0.32	0.300	0.32	U
2-METHYLPHENOL (o-CRESOL)	0.33	0.300	0.33	U
2-NITROPHENOL	0.24	0.300	0.24	U
4,6-DINITRO-2-METHYLPHENOL	0.46	3.3	0.46	U
4-CHLORO-3-METHYLPHENOL	0.22	1.3	0.22	U
4-METHYLPHENOL (p-CRESOL)	0.32	0.300	0.32	U
4-NITROPHENOL	0.22	1.6	0.22	U
BENZOIC ACID	0.41	1.6	0.41	U
PENTACHLOROPHENOL	0.31	3.3	0.31	U
PHENOL	0.32	0.300	0.32	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495D080

Field Sample ID: SB-118-01 Lab Sample ID: A8477203 Matrix: SOIL

% Solids: 86.2 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.13	0.700	0.13	U
1,3-DICHLOROBENZENE	0.13	0.700	0.13	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.14	0.700	0.14	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.13	3.3	0.13	U
3-NITROANILINE	0.12	3.3	0.12	U
3,3'-DICHLOROBENZIDINE	0.15	1.3	0.15	U
4-BROMOPHENYL PHENYL ETHER	0.17	0.700	0.17	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.18	3.3	0.18	U
ACENAPHTHYLENE	0.15	0.700	0.15	U
ACENAPHTHENE	0.13	0.700	0.13	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.19	0.700	0.19	U
BENZO(a)PYRENE	0.18	0.700	0.18	U
BENZO(b)FLUORANTHENE	0.16	0.700	0.16	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.14	1.3	0.14	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-118-01 Lab Sample ID: A8477203 Matrix: SOIL

% Solids: 86.2 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.038	0.700	0.038	U
bis(2-ETHYLHEXYL) PHTHALATE	0.19	0.700	0.19	U
BENZYL BUTYL PHTHALATE	0.17	0.700	0.17	U
CHRYSENE	0.16	0.700	0.16	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.20	0.700	0.20	U
DIBENZ(a,h)ANTHRACENE	0.18	0.700	0.18	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.14	0.700	0.14	U
DIMETHYL PHTHALATE	0.14	0.700	0.14	U
FLUORANTHENE	0.20	0.700	0.20	U
FLUORENE	0.15	0.700	0.15	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.072	0.700	0.072	U
HEXACHLOROETHANE	0.14	0.700	0.14	U
INDENO(1,2,3-c,d)PYRENE	0.19	0.700	0.19	U
ISOPHORONE	0.16	0.700	0.16	U
N-NITROSODIPHENYLAMINE	0.16	0.700	0.16	U
N-NITROSODI-n-PROPYLAMINE	0.12	0.700	0.12	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.13	0.700	0.13	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.17	0.700	0.17	U
2,4,5-TRICHLOROPHENOL	0.24	3.3	0.24	U

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Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-118-01

Lab Sample ID: A8477203

Matrix: SOIL

% Solids: 86.2

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	0.20	U
2,4-DICHLOROPHENOL	0.30	0.300	0.30	U
2,4-DIMETHYLPHENOL	0.31	0.300	0.31	U
2,4-DINITROPHENOL	0.35	3.3	0.35	U
2-CHLOROPHENOL	0.34	0.300	0.34	U
2-METHYLPHENOL (o-CRESOL)	0.34	0.300	0.34	U
2-NITROPHENOL	0.25	0.300	0.25	U
4,6-DINITRO-2-METHYLPHENOL	0.48	3.3	0.48	U
4-CHLORO-3-METHYLPHENOL	0.23	1.3	0.23	U
4-METHYLPHENOL (p-CRESOL)	0.34	0.300	0.34	U
4-NITROPHENOL	0.22	1.6	0.22	U
BENZOIC ACID	0.43	1.6	0.43	U
PENTACHLOROPHENOL	0.32	3.3	0.32	U
PHENOL	0.33	0.300	0.33	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-119-01

Lab Sample ID: A8477204

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.13	0.700	0.13	U
1,3-DICHLOROBENZENE	0.13	0.700	0.13	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.14	0.700	0.14	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.12	3.3	0.12	U
3-NITROANILINE	0.11	3.3	0.11	U
3,3'-DICHLOROBENZIDINE	0.15	1.3	0.15	U
4-BROMOPHENYL PHENYL ETHER	0.17	0.700	0.17	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.17	3.3	0.17	U
ACENAPHTHYLENE	0.15	0.700	0.15	U
ACENAPHTHENE	0.12	0.700	0.12	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.18	0.700	0.18	U
BENZO(a)PYRENE	0.18	0.700	0.18	U
BENZO(b)FLUORANTHENE	0.16	0.700	0.16	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.13	1.3	0.13	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

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ORGANIC ANALYSES DATA SHEET 2
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Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-119-01

Lab Sample ID: A8477204

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.037	0.700	0.037	U
bis(2-ETHYLHEXYL) PHTHALATE	0.18	0.700	0.18	U
BENZYL BUTYL PHTHALATE	0.17	0.700	0.17	U
CHRYSENE	0.16	0.700	0.16	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.19	0.700	0.19	U
DIBENZ(a,h)ANTHRACENE	0.18	0.700	0.18	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.13	0.700	0.13	U
DIMETHYL PHTHALATE	0.14	0.700	0.14	U
FLUORANTHENE	0.19	0.700	0.19	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.071	0.700	0.071	U
HEXACHLOROETHANE	0.13	0.700	0.13	U
INDENO(1,2,3-c,d)PYRENE	0.19	0.700	0.19	U
ISOPHORONE	0.15	0.700	0.15	U
N-NITROSODIPHENYLAMINE	0.16	0.700	0.16	U
N-NITROSODI-n-PROPYLAMINE	0.12	0.700	0.12	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.12	0.700	0.12	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.16	0.700	0.16	U
2,4,5-TRICHLOROPHENOL	0.23	3.3	0.23	U

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-119-01

Lab Sample ID: A8477204

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	0.20	U
2,4-DICHLOROPHENOL	0.30	0.300	0.30	U
2,4-DIMETHYLPHENOL	0.30	0.300	0.30	U
2,4-DINITROPHENOL	0.35	3.3	0.35	U
2-CHLOROPHENOL	0.33	0.300	0.33	U
2-METHYLPHENOL (o-CRESOL)	0.34	0.300	0.34	U
2-NITROPHENOL	0.24	0.300	0.24	U
4,6-DINITRO-2-METHYLPHENOL	0.48	3.3	0.48	U
4-CHLORO-3-METHYLPHENOL	0.22	1.3	0.22	U
4-METHYLPHENOL (p-CRESOL)	0.33	0.300	0.33	U
4-NITROPHENOL	0.22	1.6	0.22	U
BENZOIC ACID	0.42	1.6	0.42	U
PENTACHLOROPHENOL	0.32	3.3	0.32	U
PHENOL	0.32	0.300	0.32	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495D080

Field Sample ID: SB-119-01 MS Lab Sample ID: A8477204MS Matrix: SOIL

% Solids: 87.7 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	3.1	
1,2-DICHLOROBENZENE	0.12	0.700	2.8	
1,3-DICHLOROBENZENE	0.12	0.700	2.7	
1,4-DICHLOROBENZENE	0.14	0.700	2.7	
2,4-DINITROTOLUENE	0.14	0.700	3.4	
2,6-DINITROTOLUENE	0.13	0.700	3.4	
2-CHLORONAPHTHALENE	0.13	0.700	2.8	
2-METHYLNAPHTHALENE	0.11	0.700	3.3	
2-NITROANILINE	0.12	3.3	2.7	F
3-NITROANILINE	0.11	3.3	2.7	F
3,3'-DICHLOROBENZIDINE	0.14	1.3	3.4	
4-BROMOPHENYL PHENYL ETHER	0.16	0.700	4.2	
4-CHLOROANILINE	0.12	1.3	2.8	
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	3.5	
4-NITROANILINE	0.17	3.3	2.8	F
ACENAPHTHYLENE	0.14	0.700	3.1	
ACENAPHTHENE	0.12	0.700	3.1	
ANTHRACENE	0.17	0.700	3.8	
BENZO(a)ANTHRACENE	0.18	0.700	3.5	
BENZO(a)PYRENE	0.17	0.700	3.5	
BENZO(b)FLUORANTHENE	0.15	0.700	3.7	
BENZO(g,h,i)PERYLENE	0.16	0.700	3.7	
BENZYL ALCOHOL	0.13	1.3	3.1	
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	2.5	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	2.0	

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-119-01 MS

Lab Sample ID: A8477204MS

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.037	0.700	3.7	
bis(2-ETHYLHEXYL) PHTHALATE	0.18	0.700	2.7	
BENZYL BUTYL PHTHALATE	0.16	0.700	2.4	
CHRYSENE	0.15	0.700	3.7	
DI-n-BUTYL PHTHALATE	0.18	0.700	3.2	
DI-n-OCTYL PHTHALATE	0.19	0.700	2.6	
DIBENZ(a,h)ANTHRACENE	0.17	0.700	3.9	
DIBENZOFURAN	0.13	0.700	3.4	
DIETHYL PHTHALATE	0.13	0.700	3.2	
DIMETHYL PHTHALATE	0.13	0.700	3.3	
FLUORANTHENE	0.19	0.700	3.9	
FLUORENE	0.14	0.700	3.5	
HEXACHLOROBENZENE	0.14	0.700	3.9	
HEXACHLOROBUTADIENE	0.14	0.700	3.4	
HEXACHLOROCYCLOPENTADIENE	0.070	0.700	3.2	
HEXACHLOROETHANE	0.13	0.700	2.4	
INDENO(1,2,3-c,d)PYRENE	0.18	0.700	4.0	
ISOPHORONE	0.15	0.700	2.6	
N-NITROSODIPHENYLAMINE	0.15	0.700	3.2	
N-NITROSODI-n-PROPYLAMINE	0.11	0.700	2.7	
NAPHTHALENE	0.13	0.700	3.0	
NITROBENZENE	0.12	0.700	3.1	
PHENANTHRENE	0.18	0.700	3.6	
PYRENE	0.16	0.700	3.2	
2,4,5-TRICHLOROPHENOL	0.23	3.3	3.2	F

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: S8-119-01 MS

Lab Sample ID: A8477204MS

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	3.0	
2,4-DICHLOROPHENOL	0.29	0.300	3.2	
2,4-DIMETHYLPHENOL	0.30	0.300	2.8	
2,4-DINITROPHENOL	0.34	3.3	2.3	F
2-CHLOROPHENOL	0.32	0.300	2.8	
2-METHYLPHENOL (o-CRESOL)	0.33	0.300	2.8	
2-NITROPHENOL	0.24	0.300	3.0	
4,6-DINITRO-2-METHYLPHENOL	0.46	3.3	3.7	
4-CHLORO-3-METHYLPHENOL	0.22	1.3	3.2	
4-METHYLPHENOL (p-CRESOL)	0.32	0.300	3.1	
4-NITROPHENOL	0.22	1.6	2.3	
BENZOIC ACID	0.41	1.6	1.2	F
PENTACHLOROPHENOL	0.31	3.3	5.3	
PHENOL	0.32	0.300	2.9	

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-119-01 SO Lab Sample ID: A8477204SD Matrix: SOIL

% Solids: 87.7 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.12	0.700	0.12	U
1,3-DICHLOROBENZENE	0.12	0.700	0.12	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.14	0.700	0.14	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.13	0.700	0.13	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.12	3.3	0.12	U
3-NITROANILINE	0.11	3.3	0.11	U
3,3'-DICHLOROBENZIDINE	0.14	1.3	0.14	U
4-BROMOPHENYL PHENYL ETHER	0.16	0.700	0.16	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.12	0.700	0.12	U
4-NITROANILINE	0.17	3.3	0.17	U
ACENAPHTHYLENE	0.14	0.700	0.14	U
ACENAPHTHENE	0.12	0.700	0.12	U
ANTHRACENE	0.17	0.700	0.17	U
BENZO(a)ANTHRACENE	0.18	0.700	0.18	U
BENZO(a)PYRENE	0.17	0.700	0.17	U
BENZO(b)FLUORANTHENE	0.15	0.700	0.15	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.13	1.3	0.13	U
bis(2-CHLOROETHOXY) METHANE	0.14	0.700	0.14	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.20	0.700	0.20	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-119-01 SD

Lab Sample ID: A8477204SD

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.036	0.700	0.036	U
bis(2-ETHYLHEXYL) PHTHALATE	0.18	0.700	0.22	F
BENZYL BUTYL PHTHALATE	0.16	0.700	0.16	U
CHRYSENE	0.15	0.700	0.15	U
DI-n-BUTYL PHTHALATE	0.18	0.700	0.18	U
DI-n-OCTYL PHTHALATE	0.19	0.700	0.19	U
DIBENZ(a,h)ANTHRACENE	0.17	0.700	0.17	U
DIBENZOFURAN	0.13	0.700	0.13	U
DIETHYL PHTHALATE	0.13	0.700	0.13	U
DIMETHYL PHTHALATE	0.13	0.700	0.13	U
FLUORANTHENE	0.19	0.700	0.19	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.14	0.700	0.14	U
HEXACHLOROBUTADIENE	0.14	0.700	0.14	U
HEXACHLOROCYCLOPENTADIENE	0.070	0.700	0.070	U
HEXACHLOROETHANE	0.13	0.700	0.13	U
INDENO(1,2,3-c,d)PYRENE	0.18	0.700	0.18	U
ISOPHORONE	0.15	0.700	0.15	U
N-NITROSODIPHENYLAMINE	0.15	0.700	0.15	U
N-NITROSODI-n-PROPYLAMINE	0.11	0.700	0.11	U
NAPHTHALENE	0.13	0.700	0.13	U
NITROBENZENE	0.12	0.700	0.12	U
PHENANTHRENE	0.18	0.700	0.18	U
PYRENE	0.16	0.700	0.16	U
2,4,5-TRICHLOROPHENOL	0.23	3.3	0.23	U

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RESULTS

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Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-119-01 SD

Lab Sample ID: A8477204SD

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.20	0.300	0.20	U
2,4-DICHLOROPHENOL	0.29	0.300	0.29	U
2,4-DIMETHYLPHENOL	0.30	0.300	0.30	U
2,4-DINITROPHENOL	0.34	3.3	0.34	U
2-CHLOROPHENOL	0.32	0.300	2.3	
2-METHYLPHENOL (o-CRESOL)	0.33	0.300	0.33	U
2-NITROPHENOL	0.24	0.300	0.24	U
4,6-DINITRO-2-METHYLPHENOL	0.46	3.3	0.46	U
4-CHLORO-3-METHYLPHENOL	0.22	1.3	0.22	U
4-METHYLPHENOL (p-CRESOL)	0.32	0.300	0.32	U
4-NITROPHENOL	0.21	1.6	0.21	U
BENZOIC ACID	0.41	1.6	0.41	U
PENTACHLOROPHENOL	0.31	3.3	0.31	U
PHENOL	0.31	0.300	0.31	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-119-02

Lab Sample ID: A8477205

Matrix: SOIL

% Solids: 89.8

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.12	0.700	0.12	U
1,2-DICHLOROBENZENE	0.12	0.700	0.12	U
1,3-DICHLOROBENZENE	0.12	0.700	0.12	U
1,4-DICHLOROBENZENE	0.14	0.700	0.14	U
2,4-DINITROTOLUENE	0.13	0.700	0.13	U
2,6-DINITROTOLUENE	0.13	0.700	0.13	U
2-CHLORONAPHTHALENE	0.13	0.700	0.13	U
2-METHYLNAPHTHALENE	0.11	0.700	0.11	U
2-NITROANILINE	0.12	3.3	0.12	U
3-NITROANILINE	0.11	3.3	0.11	U
3,3'-DICHLOROBENZIDINE	0.14	1.3	0.14	U
4-BROMOPHENYL PHENYL ETHER	0.16	0.700	0.16	U
4-CHLOROANILINE	0.12	1.3	0.12	U
4-CHLOROPHENYL PHENYL ETHER	0.11	0.700	0.11	U
4-NITROANILINE	0.16	3.3	0.16	U
ACENAPHTHYLENE	0.14	0.700	0.14	U
ACENAPHTHENE	0.12	0.700	0.12	U
ANTHRACENE	0.16	0.700	0.16	U
BENZO(a)ANTHRACENE	0.18	0.700	0.18	U
BENZO(a)PYRENE	0.17	0.700	0.17	U
BENZO(b)FLUORANTHENE	0.15	0.700	0.15	U
BENZO(g,h,i)PERYLENE	0.16	0.700	0.16	U
BENZYL ALCOHOL	0.13	1.3	0.13	U
bis(2-CHLOROETHOXY) METHANE	0.13	0.700	0.13	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.19	0.700	0.19	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: SB-119-02 Lab Sample ID: A8477205 Matrix: SOIL

% Solids: 89.8 Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 6-Nov-98 Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.036	0.700	0.036	U
bis(2-ETHYLHEXYL) PHTHALATE	0.18	0.700	0.27	F
BENZYL BUTYL PHTHALATE	0.16	0.700	0.16	U
CHRYSENE	0.15	0.700	0.15	U
DI-n-BUTYL PHTHALATE	0.17	0.700	0.17	U
DI-n-OCTYL PHTHALATE	0.18	0.700	0.18	U
DIBENZ(a,h)ANTHRACENE	0.17	0.700	0.17	U
DIBENZOFURAN	0.12	0.700	0.12	U
DIETHYL PHTHALATE	0.13	0.700	0.13	U
DIMETHYL PHTHALATE	0.13	0.700	0.13	U
FLUORANTHENE	0.19	0.700	0.19	U
FLUORENE	0.14	0.700	0.14	U
HEXACHLOROBENZENE	0.13	0.700	0.13	U
HEXACHLOROBUTADIENE	0.13	0.700	0.13	U
HEXACHLOROCYCLOPENTADIENE	0.068	0.700	0.068	U
HEXACHLOROETHANE	0.13	0.700	0.13	U
INDENO(1,2,3-c,d)PYRENE	0.18	0.700	0.18	U
ISOPHORONE	0.15	0.700	0.15	U
N-NITROSODIPHENYLAMINE	0.15	0.700	0.15	U
N-NITROSODI-n-PROPYLAMINE	0.11	0.700	0.11	U
NAPHTHALENE	0.12	0.700	0.12	U
NITROBENZENE	0.12	0.700	0.12	U
PHENANTHRENE	0.17	0.700	0.17	U
PYRENE	0.16	0.700	0.16	U
2,4,5-TRICHLOROPHENOL	0.22	3.3	0.22	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-119-02

Lab Sample ID: A8477205

Matrix: SOIL

% Solids: 89.8

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.19	0.300	0.19	U
2,4-DICHLOROPHENOL	0.29	0.300	0.29	U
2,4-DIMETHYLPHENOL	0.29	0.300	0.29	U
2,4-DINITROPHENOL	0.33	3.3	0.33	U
2-CHLOROPHENOL	0.32	0.300	0.32	U
2-METHYLPHENOL (o-CRESOL)	0.33	0.300	0.33	U
2-NITROPHENOL	0.23	0.300	0.23	U
4,6-DINITRO-2-METHYLPHENOL	0.46	3.3	0.46	U
4-CHLORO-3-METHYLPHENOL	0.22	1.3	0.22	U
4-METHYLPHENOL (p-CRESOL)	0.32	0.300	0.32	U
4-NITROPHENOL	0.21	1.6	0.21	U
BENZOIC ACID	0.40	1.6	0.40	U
PENTACHLOROPHENOL	0.31	3.3	0.31	U
PHENOL	0.31	0.300	0.31	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98
AAB #: A8809035
Lab Name: STL Buffalo
Contract #: F46162495080
Field Sample ID: SB-120-01
Lab Sample ID: A8477206
Matrix: SOIL
% Solids: 96.5
Dilution: 1.00
Date Received: 26-Oct-98
Date Extracted: 6-Nov-98
Date Analyzed: 24-Nov-98
Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.11	0.700	0.11	U
1,2-DICHLOROBENZENE	0.11	0.700	0.11	U
1,3-DICHLOROBENZENE	0.11	0.700	0.11	U
1,4-DICHLOROBENZENE	0.13	0.700	0.13	U
2,4-DINITROTOLUENE	0.12	0.700	0.12	U
2,6-DINITROTOLUENE	0.12	0.700	0.12	U
2-CHLORONAPHTHALENE	0.12	0.700	0.12	U
2-METHYLNAPHTHALENE	0.099	0.700	0.099	U
2-NITROANILINE	0.11	3.3	0.11	U
3-NITROANILINE	0.10	3.3	0.10	U
3,3'-DICHLOROBENZIDINE	0.13	1.3	0.13	U
4-BROMOPHENYL PHENYL ETHER	0.15	0.700	0.15	U
4-CHLOROANILINE	0.11	1.3	0.11	U
4-CHLOROPHENYL PHENYL ETHER	0.10	0.700	0.10	U
4-NITROANILINE	0.15	3.3	0.15	U
ACENAPHTHYLENE	0.13	0.700	0.13	U
ACENAPHTHENE	0.11	0.700	0.11	U
ANTHRACENE	0.15	0.700	0.15	U
BENZO(a)ANTHRACENE	0.16	0.700	0.16	U
BENZO(a)PYRENE	0.16	0.700	0.16	U
BENZO(b)FLUORANTHENE	0.14	0.700	0.14	U
BENZO(g,h,i)PERYLENE	0.14	0.700	0.14	U
BENZYL ALCOHOL	0.12	1.3	0.12	U
bis(2-CHLOROETHOXY) METHANE	0.12	0.700	0.12	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.18	0.700	0.18	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8809035

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-120-01

Lab Sample ID: A8477206

Matrix: SOIL

% Solids: 96.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.033	0.700	0.033	U
bis(2-ETHYLHEXYL) PHTHALATE	0.16	0.700	0.20	F
BENZYL BUTYL PHTHALATE	0.15	0.700	0.15	U
CHRYSENE	0.14	0.700	0.14	U
DI-n-BUTYL PHTHALATE	0.16	0.700	0.16	U
DI-n-OCTYL PHTHALATE	0.17	0.700	0.17	U
DIBENZ(a,h)ANTHRACENE	0.16	0.700	0.16	U
DIBENZOFURAN	0.12	0.700	0.12	U
DIETHYL PHTHALATE	0.12	0.700	0.12	U
DIMETHYL PHTHALATE	0.12	0.700	0.12	U
FLUORANTHENE	0.17	0.700	0.17	U
FLUORENE	0.13	0.700	0.13	U
HEXACHLOROBENZENE	0.12	0.700	0.12	U
HEXACHLOROBUTADIENE	0.12	0.700	0.12	U
HEXACHLOROCYCLOPENTADIENE	0.064	0.700	0.064	U
HEXACHLOROETHANE	0.12	0.700	0.12	U
INDENO(1,2,3-c,d)PYRENE	0.17	0.700	0.17	U
ISOPHORONE	0.14	0.700	0.14	U
N-NITROSODIPHENYLAMINE	0.14	0.700	0.14	U
N-NITROSODI-n-PROPYLAMINE	0.10	0.700	0.10	U
NAPHTHALENE	0.11	0.700	0.11	U
NITROBENZENE	0.11	0.700	0.11	U
PHENANTHRENE	0.16	0.700	0.16	U
PYRENE	0.15	0.700	0.15	U
2,4,5-TRICHLOROPHENOL	0.21	3.3	0.21	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

000131

Analytical Method: 8270-A98

AAB #: A8B09035

Lab Name: STL Buffalo

Contract #: F46162495D80

454 348

Field Sample ID: SB-120-01

Lab Sample ID: A8477206

Matrix: SOIL

% Solids: 96.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 6-Nov-98

Date Analyzed: 24-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.18	0.300	0.18	U
2,4-DICHLOROPHENOL	0.27	0.300	0.27	U
2,4-DIMETHYLPHENOL	0.27	0.300	0.27	U
2,4-DINITROPHENOL	0.31	3.3	0.31	U
2-CHLOROPHENOL	0.29	0.300	0.29	U
2-METHYLPHENOL (o-CRESOL)	0.30	0.300	0.30	U
2-NITROPHENOL	0.22	0.300	0.22	U
4,6-DINITRO-2-METHYLPHENOL	0.42	3.3	0.42	U
4-CHLORO-3-METHYLPHENOL	0.20	1.3	0.20	U
4-METHYLPHENOL (p-CRESOL)	0.29	0.300	0.29	U
4-NITROPHENOL	0.20	1.6	0.20	U
BENZOIC ACID	0.38	1.6	0.38	U
PENTACHLOROPHENOL	0.28	3.3	0.28	U
PHENOL	0.29	0.300	0.29	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B09035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A8B0903501 Matrix: SOIL

% Solids: 100.0 Dilution: 1.00

Date Received: ________ Date Extracted: 6-Nov-98 Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.11	0.700	2.6	
1,2-DICHLOROBENZENE	0.11	0.700	2.3	
1,3-DICHLOROBENZENE	0.11	0.700	2.3	
1,4-DICHLOROBENZENE	0.12	0.700	2.3	
2,4-DINITROTOLUENE	0.12	0.700	2.9	
2,6-DINITROTOLUENE	0.12	0.700	2.6	
2-CHLORONAPHTHALENE	0.12	0.700	2.4	
2-METHYLNAPHTHALENE	0.097	0.700	2.8	
2-NITROANILINE	0.11	3.3	2.2	F
3-NITROANILINE	0.10	3.3	2.4	F
3,3'-DICHLOROBENZIDINE	0.13	1.3	2.5	
4-BROMOPHENYL PHENYL ETHER	0.15	0.700	3.3	
4-CHLOROANILINE	0.10	1.3	1.8	
4-CHLOROPHENYL PHENYL ETHER	0.10	0.700	3.0	
4-NITROANILINE	0.15	3.3	2.5	F
ACENAPHTHYLENE	0.13	0.700	2.7	
ACENAPHTHENE	0.11	0.700	2.7	
ANTHRACENE	0.15	0.700	2.8	
BENZO(a)ANTHRACENE	0.16	0.700	2.7	
BENZO(a)PYRENE	0.16	0.700	2.7	
BENZO(b)FLUORANTHENE	0.14	0.700	3.0	
BENZO(g,h,i)PERYLENE	0.14	0.700	2.2	
BENZYL ALCOHOL	0.12	1.3	2.6	
bis(2-CHLOROETHOXY) METHANE	0.12	0.700	2.1	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	0.17	0.700	1.7	

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

454 350

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A880903501 Matrix: SOIL

% Solids: 100.0 Dilution: 1.00

Date Received: ________ Date Extracted: 6-Nov-98 Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	0.033	0.700	3.1	
bis(2-ETHYLHEXYL) PHTHALATE	0.16	0.700	2.1	
BENZYL BUTYL PHTHALATE	0.15	0.700	2.0	
CHRYSENE	0.14	0.700	3.0	
DI-n-BUTYL PHTHALATE	0.16	0.700	2.5	
DI-n-OCTYL PHTHALATE	0.17	0.700	2.2	
DIBENZ(a,h)ANTHRACENE	0.15	0.700	2.6	
DIBENZOFURAN	0.11	0.700	2.8	
DIETHYL PHTHALATE	0.12	0.700	2.7	
DIMETHYL PHTHALATE	0.12	0.700	2.8	
FLUORANTHENE	0.17	0.700	3.2	
FLUORENE	0.12	0.700	3.0	
HEXACHLOROBENZENE	0.12	0.700	3.2	
HEXACHLOROBUTADIENE	0.12	0.700	2.9	
HEXACHLOROCYCLOPENTADIENE	0.062	0.700	2.1	
HEXACHLOROETHANE	0.12	0.700	2.1	
INDENO(1,2,3-c,d)PYRENE	0.16	0.700	2.5	
ISOPHORONE	0.13	0.700	2.2	
N-NITROSODIPHENYLAMINE	0.14	0.700	2.7	
N-NITROSODI-n-PROPYLAMINE	0.10	0.700	2.5	
NAPHTHALENE	0.11	0.700	2.5	
NITROBENZENE	0.11	0.700	2.7	
PHENANTHRENE	0.16	0.700	2.9	
PYRENE	0.14	0.700	2.5	
2,4,5-TRICHLOROPHENOL	0.20	3.3	2.6	F

454 351

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8809035

Lab Name: STL Buffalo Contract #: F46162495D080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A880903501 Matrix: SOIL

% Solids: 100.0 Dilution: 1.00

Date Received: ________ Date Extracted: 6-Nov-98 Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	0.18	0.300	2.6	
2,4-DICHLOROPHENOL	0.26	0.300	2.7	
2,4-DIMETHYLPHENOL	0.27	0.300	2.4	
2,4-DINITROPHENOL	0.30	3.3	0.55	F
2-CHLOROPHENOL	0.29	0.300	2.4	
2-METHYLPHENOL (o-CRESOL)	0.30	0.300	2.5	
2-NITROPHENOL	0.21	0.300	2.5	
4,6-DINITRO-2-METHYLPHENOL	0.42	3.3	1.7	F
4-CHLORO-3-METHYLPHENOL	0.20	1.3	2.6	
4-METHYLPHENOL (p-CRESOL)	0.29	0.300	2.6	
4-NITROPHENOL	0.19	1.6	1.4	F
BENZOIC ACID	0.37	1.6	2.0	
PENTACHLOROPHENOL	0.28	3.3	1.3	F
PHENOL	0.28	0.300	2.3	

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

454 352

Analytical Method: 8021-A98

AAB #: A9B00283

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-108-01

Lab Sample ID: A8477102

Matrix: SOIL

% Solids: 87.8

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.00051	0.010	0.00051	U
ETHYLBENZENE	0.00011	0.010	0.00011	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
TOLUENE	0.00027	0.010	0.0032	F
tert-BUTYL METHYL ETHER	0.00026	0.010	0.00026	U

Comments:

451 353

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8021-A98

Lab Name: STL Buffalo

Field Sample ID: SB-109-01

Lab Sample ID: A8477106

% Solids: 86.2

Date Received: 26-Oct-98

Date Extracted: ________

AAB #: A9B00283

Contract #: F46162495D80

Matrix: SOIL

Dilution: 1.00

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.00051	0.010	0.00051	U
ETHYLBENZENE	0.00011	0.010	0.00011	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
TOLUENE	0.00027	0.010	0.00027	U
tert-BUTYL METHYL ETHER	0.00026	0.010	0.00026	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8021-A98

AAB #: A9B00283

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-109-02

Lab Sample ID: A8477108

Matrix: SOIL

% Solids: 86.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 27-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.00051	0.010	0.00051	U
ETHYLBENZENE	0.00011	0.010	0.00011	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
TOLUENE	0.00027	0.010	0.00042	F
tert-BUTYL METHYL ETHER	0.00026	0.010	0.00026	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8021-A98

AAB #: A9B00283

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-109-03

Lab Sample ID: A8477107

Matrix: SOIL

% Solids: 86.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.00052	0.010	0.00052	U
ETHYLBENZENE	0.00011	0.010	0.00011	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
TOLUENE	0.00027	0.010	0.0015	F
tert-BUTYL METHYL ETHER	0.00027	0.010	0.00027	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8021-A98

AAB #: A9B00283

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: SB-110-01

Lab Sample ID: A8477104

Matrix: SOIL

% Solids: 86.2

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.00052	0.010	0.00052	U
ETHYLBENZENE	0.00011	0.010	0.00011	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
TOLUENE	0.00027	0.010	0.00094	F
tert-BUTYL METHYL ETHER	0.00027	0.010	0.00027	U

Comments:

451 357

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

000016

Analytical Method: 8021-A98

AAB #: A9B00283

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-110-02

Lab Sample ID: A8477105

Matrix: SOIL

% Solids: 86.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.00051	0.010	0.00051	U
ETHYLBENZENE	0.00011	0.010	0.00011	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.00033	0.010	0.00033	U
TOLUENE	0.00027	0.010	0.0012	F
tert-BUTYL METHYL ETHER	0.00026	0.010	0.00026	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

000017

Analytical Method: 8021-A98

AAB #: A9B00283 454 358

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A9B0028302

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.00046	0.010	0.0036	F
ETHYLBENZENE	0.00010	0.010	0.0038	F
M-XYLENE (1,3-DIMETHYLBENZENE)	0.00030	0.010	0.0076	F
O-XYLENE (1,2-DIMETHYLBENZENE)	0.00030	0.010	0.0037	F
P-XYLENE (1,4-DIMETHYLBENZENE)	0.00030	0.010	0.00030	U
TOLUENE	0.00024	0.010	0.0038	F
tert-BUTYL METHYL ETHER	0.00024	0.010	0.0034	F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

000018

454 359

Analytical Method: 8021-A98

AAB #: A9800283

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: Matrix Spike Blk Dup

Lab Sample ID: A9B0028303

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.00046	0.010	0.0035	F
ETHYLBENZENE	0.00010	0.010	0.0037	F
M-XYLENE (1,3-DIMETHYLBENZENE)	0.00030	0.010	0.0073	F
O-XYLENE (1,2-DIMETHYLBENZENE)	0.00030	0.010	0.0036	F
P-XYLENE (1,4-DIMETHYLBENZENE)	0.00030	0.010	0.00030	U
TOLUENE	0.00024	0.010	0.0036	F
tert-BUTYL METHYL ETHER	0.00024	0.010	0.0032	F

Comments:

ORGANIC ANALYSES DATA PACKAGE

Analytical Method: 8021-A98

AAB #: A8B09672

Lab Name: Recra LabNet

Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap

Prime Contractor: The Environmental Company

Field Sample ID	Lab Sample ID
EB-100	A8477207
TB-100	A8477208
TB-101	A8477101

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [signature]

Name: Kenneth E. Kasperek

Date: 11/26/99

Title: Laboratory Director

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8021-A98 AAB #: A8809672

Lab Name: Recra LabNet Contract #: F46162495D80

Field Sample ID: EB-100 Lab Sample ID: A8477207 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: ________ Date Analyzed: 27-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	0.15	U
ETHYLBENZENE	0.15	0.200	0.15	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	0.25	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	0.086	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	0.84	
tert-BUTYL METHYL ETHER	0.23	0.500	0.23	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8021-A98

AAB #: A8B09672

Lab Name: Recra LabNet

Contract #: F46162495D80

Field Sample ID: TB-100

Lab Sample ID: A8477208

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ______

Date Analyzed: 27-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	0.15	U
ETHYLBENZENE	0.15	0.200	0.15	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	0.25	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	0.086	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	0.16	U
tert-BUTYL METHYL ETHER	0.23	0.500	0.23	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

454 363

Analytical Method: 8021-A98

AAB #: A8809672

Lab Name: Recra LabNet

Contract #: F46162495D080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A880967202

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: 27-Oct-98

Date Extracted: ______

Date Analyzed: 27-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	4.1	
ETHYLBENZENE	0.15	0.200	4.3	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	8.4	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	4.1	
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	4.1	
tert-BUTYL METHYL ETHER	0.23	0.500	4.4	

Comments: M-xylene and p-xylene coelute

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8021-A98 AAB #: A8809672

Lab Name: Recra LabNet Contract #: F46162495D080

Field Sample ID: Matrix Spike Blk Dup Lab Sample ID: A880967203 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 27-Oct-98 Date Extracted: ________ Date Analyzed: 27-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	4.1	
ETHYLBENZENE	0.15	0.200	4.2	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	8.4	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	4.1	
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	4.1	
tert-BUTYL METHYL ETHER	0.23	0.500	4.5	

Comments: m-xylene and p-xylene Coelute.

454 365

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

000028

Analytical Method: 8021-A98

AAB #: A9B00285

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: AB-100

Lab Sample ID: A8477103

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	0.15	U
ETHYLBENZENE	0.15	0.200	0.15	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	0.25	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	0.086	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	0.16	U
tert-BUTYL METHYL ETHER	0.23	0.500	0.23	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

000029
454 366

Analytical Method: 8021-A98

AAB #: A9B00285

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: Trip Blank -101

Lab Sample ID: A8477101

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ____

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	0.15	U
ETHYLBENZENE	0.15	0.200	0.15	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	0.25	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	0.086	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	1.1	
tert-BUTYL METHYL ETHER	0.23	0.500	0.23	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

000030

454 367

Analytical Method: 8021-A98 AAB #: A9B00285

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank Lab Sample ID: A9B0028502 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: ________ Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	3.8	
ETHYLBENZENE	0.15	0.200	3.7	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	7.6	1
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	3.8	
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	1U
TOLUENE	0.16	0.200	3.9	
tert-BUTYL METHYL ETHER	0.23	0.500	3.8	

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8021-A98

AAB #: A9800285

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: Matrix Spike Blk Dup

Lab Sample ID: A980028503

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	3.9	
ETHYLBENZENE	0.15	0.200	3.8	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	7.7	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	3.9	
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	3.9	
tert-BUTYL METHYL ETHER	0.23	0.500	3.7	

Comments:

ORGANIC ANALYSES DATA PACKAGE

Analytical Method: 8260-A98

AAB #: A9B00594

Lab Name: STL Buffalo

Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap

Prime Contractor: The Environmental Company

Field Sample ID	Lab Sample ID
EB-100	A8477207
TB-100	A8477208

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: K E Kasperek

Date: 1/26/99

Name: Kenneth E. Kasperek

Title: Laboratory Director

AFCEE FORM O-1

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98 AAB #: A9800594

Lab Name: STL Buffalo Contract #: F46162495080

Field Sample ID: EB-100 Lab Sample ID: A8477207 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: ________ Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.8	1.0	0.8	U
1,1,1-TRICHLOROETHANE	0.8	1.0	0.8	U
1,1,2,2-TETRACHLOROETHANE	0.8	1.0	0.8	U
1,1,2-TRICHLOROETHANE	1	1.0	1	U
1,1-DICHLOROETHANE	0.6	1.0	0.6	U
1,1-DICHLOROETHENE	1	1.0	1	U
1,1-DICHLOROPROPENE	0.8	1.0	0.8	U
1,2,3-TRICHLOROBENZENE	0.9	1.0	0.9	U
1,2,3-TRICHLOROPROPANE	0.8	1.0	0.8	U
1,2,4-TRICHLOROBENZENE	0.8	1.0	0.8	U
1,2,4-TRIMETHYLBENZENE	0.9	1.0	0.9	U
1,2-DICHLOROETHANE	0.8	1.0	0.8	U
1,2-DICHLOROBENZENE	0.8	1.0	0.8	U
1,2-DIBROMO-3-CHLOROPROPANE	1	1.0	1	U
1,2-DICHLOROPROPANE	0.7	1.0	0.7	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	1	1.0	1	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.8	1.0	0.8	U
1,3-DICHLOROBENZENE	0.7	1.0	0.7	U
1,3-DICHLOROPROPANE	0.9	1.0	0.9	U
1,4-DICHLOROBENZENE	0.8	1.0	0.8	U
1-CHLOROHEXANE	0.6	1.0	0.6	U
2,2-DICHLOROPROPANE	0.6	1.0	0.6	U
2-CHLOROTOLUENE	0.8	1.0	0.8	U
4-CHLOROTOLUENE	0.8	1.0	0.8	U
BENZENE	0.8	1.0	0.8	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98

AAB #: A9B00594

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids:

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.7	1.0	0.7	U
BROMOCHLOROMETHANE	1	1.0	1	U
BROMODICHLOROMETHANE	1	1.0	1	U
BROMOFORM	0.8	1.0	0.8	U
BROMOMETHANE	1	1.0	1	U
CARBON TETRACHLORIDE	0.8	1.0	0.8	U
CHLOROBENZENE	1	1.0	1	U
CHLOROETHANE	0.8	1.0	0.8	U
CHLOROFORM	0.7	1.0	0.7	U
CHLOROMETHANE	0.7	1.0	0.7	U
cis-1,2-DICHLOROETHYLENE	0.6	1.0	0.6	U
cis-1,3-DICHLOROPROPENE	0.8	1.0	0.8	U
DIBROMOCHLOROMETHANE	0.9	1.0	0.9	U
DIBROMOMETHANE	1	1.0	1	U
DICHLORODIFLUOROMETHANE	1	1.0	1	U
ETHYLBENZENE	0.9	1.0	0.9	U
HEXACHLOROBUTADIENE	0.8	1.0	0.8	U
ISOPROPYLBENZENE (CUMENE)	0.8	1.0	0.8	U
M-XYLENE (1,3-DIMETHYLBENZENE)	2	1.0	2	U
METHYLENE CHLORIDE	1	1.0	1	U
n-BUTYLBENZENE	1	1.0	1	U
n-PROPYLBENZENE	0.9	1.0	0.9	U
NAPHTHALENE	1	1.0	1	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.8	1.0	0.8	U
P-CYMENE (p-ISOPROPYLTOLUENE)	1	1.0	1	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98 AAB #: A9B00594

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: EB-100 Lab Sample ID: A8477207 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: ________ Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	2	1.0	2	U
SEC-BUTYLBENZENE	0.9	1.0	0.9	U
STYRENE	0.8	1.0	0.8	U
TRICHLOROETHYLENE (TCE)	0.8	1.0	0.8	U
t-BUTYLBENZENE	0.8	1.0	0.8	U
TETRACHLOROETHYLENE(PCE)	0.9	1.0	0.9	U
TOLUENE	0.8	1.0	0.8	U
trans-1,2-DICHLOROETHENE	0.8	1.0	0.8	U
trans-1,3-DICHLOROPROPENE	0.8	1.0	0.8	U
TRICHLOROFLUOROMETHANE	0.6	1.0	0.6	U
VINYL CHLORIDE	1	1.0	1	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98 AAB #: A9B00594

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: TB-100 Lab Sample ID: A8477208 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: ________ Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.8	1.0	0.8	U
1,1,1-TRICHLOROETHANE	0.8	1.0	0.8	U
1,1,2,2-TETRACHLOROETHANE	0.8	1.0	0.8	U
1,1,2-TRICHLOROETHANE	1	1.0	1	U
1,1-DICHLOROETHANE	0.6	1.0	0.6	U
1,1-DICHLOROETHENE	1	1.0	1	U
1,1-DICHLOROPROPENE	0.8	1.0	0.8	U
1,2,3-TRICHLOROBENZENE	0.9	1.0	0.9	U
1,2,3-TRICHLOROPROPANE	0.8	1.0	0.8	U
1,2,4-TRICHLOROBENZENE	0.8	1.0	0.8	U
1,2,4-TRIMETHYLBENZENE	0.9	1.0	0.9	U
1,2-DICHLOROETHANE	0.8	1.0	0.8	U
1,2-DICHLOROBENZENE	0.8	1.0	0.8	U
1,2-DIBROMO-3-CHLOROPROPANE	1	1.0	1	U
1,2-DICHLOROPROPANE	0.7	1.0	0.7	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	1	1.0	1	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.8	1.0	0.8	U
1,3-DICHLOROBENZENE	0.7	1.0	0.7	U
1,3-DICHLOROPROPANE	0.9	1.0	0.9	U
1,4-DICHLOROBENZENE	0.8	1.0	0.8	U
1-CHLOROHEXANE	0.6	1.0	0.6	U
2,2-DICHLOROPROPANE	0.6	1.0	0.6	U
2-CHLOROTOLUENE	0.8	1.0	0.8	U
4-CHLOROTOLUENE	0.8	1.0	0.8	U
BENZENE	0.8	1.0	0.8	U

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

454 374

Analytical Method: 8260-A98 AAB #: A9B00594

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: TB-100 Lab Sample ID: A8477208 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: ________ Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.7	1.0	0.7	U
BROMOCHLOROMETHANE	1	1.0	1	U
BROMODICHLOROMETHANE	1	1.0	1	U
BROMOFORM	0.8	1.0	0.8	U
BROMOMETHANE	1	1.0	1	U
CARBON TETRACHLORIDE	0.8	1.0	0.8	U
CHLOROBENZENE	1	1.0	1	U
CHLOROETHANE	0.8	1.0	0.8	U
CHLOROFORM	0.7	1.0	0.7	U
CHLOROMETHANE	0.7	1.0	0.7	U
cis-1,2-DICHLOROETHYLENE	0.6	1.0	0.6	U
cis-1,3-DICHLOROPROPENE	0.8	1.0	0.8	U
DIBROMOCHLOROMETHANE	0.9	1.0	0.9	U
DIBROMOMETHANE	1	1.0	1	U
DICHLORODIFLUOROMETHANE	1	1.0	1	U
ETHYLBENZENE	0.9	1.0	0.9	U
HEXACHLOROBUTADIENE	0.8	1.0	0.8	U
ISOPROPYLBENZENE (CUMENE)	0.8	1.0	0.8	U
M-XYLENE (1,3-DIMETHYLBENZENE)	2	1.0	2	U
METHYLENE CHLORIDE	1	1.0	1	U
n-BUTYLBENZENE	1	1.0	1	U
n-PROPYLBENZENE	0.9	1.0	0.9	U
NAPHTHALENE	1	1.0	1	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.8	1.0	0.8	U
P-CYMENE (p-ISOPROPYLTOLUENE)	1	1.0	1	U

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451 375

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98

AAB #: A9800594

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: TB-100

Lab Sample ID: A8477208

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ____

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	2	1.0	2	U
SEC-BUTYLBENZENE	0.9	1.0	0.9	U
STYRENE	0.8	1.0	0.8	U
TRICHLOROETHYLENE (TCE)	0.8	1.0	0.8	U
t-BUTYLBENZENE	0.8	1.0	0.8	U
TETRACHLOROETHYLENE(PCE)	0.9	1.0	0.9	U
TOLUENE	0.8	1.0	0.8	U
trans-1,2-DICHLOROETHENE	0.8	1.0	0.8	U
trans-1,3-DICHLOROPROPENE	0.8	1.0	0.8	U
TRICHLOROFLUOROMETHANE	0.6	1.0	0.6	U
VINYL CHLORIDE	1	1.0	1	U

Comments:

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98 AAB #: A9800594

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank Lab Sample ID: A980059402 Matrix: WATER

% Solids: ____ Dilution: 1.00

Date Received: 5-Nov-98 Date Extracted: ____ Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.8	1.0	57	
1,1,1-TRICHLOROETHANE	0.8	1.0	60	
1,1,2,2-TETRACHLOROETHANE	0.8	1.0	53	
1,1,2-TRICHLOROETHANE	1	1.0	56	
1,1-DICHLOROETHANE	0.6	1.0	56	
1,1-DICHLOROETHENE	1	1.0	55	
1,1-DICHLOROPROPENE	0.8	1.0	52	
1,2,3-TRICHLOROBENZENE	0.9	1.0	49	
1,2,3-TRICHLOROPROPANE	0.8	1.0	56	
1,2,4-TRICHLOROBENZENE	0.8	1.0	50	
1,2,4-TRIMETHYLBENZENE	0.9	1.0	56	
1,2-DICHLOROETHANE	0.8	1.0	62	
1,2-DICHLOROBENZENE	0.8	1.0	54	
1,2-DIBROMO-3-CHLOROPROPANE	1	1.0	60	
1,2-DICHLOROPROPANE	0.7	1.0	52	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	1	1.0	52	
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.8	1.0	57	
1,3-DICHLOROBENZENE	0.7	1.0	54	
1,3-DICHLOROPROPANE	0.9	1.0	57	
1,4-DICHLOROBENZENE	0.8	1.0	51	
1-CHLOROHEXANE	0.6	1.0	0.6	U
2,2-DICHLOROPROPANE	0.6	1.0	57	
2-CHLOROTOLUENE	0.8	1.0	55	
4-CHLOROTOLUENE	0.8	1.0	55	
BENZENE	0.8	1.0	50	

454 377

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98 AAB #: A9B00594

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank Lab Sample ID: A9B0059402 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 5-Nov-98 Date Extracted: ________ Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.7	1.0	52	
BROMOCHLOROMETHANE	1	1.0	49	
BROMODICHLOROMETHANE	1	1.0	57	
BROMOFORM	0.8	1.0	58	
BROMOMETHANE	1	1.0	51	
CARBON TETRACHLORIDE	0.8	1.0	60	
CHLOROBENZENE	1	1.0	51	
CHLOROETHANE	0.8	1.0	62	
CHLOROFORM	0.7	1.0	57	
CHLOROMETHANE	0.7	1.0	64	
cis-1,2-DICHLOROETHYLENE	0.6	1.0	49	
cis-1,3-DICHLOROPROPENE	0.8	1.0	53	
DIBROMOCHLOROMETHANE	0.9	1.0	58	
DIBROMOMETHANE	1	1.0	54	
DICHLORODIFLUOROMETHANE	1	1.0	81	
ETHYLBENZENE	0.9	1.0	58	
HEXACHLOROBUTADIENE	0.8	1.0	58	
ISOPROPYLBENZENE (CUMENE)	0.8	1.0	56	
M-XYLENE (1,3-DIMETHYLBENZENE)	2	1.0	120	1
METHYLENE CHLORIDE	1	1.0	52	
n-BUTYLBENZENE	1	1.0	55	
n-PROPYLBENZENE	0.9	1.0	58	
NAPHTHALENE	1	1.0	42	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.8	1.0	54	
P-CYMENE (p-ISOPROPYLTOLUENE)	1	1.0	58	

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

451 378

Analytical Method: 8260-A98

AAB #: A9B00594

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A9B0059402

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: 5-Nov-98

Date Extracted: ____

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	2	1.0	2	1U
SEC-BUTYLBENZENE	0.9	1.0	60	
STYRENE	0.8	1.0	52	
TRICHLOROETHYLENE (TCE)	0.8	1.0	50	
t-BUTYLBENZENE	0.8	1.0	55	
TETRACHLOROETHYLENE(PCE)	0.9	1.0	54	
TOLUENE	0.8	1.0	53	
trans-1,2-DICHLOROETHENE	0.8	1.0	48	
trans-1,3-DICHLOROPROPENE	0.8	1.0	58	
TRICHLOROFLUOROMETHANE	0.6	1.0	67	
VINYL CHLORIDE	1	1.0	63	

Comments:

ORGANIC ANALYSES DATA PACKAGE

Analytical Method: 8260-A98

AAB #: A9B00536

Lab Name: STL Buffalo

Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap

Prime Contractor: The Environmental Company

Field Sample ID	Lab Sample ID
AB-100	A8477103

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: K E Kasperek

Name: Kenneth E. Kasperek

Date: 11/26/99

Title: Laboratory Director

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98

AAB #: A9B00536

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: AB-100

Lab Sample ID: A8477103

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.2	1.0	0.2	U
1,1,1-TRICHLOROETHANE	0.2	1.0	0.2	U
1,1,2,2-TETRACHLOROETHANE	0.2	1.0	0.2	U
1,1,2-TRICHLOROETHANE	0.2	1.0	0.2	U
1,1-DICHLOROETHANE	0.1	1.0	0.1	U
1,1-DICHLOROETHENE	0.2	1.0	0.2	U
1,1-DICHLOROPROPENE	0.2	1.0	0.2	U
1,2,3-TRICHLOROBENZENE	0.2	1.0	0.2	U
1,2,3-TRICHLOROPROPANE	0.2	1.0	0.2	U
1,2,4-TRICHLOROBENZENE	0.2	1.0	0.2	U
1,2,4-TRIMETHYLBENZENE	0.2	1.0	0.2	U
1,2-DICHLOROETHANE	0.2	1.0	0.2	U
1,2-DICHLOROBENZENE	0.2	1.0	0.2	U
1,2-DIBROMO-3-CHLOROPROPANE	0.2	1.0	0.2	U
1,2-DICHLOROPROPANE	0.1	1.0	0.1	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.2	1.0	0.2	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.2	1.0	0.2	U
1,3-DICHLOROBENZENE	0.1	1.0	0.1	U
1,3-DICHLOROPROPANE	0.2	1.0	0.2	U
1,4-DICHLOROBENZENE	0.2	1.0	0.2	U
1-CHLOROHEXANE	0.1	1.0	0.1	U
2,2-DICHLOROPROPANE	0.1	1.0	0.1	U
2-CHLOROTOLUENE	0.2	1.0	0.2	U
4-CHLOROTOLUENE	0.2	1.0	0.2	U
BENZENE	0.2	1.0	0.2	U

Analytical Method: 8260-A98

AAB #: A9B00536

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: AB-100

Lab Sample ID: A8477103

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ________

Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.1	1.0	0.1	U
BROMOCHLOROMETHANE	0.2	1.0	0.2	U
BROMODICHLOROMETHANE	0.2	1.0	0.2	U
BROMOFORM	0.2	1.0	0.2	U
BROMOMETHANE	0.2	1.0	0.2	U
CARBON TETRACHLORIDE	0.2	1.0	0.2	U
CHLOROBENZENE	0.2	1.0	0.2	U
CHLOROETHANE	0.2	1.0	0.2	U
CHLOROFORM	0.1	1.0	0.4	F
CHLOROMETHANE	0.1	1.0	0.1	U
cis-1,2-DICHLOROETHYLENE	0.1	1.0	0.1	U
cis-1,3-DICHLOROPROPENE	0.2	1.0	0.2	U
DIBROMOCHLOROMETHANE	0.2	1.0	0.2	U
DIBROMOMETHANE	0.2	1.0	0.2	U
DICHLORODIFLUOROMETHANE	0.2	1.0	0.2	U
ETHYLBENZENE	0.2	1.0	0.2	U
HEXACHLOROBUTADIENE	0.2	1.0	0.2	U
ISOPROPYLBENZENE (CUMENE)	0.2	1.0	0.2	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.4	1.0	0.4	U
METHYLENE CHLORIDE	0.2	1.0	0.4	F
n-BUTYLBENZENE	0.2	1.0	0.2	U
n-PROPYLBENZENE	0.2	1.0	0.2	U
NAPHTHALENE	0.2	1.0	0.2	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.2	1.0	0.2	U
P-CYMENE (p-ISOPROPYLTOLUENE)	0.2	1.0	0.2	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98

AAB #: A9800536

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: AB-100

Lab Sample ID: A8477103

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: ______

Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.4	1.0	0.4	U
SEC-BUTYLBENZENE	0.2	1.0	0.2	U
STYRENE	0.2	1.0	0.2	U
TRICHLOROETHYLENE (TCE)	0.2	1.0	0.2	U
t-BUTYLBENZENE	0.2	1.0	0.2	U
TETRACHLOROETHYLENE(PCE)	0.2	1.0	0.2	U
TOLUENE	0.2	1.0	1	
trans-1,2-DICHLOROETHENE	0.2	1.0	0.2	U
trans-1,3-DICHLOROPROPENE	0.2	1.0	0.2	U
TRICHLOROFLUOROMETHANE	0.1	1.0	0.1	U
VINYL CHLORIDE	0.2	1.0	0.2	U

Comments: M&P Xylene co-elute

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98 AAB #: A9800536

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank Lab Sample ID: A8477109 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: ________ Date Extracted: ________ Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.2	1.0	10	
1,1,1-TRICHLOROETHANE	0.2	1.0	11	
1,1,2,2-TETRACHLOROETHANE	0.2	1.0	9	
1,1,2-TRICHLOROETHANE	0.2	1.0	10	
1,1-DICHLOROETHANE	0.1	1.0	10	
1,1-DICHLOROETHENE	0.2	1.0	11	
1,1-DICHLOROPROPENE	0.2	1.0	11	
1,2,3-TRICHLOROBENZENE	0.2	1.0	8	
1,2,3-TRICHLOROPROPANE	0.2	1.0	10	
1,2,4-TRICHLOROBENZENE	0.2	1.0	8	
1,2,4-TRIMETHYLBENZENE	0.2	1.0	10	
1,2-DICHLOROETHANE	0.2	1.0	9	
1,2-DICHLOROBENZENE	0.2	1.0	10	
1,2-DIBROMO-3-CHLOROPROPANE	0.2	1.0	9	
1,2-DICHLOROPROPANE	0.1	1.0	9	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.2	1.0	10	
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.2	1.0	10	
1,3-DICHLOROBENZENE	0.1	1.0	10	
1,3-DICHLOROPROPANE	0.2	1.0	9	
1,4-DICHLOROBENZENE	0.2	1.0	10	
1-CHLOROHEXANE	0.1	1.0	0.1	U
2,2-DICHLOROPROPANE	0.1	1.0	11	
2-CHLOROTOLUENE	0.2	1.0	10	
4-CHLOROTOLUENE	0.2	1.0	10	
BENZENE	0.2	1.0	10	B

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98 AAB #: A9800536

Lab Name: STL Buffalo Contract #: F46162495D080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A8477109 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: ________ Date Extracted: ________ Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.1	1.0	10	
BROMOCHLOROMETHANE	0.2	1.0	10	
BROMODICHLOROMETHANE	0.2	1.0	10	
BROMOFORM	0.2	1.0	9	
BROMOMETHANE	0.2	1.0	8	
CARBON TETRACHLORIDE	0.2	1.0	11	
CHLOROBENZENE	0.2	1.0	10	
CHLOROETHANE	0.2	1.0	10	
CHLOROFORM	0.1	1.0	10	
CHLOROMETHANE	0.1	1.0	8	
cis-1,2-DICHLOROETHYLENE	0.1	1.0	10	
cis-1,3-DICHLOROPROPENE	0.2	1.0	10	
DIBROMOCHLOROMETHANE	0.2	1.0	10	
DIBROMOMETHANE	0.2	1.0	10	
DICHLORODIFLUOROMETHANE	0.2	1.0	15	
ETHYLBENZENE	0.2	1.0	10	
HEXACHLOROBUTADIENE	0.2	1.0	10	B
ISOPROPYLBENZENE (CUMENE)	0.2	1.0	11	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.4	1.0	21	
METHYLENE CHLORIDE	0.2	1.0	10	
n-BUTYLBENZENE	0.2	1.0	10	
n-PROPYLBENZENE	0.2	1.0	11	
NAPHTHALENE	0.2	1.0	8	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.2	1.0	10	
P-CYMENE (p-ISOPROPYLTOLUENE)	0.2	1.0	11	

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8260-A98

AAB #: A9B00536

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A8477109

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: ____

Date Extracted: ____

Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.4	1.0	21	/
SEC-BUTYLBENZENE	0.2	1.0	11	
STYRENE	0.2	1.0	10	
TRICHLOROETHYLENE (TCE)	0.2	1.0	11	
t-BUTYLBENZENE	0.2	1.0	11	
TETRACHLOROETHYLENE(PCE)	0.2	1.0	11	
TOLUENE	0.2	1.0	10	
trans-1,2-DICHLOROETHENE	0.2	1.0	11	
trans-1,3-DICHLOROPROPENE	0.2	1.0	9	
TRICHLOROFLUOROMETHANE	0.1	1.0	11	
VINYL CHLORIDE	0.2	1.0	11	

Comments: m & p Xylene co-elute

Analytical Method: 8270-A98

AAB #: A8B08763

Lab Name: STL Buffalo

Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap

Prime Contractor: The Environmental Company

Field Sample ID	Lab Sample ID
EB-100	A8477207
EB-100	A8477207MS
EB-100	A8477207SD

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: KE Kasperek

Name: Kenneth E. Kasperek

Date: 11/26/99

Title: Laboratory Director

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

454 387

Analytical Method: 8270-A98 | AAB #: A8808763

Lab Name: STL Buffalo | Contract #: F46162495D80

Field Sample ID: EB-100 | Lab Sample ID: A8477207 | Matrix: WATER

% Solids: ______ | Dilution: 1.00

Date Received: 26-Oct-98 | Date Extracted: 30-Oct-98 | Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.8	10.0	0.8	U
1,2-DICHLOROBENZENE	2	10.0	2	U
1,3-DICHLOROBENZENE	1	10.0	1	U
1,4-DICHLOROBENZENE	1	10.0	1	U
2,4-DINITROTOLUENE	1	10.0	1	U
2,6-DINITROTOLUENE	2	10.0	2	U
2-CHLORONAPHTHALENE	2	10.0	2	U
2-METHYLNAPHTHALENE	1	10.0	1	U
2-NITROANILINE	2	50.0	2	U
3-NITROANILINE	2	50.0	2	U
3,3'-DICHLOROBENZIDINE	2	20.0	2	U
4-BROMOPHENYL PHENYL ETHER	2	10.0	2	U
4-CHLOROANILINE	1	20.0	1	U
4-CHLOROPHENYL PHENYL ETHER	1	10.0	1	U
4-NITROANILINE	3	50.0	3	U
ACENAPHTHYLENE	1	10.0	1	U
ACENAPHTHENE	1	10.0	1	U
ANTHRACENE	2	10.0	2	U
BENZO(a)ANTHRACENE	2	10.0	2	U
BENZO(a)PYRENE	2	10.0	2	U
BENZO(b)FLUORANTHENE	3	10.0	3	U
BENZO(g,h,i)PERYLENE	3	10.0	3	U
BENZYL ALCOHOL	5	20.0	5	U
bis(2-CHLOROETHOXY) METHANE	1	10.0	1	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	2	10.0	2	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

000164
454 388

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	1	10.0	1	U
bis(2-ETHYLHEXYL) PHTHALATE	2	10.0	2	U
BENZYL BUTYL PHTHALATE	2	10.0	2	U
CHRYSENE	2	10.0	2	U
DI-n-BUTYL PHTHALATE	2	10.0	2	U
DI-n-OCTYL PHTHALATE	2	10.0	2	U
DIBENZ(a,h)ANTHRACENE	2	10.0	2	U
DIBENZOFURAN	2	10.0	2	U
DIETHYL PHTHALATE	2	10.0	2	U
DIMETHYL PHTHALATE	1	10.0	1	U
FLUORANTHENE	2	10.0	2	U
FLUORENE	2	10.0	2	U
HEXACHLOROBENZENE	2	10.0	2	U
HEXACHLOROBUTADIENE	1	10.0	1	U
HEXACHLOROCYCLOPENTADIENE	2	10.0	2	U
HEXACHLOROETHANE	0.8	10.0	0.8	U
INDENO(1,2,3-c,d)PYRENE	3	10.0	3	U
ISOPHORONE	1	10.0	1	U
N-NITROSODIPHENYLAMINE	1	10.0	1	U
N-NITROSODI-n-PROPYLAMINE	1	10.0	1	U
NAPHTHALENE	1	10.0	1	U
NITROBENZENE	2	10.0	2	U
PHENANTHRENE	1	10.0	1	U
PYRENE	2	10.0	2	U
2,4,5-TRICHLOROPHENOL	3	50.0	3	U

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B08763

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	3	10.0	3	U
2,4-DICHLOROPHENOL	0.8	10.0	0.8	U
2,4-DIMETHYLPHENOL	2	10.0	2	U
2,4-DINITROPHENOL	2	50.0	2	U
2-CHLOROPHENOL	1	10.0	1	U
2-METHYLPHENOL (o-CRESOL)	2	10.0	2	U
2-NITROPHENOL	2	10.0	2	U
4,6-DINITRO-2-METHYLPHENOL	2	50.0	2	U
4-CHLORO-3-METHYLPHENOL	1	20.0	1	U
4-METHYLPHENOL (p-CRESOL)	1	10.0	1	U
4-NITROPHENOL	3	50.0	3	U
BENZOIC ACID	7	50.0	7	U
PENTACHLOROPHENOL	4	50.0	4	U
PHENOL	2	10.0	2	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

000166

434 390

Analytical Method: 8270-A98

AAB #: A8B08763

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: EB-100

Lab Sample ID: A8477207MS

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	2	10.0	97	
1,2-DICHLOROBENZENE	3	10.0	79	
1,3-DICHLOROBENZENE	2	10.0	61	
1,4-DICHLOROBENZENE	3	10.0	66	
2,4-DINITROTOLUENE	3	10.0	160	
2,6-DINITROTOLUENE	4	10.0	160	
2-CHLORONAPHTHALENE	3	10.0	130	
2-METHYLNAPHTHALENE	2	10.0	140	
2-NITROANILINE	3	50.0	140	
3-NITROANILINE	4	50.0	150	
3,3'-DICHLOROBENZIDINE	3	20.0	180	
4-BROMOPHENYL PHENYL ETHER	4	10.0	200	
4-CHLOROANILINE	2	20.0	140	
4-CHLOROPHENYL PHENYL ETHER	3	10.0	190	
4-NITROANILINE	6	50.0	160	
ACENAPHTHYLENE	2	10.0	140	
ACENAPHTHENE	3	10.0	160	
ANTHRACENE	3	10.0	180	
BENZO(a)ANTHRACENE	3	10.0	190	
BENZO(a)PYRENE	3	10.0	180	
BENZO(b)FLUORANTHENE	6	10.0	190	
BENZO(g,h,i)PERYLENE	6	10.0	150	
BENZYL ALCOHOL	10	20.0	120	
bis(2-CHLOROETHOXY) METHANE	2	10.0	130	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	3	10.0	88	

454 391

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

000167

Analytical Method: 8270-A98

AAB #: A8B08763

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207MS

Matrix: WATER

% Solids:

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	2	10.0	160	
bis(2-ETHYLHEXYL) PHTHALATE	4	10.0	140	
BENZYL BUTYL PHTHALATE	3	10.0	130	
CHRYSENE	3	10.0	200	
DI-n-BUTYL PHTHALATE	3	10.0	160	
DI-n-OCTYL PHTHALATE	4	10.0	130	
DIBENZ(a,h)ANTHRACENE	4	10.0	160	
DIBENZOFURAN	3	10.0	170	
DIETHYL PHTHALATE	3	10.0	180	
DIMETHYL PHTHALATE	2	10.0	170	
FLUORANTHENE	4	10.0	200	
FLUORENE	4	10.0	170	
HEXACHLOROBENZENE	4	10.0	210	
HEXACHLOROBUTADIENE	2	10.0	75	
HEXACHLOROCYCLOPENTADIENE	4	10.0	120	
HEXACHLOROETHANE	2	10.0	86	
INDENO(1,2,3-c,d)PYRENE	6	10.0	160	
ISOPHORONE	2	10.0	130	
N-NITROSODIPHENYLAMINE	3	10.0	170	
N-NITROSODI-n-PROPYLAMINE	2	10.0	130	
NAPHTHALENE	3	10.0	120	
NITROBENZENE	4	10.0	140	
PHENANTHRENE	3	10.0	190	
PYRENE	4	10.0	170	
2,4,5-TRICHLOROPHENOL	6	50.0	150	

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: EB-100

Lab Sample ID: A8477207MS

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	6	10.0	150	
2,4-DICHLOROPHENOL	2	10.0	160	
2,4-DIMETHYLPHENOL	3	10.0	150	
2,4-DINITROPHENOL	4	50.0	100	
2-CHLOROPHENOL	2	10.0	120	
2-METHYLPHENOL (o-CRESOL)	5	10.0	120	
2-NITROPHENOL	3	10.0	140	
4,6-DINITRO-2-METHYLPHENOL	4	50.0	64	
4-CHLORO-3-METHYLPHENOL	2	20.0	150	
4-METHYLPHENOL (p-CRESOL)	2	10.0	120	
4-NITROPHENOL	6	50.0	45	F
BENZOIC ACID	13	50.0	140	
PENTACHLOROPHENOL	7	50.0	55	
PHENOL	5	10.0	66	

Comments:

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: E8-100

Lab Sample ID: A8477207SD

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	2	10.0	100	
1,2-DICHLOROBENZENE	3	10.0	96	
1,3-DICHLOROBENZENE	2	10.0	88	
1,4-DICHLOROBENZENE	3	10.0	92	
2,4-DINITROTOLUENE	3	10.0	180	
2,6-DINITROTOLUENE	4	10.0	190	
2-CHLORONAPHTHALENE	3	10.0	120	
2-METHYLNAPHTHALENE	2	10.0	98	
2-NITROANILINE	3	50.0	140	
3-NITROANILINE	4	50.0	170	
3,3'-DICHLOROBENZIDINE	3	20.0	180	
4-BROMOPHENYL PHENYL ETHER	4	10.0	210	
4-CHLOROANILINE	2	20.0	160	
4-CHLOROPHENYL PHENYL ETHER	3	10.0	190	
4-NITROANILINE	6	50.0	160	
ACENAPHTHYLENE	2	10.0	150	
ACENAPHTHENE	3	10.0	150	
ANTHRACENE	3	10.0	200	
BENZO(a)ANTHRACENE	3	10.0	200	
BENZO(a)PYRENE	3	10.0	190	
BENZO(b)FLUORANTHENE	6	10.0	210	
BENZO(g,h,i)PERYLENE	6	10.0	160	
BENZYL ALCOHOL	10	20.0	140	
bis(2-CHLOROETHOXY) METHANE	2	10.0	120	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	3	10.0	100	

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

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Analytical Method: 8270-A98 AAB #: A8808763

Lab Name: STL Buffalo Contract #: F46162495D080

Field Sample ID: EB-100 Lab Sample ID: A8477207SD Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 30-Oct-98 Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	2	10.0	180	
bis(2-ETHYLHEXYL) PHTHALATE	4	10.0	140	
BENZYL BUTYL PHTHALATE	3	10.0	140	
CHRYSENE	3	10.0	190	
DI-n-BUTYL PHTHALATE	3	10.0	180	
DI-n-OCTYL PHTHALATE	4	10.0	140	
DIBENZ(a,h)ANTHRACENE	4	10.0	180	
DIBENZOFURAN	3	10.0	170	
DIETHYL PHTHALATE	3	10.0	170	
DIMETHYL PHTHALATE	2	10.0	180	
FLUORANTHENE	4	10.0	220	
FLUORENE	4	10.0	180	
HEXACHLOROBENZENE	4	10.0	210	
HEXACHLOROBUTADIENE	2	10.0	95	
HEXACHLOROCYCLOPENTADIENE	4	10.0	110	
HEXACHLOROETHANE	2	10.0	90	
INDENO(1,2,3-c,d)PYRENE	6	10.0	170	
ISOPHORONE	2	10.0	120	
N-NITROSODIPHENYLAMINE	3	10.0	180	
N-NITROSODI-n-PROPYLAMINE	2	10.0	130	
NAPHTHALENE	3	10.0	120	
NITROBENZENE	4	10.0	160	
PHENANTHRENE	3	10.0	190	
PYRENE	4	10.0	170	
2,4,5-TRICHLOROPHENOL	6	50.0	150	

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207SD

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	6	10.0	150	
2,4-DICHLOROPHENOL	2	10.0	160	
2,4-DIMETHYLPHENOL	3	10.0	140	
2,4-DINITROPHENOL	4	50.0	100	
2-CHLOROPHENOL	2	10.0	140	
2-METHYLPHENOL (o-CRESOL)	5	10.0	140	
2-NITROPHENOL	3	10.0	150	
4,6-DINITRO-2-METHYLPHENOL	4	50.0	29	F
4-CHLORO-3-METHYLPHENOL	2	20.0	170	
4-METHYLPHENOL (p-CRESOL)	2	10.0	140	
4-NITROPHENOL	6	50.0	41	F
BENZOIC ACID	13	50.0	110	
PENTACHLOROPHENOL	7	50.0	26	F
PHENOL	5	10.0	77	

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98 AAB #: A8B08763

Lab Name: STL Buffalo Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank Lab Sample ID: A8B0876301 Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: ________ Date Extracted: 30-Oct-98 Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.8	10.0	53	
1,2-DICHLOROBENZENE	2	10.0	54	
1,3-DICHLOROBENZENE	1	10.0	46	
1,4-DICHLOROBENZENE	1	10.0	48	
2,4-DINITROTOLUENE	1	10.0	91	
2,6-DINITROTOLUENE	2	10.0	83	
2-CHLORONAPHTHALENE	2	10.0	61	
2-METHYLNAPHTHALENE	1	10.0	74	
2-NITROANILINE	2	50.0	76	
3-NITROANILINE	2	50.0	83	
3,3'-DICHLOROBENZIDINE	2	20.0	93	
4-BROMOPHENYL PHENYL ETHER	2	10.0	100	
4-CHLOROANILINE	1	20.0	93	
4-CHLOROPHENYL PHENYL ETHER	1	10.0	97	
4-NITROANILINE	3	50.0	82	
ACENAPHTHYLENE	1	10.0	72	
ACENAPHTHENE	1	10.0	76	
ANTHRACENE	2	10.0	94	
BENZO(a)ANTHRACENE	2	10.0	96	
BENZO(a)PYRENE	2	10.0	92	
BENZO(b)FLUORANTHENE	3	10.0	100	
BENZO(g,h,i)PERYLENE	3	10.0	72	
BENZYL ALCOHOL	5	20.0	67	
bis(2-CHLOROETHOXY) METHANE	1	10.0	72	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	2	10.0	56	

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AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8270-A98

AAB #: A8B08763

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A8B0876301

Matrix: WATER

% Solids: ____

Dilution: 1.00

Date Received: ____

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	1	10.0	97	
bis(2-ETHYLHEXYL) PHTHALATE	2	10.0	69	
BENZYL BUTYL PHTHALATE	2	10.0	65	
CHRYSENE	2	10.0	99	
DI-n-BUTYL PHTHALATE	2	10.0	85	
DI-n-OCTYL PHTHALATE	2	10.0	68	
DIBENZ(a,h)ANTHRACENE	2	10.0	87	
DIBENZOFURAN	2	10.0	86	
DIETHYL PHTHALATE	2	10.0	91	
DIMETHYL PHTHALATE	1	10.0	94	
FLUORANTHENE	2	10.0	100	
FLUORENE	2	10.0	87	
HEXACHLOROBENZENE	2	10.0	110	
HEXACHLOROBUTADIENE	1	10.0	52	
HEXACHLOROCYCLOPENTADIENE	2	10.0	50	
HEXACHLOROETHANE	0.8	10.0	46	
INDENO(1,2,3-c,d)PYRENE	3	10.0	82	
ISOPHORONE	1	10.0	77	
N-NITROSODIPHENYLAMINE	1	10.0	89	
N-NITROSODI-n-PROPYLAMINE	1	10.0	79	
NAPHTHALENE	1	10.0	65	
NITROBENZENE	2	10.0	92	
PHENANTHRENE	1	10.0	100	
PYRENE	2	10.0	89	
2,4,5-TRICHLOROPHENOL	3	50.0	82	

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ORGANIC ANALYSES DATA SHEET 2
RESULTS

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Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A8B0876301

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: ________

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	3	10.0	83	
2,4-DICHLOROPHENOL	0.8	10.0	96	
2,4-DIMETHYLPHENOL	2	10.0	81	
2,4-DINITROPHENOL	2	50.0	62	
2-CHLOROPHENOL	1	10.0	76	
2-METHYLPHENOL (o-CRESOL)	2	10.0	68	
2-NITROPHENOL	2	10.0	92	
4,6-DINITRO-2-METHYLPHENOL	2	50.0	28	F
4-CHLORO-3-METHYLPHENOL	1	20.0	83	
4-METHYLPHENOL (p-CRESOL)	1	10.0	67	
4-NITROPHENOL	3	50.0	12	F
BENZOIC ACID	7	50.0	75	
PENTACHLOROPHENOL	4	50.0	23	F
PHENOL	2	10.0	29	

Comments:

AFCEE
ORGANIC ANALYSES DATA PACKAGE

Analytical Method: 8081-A98

AAB #: A8B08733

Lab Name: Recra LabNet

Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap

Prime Contractor: The Environmental Company

Field Sample ID	Lab Sample ID
EB-100	A8477207
EB-100	A8477207MS
EB-100	A8477207SD

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: KEKasperek

Name: Kenneth E. Kasperek

Date: 11/20/99

Title: Laboratory Director

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

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Analytical Method: 8081-A98

AAB #: A8B08733 451 400

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids: ______

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 3-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.053	0.350	0.053	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.069	0.230	0.069	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.066	0.240	0.066	U
GAMMA BHC (LINDANE)	0.060	0.500	0.060	U
ALPHA-CHLORDANE	0.085	0.800	0.085	U
GAMMA-CHLORDANE	0.063	0.370	0.063	U
p,p'-DDD	0.079	0.500	0.079	U
p,p'-DDE	0.063	0.580	0.063	U
p,p'-DDT	0.066	0.810	0.066	U
ALDRIN	0.025	0.340	0.025	U
DIELDRIN	0.060	0.440	0.060	U
ALPHA ENDOSULFAN	0.085	0.300	0.085	U
BETA ENDOSULFAN	0.069	0.400	0.069	U
ENDOSULFAN SULFATE	0.066	0.350	0.066	U
ENDRIN	0.066	0.390	0.066	U
ENDRIN ALDEHYDE	0.069	0.500	0.069	U
HEPTACHLOR	0.038	0.400	0.038	U
HEPTACHLOR EPOXIDE	0.063	0.320	0.063	U
METHOXYCHLOR	0.079	0.860	0.079	U
TOXAPHENE	0.18	1.0	0.18	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8081-A98 AAB #: A8808733

Lab Name: Recra LabNet Contract #: F46162495D80

Field Sample ID: EB-100 Lab Sample ID: A8477207MS Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 30-Oct-98 Date Analyzed: 3-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.11	0.350	1.8	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.14	0.230	1.9	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.13	0.240	1.8	
GAMMA BHC (LINDANE)	0.12	0.500	1.8	
ALPHA-CHLORDANE	0.17	0.800	1.8	
GAMMA-CHLORDANE	0.12	0.370	1.7	
p,p'-DDD	0.16	0.500	2.2	
p,p'-DDE	0.12	0.580	1.8	
p,p'-DDT	0.13	0.810	1.5	
ALDRIN	0.050	0.340	1.6	
DIELDRIN	0.12	0.440	1.9	
ALPHA ENDOSULFAN	0.17	0.300	1.8	
BETA ENDOSULFAN	0.14	0.400	1.9	
ENDOSULFAN SULFATE	0.13	0.350	1.8	
ENDRIN	0.13	0.390	1.8	
ENDRIN ALDEHYDE	0.14	0.500	1.8	
HEPTACHLOR	0.076	0.400	1.4	
HEPTACHLOR EPOXIDE	0.12	0.320	1.8	
METHOXYCHLOR	0.16	0.860	1.8	
TOXAPHENE	0.35	1.0	0.35	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8081-A98 AAB #: A8808733

Lab Name: Recra LabNet Contract #: F46162495D080

Field Sample ID: EB-100 Lab Sample ID: A8477207SO Matrix: WATER

% Solids: ______ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 30-Oct-98 Date Analyzed: 3-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.11	0.350	1.8	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.14	0.230	2.0	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.13	0.240	1.8	
GAMMA BHC (LINDANE)	0.12	0.500	1.8	
ALPHA-CHLORDANE	0.17	0.800	1.8	
GAMMA-CHLORDANE	0.12	0.370	1.8	
p,p'-DDD	0.16	0.500	2.2	
p,p'-DDE	0.12	0.580	1.7	
p,p'-DDT	0.13	0.810	1.4	
ALDRIN	0.050	0.340	1.6	
DIELDRIN	0.12	0.440	1.9	
ALPHA ENDOSULFAN	0.17	0.300	1.9	
BETA ENDOSULFAN	0.14	0.400	1.9	
ENDOSULFAN SULFATE	0.13	0.350	1.8	
ENDRIN	0.13	0.390	1.9	
ENDRIN ALDEHYDE	0.14	0.500	1.8	
HEPTACHLOR	0.076	0.400	1.6	
HEPTACHLOR EPOXIDE	0.12	0.320	1.9	
METHOXYCHLOR	0.16	0.860	1.8	
TOXAPHENE	0.35	1.0	0.35	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8081-A98 AAB #: A8808733

Lab Name: Recra LabNet Contract #: F46162495080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A880873301 Matrix: WATER

% Solids: _____ Dilution: 1.00

Date Received: ________ Date Extracted: 30-Oct-98 Date Analyzed: 3-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.053	0.350	0.90	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.069	0.230	0.97	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.066	0.240	0.87	
GAMMA BHC (LINDANE)	0.060	0.500	0.90	
ALPHA-CHLORDANE	0.085	0.800	0.88	
GAMMA-CHLORDANE	0.063	0.370	0.89	
p,p'-DDD	0.079	0.500	1.1	
p,p'-DDE	0.063	0.580	0.97	
p,p'-DDT	0.066	0.810	0.82	
ALDRIN	0.025	0.340	0.65	
DIELDRIN	0.060	0.440	0.96	
ALPHA ENDOSULFAN	0.085	0.300	0.92	
BETA ENDOSULFAN	0.069	0.400	0.95	
ENDOSULFAN SULFATE	0.066	0.350	0.91	
ENDRIN	0.066	0.390	0.92	
ENDRIN ALDEHYDE	0.069	0.500	0.88	
HEPTACHLOR	0.038	0.400	0.72	
HEPTACHLOR EPOXIDE	0.063	0.320	0.92	
METHOXYCHLOR	0.079	0.860	0.88	
TOXAPHENE	0.18	1.0	0.18	U

Comments:

AFCEE
ORGANIC ANALYSES DATA PACKAGE

Analytical Method: 8082 AAB #: A8B08734

Lab Name: Recra LabNet Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap Prime Contractor: The Environmental Company

Field Sample ID	Lab Sample ID
EB-100	A8477207

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: KE Kasperek

Date: 1/26/99

Name: Kenneth E. Kasperek

Title: Laboratory Director

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8082 AAB #: A8808734

Lab Name: Recra LabNet Contract #: F46162495D080

Field Sample ID: EB-100 Lab Sample ID: A8477207 Matrix: WATER

% Solids: ____ Dilution: 1.00

Date Received: 26-Oct-98 Date Extracted: 30-Oct-98 Date Analyzed: 4-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.13	1.0	0.13	U
PCB-1221 (AROCHLOR 1221)	0.072	1.0	0.072	U
PCB-1232 (AROCHLOR 1232)	0.044	1.0	0.044	U
PCB-1242 (AROCHLOR 1242)	0.28	1.0	0.28	U
PCB-1248 (AROCHLOR 1248)	0.19	1.0	0.19	U
PCB-1254 (AROCHLOR 1254)	0.32	1.0	0.32	U
PCB-1260 (AROCHLOR 1260)	0.088	1.0	0.088	U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: 8082 AAB #: A8B08734

Lab Name: Recra LabNet Contract #: F46162495D080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A8B0873401 Matrix: WATER

% Solids: Dilution: 1.00

Date Received: Date Extracted: 30-Oct-98 Date Analyzed: 4-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.13	1.0	4.8	
PCB-1221 (AROCHLOR 1221)	0.072	1.0	0.072	U
PCB-1232 (AROCHLOR 1232)	0.044	1.0	0.044	U
PCB-1242 (AROCHLOR 1242)	0.28	1.0	0.28	U
PCB-1248 (AROCHLOR 1248)	0.19	1.0	0.19	U
PCB-1254 (AROCHLOR 1254)	0.32	1.0	0.32	U
PCB-1260 (AROCHLOR 1260)	0.088	1.0	5.2	

Comments:

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Analytical Method: 6010-A98

AAB #: A8B08823

Lab Name: STL Buffalo

Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap

Prime Contractor: The Environmental Com

Field Sample ID	Lab Sample ID
EB-100	A8477207

Comments:

See Case Narrative

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Signature: KEKasperek

Name: Kenneth E. Kasperek

Date: 1/26/99

Title: Laboratory Director

Analytical Method: 6010-A98

AAB #: A8808823

Lab Name: STL Buffalo

Contract #: F46162495D080

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids: 0.0

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 2-Nov-98

Date Analyzed: 10-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALUMINUM	0.077	0.050	0.077	U
MANGANESE	0.0012	0.0050	0.0012	U
ZINC	0.013	0.020	0.016	F
ANTIMONY	0.0061	0.010	0.0061	U
ARSENIC	0.0085	0.010	0.0085	U
BARIUM	0.0010	0.0050	0.0083	
BERYLLIUM	0.0012	0.0010	0.0012	U
CADMIUM	0.00054	0.0010	0.00054	U
CALCIUM	0.11	0.200	0.35	
CHROMIUM	0.0027	0.0050	0.0027	U
COBALT	0.0011	0.0020	0.0011	U
COPPER	0.0027	0.0050	0.0027	U
IRON	0.065	0.050	0.065	U
LEAD	0.030	0.010	0.030	U
MAGNESIUM	0.088	0.050	0.088	U
MOLYBDENUM	0.0038	0.0050	0.012	
NICKEL	0.0018	0.0050	0.0018	U
POTASSIUM	0.25	0.200	0.25	U
SELENIUM	0.011	0.010	0.011	U
SILVER	0.0015	0.0050	0.0015	U
SODIUM	0.84	0.500	0.93	
THALLIUM	0.0060	0.020	0.0060	U
VANADIUM	0.0013	0.0050	0.0013	U

Comments:

454 4 9

Analytical Method: 7470-A98

Lab Name: STL Buffalo

Base/Command: NAS Ft Worth/Offsite Weap

AAB #: A8B08651

Contract #: F46162495D80

Prime Contractor: The Environmental Com

Field Sample ID	Lab Sample ID
EB-100	A8477207

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: KEKasperek

Date: 1/26/99

Name: Kenneth E. Kasperek

Title: Laboratory Director

INORGANIC ANALYSES DATA SHEET 2
RESULTS

000346

401 410

Analytical Method: 7470-A98

AAB #: A8808651

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids: 0.0

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:

Date Analyzed: 29-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/L

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.00030	0.0010	0.00030	U

Comments:

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE