Report

# Limited Groundwater Assessment Former Laredo Air Force Base Laredo, Texas

Prepared for

U.S. Army Corps of Engineers, Tulsa District

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## **Executive Summary**

This Limited Groundwater Assessment (LGA) Report presents the findings of the site investigation completed at the Former Laredo Air Force Base Construction Landfill (CLF), located near the Laredo International Airport in Laredo, Texas. The purpose of the LGA was to establish the presence or absence of contaminants in the groundwater as a result of past landfilling activities at the CLF. Site activities included drilling soil borings, installing groundwater monitor wells, collecting and analyzing groundwater samples from each of the monitor wells, and excavating test pits to determine the southern extent of the landfill.

A total of eight soil borings (borings SB1 through SB8) were drilled at the CLF site. Four of the soil borings (SB2, SB3, SB7, and SB8) were completed as groundwater monitor wells (MW1, MW2, MW4, and MW5, respectively). Monitor well MW3 was installed in boring SB4 but was later removed and the boring was abandoned because the well did not produce groundwater.

Groundwater samples were collected from each of the four completed monitor wells. The groundwater samples were submitted for analysis for volatile organic compounds (VOCs) by EPA Method 8260B, semivolatile organic compounds (SVOCs) by EPA Method 8270C, polychlorinated biphenyls (PCBs) by EPA Method 8082, and total and dissolved RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by EPA Methods 6010B and 7470, as appropriate.

A total of 28 test pits were excavated to delineate the southern extent of the CLF. The test pits were excavated with a backhoe to a maximum depth of 6 feet or until debris was encountered, whichever came first. Materials excavated from the test pits included native soils, disturbed native soils, non-native soils, and concrete, asphalt, and metal debris. The materials encountered were very dry. No groundwater was encountered in any of the test pits.

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## **Acronyms**

amsl above mean sea level bgs below ground surface

BTEX benzene, toluene, ethylbenzene, and xylenes

CLF Construction Landfill

DOT Department of Transportation

EM electromagnetic

EPA Environmental Protection Agency
FUDS Formerly Used Defense Site

GW-Ind Groundwater medium-specific concentration for industrial use

IDW Investigation-Derived Waste

LAFB Laredo Air Force Base

LGA Limited Groundwater Assessment
MCL maximum contaminant level
MSC media specific concentrations

MW monitoring well

NAD North American Datum

NGVD National Geodetic Vertical Datum

OD outside diameter

PCB polychlorinated biphenyl PVC polyvinyl chloride

OA quality assurance

RCRA Resource Conservation and Recovery Act of 1976

RRS2 Risk Reduction Standard No. 2

QC quality control SB soil boring

SVOC semi-volatile organic compound

TNRCC Texas Natural Resources Conservation Commission

TOC top of casing

USACE U.S. Army Corps of Engineers
USCS Unified Soil Classification System
USDA U.S. Department of Agriculture
VOC volatile organic compound

WES Waterways Experiment Station

# Section 1 Introduction

### 1. Introduction

This Limited Groundwater Assessment (LGA) Report presents the findings of field activities associated with a LGA of the Construction Landfill (CLF) site at the former Laredo Air Force Base (LAFB). The LGA was performed to address the concerns of the Texas Natural Resource Conservation Commission (TNRCC) that the previously performed geophysical and soil gas surveys (being field screening techniques) did not adequately demonstrate the absence of contaminants at the CLF. The purpose of the LGA, therefore, was to establish the presence or absence of contaminants in the groundwater as a result of the historical landfill activities. The field activities were performed between October 18, 1999, and October 23, 1999, and included drilling several soil borings, installing four groundwater monitor wells, collecting and analyzing groundwater samples from the monitor wells, and excavating several test pits to identify the southern extent of the landfill area. The investigation was conducted by the US Army Corps of Engineers (USACE). CH2M HILL provided support for the field activities.

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## 2. Site Background

### 2.1 General Background

#### 2.1.1 Site Location

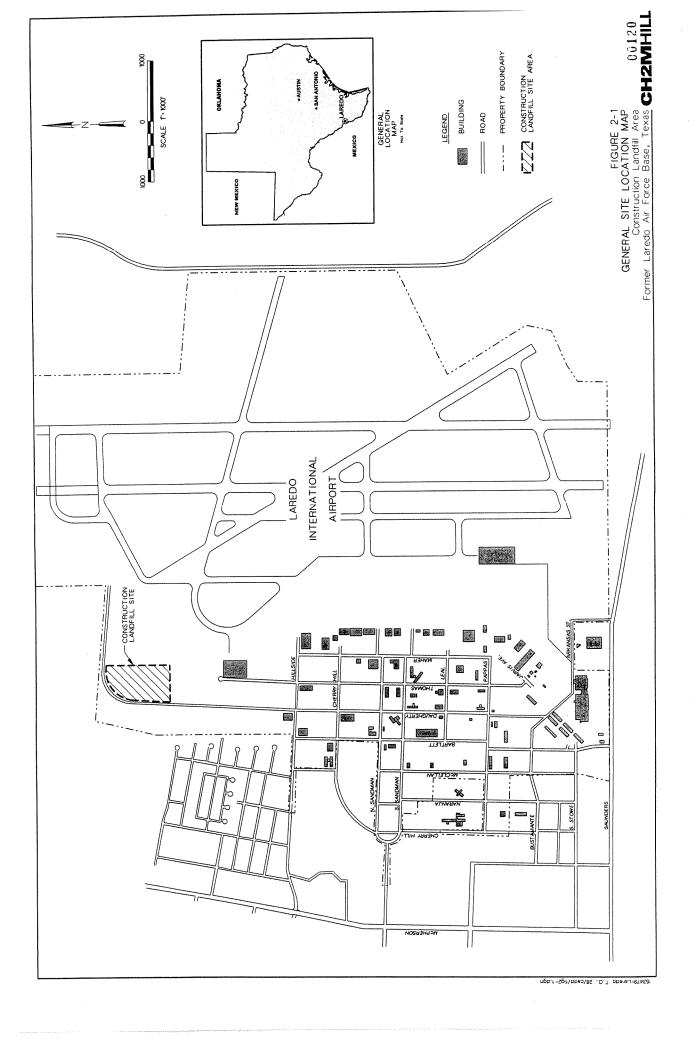
The site under investigation is located in Laredo, Texas, along the Texas/Mexico border, approximately 150 miles south-southwest of the City of San Antonio (Figure 2-1). The CLF site is located along the northwest boundary of the Laredo International Airport, near the runway terminus.

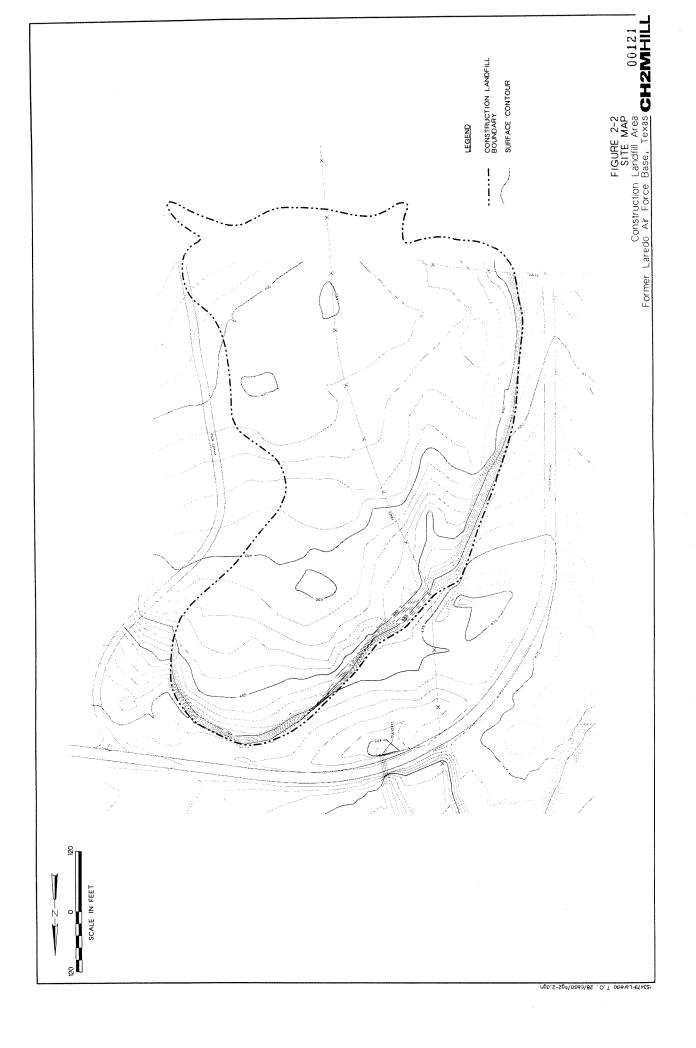
The CLF site is presently vacant, covered with brush and soil. Construction for an industrial facility is under way at the southwestern portion of the site. The site slopes generally toward the northwest and has a steep slope along the northern and western edges of the landfill area. Some concrete and steel debris is visible on the ground surface. The site is generally bounded by Daugherty Road on the west and north and by a north-south gravel road on the east. The southern extent of the site is designated primarily by the absence of concrete and other debris. A Site Map is presented as Figure 2-2.

The CLF site and surrounding area is zoned M1, "Light Manufacturing District." Development in the immediate vicinity of the CLF site is industrial.

#### 2.1.2 Laredo Air Force Base General History

On May 7, 1942, the U.S. Government acquired 2,085 acres for the construction of Laredo Army Air Corps Base (now known as former Laredo Air Force Base). The Government constructed runways and numerous facilities from 1942 to 1974. The Base was initially deactivated on June 17, 1947; however, it was reactivated during the Korean conflict. The former Base was again deactivated on March 29, 1974. Approximately 309 acres were either deeded or sold to other federal, state, and county agencies, or to private firms. The remainder of the Base was deeded to the City of Laredo. The City of Laredo now operates the former LAFB airfield as Laredo International Airport.





### 2.2 Previous Site Investigations

#### 2.2.1 Historical Aerial Photography Review

Aerial photographs dating from 1934 to 1990 were reviewed by USACE to identify historical and operational changes over time at various sites associated with the former LAFB, including the CLF (USACE, 1997). The CLF site was first identified as an area of disturbed ground in the 1956 aerial photograph. In the 1964 photograph, various piles of objects or materials were identified along the eastern, western, and northern edges of the feature, and two dirt roads leading from the perimeter road to the western and southern sides of the feature were visible. In the 1970 photograph, the feature appeared as disturbed ground with greater relief, possibly indicating that the area had been covered with earthen material. In later photographs, the visual appearance of the CLF site did not appear to change relative to the 1970 photograph.

#### 2.2.2 Electromagnetic (EM) Survey

In September 1996, the USACE Waterways Experimental Station (WES) performed a geophysical survey of the CLF site (USACE, 1997). A total field magnetics survey and two different types of electromagnetic induction techniques were used to determine the limits of the CLF and to predict the types of material buried within it. A copy of the report is included as Appendix A.

According to the results of the geophysical survey, the CLF is an arcuate-shaped zone oriented from south to north, curving toward the east at the northern end. The CLF is bounded on the western and northern sides by a steep slope with construction debris exposed on the incline. Metal pieces that are visible on the CLFs surface are primarily steel reinforcing bars in broken concrete. The survey was not able to definitively determine the southern extent of the CLF.

The interpretation of geophysical responses indicates that subsurface materials at the site consist primarily of construction debris. These responses also identified large pieces of nonferrous metal, which may represent aircraft parts, office furniture, and/or kitchen equipment, within the boundaries of the landfill. The concentration of metal material in the

subsurface appears to increase from south to north, suggesting different sources of material in the fill.

#### 2.2.3 Soil Gas Survey

In October 1996, a soil gas survey was performed over the CLF area by Target Environmental Services, Inc. (Target) under contract to USACE. A total of 299 soil gas samples, each taken at a depth of approximately 4 feet below ground surface (bgs), were collected from the area delineated by the September 1996 geophysical survey. The samples were submitted to Target's off-site laboratory for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020 Modified and for chlorinated hydrocarbons (1,1-dichloroethene, methylene chloride, trans-1,2-dichloroethene, cis-1,2-dichloroethene, 1,1-dichloroethene, chloroform, 1,1,1-thrichloroethane, carbon tetrachloride, trichloroethene, tetrachloroethene, and 1,1,2-thrichloroethane) by EPA Method 8010 Modified.

None of the soil gas samples contained petroleum hydrocarbon or chlorinated hydrocarbon concentrations above their respective detection limits. A copy of the Soil Gas Survey report is included as Appendix B.

#### 2.2.4 TNRCC Comment On Previous Investigations

In a letter to the Corps of Engineers dated April 21, 1998, the TNRCC stated that whereas EM and soil gas surveys are considered to be field screening techniques, the previously-performed EM and soil gas surveys did not adequately demonstrate the absence of contaminants at the CLF. The TNRCC therefore recommended that a LGA be performed. In response to the TNRCC comment, USACE proposed sampling and analysis of the groundwater in the immediate vicinity of the site.

#### 2.3 Site Characteristics

#### 2.3.1 Physiography

The former LAFB area is located within Webb County, Texas. Webb County is situated within the Arid Plains physiographic province. The countryside around Laredo is characterized by small hills, covered with low-growing brushy vegetation and numerous arroyos and dry creek beds gently sloping toward the Rio Grande River, which lies

approximately 2.5 miles west of the former LAFB (Parker, 1996; Raba-Kistner, 1996). The surface elevation of Webb County ranges from 372 feet above mean seal level (amsl) at the Rio Grande River up to 945 feet amsl. The elevation in the vicinity of the former LAFB is approximately 460 to 490 feet amsl.

#### 2.3.2 Soils

The soils within the former LAFB area are characterized by the US Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) as belonging to the Catarina-Montell-Jimenez soil association: cracking, crumbly clay soils overlying a stiff caliche soil (Parker, 1996). The soils at CLF area have been further classified as Copita fine sandy loam, 0-3 percent slopes and as Nido-Rock Outcrop complex, hilly (USDA, date unknown).

The Copita soil was identified by the NRCS on the northern part of the CLF area. The Copita fine sandy loam is a moderately deep, nearly level to gently sloping soil, found on summits and side slopes of low hills and on broad, convex plains. The soil typically consists of a surface layer of brown fine sandy loam about 9 inches thick, below which is a subsoil of yellowish brown sandy clay loam and light yellowish brown sandy clay loam that extends to a depth of about 37 inches. Underlying the soil is weakly to strongly cemented, pale yellow sandstone. The soil is calcareous and moderately alkaline throughout. The soil is well drained, with a medium surface runoff. Permeability of the Copita series fine sandy loam is considered moderate with a range of 0.6 inches per hour (in./hr) to 2.0 in./hr.

The Nido-Rock Outcrop complex was identified by the NRCS at the southern portion of the CLF area. This complex consists of a combination of Nido soils and sandstone rock outcrops that are so intricately mixed that separate mapping of the units was impractical. Nido soils are found on the summits and side slopes of hills and ridges. Typically, Nido soils have a surface layer of yellowish brown, calcareous, moderately alkaline fine sandy loam about 7 inches thick. This is underlain by brownish yellow, weakly cemented sandstone to a depth of about 60 inches. The soil is well drained, with rapid surface runoff and moderate permeability.

#### 2.3.3 Geology

The surface geology of Webb County is mostly Tertiary in age, with a narrow band of Quaternary-age alluvium along the Rio Grande flood plain. Webb County falls within the Rio Grande Embayment. The sedimentary rocks throughout Laredo are part of the Tertiary (Eocene)-age Claiborne formation, which is composed of sandstone, sand mudstone, and shale.

#### 2.3.4 Meteorology

Webb County receives a limited amount of rainfall per year, with an average annual precipitation of 20 to 22 inches (TNRCC, 1993). The average minimum temperature in January is 47°F, and the average maximum temperature in July is 99°F.

#### 2.3.5 Surface Water

In the Laredo area, surface water runoff is directed toward the Rio Grande River, which lies approximately 2.5 miles west of the former LAFB area. The Rio Grande River is impounded in the International Amistad Reservoir (approximately 160 miles upstream of Laredo), and its flow is controlled by dam releases. The majority of the region's drinking water and irrigation water is obtained from the river.

Stormwater runoff from the CLF area will flow generally toward the north, where it will be intercepted by drainage ditches and carried toward an intermittent stream that lies north of the CLF area. The only other major surface water resource in the area is Casa Blanca Lake located approximately one mile east of the Laredo International Airport. Casa Blanca Lake was created by the impoundment of San Ygnacio Creek. Other creeks in the region are intermittent, draining into the Rio Grande.

#### 2.3.6 Groundwater Hydrogeology

During the present investigation, shallow groundwater was encountered within site soils at depths ranging from approximately 12 to 22 feet bgs. The more productive water bearing zone appears to be located below a hard sandstone layer. The depth to groundwater and the groundwater flow gradient at the CLF area are discussed more fully in Section 4.4.

Groundwater quality parameters were analyzed for samples collected from a depth of 8 to 9 feet bgs at a site approximately 1-1/4 mile south of the CLF. The groundwater pH ranged

from 7.5 to 8, and had an average total dissolved solid concentration of 3,000 milligrams per liter (mg/L). Potable water for the CLF area is obtained through the City of Laredo public water supply system and is collected entirely from the Rio Grande River (Raba-Kistner, 1996).

# 3. Field Investigation Activities

The field investigation activities associated with the LGA were performed during October 1999. The field activities included drilling soil borings and installing groundwater monitor wells, sampling and analyzing groundwater samples, and excavating test pits. The purpose of the test pits was to identify the southern extent of the construction landfill materials, thereby directing the placement of the monitor wells installed on the southern side of the CLF. The field activities were performed by the USACE. CH2M HILL provided observation services.

## 3.1 Soil Boring Drilling

Eight soil borings, identified as SB1 through SB8 were drilled at the CLF site. The purpose of the soil borings was to allow the installation of at least three groundwater monitor wells. The locations of the soil borings are illustrated in Figure 3-1.

The soil borings were drilled utilizing a Mobile Drill B59 drilling rig equipped with 6-inch and 8-inch outside diameter (OD) solid-flight augers. Borings SB1 through SB6 were drilled using the 8-inch augers directly. Borings SB7 and SB8 were first drilled using the 6-inch augers, then were enlarged by re-drilling with the 8-inch augers. The 6-inch augers were utilized to more easily drill through the sandstone encountered at the southern end of the CLF area. The 8-inch augers were used to bring the borings into compliance with regulatory standards for monitor well installation.

Soil cuttings generated during drilling were continuously logged by a USACE representative according to the Unified Soil Classification System (USCS). Soil cuttings from drilling activities were placed into DOT approved 55-gallon steel drums and retained onsite pending waste characterization and disposal.

Activities at each of the soil boring locations are presented below:

- Boring SB1 was drilled near the northeastern corner of the CLF area to a total depth of 10.5 feet, where auger refusal was encountered. No indication of groundwater was observed, and the boring was abandoned.
- Boring SB2 was drilled approximately 50 feet north and slightly east of SB1 to a total depth of 19.0 feet. Groundwater was encountered at approximately 17 feet bgs while drilling. Monitor well MW1 was installed in boring SB2.
- Boring SB3 was drilled near the southwestern corner of the CLF area, outside the fenced boundary of the airport property, on the west side of Daugherty Road. SB3 was drilled to a total depth of 30.5 feet. Groundwater was encountered at approximately 26.5 feet bgs during drilling. Monitor well MW2 was installed in SB3.
- Boring SB4 was drilled just south of the southern extent of the landfill (as determined by
  the test pit results) approximately 250 feet west of a dirt road that lies along the western
  side of the CLF area. SB4 was drilled to a total depth of approximately 20.5 feet. Slightly
  moist soil was encountered at approximately 20.5 feet bgs, so monitor well MW3 was
  installed into SB4. Monitor well MW3 was subsequently abandoned because the well
  failed to produce groundwater.
- Boring SB5 was drilled south of the southern extent of the landfill and approximately
  75 feet east of the airport boundary fence. The boring was drilled to a depth of
  approximately 12.9 feet below ground surface, where auger refusal was encountered. No
  groundwater was encountered and the boring was subsequently abandoned.
- Boring SB6, was drilled approximately 50 feet south of SB-5. Auger refusal was
  encountered at a depth of approximately 2.0 feet bgs, where hard sandstone was
  encountered. The boring was subsequently abandoned.
- Boring SB7 was drilled approximately 100 feet south of survey marker LA-5 and 50 feet
  west of the dirt road along the eastern side of the landfill. The boring was drilled to a
  total depth of approximately 30.5 feet bgs. Groundwater was encountered at
  approximately 22.6 feet bgs during drilling. Monitor well MW4 was installed into SB7.

Boring SB8 was drilled adjacent to the southern extent of the landfill, just inside the
airport's boundary fence. The boring was drilled to a total depth of approximately
31.6 feet. Groundwater was encountered at approximately 30.5 feet bgs during drilling.
Monitor well MW5 was installed into SB8.

Upon completion of each soil boring that was not completed as a permanent monitor well, the boring was backfilled using a cement/bentonite grout mixture. The soil boring logs are presented in Appendix C.

### 3.2 Monitoring Well Installation

Five groundwater monitor wells, MW1, MW2, MW3, MW4, and MW5, were installed in borings SB2, SB3, SB4, SB7, and SB8, respectively. Monitor well MW3 was abandoned because it did not produce groundwater.

All of the monitor wells were constructed using new, factory-threaded, 4-inch-diameter, Schedule 40 polyvinyl chloride (PVC) casing and screen. The well screen was factory slotted with 0.010-inch slots. A 5-foot screen was installed in MW-1. Ten-foot screens were utilized in the other four wells. The well screens were installed such that the groundwater surface would be within the screened interval. A one-half-foot-long sump was placed below the screen in MW1.

For each well, a sand-filter pack consisting of graded silica sand (#20-#40 sieve size) was placed in the borehole annulus from the total depth of the boring to a level of about 2 feet above the well screen. Bentonite pellets were then placed on top of the sand to a level at least 2 feet above the top of the sand filter pack. Potable water was then used to hydrate the bentonite pellets. After allowing the pellets to hydrate, the remainder of the borehole annulus up to the ground surface was filled with a cement/bentonite grout mixture.

Monitor well MW3 was found to be unsuitable for permanent completion as a monitor well and was therefore abandoned. Prior to the placement of the bentonite seal and the cement/bentonite grout, the well casing was pulled from the ground and the auger drilling rig was used to remove the sand filter pack from the borehole. The borehole was then backfilled up to the ground surface with a cement/bentonite grout mixture.

The remaining wells were equipped with above-ground completions. The well casings extend approximately 2.5 to 3 feet above ground. A 6-inch-square steel protective casing with a lockable steel cover was placed over the well casings for protection. A 4-foot-square by 6-inch-thick concrete pad was then constructed around the surface casing. Steel bumper posts (bollards) were installed at each corner of the well pad to further protect the pad and well casing. Well construction details are summarized in Table 3-1. Monitoring well completion diagrams are presented in Appendix D.

## 3.3 Monitor Well Development

The completed monitor wells were developed by USACE. A minimum of 48 hours was allowed following completion of each well before each well was developed.

Prior to development, the water level within each well and the total depth of the well was measured using a water level probe capable of measuring to within 0.01 foot. Development began by using a bailer to withdraw as much sediment from the well as possible.

Development continued using a submersible pump.

During development, the turbidity of the produced groundwater was visually monitored. Development continued until the water ran clear. Approximately two well-volumes each were produced from wells MW1 and MW2 during development (5 and 10 gallons, respectively). Approximately nine well volumes (about 45 gallons) were produced from MW4. Approximately ten well volumes (about 50 gallons) were produced from MW5.

### 3.4 Groundwater Sampling

After a minimum of 24 hours following development, the monitor wells were sampled using low-flow sampling procedures, as required by the TNRCC, to ensure the collection of low turbidity samples. The wells were purged and sampled utilizing QED model T1200 bladder pumps. The temperature, pH, conductivity, turbidity, and dissolved oxygen levels of the purged water were monitored to ensure the collection of representative samples of the groundwater. Copies of the monitor well purging and sampling forms are presented in Appendix E. The temperature, pH, conductivity, turbidity, and dissolved oxygen and other purging information is summarized in Table 3-2.

TABLE 3-1 Monitor Well Construction Details Construction Landfill Limited Groundwater Assessment, Former Laredo AFB, Laredo, Texas

|                                     | CLF MW1                                 | CLF MW2                                 | CLF MW3                        | CLF MW4                                 | CLF-MW5                                 |
|-------------------------------------|---|---|--------------------------------|---|---|
| Elevation TOC (ft, amsl)            | 477.02                                  | 480.84                                  | na                             | 502.74                                  | 499.14                                  |
| Total depth of well, below TOC (ft) | 21.90                                   | 33.41                                   | na                             | 33.26                                   | 32.69                                   |
| Total depth of boring, bgs (ft)     | 19.0                                    | 30.5                                    | 20.5                           | 30.5                                    | 31.6                                    |
| Screen length (ft)                  | 5.0                                     | 10.0                                    | na                             | 10.0                                    | 10.0                                    |
| Length of sump (ft)                 | 0.5                                     | None                                    | na                             | none                                    | none                                    |
| Screened interval, bgs (ft)         | 13.5 to 18.5                            | 20.0 to 30.0                            | na                             | 19.5 – 29.5                             | 19.5 – 29.5                             |
| Sand pack, bgs (ft)                 | 11.5 to 19.0                            | 18.0 to 30.5                            | na                             | 18.0 to 30.5                            | 17.5 to 31.6                            |
| Bentonite seal, bgs (ft)            | 8.0 to 11.5                             | 15.5 to 18.0                            | na                             | 15.0 to 18.0                            | 15.5 to 17.5                            |
| Cement seal, bgs (ft)               | 8.0 to surface                          | 15.5 to surface                         | 20.5 to surface<br>(abandoned) | 15.0 to surface                         | 15.5 to surface                         |
| Surface Pad                         | 4 ft x 4 ft x 6 in                      | 4 ft x 4 ft x 6 in                      | None                           | 4 ft x 4 ft x 6 in                      | 4 ft x 4 ft x 6 in                      |
| Wellhead Protection                 | Steel<br>monument with<br>locking cover | Steel<br>monument with<br>locking cover | None                           | Steel<br>monument with<br>locking cover | Steel<br>monument with<br>locking cover |

amsl = above mean sea level TOC = top of casing

TABLE 3-2
Monitor Well Sampling Purge Data
Construction Landfill Limited Groundwater Assessment, Former Laredo Air Force Base, Laredo, TX

| Parameter                     | CLF-MW1  | CLF-MW2  | CLF-MW3  | CLF-MW4  |
|-------------------------------|----------|----------|----------|----------|
| Date                          | 10/23/99 | 10/23/99 | 10/23/99 | 10/23/99 |
| Temperature ( <sup>O</sup> C) | 22.64    | 22.63    | 22.21    | 22.77    |
| PH (standard units)           | 7.11     | 7.11     | 7.25     | 6.93     |
| Conductivity<br>(ms/cm)       | 22.96    | 32.35    | 22.77    | 21.12    |
| Turbidity (NTUs)              | 10       | 9        | 5        | 3        |
| Dissolved Oxygen<br>(mg/L)    | 6.23     | 5.61     | 5.23     | 2.11     |
| Purge Rate (ml/min)           | 100      | 100      | 100      | 100      |
| Total Purged<br>Volume (ml)   | 1400     | 800      | 1100     | 800      |

Ms/cm = milliSiemens per centimeter NTU = Nephelometric Turbidity Unit mg/L = milligrams per liter ml = milliliter ml/min = milliliter per minute Groundwater samples were collected from all four completed monitor wells—MW1, MW2, MW4, and MW5. The samples were collected directly into appropriate containers, properly labeled, then placed into an ice-cooled insulated chest pending shipment to the analytical laboratory. Samples intended for dissolved metals analysis were filtered prior to placement into the sample containers.

Upon completion of the well sampling activities, the samples were shipped under chain-of-custody documentation to Specialized Assays in Nashville, Tennessee, for analysis. The samples were analyzed for VOCs by EPA Method 8260B, semivolatile organic compounds (SVOCs) by EPA Method 8270C, PCBs by EPA Method 8082, and total and dissolved RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by EPA Methods 6010B and 7470, as appropriate.

In addition to the regular field groundwater samples, one QA duplicate and one QC duplicate were prepared. The QA and QC duplicate samples were prepared by collecting the groundwater sample from monitor well MW4 in triplicate. Two portions of the triplicate sample collected from MW4 were submitted to the analytical laboratory as the regular field sample and the QC duplicate sample. The third portion of the triplicate sample was submitted to the QA laboratory (Environmental Testing and Consulting, Inc. in Memphis, Tennessee) as the QA duplicate sample. The QA and QC duplicate samples were analyzed for the same parameters as the regular field samples.

A trip blank sample was also submitted for analysis with the regular field samples. The trip blank sample was prepared prior to field activities and remained with the sample containers throughout the field activities and the shipment of the field samples to the analytical laboratory. The trip blank sample was analyzed for VOCs.

#### 3.5 Test Pit Excavation

Approximately 28 test pits were excavated to determine the southern boundary of the CLF (which was not confirmed during the geophysical survey conducted in 1996) and direct the placement of the monitor wells on the southern side of the CLF. The test pits were excavated with a backhoe to a maximum depth of 6 feet or until debris was encountered, whichever came first. The test pits were about 2-feet wide and ranged from approximately 5 to 8 feet in

length and 4 to 6 feet in depth. Materials excavated from each test pits were placed back into the test pit at the completion of the excavation.

A visual survey of the southern end of the landfill was conducted prior to excavation of the test pits to determine whether there were visual indicators of the boundary. The first test pit location, T-1, was placed at the visually apparent southern extent of the landfill (approximately 170 feet south of survey marker LA-5 and 25 feet west of a dirt road that transverses the landfill from north to south). Additional test pits were excavated north, east, and west of T-1 to delineate the southern extent of the landfill. The test pit locations and the determined landfill boundary are shown on Figure 3-1.

### 3.6 Surveying

The four groundwater monitor wells installed at the CLF site, as well as the seven test pits (T-1, T-11, T-17, T-18, T-23, T-26, and T-28) that delineated the southern extent of the CLF, were surveyed for horizontal location (North American Datum, NAD 27) and vertical elevation (National Geodetic Vertical Datum, NGVD 29) by Howland Surveyors, a State of Texas registered land surveyor. Both ground elevation and top-of-casing elevation were surveyed for the monitor wells. Horizontal locations and ground surface elevations were surveyed to within one-tenth (0.1) of a foot. Well top-of-casing elevations were surveyed to within one-hundredth (0.01) of a foot (with the well cap removed). Survey data are presented in Appendix F.

## 3.7 Management of Investigation-Derived Waste

Investigation-derived wastes (IDW) generated during the LGA include soil cuttings, monitor well purge/development water, and decontamination fluids. All waste, except for general trash, was placed into 55-gallon steel drums. The drums were sequentially numbered and labeled with the date of generation, the type of material, the associated boring and or monitoring well number, the site name, and the generator name.

Composite samples were collected from the soil and liquid wastes. The samples were placed into appropriate sample containers, then properly labeled and placed into an ice-cooled insulated chest. The samples were shipped under chain-of-custody documentation via

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overnight courier to EET Environmental Services of Manchaca, Texas, for waste characterization analysis.

The analytical results of the waste characterization samples indicated that the IDW generated during the LGA field activities was non-hazardous. Eleven 55-gallon drums of soil cuttings were disposed at the City of Laredo Landfill as non-hazardous waste. Four 55-gallon drums of well development/purge water and four 55-gallon drums of decontamination water were disposed at BFI/Sunset Farms Landfill, Austin, Texas, as non-hazardous waste. Waste disposal was arranged by EET. Waste manifests and waste characterization analytical data are provided in Appendix G.

|  | New |  |  |  |
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# 4. Investigation Results

### 4.1 Site Soils

The soils encountered at the CLF site during drilling of the soil borings and excavation of the test pits typically consisted of light brown sandy silts, sandy silty clays, and clays. Streaks of caliche and caliche nodules were also encountered. Sandstone was encountered at depths ranging from 2- to approximately 30-ft bgs. A hard, dark, shale was encountered at 29.5-ft bgs in boring SB3. The soils were typically dry to moist. Depths to water encountered during drilling ranged from about 17-ft bgs to about 30-ft bgs.

### 4.2 Groundwater Analytical Results

A total of four groundwater samples (LAFBCLFMW-101, LAFBCLFMW-201, LAFBCLFMW-401, and LAFBCLFMW-501) were collected from the newly installed monitor wells (one sample per well, excluding QA/QC samples). The samples were analyzed for VOCs, SVOCs, PCBs, and total and dissolved RCRA metals. The results of the groundwater sample analyses are compared to the TNRCC Risk Reduction Standard No. 2 (RRS2) GW-Ind Media Specific Concentrations (MSCs) for each parameter. The TNRCC RRS2 GW-Ind MSCs are the concentrations of each particular compound or parameter that are allowed to be present in groundwater at industrial sites. The TNRCC RRS2 GW-Ind MSCs are generally numerically equivalent to the Federal Drinking Water Standards Maximum Concentration Limits (MCLs) and the Texas State Drinking Water Standards MCLs. It is noted that the groundwater at the CLF area is not utilized as a water supply. Water supply services are provided by the City of Laredo.

No detectable concentrations of SVOCs or PCBs were reported for the groundwater samples. Only one groundwater sample, from monitor well MW2, was reported to contain a detectable concentration of a VOC, acetone. Acetone was reported at a concentration of 0.104 mg/L, well below the TNRCC RRS2 GW-Ind MSC of 10 mg/L. It is noted that acetone is a common laboratory contaminant. Therefore, the detected concentration of acetone may not reflect actual environmental conditions.

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For the metals analyses, no detectable concentrations of arsenic, mercury, or silver were reported for either the total or dissolved metals analyses. All of the detected metals concentrations are well below the respective TNRCC RRS2 GW-Ind MSCs.

Barium was detected in both the total and dissolved analyses for all four groundwater samples. Cadmium was reported only for the dissolved and total analyses for the sample from MW2 and the total analysis for the sample from MW4. Chromium was reported only for the dissolved analysis for the sample from MW4. Selenium was reported for the dissolved and total analyses for the sample from MW4 and for the total analyses for the samples from MW1 and MW5. Lead was reported only for the total analysis for the sample from MW4.

A summary of analytical parameters for which detectable concentrations were reported is provided in Table 4-1. The laboratory analytical data sheets and the Data Validation Report are included as Appendix H.

#### 4.3 Data Validation

The data packages generated by the analytical laboratory were reviewed by a CH2M HILL project chemist using the processes outlined in guidance documents such as the Environmental Protection Agency (EPA) National Functional Guidelines for Evaluating Inorganic Analyses (July 1994) and National Functional Guidelines for Organic Data Review (July 1994). Engineering Manual 200-1-6 (EM 200-1-6) US Army Corps of Engineers Chemical Quality Assurance for Hazardous, Toxic and Radioactive Waste (HTRW) Projects (October 1997) was consulted as well.

The data validation concluded that the analytical data generated by this sampling event is complete and valid for its intended use. None of the data were rejected, and only 25 of the reported results were qualified as "estimated." The validation also concluded that the sample documentation, the sampling procedures, and laboratory analyses were performed in a proper manner. The data validation report, with the check sheets, is included with the laboratory data sheets in Appendix H.

**TABLE 4-1**Summary of Groundwater Analytical Detections (mg/L)
CLF - Former Laredo Air Force Base, Laredo, Texas

INVESTIGATION RE.

|                     | Sample ID:        | Sample ID: LAFBCLFMW-101 | LAFBCLFMW-201 | LAFBCLFMW-401 | LAFBCLFMW-501 |
|---------------------|-------------------|--------------------------|---------------|---------------|---------------|
|                     | Monitor Well No.: | CLF-MW1                  | CLF-MW2       | CLF-MW4       | CLF-MW5       |
|                     | Date Collected:   | 10/23/1999               | 10/23/1999    | 10/23/1999    | 10/23/1999    |
| Parameter           | TNRCC RRS2 GW-Ind |                          |               |               |               |
| Metals              |                   |                          |               |               |               |
| Barium, Dissolved   | 2.0               | 0.026                    | 0.027         | 0.037         | 0.02          |
| Barium, Total       | 2.0               | 0.027                    | 0.028         | 0.044         | 0.02          |
| Cadmium, Dissolved  | 0.005             | <0.0002                  | 0.001         | <0.0002       | <0.0002       |
| Cadmium, Total      | 0.005             | <0.0005                  | 0.001         | 0.002         | <0.0005       |
| Chromium, Total     | 0.1               | <0.0019                  | <0.00019      | 0.042 J       | <0.0019       |
| Selenium, Dissolved | 0.05              | <0.0047                  | <0.0047       | 0.007         | 0.008         |
| Selenium, Total     | 0.05              | 0.01                     | <0.0024       | 0.013         | 0.011         |
| Lead, Total         | 0.015             | <0.0005                  | <0.0005       | 0.006         | <0.0005       |
| VOCs                |                   |                          |               |               |               |
| Acetone             | TO                | <0.0049                  | 0.104         | <0.0049       | <0.0049       |
|                     |                   |                          |               |               |               |

Notes: J - Estimated value mg/L = milligrams per liter

#### 4.4 Groundwater Flow Direction and Gradient

Groundwater was encountered in site soils during drilling at depths ranging from about 17 ft bgs to about 30 ft bgs. Following installation and development of the site monitor wells, groundwater levels in the wells ranged from 12.6 feet to 22.6 ft bgs. The water level measurements taken from the new monitor wells on October 23, 1999, indicate that the groundwater flow gradient is directed generally toward the northwest with a magnitude of approximately 0.01 to 0.02 ft/ft. A groundwater potentiometric surface map is presented as Figure 4-1. Groundwater elevation data for each of the monitor wells are presented in Table 4-2.

#### 4.5 Test Pit Observations

Materials excavated from the test pits included native soils, disturbed native soils, nonnative soils, and concrete, asphalt, and metal debris. The materials encountered were very dry. No groundwater was encountered in any of the test pits.

Test pit T-1 was excavated to approximately 4.6 feet in depth and about 6.0 feet in length. Material removed from the trench appeared to be native, undisturbed soil.

Test pits T-2 and T-3 were excavated further to the north of T-1. Minor amounts of debris were observed near the surface of T-3. However, the lower limits of the pit indicated the soil to be undisturbed native soil.

Test pits T-4, T-5, and T-6 were excavated near what is assumed to be the approximate center of the landfill (starting with T-4 and progressing southward to T-6). Debris was found in all of these pits.

Test pits were then excavated along the fence line and progressed toward the south then toward the east. Debris was observed in test pits T-7 through T-10, T-12 through T-16, T-19 through T-22, and in test pits T-24, T-25, and T-27. Test pits T-12 through T-17, T-27, and T-28 are located west of the airport boundary fence.

TABLE 4-2
Monitor Well Groundwater Elevation Data
Construction Landfill Limited Groundwater Assessment, Former Laredo Air Force Base, Laredo, TX

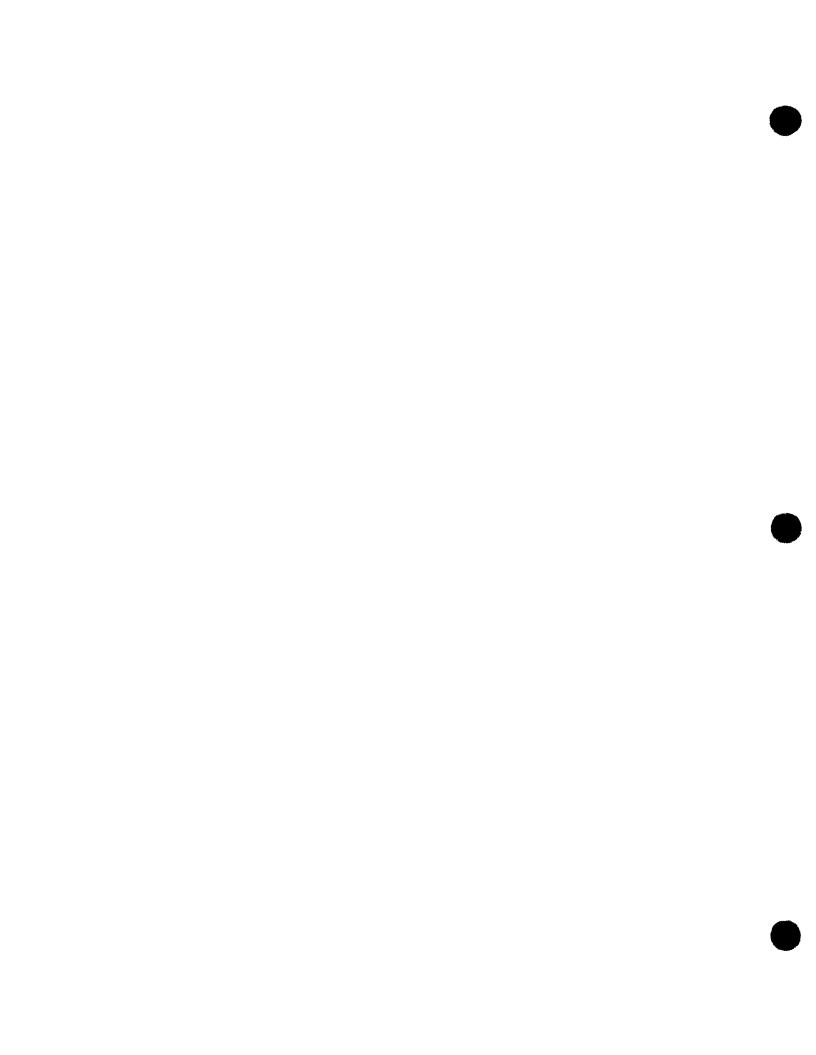
| Monitor Well ID | Elevation TOC<br>(ft, amsl) | Depth To Water,<br>Below TOC<br>10/23/99<br>(ft) | Elevation of<br>Groundwater<br>(ft, amsl) |
|-----------------|-----------------------------|--|---|
| MW1             | 477.02                      | 15.70  | 461.32                                    |
| MW2             | 480.84                      | 22.60  | 458.25                                    |
| MW4             | 502.74                      | 25.46  | 477.28                                    |
| MW5             | 499.14                      | 24.85  | 474.29                                    |

TOC = top of casing

ft = feet

amsl = above mean sea level

The southern boundary of the landfill was determined to be just north of test pits T-17, T-28, T-11, T-18, T-23, T-1, and T-26 (Figure 3-1). Excavation logs for test pits T-1 through T-11 are presented together with the soil boring logs in Appendix C.



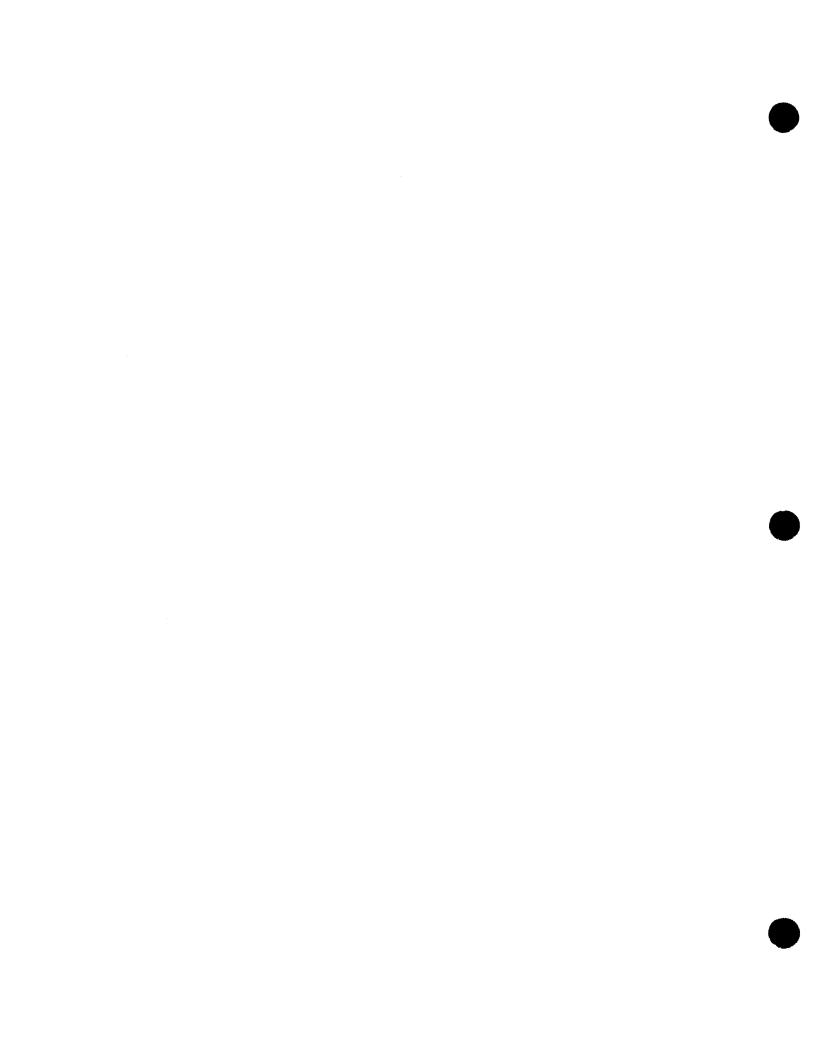
### 5. Conclusions and Recommendations

The LGA yielded the following results:

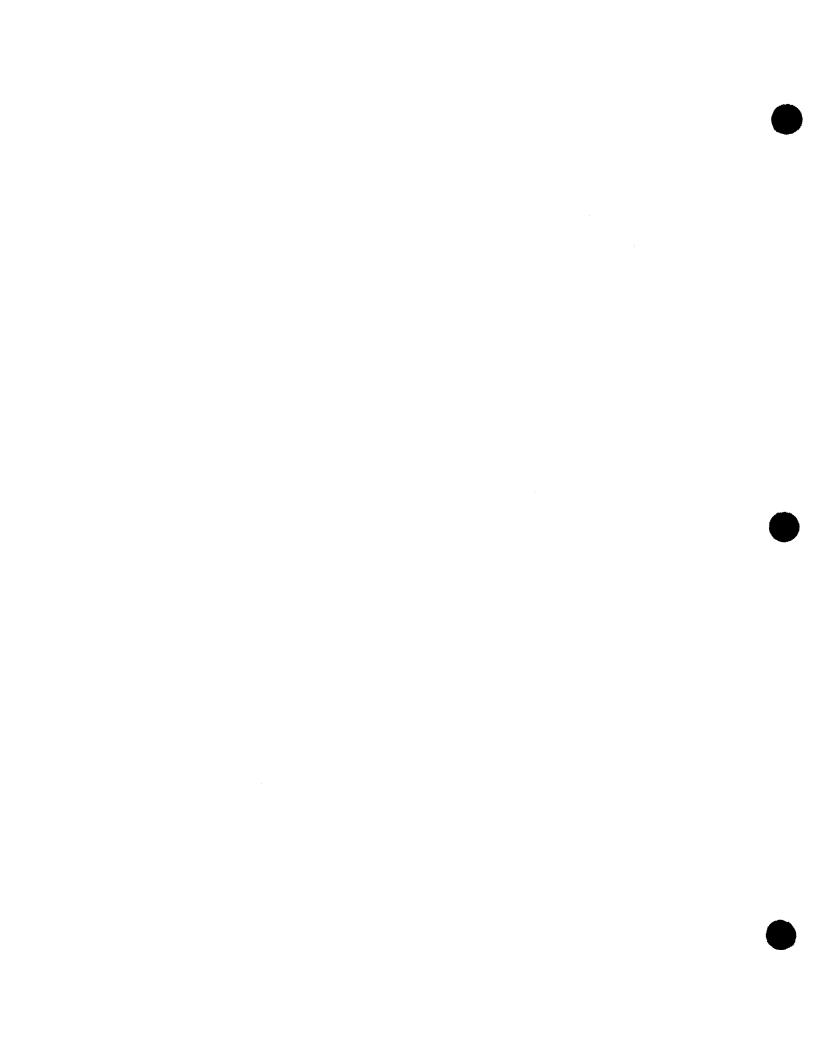
- The southern boundary of the CLF was delineated from the test pits, being identified just north of test pits T-1, T-11, T-17, T-18, T-23, T-26, and T-28.
- No detectable concentrations of SVOCs or PCBs were reported for any of the
  groundwater samples. Only one VOC, acetone, was reported at a low concentration in a
  single groundwater sample (from MW2). Low concentrations of various RCRA metals
  constituents were detected for both the total metals analysis and the dissolved metals
  analysis. However, the detected contaminant concentrations are well below the
  applicable TNRCC RRS2 GW-Ind MSCs (generally numerically equivalent to State
  and/or Federal MCLs for drinking water).
- Groundwater level measurements indicate a generally northwesterly groundwater flow gradient at the CLF, with a magnitude of approximately 0.01 to 0.02 ft/ft.

These results indicate that there is no contamination present in the groundwater under the CLF site due to past landfilling activities.

Based on these findings, the fact that the groundwater in the vicinity of the CLF is not utilized as a water supply, the lack of indications of contamination shown by the soil gas survey performed previously at the CLF site, and the fact that only concrete, asphalt, and metal construction-type debris was encountered during excavation of the test pits, no further investigation of the CLF site is recommended.

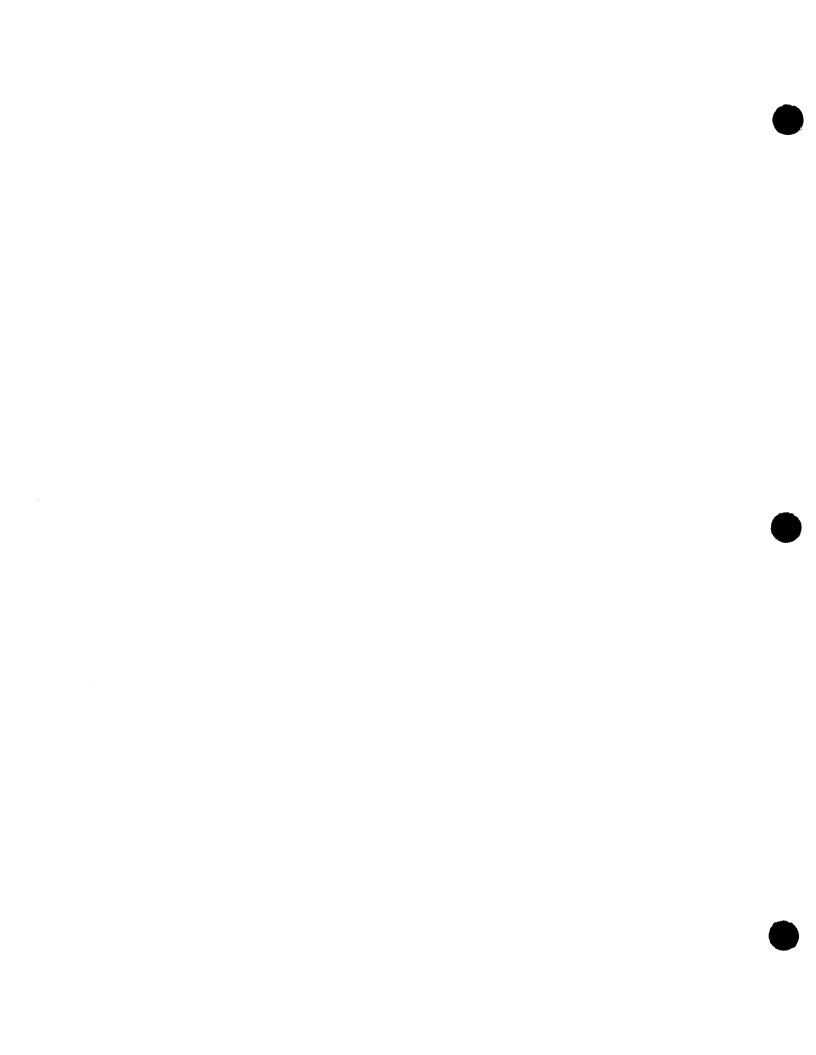


Section 6 References

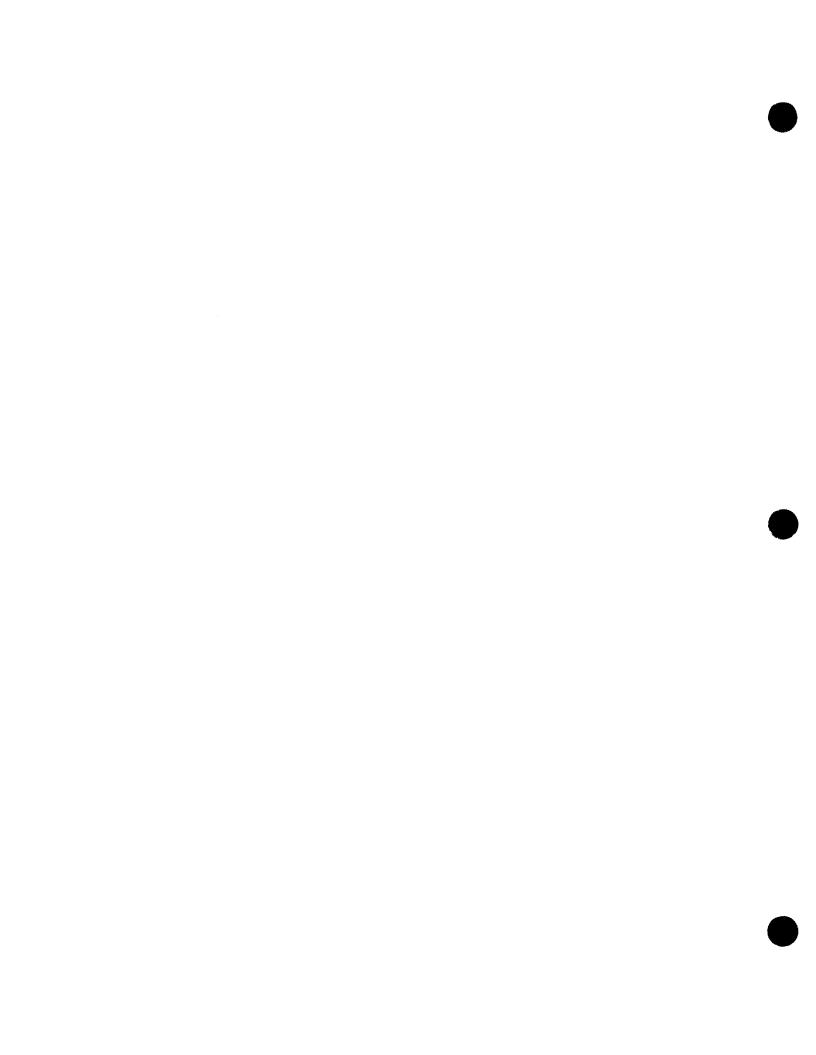


## 6. References

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- Raba-Kistner Consultants, Inc., <u>Phase I Environmental Site Assessment of Arkansas Street</u>
  <u>Extension, Laredo, Webb County, Texas</u>, prepared for the City of Laredo, November, 1996.
- Target Environmental Services, Inc., <u>Soil Gas Survey</u>, Former Laredo AFB Construction Landfill, Laredo, TX, November 1996.
- Texas Natural Resource Conservation Commission, Petroleum Storage Tank Program, <u>Limited Site Assessment Guidance Document</u>, PST 92-06, February 1993.
- USACE, <u>Preliminary Investigation Report, Construction Landfill, Former Laredo Air Force Base (FUDS)</u>, <u>Laredo, Texas</u>, November 1997.
- USACE, Scope of Work, Limited Groundwater Assessment, Former Laredo Air Force Base Construction Landfill, Contract No. DACA56-97-D-0010, Task Order 28, May 19, 1999.



Appendix A Geophysical Survey Report



### CONSTRUCTION LANDFILL FORMER LAREDO AIR FORCE BASE (FUDS) LAREDO, TEXAS

## GEOPHYSICAL SURVEY REPORT

#### PREPARED BY

U.S. ARMY CORPS OF ENGINEERS WATERWAYS EXPERIMENT STATION Vicksburg, Mississippi

SEPTEMBER 1997



#### GEOPHYSICAL SURVEY REPORT

CONSTRUCTION LANDFILL FORMER LAREDO AIR FORCE BASE (FUDS) LAREDO, TEXAS

#### 1.0 INTRODUCTION

The former Laredo Air Force Base at Laredo, TX is classified as a Formerly Used Defense Site (FUDS). Certain areas on the past air base were used for the discarding of material. These include sanitary landfill disposal and construction debris placement. Since most of the construction debris originated from broken runway pavement, it is not surprising that the disposal area for this material was at the end of an aircraft runway.

In September of 1996, the U.S. Army Corps of Engineers (USACE) Tulsa District tasked the USACE Waterways Experiment Station (WES) to conduct a series of geophysical investigations at the suspected construction debris landfill site at the former Laredo Air Force Base. This area is just north of the west ramp of the now Laredo International Airport. The methods applied at the site included total field magnetics and two different electromagnetic induction techniques. The investigations defined the limits of the construction debris fill. There is little geophysical indication that any sanitary landfill cells are present under the surveyed area. The geophysical responses are indicative that the subsurface material is chiefly construction debris with other materials such as aircraft parts and furniture included.

#### 2.0 TOPOGRAPHIC SURVEY AND SITE

The area to be geophysically investigated was topographically surveyed by Huffman Surveyors of Muskogee, OK. A grided zone of wooden stakes was formed over the area at a 50 foot interval. Geophysical surveys were conducted over north-south traverses every 25 feet, with measurements taken every 5 feet for the induction methods and every few feet for the magnetic technique. The site consisted of level ground with construction fill (as evident from surface exposures) on the north and west side of the site. The west and north boundaries of the survey were also bounded by a steep topographical slope. Along this slope were numerous large metal discarded objects such as machinery, auto pieces, and other junk. These larger pieces of machinery and vehicles were expected to, and did produce numerous large geophysical anomalies close to the northern edge of the survey.

#### 3.0 GEOPHYSICAL SURVEY METHODS

Three applicable geophysical methods were employed at the construction landfill site at the former Laredo Air Force Base. One of these included total field magnetics. For this investigation the magnetic survey was organized so as to indicate the presence in the subsurface of ferrous material (iron and steel). The method is based upon the following principle. The Earth's magnetic field induces a weaker secondary magnetic field in ferrous objects. This smaller but significant anomalous magnetic field can be detected in the local area around and over the buried ferrous material. Thus, the presence and location of buried ferrous material in the subsurface can be ascertained. The larger the concentration of ferrous objects, generally the greater the secondary magnetic field, if other factors (such as depth of burial) are held constant.

If these objects are scattered in the subsurface, then they will produce a disjointed series of isolated anomalous magnetic responses. If they are compacted into a long linear sanitary landfill, then a long linear magnetic anomaly generally will be established.

The electromagnetic (EM) induction methods included the use of a Geonics EM-31 and a Geonics EM-61. Although both operate on EM induction principles, each are quite different in approach, and consequently measure related subsurface properties by contrasting methods. Hence the results are often different, but the two methods verify and complement each other. The EM31 broadcasts a continuous oscillating sine wave in the 10's of Kilo Hertz. This EM wave penetrates 5 to 15 feet in the substrate or ground and interacts with the electrical properties of the subsurface fluids, soil, rock, and other debris material. Certain types of subsurface soils and conductors will generate secondary EM fields from the excitation of the broadcast primary EM field. The receiver on the EM31 collects both the primary and secondary broadcast fields. From this data the phase shift and amplitude of the received field is measured and processed. As a result the subsurface conductivity (in milli-Seimens / meter or mS/m) can be calculated. In addition the "In-Phase Response" (in parts per thousand or PPT) can be deduced. This measurement is an indication of the broad concentration of subsurface metal.

The last induction method employed was the Geonics EM-61. This is a time domain induction method whereby a steady state field is broadcast from a transmitter coil. The even part of the EM field establishes (temporarily) steady secondary EM fields around and in conductors in the subsurface. The primary field is quickly switched off and the collapse of the secondary field

around the metallic objects in the subsurface can be measured. This is done using two receiving coils separated vertically by approximately two feet, i.e. one over the other. By numerically processing the responses of the two coils, metallic subsurface conductors can be identified as "shallow" or "deep".

#### 4.0 GEOPHYSICAL SURVEY RESULTS

EM31 Electromagnetic Induction. The results of the subsurface electrical conductivity 4.1 as performed with the EM31 are spatially shown and contoured in Figure 1, "EM31 Electrical Conductivity". The area lying within the defined zone north of N10900 and south of N11500, and east of E11250 and west of E11600 is referred to as the Undisturbed Zone (UZ). Centered at N10950-E11430 is an approximately 200 by 200 foot area which displays a conductivity of 125 to 155 mS/m or 25 to 50 mS/m higher than the immediately surrounding area. The underlying material at this location is most likely more clayey than the adjacent material. The remainder of the surveyed area is termed the Filled Area (FA). The UZ is characterized by subsurface electrical conductivities from 75 to over 150 mS/m. These ranges of conductivities are associated with clayey or silty sands. The FA area displays electrical conductivities from 55 to 30 mS/m. The exception to this is the area along the north to south traverse defined by E11060. This is the response from a three strand, four foot high, barbed wire fence. The low electrical conductivities in the FA are not representative of typical sanitary or industrial landfills which often have electrical conductivities of 250 to 500 mS/m. These observed low conductivities are representative of nonconductive debris such as concrete and asphalt. Two small electromagnetic

anomalies are located at N11330-E11050 and N11360-E11170 which have conductivities below 35 mS/m. These areas are most likely underlain by large metal objects which affect the conductivity response in a reverse manner due to instrument to object orientations. At the northern end of the FA and centered at about N11700-E11350 is a zone which displays a 10 to 15 mS/m greater response than the surrounding fill. This slightly greater conductivity response is most likely the result of the increased amounts of metal objects in the subsurface in this area (see below).

The results of the EM31 subsurface "In Phase Response" (Figure 2) is representative of a measure of the collected quadrature response of the sinusoidal broadcasted field. The effect is calculated in Parts Per Thousand (PPT) of the primary field. Larger numerical values generally represent greater concentrations of metal in the subsurface. The surveyed area displays responses of the In-Phase component in numerical values, typically 1 to 15 PPT. These are not significant responses and relate to relatively low concentrations of metal in the subsurface (for a landfill). As with the conductivity chart, two small anomalies are located at N11330-E11050 and N11360-E11170 which have very low responses in PPT. Again this is related to metal subsurface object to sensor geometric configurations. At the northern end of the FA and centered at about N11700-E11350 is an area which displays numerous "In Phase" responses which are indicative of numerous smaller sized metal objects buried near or tipped over the northern edge of the construction landfill. The metallic response of the north-south, 3 strand barbed wire fence is also clearly evident along the traverse E11060.

4.2 EM61 Electromagnetic Induction. The EM61 electromagnetic induction is normally contoured in two responses, Channel 1 in milli-Volts/ Volt and Channel 2 in the same units of measure. These two different channels represent data from two different antennas, Channel 1 which is close to the ground and Channel 2 which originates from an antenna about 2 feet above the previous one. The sensing coil for channel 1 is closer to the ground and hence receives responses from larger, deeper buried metal objects and small, near surface metal objects. The antenna for channel number 2 is higher above the ground and senses a weaker response from larger deeper buried metal objects and a MUCH weaker response from the smaller buried objects closer to the surface. As a result, it is possible to discriminate from shallow, small metal pieces and larger metal debris which is at a deeper depth.

The channel 1 results are displayed in Figure 3 titled "EM61 Channel 1 Response". These contoured anomalies form an arc which well defines the limits and area of the construction landfill. Most of the metal pieces that were visible on the surface were from rebar in broken concrete. The density of the closed contours or anomalies increases to the northern end of the construction landfill or FA. This is verified by the increased quantity of metal debris visible at the surface at the location.

The channel 2 results (Figure 4) from the EM61 response display a spatial response similar in area to the channel 1 data. An arcuate band of closed contoured anomalies exists in the FA. The density of these anomalies remains generally constant over the FA suggesting a similar subsurface concentration of fill material with metal constituents. The northern area exhibits

a greater number and intensity of responses indicating, as did the EM31 data, a greater concentration of metallic debris in the subsurface of this area. Centered at approximately E11100-N11300 is a very large EM61 response of approximately 300 mS/m which is indicative of a large metal object in the subsurface, perhaps of 55 gallon barrel or office file cabinet size. As discussed below, this object is probably of nonferrous metal. This area is offset sufficiently from a conductivity anomaly in the same area (detected using the EM31) to be a different subsurface object. This indicates that not all subsurface metal objects are found with both or either the EM61 or EM31 induction systems due to shape, size, orientation, burial, etc. This also verifies the need to use what appear to be redundant systems, but in effect are instruments which can be sensitive to different target parameters.

Figure 5 titled "EM61 Channel 1 - Channel 2" represents data which has been processed using both channels of data in a manner so as to suppress the near surface responses. The information that this figure contains is largely the result of deeper (a few feet to about 10 feet) and larger sized metal objects. With this chart the FA on the construction landfill is clearly defined as an arcuate area extending from the south to the north of the surveyed area. Generally this type of processing best defines sanitary landfill trenches, if they are present. No indication of these type of features are present in this data. The two north-south orientated closed contoured "strips" on the far east side of the figure represent artifacts in the numerical processing of this method and are not manifestations of any subsurface feature.

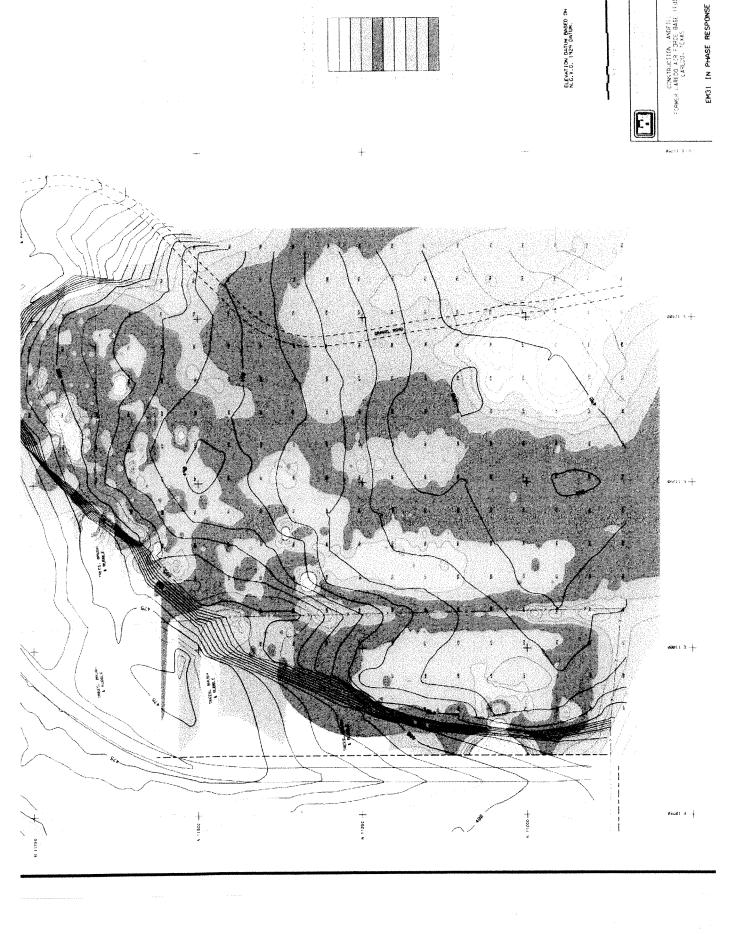
4.3 Magnetic Survey. The final figure of the geophysical data is Figure 6 titled "Residual Total Magnetic Field". This method maps the ferrous metal in the subsurface. The results are similar to the EM31 In-phase and the EM61 results to the point that a nearly identical arcuate area in the FA is defined which is representative of the fill zone of the construction landfill. Interestingly, only a weak magnetic response is achieved from the EM61 anomaly at E11100-N11300. This most likely means that the source of the electromagnetic response is nonferrous metal, such as stainless steel (e.g. kitchen hardware) or aluminum (e.g. a piece of aircraft). Larger subsurface concentrations of ferrous metal are evident in the northern portion of the FA as was identified with the other geophysical methods. The different concentrations of metal may be indicative of grossly different types of construction fill in the northern vs. southern portions of the construction landfill. No organized disposal areas are evident from the residual total field magnetic investigation, which is identical to the results found using the induction techniques.

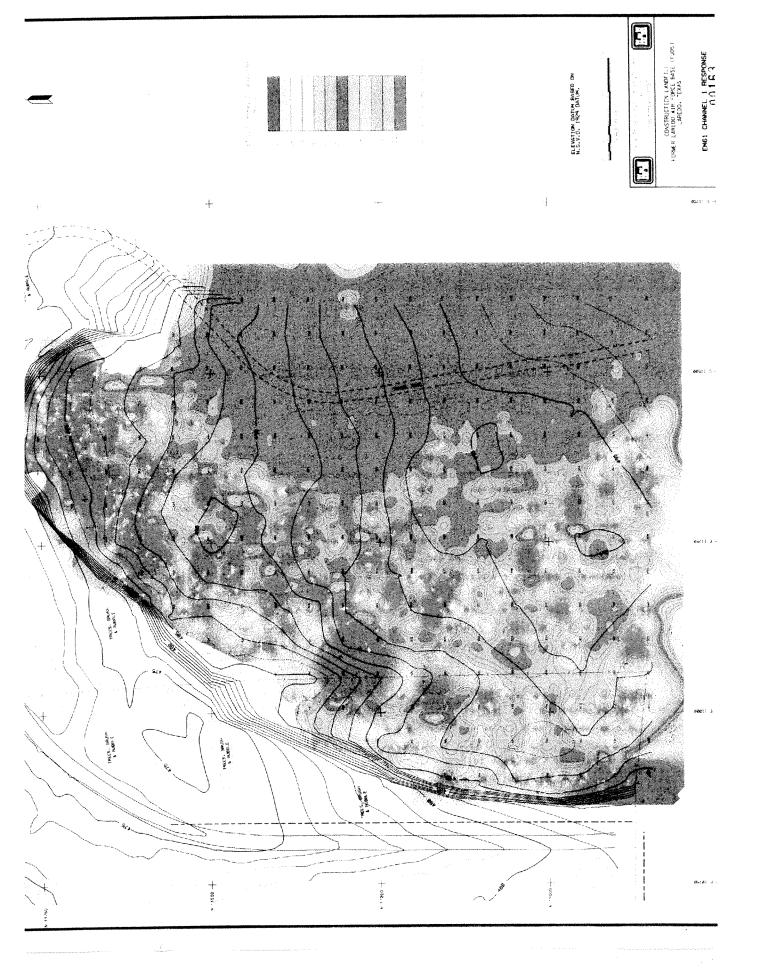
#### 5.0 CONCLUSION

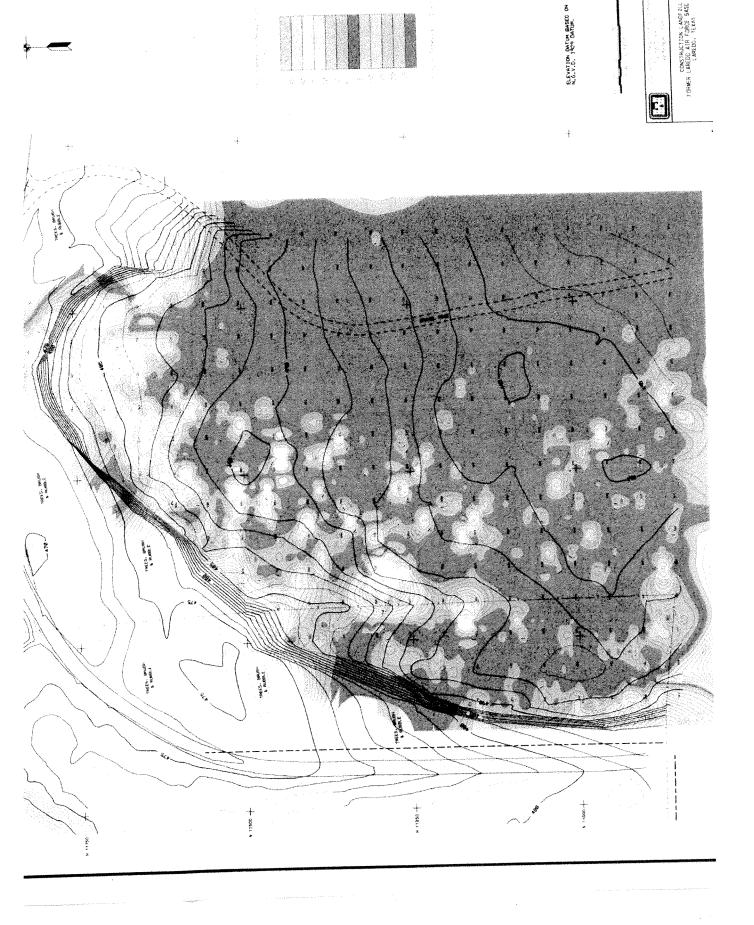
The construction landfill site at the Former Laredo Air Force Base was geophysically investigated using three different methodologies. All produced and located different anomalous features in the subsurface. All data, especially the EM31 conductivity investigation, supported the concept that the fill material was construction debris and not sanitary landfill. It was clear on all geophysical investigations that the construction landfill forms an arcuate shaped zone which is bounded on the west and northern side by a steep slope with construction debris exposed on the incline. The concentration of metal material in the subsurface appears to increase from the south to the north in the filled area, suggesting different sources of material in the fill.

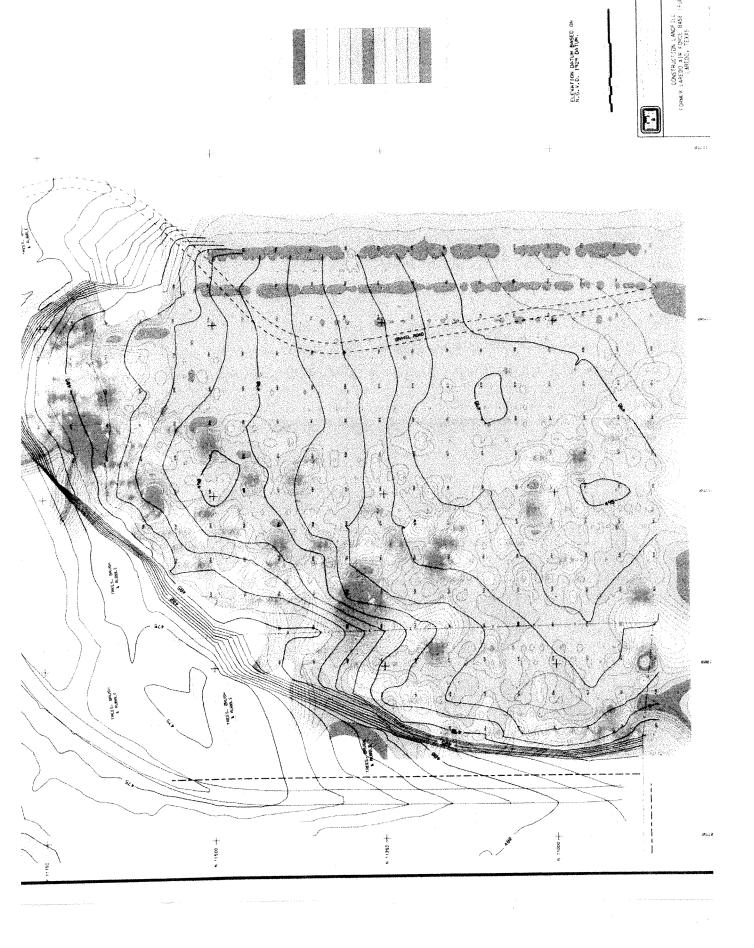
The presence of a large non-ferrous piece of metal in the fill suggests that office equipment, airplane parts, and/or functional items such as furniture or kitchen equipment may have also been placed in the fill.











Appendix B Soil Gas Survey Report

### SOIL GAS SURVEY

### FORMER LAREDO AFB CONSTRUCTION LANDFILL Laredo, TX

#### PREPARED FOR

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P.O. Box 61
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### PREPARED BY

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NOVEMBER 1996

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#### **TABLES**

Table 1. Analyte Concentrations via GC/FID

Table 1. Analyte Concentrations via GC/ECD

### APPENDICES

APPENDIX A - Field Procedures

APPENDIX B - Laboratory Procedures

APPENDIX C - Detectability

### EXECUTIVE SUMMARY

From October 17 to October 24, 1996, TARGET Environmental Services, Inc. (TARGET) conducted a soil gas survey at the Former Laredo Air Force Base, Laredo, Texas. This site is located at the Laredo Municipal Airport. A total of 299 soil gas samples were collected from a depth of 4 feet. The samples were analyzed off-site on a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons and an electron capture detector (ECD) for chlorinated compounds typically contained in industrial solvents. The objective of the survey was to help determine if any hazardous volatile constituents are present in the subsurface.

None of the analytes chosen for this project were found above the detection limit. No evidence of contamination from volatiles was found.

#### Introduction

The TULSA DISTRICT CORPS OF ENGINEERS (The COE) contracted TARGET Environmental Services, Inc. (TARGET) to perform a soil gas survey at Former Laredo Air Force Base, Laredo, Texas. This site is located at the Laredo Municipal Airport. The objective of the survey was to help determine if any hazardous volatile constituents are present in the subsurface. The planned scope of work included 713 soil gas sample locations on 50 foot spacing, and 10 soil sampling locations. The COE elected to complete the soil sampling through other techniques, and the actual number of soil gas samples required to test the areas in question (as determined by The COE) was 299.

### Sample Collection and Analysis

Soil gas samples were collected at a total of 299 locations at the site, as shown in Figure 1. Soil gas samples were collected from a depth of 4 feet at each location and submitted to TARGET's laboratory in Columbia, MD for analysis. A detailed explanation of the sampling procedure is provided in Appendix A.

All of the samples collected during the field phase of the survey were subjected to dual analyses. One analysis was conducted according to EPA Method 8010 (modified) on a gas chromatograph equipped with an electron capture detector (ECD), and using direct injection. Specific analytes standardized for this analysis were:

1,1-dichloroethene (11DCE) methylene chloride (CH<sub>2</sub>Cl<sub>2</sub>) trans-1,2-dichloroethene (t12DCE) 1,1-dichloroethane (11DCA) cis-1,2-dichloroethene (c12DCE) the samples during collection.

### Laboratory QA/QC Samples

To document analytical repeatability, a duplicate analysis was performed on every tenth field sample. Laboratory blanks of nitrogen gas were also analyzed after every tenth field sample. The results of these analyses are reported in Tables 1 and 2. The duplicate analyses were within acceptable limits. Concentrations of all analytes were below the reporting limit in all laboratory blanks.

#### Results

None of the analytes chosen for this project were found above the detection limit. No evidence of contamination from volatiles was found.

#### **Conclusions**

▶ No evidence of contamination from volatiles was found in any of the soil gas samples.

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

| SAMPLE         DATE         ETHYL-           NUMBER         ANALYZED         BENZENE         TOLUENE         BENZENE         XYLE           DETECTION LIMIT         1.00 ug/L         1.00 ug | ug/L 10.0 ug/L D ND D ND D ND                        |
|---|--|
| SAMPLE         DATE           NUMBER         ANALYZED         BENZENE         TOLUENE         BENZENE         XYLE           DETECTION LIMIT         1.00 ug/L         ND  | NES VOLATILES*  LIGATION UG/L  D  ND  ND  ND  ND  ND |
| NUMBER         ANALYZED         BENZENE         TOLOGIA           DETECTION LIMIT         1.00 ug/L         ND         ND         ND         NI         ND   | ug/L 10.0 ug/L  D ND D ND D ND                       |
| 021A 10/27/96 ND  | D ND D ND  |
| 021A 10/27/96 ND ND ND ND NI 022 10/29/96 ND ND ND ND N   | D ND   |
| 021A 10/27/96 ND ND ND ND NI 022 10/29/96 ND ND ND ND N   | D ND   |
| 022 10/29/96 ND ND ND ND N  | D ND   |
|   |  |
| 022A 10/2//90 ND N  | D ND   |
| 023 10/28/96 ND ND N  |  |
| 023A 10/29/96 NU ND ND N  |  |
| 024 10/28/96 NU ND ND N   | D ND   |
| 024A 10/29/96 NU NU NU NU   | D ND   |
| 025A 10/29/96 NU NU NU  | D ND   |
| 026A 10/29/96 ND ND   | D ND   |
| 027A 10/29/96 NU NU NU NU   | ID ND  |
| 028A 10/29/96 NU NU NU  | ID ND  |
| 029A 10/29/96 ND ND ND  | ID ND  |
| 030A 10/28/96 ND ND   | ID ND  |
| 031A 10/28/96 ND ND ND  | ID ND  |
| 032A 10/28/96 ND ND NU  | ND ND  |
| 033A 10/28/96 ND ND ND  | ND ND  |
| 034A 10/30/96 ND ND ND  | ND ND  |
| 035A 10/28/96 ND ND ND  | ND ND  |
| 036A 10/28/96 ND ND NU  | ND ND  |
| 037A 10/28/96 ND ND ND  | ND ND  |
| 038A 10/28/96 ND ND ND  | ND ND  |
| 039A 10/28/96 ND ND ND  | ND ND  |
| 040A 10/28/96 ND ND ND  | ND ND  |
| 041A 10/28/96 ND ND ND  |  |
| 042A 10/28/96 ND ND ND  |  |
| 0/3A 10/28/96 ND ND ND  |  |
| 044A 10/28/96 ND - ND NU  |  |
| 0454 10/28/96 ND ND ND  |  |
| 0/64 10/28/96 ND ND ND  |  |
| 047A 10/27/96 ND ND ND  |  |
| 048A 10/27/96 ND ND ND  |  |
| 049A 10/29/96 ND ND ND  | 110  |
| 050A 10/28/96 ND ND ND  | אט איי   |
| 051A 10/28/96 ND ND ND  |  |
| 0524 10/29/96 ND ND ND  |  |
| 053A 10/30/96 ND ND ND  |  |
| 054A 10/27/96 ND ND ND  | ND ND  |
| 0554 10/28/96 ND ND ND  | ND ND  |
| 056A 10/28/96 ND ND ND  | ND ND  |
| 057A 10/28/96 ND ND ND  | ND ND  |
| 058A 10/28/96 ND ND ND  | ND ND  |

TABLE 1

# ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

| ANALITE   |                   |             |            | ETHYL-     |           | TOTAL FID  |
|-----------|-------------------|-------------|------------|------------|-----------|------------|
| SAMPLE    | DATE              |             |            | BENZENE    | XYLENES   | VOLATILES* |
| NUMBER    | ANALYZED          | BENZENE     | _ TOLUENE_ | 1.00 ug/L  | 1.00 ug/L | 10.0 ug/L  |
| DETECTION | LIMIT             | _1.00 ug/L_ | 1.00 ug/L  | 1.00 ug/L_ |           |            |
|           |                   |             |            | ND         | ND        | ND         |
| 479       | 10/28/96          | ND          | ND         | ND         | ND        | ND         |
| 480       | 10/29/96          | ND          | ND         | ND         | ND        | ND         |
| 481       | 10/28/96          | ND          | ND         | ND<br>ND   | ND        | ND         |
| 482       | 10/29/96          | ND          | ND         | ND         | ND        | ND         |
| 496       | 10/29/96          | ND          | ND         | ND         | ND        | ND         |
| 497       | 10/30/96          | ND          | ND         | ND         | ND        | ND         |
| 498       | 10/28/96          | ND          | ND         | ND         | ND        | ND         |
| 499       | 10/28/96          | ND.         | ND         | ND         | ND        | ND         |
| 500       | 10/28/96          | ND          | ND         | ND         | ND        | ND         |
| 501       | 10/30/96          | ND          | ND         | ND         | ND        | ND         |
| 502       | 10/28/96          | ND          | ND         | ND         | ND        | ND         |
| 503       | 10/28/96          | ND          | ND         | ND         | ND        | ND         |
| 504       | 10/29/96          | ND          | ND         | ND         | ND        | ND         |
| 505       | 10/29/96          | ND          | ND         | ND<br>ND   | ND        | ND         |
| 506       | 10/28/96          | ND          | ND         | ND<br>ND   | ND        | ND         |
| 507       | 10/28/96          | ND          | ND         | ND<br>ND   | ND        | ND         |
| 521       | 10/25/96          | ND          | ND         |            | ND        | ND         |
| 522       | 10/24/96          | ND          | ND         | ND         | ND        | ND         |
| 523       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 524       | 10/25/96          | - ND        | ND         | ND         | ND        | ND         |
| 525       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 526       | 10/27 <u>/</u> 96 | ND          | ND         | ND         | ND        | ND         |
| 527       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 528       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 529       | 10/27/96          | ND          | ND         | ND         | ND        | ND         |
| 530       | 10/24/96          | ND          | ND         | ND         | ND        | ND         |
| 531       | 10/29/96          | ND          | , ND       | ND         | ND        | ND         |
| 532       | 10/29/96          | ND          | ND         | ND         | ND        | ND         |
| 533       | 10/28/96          | ND          | ND         | ND         | ND        | ND         |
| 534       | 10/29/96          | ND          | ND         | ND         | ND        | ND         |
| 546       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 547       | 10/24/96          | ND          | ND         | ND         | ND        | ND         |
| 548       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 549       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 550       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 551       | 10/24/96          | ND          | ND         | ND         | ND        | ND         |
| 552       | 10/27/96          | ND          | ND         | ND         | ND        | ND         |
| 553       | 10/24/96          | ND          | ND         | ND         | ND        | ND         |
| 554       | 10/24/96          | ND          | ND         | ND         | ND        | ND         |
| 555       | 10/25/96          | ND          | ND         | ND         | ND        | ND         |
| 556       | 10/29/96          | ND          | ND         | ND         | NU        |            |
|           |                   |             |            |            |           |            |

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

| SAMPLE    | DATE                 | BENZENE     | TOLUENE   | ETHYL-<br>BENZENE | XYLENES_  | TOTAL FID |
|-----------|----------------------|-------------|-----------|-------------------|-----------|-----------|
| NUMBER    | ANALYZED             | 1.00 ug/L   | 1.00 ug/L | 1.00 ug/L         | 1.00 ug/L | 10.0 ug/L |
| DETECTION | LIMIT                | _1.00 tg/L_ | :::-== -  |                   |           | •         |
|           | 4027706              | ND          | ND        | ND                | ND        | ND        |
| 625       | 10/27/96             | ND          | ND        | ND                | ND        | ND        |
| 626       | 10/24/96             | ND          | ND        | ND                | ND        | ND        |
| 627       | 10/25/96<br>10/27/96 | ND          | ND        | ND                | ND        | ND        |
| 628       | 10/27/90             | ND          | ND        | ND                | ND        | ND        |
| 629       | 10/25/96             | ND          | ND        | ND                | ND        | ND        |
| 630       | 10/23/96             | ND          | ND        | ND                | ND        | ND        |
| 631       | 10/28/96             | ND          | ND        | ND                | ND        | ND        |
| 632       | 10/28/96             | ND          | ND        | ND                | ND        | ND        |
| 633       | 10/28/96             | ND          | ND        | ND                | ND        | ND        |
| 634       | 10/20/90             | ND          | ND        | ND                | ND        | ND        |
| 635       | 10/29/90             | ND          | ND        | ND                | ND        | ND        |
| 636       | 10/30/96             | ND          | ND        | ND                | ND        | ND        |
| 637       | 10/30/96             | ND          | ND        | ND                | ND        | ND        |
| 638       | 10/30/90             | ND          | ND        | ND                | ND        | ND        |
| 646       | 10/25/96             | ND          | ND        | ND                | ND        | ND        |
| 647       | 10/25/90             | ND          | ND        | ND                | ND        | ND        |
| 648       |                      | ND          | ND        | ND                | ND        | ND        |
| 649       | 10/25/96<br>10/25/96 | ND          | ND        | ND                | ND        | ND        |
| 650       | 10/25/96             | ND          | ND        | ND                | ND        | - ND      |
| 651       |                      | ND          | ND        | ND                | ND        | ND        |
| 652       | 10/24/96             | ND          | ND        | ND                | ND        | ND        |
| 653       | 10/25/96             | ND          | ND        | NĎ                | ND        | ND        |
| 654       | 10/25/96             | ND          | ND        | ND                | ND        | ND        |
| 655       | 10/28/96             | ND          | ND        | ND                | ND        | ND        |
| 656       | 10/29/96             | ND          | ND        | ND                | ND        | ND        |
| 657       | 10/28/96             | ND          | . ND      | ND                | ND        | ND        |
| 658       | 10/28/96             | ND          | ND        | ND                | ND        | ND        |
| 659       | 10/28/96             | ND          | ND        | ND                | ND        | ND        |
| 660       | 10/28/96             | ND          | ND        | ND                | ND        | ND        |
| 661       | 10/30/96             | ND          | ND        | ND                | ND        | ND        |
| 662       | 10/30/96             | ND          | ND        | ND                | ND        | ND        |
| 663       | 10/29/96             | ND          | ND        | ND                | ND        | ND        |
| 664       | 10/29/96             | ND          | ND        | ND                | ND        | ND        |
| 671       | 10/27/96             |             | ND        | ND                | ND        | ND        |
| 672       | 10/25/96             | ND          | ND        | ND                | ND        | ND        |
| 673       | 10/25/96             | ND          | ND        | ND                | ND        | ND        |
| 674       | 10/25/96             | ND          | ND        | ND                | ND        | ND        |
| 675       | 10/25/96             | ND          | ND        | ND                | ND        | ND        |
| 676       | 10/24/96             | ND          | ND        | ND                | ND        | ND        |
| 677       | 10/25/96             | ND          | ND        | ND                | ND        | ND        |
| 678       | 10/25/96             | ND          | ND        |                   |           |           |

TABLE 1

# ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

| /////     |          |            |             |            |           |            |
|-----------|----------|------------|-------------|------------|-----------|------------|
|           |          |            |             | ETHYL-     |           | TOTAL FID  |
| SAMPLE    | DATE     |            | TOLLIENE    | BENZENE    | XYLENES   | VOLATILES* |
| NUMBER    | ANALYZED | BENZENE    | _ TOLUENE _ | 1.00 ug/L  | 1.00 ug/L | 10.0 ug/L  |
| DETECTION | <u> </u> | _1.00 ug/L | 1.00 ug/L   | _1.00 491_ |           |            |
|           |          |            | ND.         | ND         | ND        | ND         |
| 732       | 10/29/96 | ND         | ND<br>ND    | ND         | ND        | ND         |
| 733       | 10/29/96 | ND         |             | ND ND      | ND        | ND         |
| 734       | 10/28/96 | ND         | ND<br>ND    | ND         | ND        | ND         |
| 735       | 10/30/96 | ND         | ND          | ND         | ND        | ND         |
| 736       | 10/29/96 | ND         | ND          | ND         | ND        | ND         |
| 737       | 10/29/96 | ND         | ND          | ND         | ND        | ND         |
| 738       | 10/28/96 | ND         | ИD          | ND         | ND        | ND         |
| 746       | 10/27/96 | ND         | ИD          | ND         | ND        | ND         |
| 747       | 10/25/96 | ND         |             | ND         | ND        | ND         |
| 748       | 10/27/96 | ND         | ND          | ND         | ND        | ND         |
| 749       | 10/24/96 | ND         | ND          | ND         | ND        | ND         |
| 750       | 10/24/96 | ND         | ND          | ND         | ND        | ND         |
| 751       | 10/25/96 | ND         | ND          | ND         | ND        | ND         |
| 752       | 10/25/96 | ND         | ND          | ND         | ND        | ND         |
| 753       | 10/27/96 | ND         | ND          | ND         | ND        | ND         |
| 754       | 10/24/96 | ND         | ND          | ND         | ND        | ND         |
| 755       | 10/28/96 | ND         | ND          | ND         | ND        | ND         |
| 756       | 10/29/96 | ND         | ND          | ND         | ND        | ND         |
| 757       | 10/28/96 | ND         | ND          | ND         | ND        | ND         |
| 758       | 10/29/96 | ND         | ND          | ND         | ND        | ND         |
| 759       | 10/28/96 | ND         | ND          | ND         | ND        | ND         |
| 760       | 10/28/96 | ND         | ND          | ND         | ND        | ND         |
| 771       | 10/27/96 | ND         | ND          | ND         | ND        | ND         |
| 772       | 10/24/96 | ND         | ND          | ND         | ND        | ND ND      |
| 773       | 10/24/96 | ND         | ND          | ND         | ND        | ND         |
| 774       | 10/24/96 | ND         | ND          | ND<br>ND   | ND        | ND         |
| 775       | 10/24/96 | ND         | . ND        |            | ND        | ND         |
| 776       | 10/25/96 | ND         | ND          | ND         | ND        | ND         |
| 777       | 10/27/96 | ND         | ND          | ND         | ND        | ND         |
| 778       | 10/25/96 | ND         | ND          | ND         | ND        | ND         |
| 779       | 10/27/96 | ND         | ND          | ND         | ND        | ND         |
| 780       | 10/28/96 | ND         | ND          | ND         | ND        | ND         |
| 781       | 10/29/96 | ND         | ND          | ND         | ND        | ND         |
| 782       | 10/28/96 | ND         | ND          | ND         | ND ND     | ND         |
| 783       | 10/28/96 | ND         | ND          | ND         | ND<br>ND  | ND         |
| 784       | 10/28/96 | ND         | ND          | ND         | ND        |            |
|           |          |            |             |            |           |            |

<sup>\*</sup> CALCULATED USING THE SUM OF THE AREAS OF ALL INTEGRATED CHROMATOGRAM PEAKS AND THE INSTRUMENT RESPONSE FACTOR FOR TOLUENE

"ND" INDICATES NO ANALYTE DETECTED AT THE DETECTION LIMITS

TABLE 2

| ANALYTE CONCENTRATIONS IN SOIL | <b>GAS VIA</b> | EPA METHOD 8010M |
|--------------------------------|----------------|------------------|
|                                |                |                  |

| SAMPLE        | DATE     |           | OLIOCIO    | t12DCE      | 11DCA     | c12DCE    | CHCI3     | 111TCA    | _CCI4*    | TCE       | 112TCA    | PCE       |
|---------------|----------|-----------|------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| NUMBER        | ANALYZED | _11DGE    | _ CH2CIZ - | 1.00.10/    | 1 00 ug/L | 1.00 ug/L |
| DETECTION LIN | <u> </u> | 1.00 ug/L | 1.00 09/L  | _ 1.00 091_ | 1.203-    |           |           |           |           |           |           |           |
|               | _        |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 001           | 10/27/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 001A          | 10/28/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 002           | 10/27/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ŃD        | ND        |
| 002A          | 10/29/96 | ND        | ND ND      | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 003           | 10/24/96 | ND        |            | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 003A          | 10/29/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 004           | 10/24/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | , ND      | ND        |
| 004A          | 10/29/96 | ND        | ND         |             | ND        |
| 005           | 10/27/96 | ND        | ND         | ND          | ND.       | ND        |
| 005A          | 10/28/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 006           | 10/24/96 | ND        | ND         | ND          |           | ND        |
| 006A          | 10/28/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 007           | 10/27/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 007A          | 10/28/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 008           | 10/27/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 008A          | 10/29/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 009           | 10/28/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 009A          | 10/28/96 | ND        | ND         | ND          | ND        |           | ND        | ND        | ND        | ND        | ND        | ND        |
| 010           | 10/29/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 010A          | 10/29/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 011           | 10/28/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 011A          | 10/29/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 012           | 10/28/96 | ND        | ND         | ND          | ND        | ND        |           | ND        | ND        | ND        | ND        | ND        |
| 012<br>012A   | 10/29/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 012A          | 10/29/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 013<br>013A   | 10/28/96 | ND        | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
|               | 10/30/96 | ND        | ND         | ND          | ND        | ND        | ND        |           | ND        | ND        | ND        | ND        |
| 014           | 10/29/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 014A          | 10/29/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 015           | 10/30/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 015A          | 10/30/90 |           | ND         | ND          | ND        | ND        | ND        | ND        |           | ND        | ND        | ND        |
| 016           |          |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 016A          | 10/27/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 017           | 10/28/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        |           | ND        | ND        |
| 017A          | 10/29/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | . ND      | ND        | ND        |
| 018           | 10/30/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        |           | ND        |
| 018A          | 10/28/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND<br>ND  | ND        |
| 019           | 10/29/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        |           | ND        |
| 019A          | 10/29/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 020           | 10/27/96 |           |            | ND          | ND        | . ND      | ND        | ND        | ND        | ND        | ND        | ND        |
| 020A          | 10/27/96 |           | ND         | ND          | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        |
| 021           | 10/27/96 | , ND      | ND         | 110         |           |           |           |           |           |           | Λί        | 0183      |
| •             |          |           |            |             |           |           |           |           |           |           | U         | TOD       |

TABLE 2

# ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

| SAMPLE       | DATE     |           |           |           |           |           | СНСІЗ     | 111TCA   | CCI4* | TCE       | 112TCA    | PCE_      |
|--------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-------|-----------|-----------|-----------|
| NUMBER       | ANALYZED | 11DCE*    | CH2CI2    | t12DCE    | _11DCA_   | c12DCE    |           |          |       | 1.00 ug/L | 1.00 ug/L | 1.00 ug/L |
| DETECTION LI |          | 1.00 ug/L | 1.00 001 |       |           |           |           |
| DETECTION    |          |           |           |           |           |           |           | ND       | ND    | ND        | ND        | ND        |
| 059A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 060A         | 10/28/96 | ND        | ND        | ND .      | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 061A         | 10/27/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 062A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 063A         | 10/29/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 064A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND<br>ND  | ND       | ND    | ND        | ND        | ND        |
| 065A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND<br>ND  | ND       | ND    | ND        | ND        | ND        |
| 066A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 067A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 068A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 069A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 070A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 071A         | 10/30/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 072A         | 10/28/96 | ND        | ND        | ND        | ND        | ND<br>ND  | ND        | ND       | ND    | ND        | ND        | ND        |
| 073A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 074A         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 075A         | 10/28/96 | ND        | ND        | ND        | ND        | ND<br>ND  | ND        | ND       | ND    | ND        | ND.       | ND        |
| 389          | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 390          | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 391          | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 392          | 10/29/96 | ND        | ND        | ND        | ND<br>ND  | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 393          | 10/28/96 | МD        | ND        | ND        |           | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 394          | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 395          | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 430          | 10/28/96 | ND        | ND        | ND        | ND<br>ND  | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 431          | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 432          | 10/29/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 433          | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 434          | 10/28/96 | ND        | ND        | ND        | ND        | NĎ        | ND        | ND       | ND    | ND        | ND        | ND        |
| 435          | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ИD        | ND        |
| 436          | 10/28/96 |           | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 437          | 10/29/96 |           | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 438          | 10/28/96 |           | ND        | ND        | , ND      | ND        | ND        | ND       | ND    | ND        | ND        | ND<br>ND  |
| 471          | 10/28/96 |           | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        |           |
| 472          | 10/28/96 |           | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND        |
| 473          | 10/29/96 |           | ND        | ND        | ND        | ND        | ND        | ND       | ND    | ND        | ND        | ND<br>ND  |
| 474          | 10/28/96 |           | ND        | ND<br>ND  | ND        | ND        | ND        | ND       | ND    | ND        | ND        |           |
| 475          | 10/28/96 |           | ND        | ND<br>ND  | ND        | ND        | ND        | ND       | ND    |           | ND        |           |
| 476          | 10/29/96 |           | ND        | ND<br>ND  | ND        | ND        |           | ND       |       |           | ND        |           |
| 477          | 10/28/96 |           | ND        |           | ND        | ND        |           | ND       | ND    | ND        | ND        | ND        |
| 478          | 10/28/96 | ND ND     | ND        | ND        | 110       |           |           |          |       |           | Λ         | 0185      |
| ,            |          |           |           |           |           |           |           |          |       |           | U         | 0100      |

TABLE 2

# ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

| SAMPLE      | DATE     |           |           |           |           |           | 011013    | 111TCA    | CCI4*     | TCE       | 112TCA | PCE       |
|-------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|-----------|
| NUMBER      | ANALYZED | 11DCE*    | CH2CI2    | t12DCE_   | _11DCA    | c12DCE    | CHCI3     | 100 40/   | 1 00 µg/L | 1.00 ug/L |        | 1.00 ug/L |
| DETECTION L |          | 1.00 ug/L | 1.00 49/1 | 1.00 ug/L |           |        |           |
|             |          |           |           |           |           |           |           | . ND      | ND        | ND        | ND     | ND        |
| 557         | 10/28/96 | ND        | ND     | ND        |
| 558         | 10/28/96 | ND        | ND        | ND        | ND        | ND        | ND<br>ND  | ND        | ND        | ND        | ND     | ND        |
| 559         | 10/29/96 | ND        | ND     | ND        |
| 560         | 10/29/96 | ND        | . ND      | ND        | ND        | ND        | ND        | ND        | ND        | ND ·      | ND     | ND        |
| 571         | 10/25/96 | ND        | ND     | ND        |
| 572         | 10/27/96 | · ND      | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND        | ND     | · ND      |
| 573         | 10/25/96 | ND        | ND     | ND        |
| 574         | 10/24/96 | ND        | ND        | ND        | ND        | ND        |           | ND        | ND        | ND        | ND     | ND        |
| 575         | 10/24/96 | ND        | ND     | ND        |
| 576         | 10/24/96 | ND        | ND     | ND        |
| 577         | 10/24/96 | ND        | ND     | ND        |
| 578         | 10/24/96 | ND        | ND     | ND        |
| 579         | 10/24/96 | ND        | ND     | ND        |
| 580         | 10/27/96 | ND        | ND     | ND        |
| 581         | 10/28/96 | ND        | ND     | ND        |
| 582         | 10/28/96 | ND.       | ND        | ND     | ND        |
| 583         | 10/28/96 | ND        | ND     | ND        |
| 584         | 10/28/96 | ND        | ND     | ND        |
| 585         | 10/29/96 | ND        | ND     | ND        |
| 586         | 10/29/96 | ND -      | ND        | ND        | _ ND      | ND        | ND        | ND        | ND        | ND        | ND     | ND        |
| 596         | 10/24/96 | ND        | ND     | ND        |
| 597         | 10/27/96 | ND        | ND     | ND        |
| 598         | 10/25/96 | ND        | ND     | ND        |
| 599         | 10/24/96 | ND        | ND     | ND        |
| 600         | 10/24/96 | ND        | ND     | ND        |
| 601         | 10/24/96 | ND        | ND     | ND        |
| 602         | 10/25/96 | ND        | ND        | NĐ        | ND        | ND        | ND        | ND        | ND        | ND        | ND     | ND        |
| 603         | 10/27/96 | ND        | ND        | ND        | ND        | ND        | ND        | ND-       | ND        | ND        | ND     | ND        |
| 604         | 10/25/96 | ND        | ND     | ND        |
| 605         | 10/25/96 | ND        | ND     | ND        |
| 606         | 10/28/96 | ND        | ND     | ND        |
| 607         | 10/28/96 | ND.       | ND        | ND     | ND        |
| 608         | 10/29/96 | ND        | ND     | ND        |
| 609         | 10/28/96 | ND        | ND     | ND        |
| 610         | 10/30/96 |           | ND        | ND        | ND        | ND        | ND        | ND<br>ND  | ND        | ND        | ND     | ND        |
| 611         | 10/29/96 |           | ND        | ND        | ND        | ND        | ND        |           | ND        | ND        | ND     | ND        |
| 612         | 10/30/96 |           | ND        | ND     | ND        |
| 621         | 10/25/96 |           | ND        | ND        | ND        | ND        | ND        | ND        |           | ND        | ND     | ND        |
| 622         | 10/24/96 |           | ND        | ŅD        | ND        | ND        | ND        | ND        | ND        | ND        | ND     | ND        |
| 623         | 10/25/96 |           | ND        | ND     | ND        |
|             | 10/23/96 |           | ND        |        |           |
| 624         | 10/24/90 |           |           |           |           |           |           |           |           |           | 0.1    | 0187      |

00189

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M 112TCA PCE TCE DATE CCI4\* **111TCA CHCI3** SAMPLE 1.00 ug/L 11DCA c12DCE ANALYZED NUMBER DETECTION LIMIT ND 10/27/96 ND 679 ND ND ND ND ND ND ND ND ND 10/28/96 ND 680 ND 10/29/96 ND ND ND 681 ND ND ND ND ND ND ND ND 10/28/96 ND 682 ND ND ND ND ND ND ND ND ND 10/28/96 ND ND ND 683 ND ND ND ND ND ND ND ND 10/29/96 ND ND ND 684 ND ND ND ND ND ND ND ND ND 10/28/96 ND ND 685 ND ND ND ND ND ND ND ND ND 10/30/96 ND ND ND 686 ND ND ND ND ND ND ND ND 10/30/96 ND ND 687 ND 10/29/96 ND ND 689 ND ND ND ND ND ND ND ND 10/30/96 ND ND 689 ND ND ND ND ND ND ND 10/25/96 ND ND ND ND 696 ND ND ND ND ND ND ND 10/27/96 ND ND ND 697 ND 10/24/96 ND 698 ND 10/24/96 ND 699 ND ND ND ND ND ND ND ND ND 10/25/96 ND ND 700 ND 10/24/96 ND ND 701 ND ND ND ND ND ND ND ND 10/27/96 ND ND 702 ND ND ND ND ND ND ND ND NÔ 10/25/96 ND ND 703 ND ND ND ND ND ND ND ND 10/25/96 ND ND ND 704 ND 10/29/96 ND 705 ND 10/29/96 ND 706 ND 10/28/96 ND ND 707 ND ND ND ND ND ND ND ND 10/28/96 ND ND 708 ND 10/29/96 ND 709 ND 10/30/96 ND 710 ND 10/29/96 ND ND 711 ND ND ND ND ND ND ND ND ND 10/30/96 ND ND 712 ND ND ND ND ND ND ND ND ND 10/29/96 ND 713 ND ND ND ND ND ND ND ND ND 10/29/96 ND ND 714 ND 10/24/96 ND 721 ND 10/27/96 ND 722 ND 10/27/96 ND 723 ND 10/24/96 724 ND 10/25/96 ND 725 ND 10/24/96 ND 726 ND 10/25/96 ND ND 727 ND ND ND ND ND ND ND ND 10/24/96 ND ND 728 ND 10/25/96 ND 729 ND 10/28/96 730 ND ND ND ND ND ND

2-7

ND

10/29/96

731

#### TABLE 2

## ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

DATE SAMPLE ANALYZED 11DCE CH2CI2 112DCE 11DCA 012DCE CHCI3 111TCA CCI4\* 1.00 ug/L NUMBER

111TCA = 1,1,1-trichloroethane

CCI4 = carbon tetrachloride

TCE = trichloroethene

112TCA = 1,1,2-trichioroethane

PCE = tetrachloroethene

\*11DCE/TCTFA and CCI4/12DCA are co-eluting pairs and are reported in concentrations of 11DCE and CCI4, respectively.

Analyst:

#### FIELD PROCEDURES

To collect the samples, a 1/2-inch hole was produced to a depth of approximately 4 feet by using a drive rod. The entire sampling system was purged with ambient air drawn through an organic vapor filter cartridge, and a stainless steel probe was inserted to the full depth of the hole and sealed off from the atmosphere. A sample of in-situ soil gas was then withdrawn through the probe and used to purge atmospheric air from the sampling system. A second sample of soil gas was withdrawn through the probe and encapsulated in a pre-evacuated glass vial at two atmospheres of pressure (15 psig). The self-sealing vial was detached from the sampling system, packaged, labeled, and stored for laboratory analysis.

Prior to the day's field activities all sampling equipment, slide hammer rods and probes were decontaminated by washing with a Liquinox/distilled water solution and rinsing thoroughly with distilled water. Internal surfaces were flushed dry using filtered ambient air, and external surfaces were wiped clean using clean paper towels or allowed to air dry.

#### LABORATORY PROCEDURES

The soil gas samples were analyzed in TARGET's laboratory in Columbia, MD. The analytical equipment was calibrated using a 3-point (FID) or a 5-point (ECD) instrument-response curve and injection of known concentrations of the target analytes. Retention times of the standards were used to identify the peaks in the chromatograms of the field samples, and their average calibration factors were used to calculate the analyte concentrations.

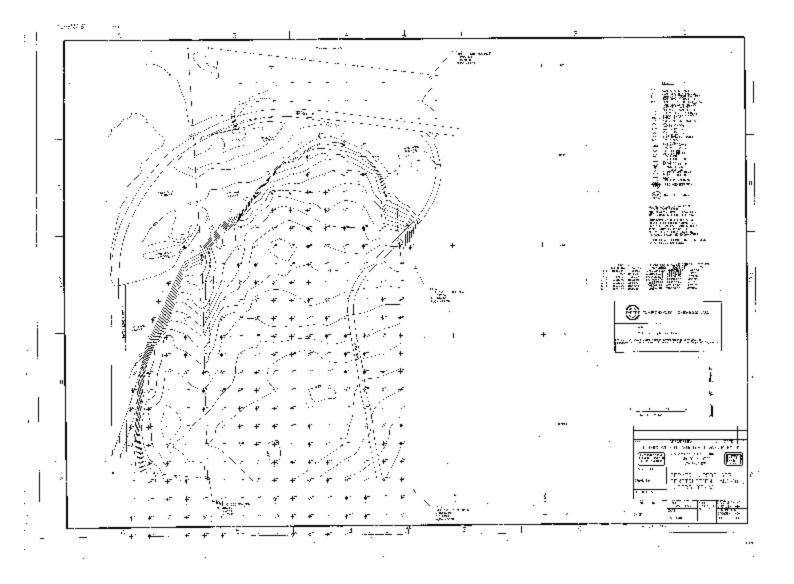
Total FID Volatiles values were generated by summing the areas of all integrated chromatogram peaks and calculated using the instrument response factor for toluene. Injection peaks, which also contain the light hydrocarbon methane, were excluded to avoid the skewing of Total FID Volatiles values due to injection disturbances and biogenic methane. For samples with low hydrocarbon concentrations, the calculated Total FID Volatiles concentration is occasionally lower than the sum of the individual analytes. This is because the response factor used for the Total FID Volatiles calculation is a constant, whereas the individual analyte response factors are compound specific. It is important to understand that the Total FID Volatiles levels reported are relative, not absolute, values.

The tabulated results of the laboratory analyses of the soil gas samples are reported in micrograms per liter (µg/l) of vapor in Tables 1 and 2. Although "micrograms per liter" is equivalent to "parts per billion (volume/volume)" in water analyses, they are not equivalent in gas analyses, due to the difference in the mass of equal volumes of water and gas matrices. The xylenes concentrations reported in Table 1 are the sum of the m- and p-xylene and the o-xylene concentrations for each sample. With TARGETs analytical run conditions, 11DCE/TCTFA and CCl<sub>4</sub>/12DCA occur as co-eluting pairs and are reported in Table 2 in concentrations of 11DCE 9 3 and CCl<sub>4</sub>, respectively.

#### DETECTABILITY

#### Detectability

The soil gas survey data presented in this report are the result of precise sampling and measurement of contaminant concentrations in the vadose zone. Analyte detection at a particular location is representative of vapor, dissolved, and/or liquid phase contamination at that location. The presence of detectable levels of target analytes in the vadose zone is dependent upon several factors, including the presence of vapor-phase hydrocarbons or dissolved or liquid concentrations adequate to facilitate volatilization into the unsaturated zone.



Appendix C Soil Boring and Test Pit Logs



PROJECT NUMBER BO 153479.RP.ZZ CI

BORING NUMBER CLF-SB1

SHEET 1

OF 1

|         |            |  |                  | <b>l</b>                | LOCATION - Farmer     | Laredo AFB, Laredo TX | FI EVATION                                       | (TBM or MSL) :              |                 |
|---------|------------|--|------------------|-------------------------|-----------------------|-----------------------|--|-----------------------------|-----------------|
| PROJEC  | OT :       | Construction                                     | Landfi           | ll<br>ny Corps of Engin |                       | Laredo APB, Laredo 1X | NAME OF D  |                             | Ray Voils       |
| DRILLIN | IG CONTRA  | D/EQUIPME  | ),5. AIII<br>NT: | Mobil B59               | 5013                  |                       | SIZE/TYPE (                                      |                             | 8" flight auger |
| DIRECT  | ON OF HO   | LE: vertic                                       | al inc           | clined de               | from vertical         |                       |  |                             | 40.54           |
| OVERB   | URDEN TH   | CKNESS: 1  | 0 ft             |                         | RILLED INTO ROCK      |                       |  | TH OF BORING<br>Tom Beavers | ι; ιυ.5 π       |
| WATER   | LEVELS :   | dry at comp                                      | letion           |                         | 10/18/99              | END: 10/18/99         |  | COMMENTS                    |                 |
| DEPTH E | SELOW SURF |  |                  | STANDARD                | SOIL D                | ESCRIPTION            | <del>                                     </del> | JOIN                        |                 |
|         | SAMPLE IN  | TERVAL (FT)                                      |                  | PENETRATION<br>TEST     | SOIL NAME USCS GE     | ROUP SYMBOL, COLOR,   | DEPTH OF C                                       | ASING, DRILLIN              | G RATE,         |
|         | Time       | RECOVERY   | (IN)<br>/TYPE    | RESULTS                 | MOISTURE CONTENT      | , RELATIVE DENSITY,   | DRILLING FI                                      | _UID LOSS,                  |                 |
|         | Time       | ľ  |                  | 6"-6"-6"-6"             | OR CONSISTENCY, S     |                       |  | INSTRUMENTA                 |                 |
|         | ļ          |  |                  | (N)                     | MINERALOGY.           |                       | OVM (ppm):                                       | Headspace                   | Analysis        |
|         |            |  |                  |                         | SANDY CLAY (CL), ligh | brown dry             | -  |                             |                 |
| -       | -[         |  |                  |                         | <u> </u>              | ,,                    |  |                             | -               |
|         |            |  |                  |                         |                       | _                     | _  |                             |                 |
| 1 -     | -          |  |                  |                         |                       |                       | -  |                             | -1              |
| ] -     | -          |  |                  |                         |                       |                       |  |                             | 1               |
| -       | -          |  |                  |                         |                       |                       | -  |                             | -               |
| 2 _     | ]          |  |                  |                         |                       | -                     | _  |                             |                 |
| -       | _          |  |                  |                         |                       |                       | 4  |                             | -               |
|         | -          |  |                  |                         |                       |                       | 1  |                             | 1               |
| 3 _     | _          |  |                  |                         |                       | -                     | -  |                             |                 |
| 1 -     | -          |  |                  |                         |                       |                       | 1  |                             | 1               |
|         | _          |  |                  |                         |                       |                       | -  |                             | -               |
| -       | -          |  |                  |                         |                       |                       | _  |                             |                 |
| 4 -     |            | <del>                                     </del> |                  |                         |                       |                       | 7  |                             | -               |
|         | _          |  |                  |                         | SANDY CLAY (CL), dry  | . w/ caliche nodules  | 1  |                             | 1               |
| -       | -          |  |                  |                         | (),,                  |                       | -  |                             | -               |
| 5 _     |            |  |                  | <b></b>                 |                       |                       |  |                             |                 |
| -       | 1          |  |                  |                         | SILTY CLAY W/ GRAV    | EL (CL-ML), dry       | 4  |                             | -               |
|         |            |  |                  |                         |                       |                       | 1  |                             |                 |
| 6       | -          |  |                  |                         |                       |                       |  |                             |                 |
|         | _          |  |                  |                         |                       |                       | 1  |                             | _               |
|         | -          |  |                  |                         |                       |                       | 4  |                             | -               |
|         | 7          |  |                  |                         |                       |                       |  |                             | -               |
| 7 -     | -          |  |                  |                         |                       |                       | 4  |                             | -               |
| l l     | _          |  |                  |                         |                       |                       | 1  |                             |                 |
|         |            |  |                  |                         |                       |                       | 4  |                             | -               |
| 8 _     | -          |  |                  |                         |                       |                       | 1  |                             |                 |
| 1       |            |  |                  |                         |                       |                       | 4  |                             | -               |
|         | -          |  |                  |                         |                       |                       | 1  |                             | _               |
| 9 _     |            |  |                  |                         |                       |                       | _  |                             |                 |
|         | -          |  |                  |                         | SANDSTONE, hard       |                       |  |                             | _               |
|         | _          |  |                  |                         | ŀ                     |                       | -  |                             |                 |
| 10 _    | -          |  |                  |                         |                       |                       | 1  |                             |                 |
| " -     | _          |  |                  |                         | same as above, but ve | y hard at 10.0 ft.    | -  |                             |                 |
|         | -          |  |                  |                         |                       |                       | TD = 10.5 ft                                     |                             | _               |
|         | 1          |  |                  |                         |                       |                       | -  |                             | -               |
| 11 -    | -          |  |                  |                         |                       |                       | 7  |                             | _               |
| 1       | _          |  |                  |                         |                       |                       | 1  |                             | -               |
| -       | -          |  |                  |                         |                       |                       | 7  |                             | -               |
| 12      | _          |  |                  |                         |                       |                       | _  |                             |                 |
| 1       | -          |  |                  |                         |                       |                       | 7  |                             | _               |
|         |            |  |                  |                         |                       |                       | -  |                             |                 |
| 13 _    | -          |  |                  |                         | 1                     |                       | 1  |                             |                 |
| '~ -    | _          |  |                  |                         |                       |                       | -  |                             | -               |
| -       | -          |  |                  |                         |                       |                       | 1  |                             | _               |
|         | _          |  |                  | ]                       |                       |                       | -  |                             | -               |
| 14      | -          |  |                  |                         |                       |                       | _  |                             |                 |
| '"      | _          |  |                  |                         |                       |                       | -  |                             | <del>-</del>    |
|         | -          |  |                  |                         |                       |                       | 1  |                             | -               |
|         | _          |  |                  |                         |                       |                       | -  |                             | <del>-</del>    |
| 15      | -          |  |                  |                         |                       |                       |  |                             |                 |



SB2-MW1 coring log Rev.xis

153479.RP.ZZ

CLF-SB2-MW1

SHEET 1

OF 2

#### **SOIL BORING LOG**

ELEVATION (TBM or MSL): 473.93 ft LOCATION: Former Laredo AFB, Laredo TX Construction Landfill NAME OF DRILLER: Ray Voits DRILLING CONTRACTOR: U.S. Army Corps of Engineers SIZE/TYPE OF BIT : 8" flight auger DRILLING METHOD/EQUIPMENT: Mobil B59 DIRECTION OF HOLE: vertical inclined deg from vertical TOTAL DEPTH OF BORING: 19.0 ft DEPTH DRILLED INTO ROCK: 0.5 ft OVERBURDEN THICKNESS: 18.5 ft END: 10/18/99 LOGGER: Tom Beavers START: 10/18/99 WATER LEVELS: 17 ft bgs COMMENTS SOIL DESCRIPTION DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, TEST RECOVERY (IN) DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY, RESULTS #/TYPE Time TESTS, AND INSTRUMENTATION OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6"-6" OVM (ppm): Headspace Analysis MINERALOGY. (N) 5 ft well screen set from 18.5 ft to 13.5 ft SILTY CLAY W GRAVEL, (CL-ML), light brown, sand pack from 19.0 ft to 11.5 ft entonite seal from 11.5 ft to 8.0 ft 5 SANDY CLAY, (CL), light brown, dry gravelly caliche lens at 6.5 ft (0.2 ft thick), dry 8 SILT (ML), sandy, dry 10 SANDY CLAY, (CL), dry 11 12 SANDY CLAY (CL), light brown, slightly moist rater level in well approx. 12.6 ft bgs on 10/23/99 13 00198



PROJECT NUMBER 153479.RP.ZZ BORING NUMBER CLF-SB3-MW2

SHEET 1

OF 2

#### **SOIL BORING LOG**

LOCATION : Former Laredo AFB, Laredo TX ELEVATION (TBM or MSL): 478.31 ft Construction Landfill PROJECT: NAME OF DRILLER: Ray Voils DRILLING CONTRACTOR: U.S. Army Corps of Engineers SIZE/TYPE OF BIT : 8" flight auger DRILLING METHOD/EQUIPMENT: deg from vertical DIRECTION OF HOLE: vertical inclined TOTAL DEPTH OF BORING: 30.5 ft OVERBURDEN THICKNESS: 11.5 ft 19.0 ft DEPTH DRILLED INTO ROCK : END: 10/19/99 LOGGER: Tom Beavers START: 10/19/99 WATER LEVELS: 26.5 ft bgs COMMENTS SOIL DESCRIPTION DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE, RECOVERY (IN) TEST DRILLING FLUID LOSS, MOISTURE CONTENT, RELATIVE DENSITY, RESULTS Time TESTS, AND INSTRUMENTATION. OR CONSISTENCY, SOIL STRUCTURE, 6"-6"-6"-6" OVM (ppm): Headspace Analysis (N) MINERALOGY. 10 feet well screen set from 30 ft to 20 ft bgs SILTY CLAY, (CL-ML), light brown, dry, w/ sandstone gravel sand pack from 30.5 ft to 18 ft bgs bentonite seal from 18 ft to 15.5 ft bgs SANDSTONE, dry, soft, friable 10 11 same as above, but rock slightly cemented 12 13 14



PROJECT NUMBER 153479.RP.ZZ BORING NUMBER CLF-SB4-MW3

SHEET 1

OF 2

#### **SOIL BORING LOG**

Construction Landfill PROJECT: NAME OF DRILLER : Ray Voils DRILLING CONTRACTOR: U.S. Army Corps of Engineers 8" flight auger SIZE/TYPE OF BIT : DRILLING METHOD/EQUIPMENT: Mobil B59 deg from vertical DIRECTION OF HOLE: vertical inclined TOTAL DEPTH OF BORING: 20.5 ft DEPTH DRILLED INTO ROCK: 0.5 ft OVERBURDEN THICKNESS: 20 ft LOGGER: Tom Beavers START: 10/20/99 END: 10/20/99 WATER LEVELS: dry at completion COMMENTS SOIL DESCRIPTION STANDARD DEPTH BELOW SURFACE (FT) PENETRATION SAMPLE INTERVAL (FT) SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH OF CASING, DRILLING RATE, RECOVERY (IN) TEST MOISTURE CONTENT, RELATIVE DENSITY, DRILLING FLUID LOSS, #/TYPE RESULTS TESTS, AND INSTRUMENTATION. OR CONSISTENCY, SOIL STRUCTURE, 6'-6'-6'-6' Headspace Analysis OVM (ppm): (N) MINERALOGY. SANDY SILT (ML), grey, dry, soft 10' screen screen from 20.0 ft to 10.0 ft bgs sand pack from 20.5 ft to 8.0 ft bgs well abandoned on 10/21/99 5 SANDY SILTY CLAY (CL-ML), light brown, dry, CALICHE, grey, soft, dry 9 10 SANDY CLAY (CL), w/ caliche nodules 11 12 13

sandstone fragments @ 15



PROJECT NUMBER 153479.RP.ZZ

BORING NUMBER CLF-SB5

SHEET 1

OF 1

#### **SOIL BORING LOG**

PROJECT: Construction Landfill NAME OF DRILLER: Ray Voils DRILLING CONTRACTOR: U.S. Army Corps of Engineers 8" flight auger SIZE/TYPE OF BIT : DRILLING METHOD/EQUIPMENT: Mobil B59 DIRECTION OF HOLE: vertical inclined deg from vertical TOTAL DEPTH OF BORING: 12.9 ft DEPTH DRILLED INTO ROCK: 0.9 ft OVERBURDEN THICKNESS: 12 ft END: 10/20/99 LOGGER: Tom Beavers START: 10/20/99 WATER LEVELS: dry at completion COMMENTS SOIL DESCRIPTION DEPTH BELOW SURFACE (FT) STANDARD PENETRATION SAMPLE INTERVAL (FT) DEPTH OF CASING, DRILLING RATE, SOIL NAME, USCS GROUP SYMBOL, COLOR, TEST RECOVERY (IN) DRILLING FLUID LOSS. MOISTURE CONTENT, RELATIVE DENSITY, RESULTS #/TYPE Time TESTS, AND INSTRUMENTATION. OR CONSISTENCY, SOIL STRUCTURE, 6'-6'-6'-6' Headspace Analysis MINERALOGY. OVM (ppm): SANDY SILT (ML), light brown 0'-1' to olive 1'-2', slightly moist SANDSTONE, olive, dry, soft, silty, friable 3 5 8 caliche lens at 9.7' to 10' 10 CLAY (CL), light brown, dry, friable 12 SANDSTONE auger refusal at 12.9 ft 13



PROJECT NUMBER 153479.RP.ZZ BORING NUMBER CLF-SB6

SHEET 1

OF 1

| ROJEC  |                       | Construction | on Landfil   |                                | LOCATION : Former Laredo AFB, Laredo TX      | ELEVATION (TBM or MSL) :<br>NAME OF DRILLER : | Ray Voils       |
|--------|-----------------------|--------------|--------------|--------------------------------|--|---|-----------------|
| RILLIN | G CONTRA              |              |              | y Corps of Engine<br>Mobil B59 | 5619   | SIZE/TYPE OF BIT :                            | 8" flight auger |
| RILLIN | G METHOD<br>ION OF HO | I E · Vertic | el inc       |                                | from vertical                                |   |                 |
| VERRI  | JRDEN THI             | CKNESS:      | 0.5 ft       | DEPTH                          | DRILLED INTO ROCK: 1.5 ft                    | TOTAL DEPTH OF BORING :                       | 2.0 ft          |
| ATFR   | LEVELS :              | dry at com   | pletion      |                                | 10/20/99 END: 10/20/99                       | LOGGER: Tom Beavers                           |                 |
|        | ELOW SURF             |              |              | STANDARD                       | SOIL DESCRIPTION                             | COMMENTS                                      |                 |
| _,     |                       | TERVAL (FT   | )            | PENETRATION                    |  |   |                 |
|        | Orani EE              | RECOVERY     |              | TEST                           | SOIL NAME, USCS GROUP SYMBOL, COLOR,         | DEPTH OF CASING, DRILLING                     | RATE,           |
|        | Time                  |              | #/TYPE       | RESULTS                        | MOISTURE CONTENT, RELATIVE DENSITY,          | DRILLING FLUID LOSS,                          | l               |
|        |                       |              |              | 6"-6"-6"-6"                    | OR CONSISTENCY, SOIL STRUCTURE,              | TESTS, AND INSTRUMENTATION                    |                 |
|        |                       |              |              | (N)                            | MINERALOGY.                                  | OVM (ppm): Headspace A                        | nalysis         |
|        |                       |              |              |                                | GRAVELLY SILT w/ SAND (ML), grey-white, dry, | 1   | 1               |
|        |                       |              |              |                                | weathered sandstone, very fine grained, well | ]   | 7               |
| -      |                       |              |              |                                | cemented                                     | _   | -               |
| 1_     | 1                     |              |              |                                | -  | _   | -               |
| _      |                       |              |              |                                |  |   | ]               |
| -      | 1                     |              |              |                                |  | ]   | _]              |
| _      | ]                     |              |              |                                |  | - auger refueal at 2 ft                       | -1              |
| 2      |                       | <b> </b>     | <del> </del> |                                |  | auger refusal at 2 ft                         | 一               |
| -      | -                     |              |              |                                |  |   | 1               |
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| 6      | -                     |              |              |                                |  |   |                 |
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| 7 -    | -1                    |              |              |                                | -  | _   | _]              |
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| 3      | -                     |              |              |                                | -  |   |                 |
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| -      | ]                     |              |              |                                |  | -   | -               |
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| 9      |                       |              |              |                                |  | -   | -               |
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| 11 _   | -                     |              |              |                                |  | ]   |                 |
| -      | ]                     |              |              | 1                              |  | _   | -               |
| -      | -                     |              |              |                                |  | -   |                 |
| 2      | -1                    |              |              | l                              |  | _   |                 |
|        | _                     |              |              | 1                              |  | -   | -               |
| -      | -                     |              |              | 1                              | 1  | ]   |                 |
| -      | -                     |              | 1            | 1                              | 1  | -   | _               |
| 3 _    | -                     |              |              |                                |  |   | -               |
| -      | -                     |              | 1            |                                |  | 1   | _               |
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| 14 _   | -                     |              |              |                                |  |   |                 |
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|        | -                     |              |              |                                |  | ]   | _               |
|        | 7                     | 1            | 1            | 1                              |  | -1  | _               |



PROJECT NUMBER 153479.RP.ZZ BORING NUMBER CLF-SB7-MW4

SHEET 1

OF 2

| PROJEC  | T:           | Construction               | Landfil |                               | LOCATION: Former Laredo AFB, Laredo TX       | ELEVATION (TBM or MSL) : 499.83 ft  NAME OF DRILLER : Ray Voils |
|---------|--------------|----------------------------|---------|-------------------------------|--|---|
| DRILLIN | G CONTRA     | CTOR: U                    | .S. Arm | y Corps of Engin<br>Mobil B59 | eers   | SIZE/TYPE OF BIT : 6-inch flight auger                          |
| DIRECT  | ON OF HO     | D/EQUIPMEN<br>LE : vertica | il inc  | lined de                      | g from vertical                              | followed by 8-inch flight auger                                 |
| OVERBL  | JRDEN THI    | CKNESS : 3                 | 0 ft    | DEPTH I                       | DRILLED INTO ROCK: 0 ft                      | TOTAL DEPTH OF BORING: 30.5 ft                                  |
| WATER   | LEVELS:      | 26.5 ft bgs                |         |                               | 10/21/99 END: 10/21/99                       | LOGGER: Tom Beavers  COMMENTS                                   |
|         | ELOW SURF    |                            |         | STANDARD                      | SOIL DESCRIPTION                             | COMMENTO  |
|         |              | TERVAL (FT)                |         | PENETRATION                   | SOIL NAME, USCS GROUP SYMBOL, COLOR,         | DEPTH OF CASING, DRILLING RATE,                                 |
|         | 1 1          | RECOVERY                   | TYPE    | TEST<br>RESULTS               | MOISTURE CONTENT, RELATIVE DENSITY,          | DRILLING FLUID LOSS,  |
|         | Time         | <b>"</b>                   | '''-    | 6'-6'-6'-6'                   | OR CONSISTENCY, SOIL STRUCTURE,              | TESTS, AND INSTRUMENTATION.                                     |
|         |              |                            |         | (N)                           | MINERALOGY.                                  | OVM (ppm): Headspace Analysis                                   |
| _       |              |                            |         |                               | SANDY SILT (ML), It. brown, dry              | 10 ft PVC well screen   |
|         |              |                            |         |                               | (1.4)  | set well screen 29.5 ft to 19.5 ft bgs                          |
| 1       |              |                            |         |                               | _  | sand pack 30.5 ft to 18.0 ft bgs                                |
| _       |              |                            |         |                               |  | bentonite seal from 18.0 ft to 15.0 ft bgs                      |
|         |              |                            |         |                               |  | _   |
| 2       |              |                            |         |                               | -  | bale hole approx. 45 gals to develor                            |
| _       |              |                            |         |                               |  | _   |
| -       |              |                            |         |                               |  | _   |
| 3 _     |              |                            |         |                               | -  |   |
| -       |              |                            |         |                               |  | _   |
| -       |              |                            |         |                               |  |   |
| 4 _     |              |                            |         |                               | · ·  | _   |
| -       |              |                            |         |                               |  |   |
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| 5       | 1            |                            |         |                               |  | -   |
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| 6       | -            |                            |         |                               | -  |   |
| 1 :     |              |                            |         |                               |  | -   |
| -       | -            |                            |         |                               | CALICHE, grey-white, dry, sandy w/ some clay | ]   |
| 7 _     | -            |                            |         |                               | seams -                                      |   |
| -       | -            |                            |         |                               | ·  | ]   |
| 1 :     | _            |                            |         |                               |  | -   |
| ١       | -            |                            |         |                               |  |   |
| 8 -     | -            |                            |         |                               |  | -   |
| -       | -            |                            |         |                               |  |   |
| 1 :     | _            |                            |         |                               |  | -   |
| 9 _     | -            |                            |         |                               |  |   |
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| 10 _    | -            |                            |         |                               |  | -   |
| '       | -            |                            |         |                               |  | -   |
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| 11 _    | _            |                            |         |                               |  |   |
| ' -     | -            |                            |         |                               |  | <u></u>   |
| -       | <del> </del> | ++                         |         |                               |  | -   |
| 1       | -            |                            |         |                               | CLAY (CL), It. brown, dry, soft              | <u> </u>  |
| 12 _    | _            |                            |         |                               |  | 4   |
|         | -            |                            |         |                               |  | <b>1</b>  |
|         | _            |                            |         |                               |  | -   |
| 13      | -            |                            |         |                               |  |   |
|         |              |                            |         |                               |  | 4   |
|         | -            |                            |         |                               |  |   |
|         | ]            |                            |         |                               |  | -   |
| 14      | -            |                            |         |                               |  |   |
| 1 '     | _            |                            |         |                               |  | -   |
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| 1       | _            |                            |         |                               |  | -   |
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PROJECT NUMBER 153479.RP.ZZ

BORING NUMBER CLF-SB8-MW5

SHEET 1

OF 2

| ROJEC  | :T :                  | Construction | on Landfil   | 1                 | LOCATION: Former Laredo AFB, Laredo TX            | ELEVATION (TBM or MSL): 496.18 ft                                      |               |
|--------|-----------------------|--------------|--------------|-------------------|---|--|---------------|
| RILLIN | G CONTRA              |              | U.S. Arm     | y Corps of Engine | eers  | NAME OF DRILLER: Ray Voils   |               |
| RILLIN | G METHOD              | /EQUIPME     | NT:          | Mobil B59         |   | SIZE/TYPE OF BIT : 6-inch flight auger followed by 8-inch flight auger |               |
| RECT   | ION OF HOL            | LE : vertic  | al inc       | lineddeg          | from vertical DRILLED INTO ROCK:                  | TOTAL DEPTH OF BORING: 31.6 ft   |               |
| VERB   | JRDEN THI             | CKNESS:      |              |                   | 10/21/99 END : 10/21/99                           | LOGGER: Tom Beavers  |               |
| ATER   | LEVELS :<br>ELOW SURF | 30.5 ft bgs  | ·            | STANDARD          | SOIL DESCRIPTION                                  | COMMENTS   |               |
| zPIN C | SAMPLE IN             |              | <u> </u>     | PENETRATION       |   |  |               |
|        | 3                     | RECOVER      |              | TEST              | SOIL NAME, USCS GROUP SYMBOL, COLOR,              | DEPTH OF CASING, DRILLING RATE,  |               |
|        | Time                  |              | #/TYPE       | RESULTS           | MOISTURE CONTENT, RELATIVE DENSITY,               | DRILLING FLUID LOSS,   |               |
|        |                       |              |              | 6"-6"-6"-6"       | OR CONSISTENCY, SOIL STRUCTURE,                   | TESTS, AND INSTRUMENTATION.  OVM (ppm): Headspace Analysis             |               |
|        |                       |              |              | (N)               | MINERALOGY.                                       |  |               |
| -      |                       |              |              |                   | SANDY SILTY CLAY (CL-ML), light brown, dry        | -<br>10 ft well screen -   |               |
|        | -                     | l            |              |                   |   | _  |               |
| 1_     |                       |              | 1            |                   | -   | well screen from 29.5 ft to 19.5 ft bgs                                |               |
| -      | -                     |              |              |                   |   | sand pack from 31.6 ft to 17.5 ft bgs                                  |               |
| -      |                       |              |              |                   |   | bentonite seal from 17.5 ft to 15.5 ft bgs                             |               |
| 2      | -                     |              |              |                   |   | _  |               |
|        | -                     |              |              |                   | same as above w/ some caliche gravel              | -  |               |
| -      | -                     |              | 1            |                   | Same as above W. Some canonic grand.              | _  |               |
|        |                       |              |              |                   |   |  |               |
| 3      | -                     | 1            |              |                   |   | _  |               |
| -      | -                     |              |              |                   |   |  |               |
| -      | -                     |              |              |                   |   | -  |               |
| 4      | -                     |              |              |                   | -   |  |               |
| -      |                       |              |              |                   |   | -  |               |
|        | -                     |              |              |                   |   |  |               |
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|        | -                     |              |              |                   | ·   | <u></u>  |               |
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|        | <br>                  |              |              |                   |   | <u>-</u>   |               |
| 7      |                       | -            | <del> </del> |                   |   | _  |               |
|        | _                     |              |              |                   | SANDY CLAY (CL), brown to light brown, dry, w/ SS | -  |               |
|        | -                     |              |              |                   | stringers   | <u>-</u>   |               |
| 8 _    | _                     |              |              |                   | -   | _  |               |
|        | -                     |              |              |                   |   | 1  |               |
|        | ]                     |              |              |                   |   | <u>-</u>   |               |
| 9      | -                     |              |              |                   |   | _  |               |
| _      | _                     |              | 1            |                   |   | <u> </u>   |               |
|        | _                     |              |              |                   |   | -  | ł             |
| 10     | -                     |              |              |                   |   |  | 1             |
| 10 _   |                       |              |              |                   |   | -  | 1             |
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| 11 _   | -                     |              |              |                   |   |  |               |
|        | _                     |              | -            |                   |   | -  | 1             |
|        | -                     | 1            |              |                   | 1   | ] -  | -             |
| 12 _   |                       |              | <b></b>      |                   |   | _  | 1             |
|        | -                     |              |              |                   | SANDY CLAY (CL), light brown, dry, w/ caliche     |  | -             |
|        | _                     |              |              |                   | nodules   | -  | 1             |
| 13 _   | -                     |              | 1            |                   |   |  | -             |
|        | _                     |              |              |                   |   | -  | 1             |
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|        | -                     |              |              |                   |   | 1  | υυ <u>ω</u> ' |
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PROJECT NUMBER 153479.RP.ZZ BORING NUMBER

Test Pits T-1 to T-11

SHEET 1

OF 1

00210

#### **TEST PIT LOGS**

| PROJECT        |           | Constructi  |  |                              | LOCATION: Former Laredo AFB, Laredo TX   | ELEVATION (TBM or MSL):  NAME OF DRILLER: Jerry C |
|----------------|-----------|-------------|--|------------------------------|--|---|
| DRILLING       | CONTRA    | D/EQUIPM    | ENT:   | ny Corps of Engin<br>Backhoe | 6613   | SIZE/TYPE OF BIT : n/a                            |
| DIRECTIO       | N OF HO   | DLE : verti | cal in   |                              | g from vertical  |   |
|                |           | ICKNESS:    |  | DEPTH                        | ORILLED INTO ROCK : r/a  | TOTAL DEPTH OF BORING : n/a                       |
| WATER L        |           |             |  | START:                       | 9/20/99 END: 9/20/99   | LOGGER: Tom Beavers                               |
| DEPTH BE       | LOW SURI  | FACE (FT)   |  | STANDARD                     | SOIL DESCRIPTION   | COMMENTS  |
| [9             | SAMPLE IN | TERVAL (F   | (ד   | PENETRATION                  |  | DEPTH OF CASING, DRILLING RATE,                   |
|                |           | RECOVER     |  | TEST                         | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY,               | DRILLING FLUID LOSS,                              |
| 1              | Time      |             | #/TYPE   | RESULTS<br>6"-6"-6"-6"       | OR CONSISTENCY, SOIL STRUCTURE,  | TESTS, AND INSTRUMENTATION                        |
|                |           |             |  | (N)                          | MINERALOGY.  | OVM (ppm): Headspace Analysis                     |
|                | T-1       |             |  | <u> </u>                     | 0-4.6 ft. SANDY SILTY CLAY (CL-ML), gravelly   | -   |
|                |           |             |  |                              | sandstone frags throughout, CLAY (CL) at bottom, light brown, very dry                 | _ No water encountered in any test pits           |
| -              |           |             |  |                              | ingrit brown, vory dry   | 1   |
| -              |           | l           |  |                              |  |   |
|                | T-2       |             |  |                              | 0-4.5 ft, SANDY CLAY (CL), It. brown, very dry, w/                                     | -   |
| -              |           |             |  |                              | sandstone trags.   | <u> </u>  |
| -              | T-3       |             | <b>-</b>   |                              | 0-7 ft, CLAY (CL), slightly mottled top 2';  |   |
|                | 1-5       | Ί           |  |                              | GRAVELLY SILTY CLAY (CL), It. brown, dry, at   | _   |
| _              |           |             | 1  |                              | bottom   |   |
|                | T-4       | 1           | <del>                                     </del> |                              | 0-2 ft, CLAY (CL), dark, dry, gravely concrete &                                       |   |
| -              | ,         | 1           |  |                              | asphalt debris at bottom   | -   |
|                |           | <u> </u>    |  |                              |  |   |
| -              | T-5       | 5           |  |                              | 0-1.6 ft, SILTY CLAY (CL-ML), dry, w/ gravel & concrete debris at 1.6'                 |   |
| -              |           |             |  |                              | CONCIETE GEDITS at 1.0   |   |
|                | T-6       | 5           |  |                              | 0-4 ft, SILTY CLAY (CL-ML), it. brown, very dry,                                       | _   |
|                |           |             |  |                              | gravel throughout, no debris present   | -   |
| - <del> </del> | T-7       | ,           |  | <del> </del>                 | 0-1 ft, metal debris present   |   |
|                |           |             |  |                              |  |   |
| _[             | T-8       | 3           |  |                              | 0-2 ft, CLAY (CL), dk. brown, dry, gravelly, w/  | 1   |
| -              |           |             |  |                              | debris   |   |
| <b>│</b>       | T-9       |             | <b>†</b>   |                              | 0-2.2 ft, SANDY SILTY CLAY (CL-ML), dry, gravel  | _   |
|                | ,         |             |  |                              | debris and concrete at bottom  | -   |
| 1 -1           | T-10      | 1           | <b></b>  | 1                            | 0-4.2 ft, SANDY SILTY CLAY (CL-ML), very dry,  |   |
|                | 1-10      | 1           |  |                              | gravelly caliche, no debris present  | 4   |
| ]              |           |             |  |                              |  |   |
| -              | T-11      | 1           |  |                              | 0-3.5 ft, SANDY SILTY CLAY (CL-ML), dry, gravelly weathered caliche at bottom 1.5', no | 1   |
| -              |           | 1           |  |                              | debris present   |   |
| _              |           |             |  |                              |  |   |
| -              |           |             | -  |                              |  | 1   |
| ]              |           |             |  |                              |  | -   |
| -              |           |             |  |                              |  | _   |
| -              |           |             |  |                              |  | -   |
| -              |           |             |  |                              |  | 7   |
| _              |           |             |  |                              |  | -   |
| -              |           |             |  |                              |  | 7   |
| -              |           |             |  |                              |  | -   |
| -              |           |             |  | 1                            |  | _   |
| =              |           |             |  |                              |  | _   |
| -              |           |             |  |                              |  | -   |
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Appendix D Well Completion Diagrams



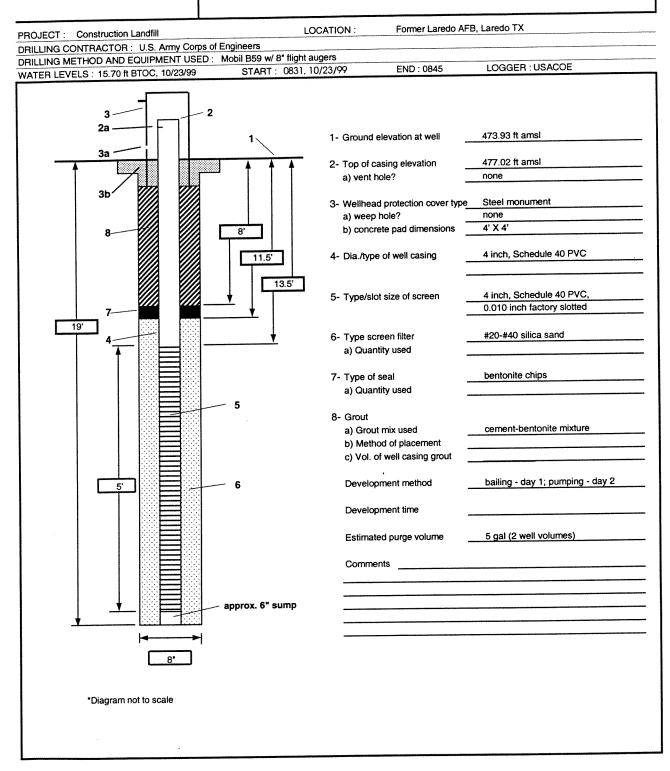
PROJECT NUMBER WELL NUMBER

153479.RP.ZZ CLF-SB2-MW1

2-MW1 SHEET 1

OF 1

#### **WELL COMPLETION DIAGRAM**





PROJECT NUMBER WELL NUMBER

153479.RP.ZZ

CLF-SB3-MW2

SHEET 1

OF 1

#### **WELL COMPLETION DIAGRAM**

Former Laredo AFB, Laredo TX LOCATION: PROJECT: Construction Landfill DRILLING CONTRACTOR: U.S. Army Corps of Engineers DRILLING METHOD AND EQUIPMENT USED: Mobil B59 w/ 8" flight augers END: 0948 LOGGER : USACOE WATER LEVELS: 22.60 ft BTOC, 10/23/99 START: 0941, 10/23/99 1- Ground elevation at well 478.31 ft amsl 480.84 ft amsl 2- Top of casing elevation a) vent hole? none Steel monument 3- Wellhead protection cover type none a) weep hole? b) concrete pad dimensions 4' X 4' 15.5' 4 inch, Schedule 40 PVC 4- Dia./type of well casing 18' 20' 5- Type/slot size of screen 4 inch, Schedule 40 PVC, 0.010 inch factory slotted 30.5' #20-#40 silica sand 6- Type screen filter a) Quantity used 7- Type of seal bentonite chips a) Quantity used 8- Grout a) Grout mix used cement-bentonite mixture b) Method of placement c) Vol. of well casing grout bailing - day 1; pumping - day 2 Development method 10' Development time 10 gal (2 well volumes) Estimated purge volume Comments \*Diagram not to scale



WELL NUMBER PROJECT NUMBER

153479.RP.ZZ

CLF-SB7-MW4

SHEET 1

OF 1

#### **WELL COMPLETION DIAGRAM**

LOCATION: Former Laredo AFB, Laredo TX PROJECT: Construction Landfill DRILLING CONTRACTOR: U.S. Army Corps of Engineers DRILLING METHOD AND EQUIPMENT USED: Mobil B59 w/ 8" flight augers LOGGER : USACOE END: 1243 START: 1232, 10/23/99 WATER LEVELS: 25.46 ft BTOC, 10/23/99 2a 1- Ground elevation at well 499.83 ft amsl 3а 2- Top of casing elevation 502.74 ft amsl a) vent hole? none 3- Wellhead protection cover type Steel monument a) weep hole? 4' X 4' 15' b) concrete pad dimensions 18' 4- Dia./type of well casing 4 inch, Schedule 40 PVC 19.5' 5- Type/slot size of screen 4 inch, Schedule 40 PVC, 0.010 inch factory slotted 30.5' 6- Type screen filter #20-#40 silica sand a) Quantity used 7- Type of seal bentonite chips a) Quantity used 8- Grout a) Grout mix used cement-bentonite mixture b) Method of placement c) Vol. of well casing grout 10' Development method bailing - day 1; pumping - day 2 Development time Estimated purge volume Approx. 45 gal 8\* \*Diagram not to scale



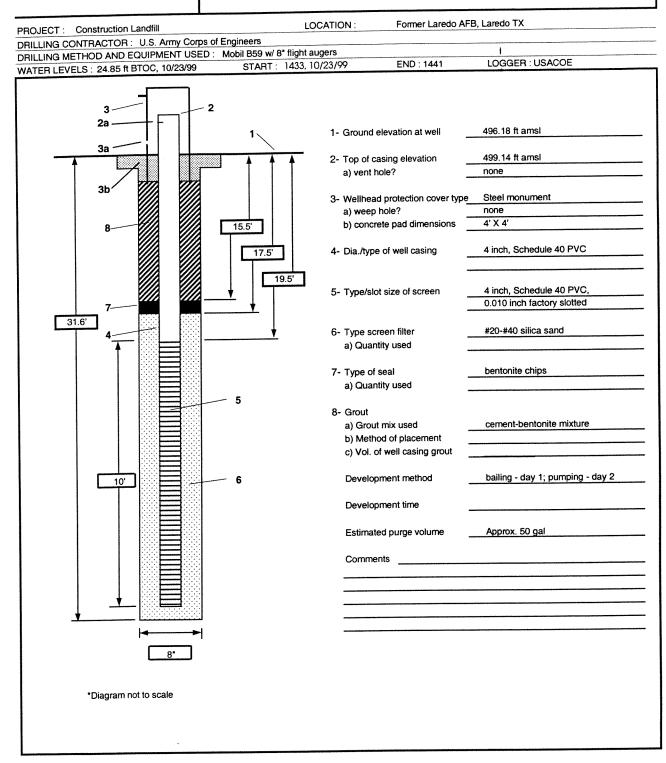
PROJECT NUMBER 153479.RP.ZZ WELL NUMBER

CLF-SB8-MW5

SHEET 1

OF 1

#### **WELL COMPLETION DIAGRAM**



Appendix E Well Purging and Sampling Forms and Sample Chain of Custody

165456 Chest/Temp. Lab# CH2MHILL / CRC & Associates

GROUNDWATER MONITORING WELL
CHAIN OF CUSTODY
U.S. Army Corps of Engineers #31

|       | Project: Laredo Air Force Base Site: Construction La          | ndfill                                   |     |  |  |  |  |  |  |  |  |
|-------|---|--|-----|--|--|--|--|--|--|--|--|
|       | Sample ID: <u>LAFBCLFMW 101</u> Date: <u>10-2</u>             | 3-99 Time: 0845                          |     |  |  |  |  |  |  |  |  |
|       |   | ne: (918) 832-4120<br>ne: (918) 669-7519 |     |  |  |  |  |  |  |  |  |
|       | Due Date: 21 Days   |  |     |  |  |  |  |  |  |  |  |
| ,     | CONTAINERS  |  | 1   |  |  |  |  |  |  |  |  |
|       | Glass Plastic Vials Chest # Custody Seal #                    | VOA Chest Sample <u>Vials # Initials</u> |     |  |  |  |  |  |  |  |  |
|       | 3 2 TC-109 102509   | Z FC-01 65                               | _   |  |  |  |  |  |  |  |  |
| •     | PARAMETERS SAMPI  | ED                                       | ,   |  |  |  |  |  |  |  |  |
|       | PH, Conductivity, Temperature, DO & Turbidity                 | EPA Method                               | (0) |  |  |  |  |  |  |  |  |
| 2723  | Semi Volatile Organics  | 8270 C                                   | (2) |  |  |  |  |  |  |  |  |
| .3333 | PCBs  | 8082 A                                   | (1) |  |  |  |  |  |  |  |  |
|       | Total Metals (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)                | 6010 / 7470                              | [1] |  |  |  |  |  |  |  |  |
|       | Filtered Metals   | 6010 / 7470                              | [1] |  |  |  |  |  |  |  |  |
|       | (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)                             |  |     |  |  |  |  |  |  |  |  |
|       | ✓ Volatile Organics   | 8260 B                                   | {2} |  |  |  |  |  |  |  |  |
| ,     | * Containers: () = 1 L Amber Glass [] = 1 L<br>CUSTODY RECORD | Plastic { } = 40 mL Vials                |     |  |  |  |  |  |  |  |  |
|       | Relinquished By Received By                                   | Date Time                                |     |  |  |  |  |  |  |  |  |
|       | missind -   | 10-25-99 1200                            |     |  |  |  |  |  |  |  |  |
|       | M. Beroly   | ार्राक्षीयव पःक                          |     |  |  |  |  |  |  |  |  |
|       |   | <u> </u>                                 |     |  |  |  |  |  |  |  |  |
|       |   |  |     |  |  |  |  |  |  |  |  |
|       | Fed Ex Shipping Bill No: 81402680984                          | <u>}</u>                                 |     |  |  |  |  |  |  |  |  |
|       |   |  |     |  |  |  |  |  |  |  |  |
|       | PID Reading (PID units):                                      |  |     |  |  |  |  |  |  |  |  |

#### MICROPURGING FIELD DATA FORM

Project: Laredo AFB Sample ID: LAFB CLF MW101

Casing Size/Diameter: 4" Pump System: QED T1200 Bladder

Initial Water Level: 16.70 Total Well Depth: 21.90

Water Quality Meter Type: FC 4000 Meter #: 93703

Meter Calibration Date: 10-23-99 Time: 0700

| Start<br>0831<br>Time | Cum<br>Vol<br>(gals) | Temp<br>(°C) | рн   | Cond<br>(m5/cm) | Turb<br>(NTU) | DO<br>(mg/l) | WL    | Ft<br>Drawdown | Purge<br>Rate<br>(ml/min) |
|-----------------------|----------------------|--------------|------|-----------------|---------------|--------------|-------|----------------|---------------------------|
| 0833                  |                      | 23.83        | 7.42 | 33.01           | 13            | 5.71         | 15.95 | 0.25           | 100                       |
| 0835                  |                      | 22.38        | 7.16 | 32.95           | //            | 6.18         | 15.97 | 0.27           | 100                       |
| 0837                  |                      | 22.31        | 7.12 | 32.92           | //            | 6.16         | 15.97 | 0.27           | 100                       |
| 0838                  |                      | 22.64        | 7-11 | 22.94           | 10            | 6.24         | 15.97 | 0.27           | 100                       |
| 0840                  |                      | 22.65        | 7.10 | .22.94          | 10            | 6.23         | 15.97 | 0.27           | 100                       |
| 0841                  |                      | 22.64        | 7.10 | 22.95           | 10            | 6.23         | 15-97 | 0.27           | 100                       |
| 0843                  |                      | 22.64        | 7.11 | 22.96           | 10            | 6.23         | 15.97 | 0.27           | 100                       |
| 0845                  | . 1                  | 22.64        | 7.11 | 22.96           | 10            | 6.23         | 15.97 | 0.27           | 100                       |
|                       | -                    |              |      |                 |               |              |       |                |                           |
| ·                     |                      | ·            |      |                 | •             | •            | -     |                |                           |
|                       |                      |              |      |                 |               |              |       |                |                           |
|                       |                      |              |      |                 | •             |              |       |                | •                         |

Final four water quality mesurements prior to sampling

| LTHGT | Tour water que | alluy m | Cour emeri | CO PLIC |      |  |
|-------|----------------|---------|------------|---------|------|--|
| 0840  | 22.65          | 7.10    | 22.94      | 10      | 6.23 |  |
| 0841  | 22.64          | 7.10    | 22.95      | 10      | 6.23 |  |
| 0843  | 22.64          | 7.11    | 22.96      | 10      | 6.23 |  |
| 0845  | 22.64          | 7.11    | 22.96      | 10      | 6.23 |  |

water level measurements: ft BTOC

Final Well Drawdown: 0.27

comments: well seal # 924, chest TC-109, VOC TC-01,

Sample Collector(s): Mubnude

A . .

163234

Lab#

Chest/Temp.

# GROUNDWATER MONITORING WELL CHAIN OF CUSTODY U.S. Army Corps of Engineers Tulsa District

| Project: Laredo Air Force Base Site: Construction La   | ndfill  |     |  |  |  |  |  |  |  |  |  |
|--|---|-----|--|--|--|--|--|--|--|--|--|
| Sample ID: <u>LAFBCLFMW 261</u> Date: <u>10-73-99</u> Time: <u>0948</u>  |   |     |  |  |  |  |  |  |  |  |  |
| USACE Sampling POC: Greg Snider Phone: (918) 832-4120 USACE Technical Manager: Carol Wies Phone: (918) 669-7519  Due Date: 21 Days |   |     |  |  |  |  |  |  |  |  |  |
| CONTAINERS   |   |     |  |  |  |  |  |  |  |  |  |
| Glass         Plastic         Vials         Chest #         Custody Seal #           3         2         TC-109         102509     | VOA Chest Samples  Vials # Initials  Z TC-01 65 |     |  |  |  |  |  |  |  |  |  |
| PARAMETERS SAMPLED   |   |     |  |  |  |  |  |  |  |  |  |
| pH, Conductivity, Temperature, DO & Turbidity  | EPA Method                                      | (0) |  |  |  |  |  |  |  |  |  |
| ✓ Semi Volatile Organics   | 8270 C  | (2) |  |  |  |  |  |  |  |  |  |
| ✓ PCBs   | 8082 A  | (1) |  |  |  |  |  |  |  |  |  |
| Total Metals (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)   | 6010 / 7470                                     | [1] |  |  |  |  |  |  |  |  |  |
| Filtered Metals (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)  | 6010 / 7470                                     | [1] |  |  |  |  |  |  |  |  |  |
| Volatile Organics  | 8260 B  | {2} |  |  |  |  |  |  |  |  |  |
| * Containers: () = 1 L Amber Glass [] = 1 L<br>CUSTODY RECORD  | Plastic { } = 40 mL Vials                       |     |  |  |  |  |  |  |  |  |  |
| Relinquished By Received By  | Date Time                                       |     |  |  |  |  |  |  |  |  |  |
| mubrish  | 10-75-99 1200                                   |     |  |  |  |  |  |  |  |  |  |
| MB   | Wl26/199 9:00                                   |     |  |  |  |  |  |  |  |  |  |
|  |   |     |  |  |  |  |  |  |  |  |  |
|  |   |     |  |  |  |  |  |  |  |  |  |
| Fed Ex Shipping Bill No: 81402680984   | 3   |     |  |  |  |  |  |  |  |  |  |
| PID Reading (PID units):   |   |     |  |  |  |  |  |  |  |  |  |

#### MICROPURGING FIELD DATA FORM

- Children

Project: Laredo AFB Sample ID: LAFBCLFMW201

Casing Size/Diameter: 4" Pump System: QED T1200 Bladder

Initial Water Level: 22.60 Total Well Depth: 33.4/

Water Quality Meter Type: FC 4000 Meter #: 93703

Meter Calibration Date: 10-73-99 Time: 0700-

| S-lact<br>0940<br>Time | Cum<br>Vol<br>(gals) | Temp<br>(* C) | рн   | Cond<br>(mS/Cm) | Turb<br>(NTU) | DO<br>(ms/4) | WL    | Ft<br>Drawdown | Purge<br>Rate<br>(ml/min) |
|------------------------|----------------------|---------------|------|-----------------|---------------|--------------|-------|----------------|---------------------------|
| 0941                   |                      | 22.62         | 7.11 | 32.31           | 14            | 5.82         | 22.71 | 0.11           | 100                       |
| 0942                   |                      | 22.64         | 7.12 | 32.33           | 13            | 5.61         | 22.73 | 0.13           | 100                       |
| 0943                   |                      | 22.63         | 7.13 | 32.34           | 10            | 5.62         | 22.73 | 0.13           | 100                       |
| 0944                   |                      | 22.63         | 7.11 | 32.34           | 9             | 5.63         | 22.73 | 0.13           | 100                       |
| 0945                   |                      | 22.63         | 7-11 | .32.35          | 9.            | 5.62         | 22.73 | 0.13           | 100                       |
| 0946                   |                      | 22.63         | 7.11 | 32.35           | 9             | 5.61         | 22.73 | 0.13           | 100                       |
| 0947                   |                      | 72.63         | 7.11 | 32.35           | 9             | 5.61         | 22-73 | 0.13           | 100                       |
| 0948                   | 1                    | 22.63         | 7.11 | 32.35           | 9             | 5.61         | 22.73 | 0.13           | 100                       |
|                        | •                    | ·             |      |                 |               |              |       |                |                           |
| ·                      |                      |               | ^    |                 | ٠             |              |       |                |                           |
|                        |                      |               |      |                 |               |              |       |                |                           |
|                        |                      |               |      |                 |               |              |       |                |                           |

Final four water quality mesurements prior to sampling

| 0945 | 22.63 | 7.11 | 32.35 | 9 | 5.62 |  |
|------|-------|------|-------|---|------|--|
| 0946 | 22.63 | 7.11 | 32.35 | 9 | 5.61 |  |
| 0947 | 27.63 | 7.11 | 32.35 | 9 | 5.61 |  |
| 0948 | 27.63 | 7.11 | 32.35 | 9 | 5.61 |  |

water level measurements: ft BTOC

Final Well Drawdown: 0.13

comments: well seal # 29862, chest TC-109, vOC TC-01

Sample Collector(s): Myfmol

Lab#

Chest/Temp.

## GROUNDWATER MONITORING WELL

# CHAIN OF CUSTODY U.S. Army Corps of Engineers Tulsa District

|        | I ding process  |  |     |  |  |
|--------|---|--|-----|--|--|
|        | Project: Laredo Air Force Base Site: Construction La          | ndfill                                   |     |  |  |
|        | Sample ID: <u>LAFBCLFMW 40</u> Date: <u>10-2</u>              | 3-99 Time: 1743                          |     |  |  |
| 183535 |   | ne: (918) 832-4120<br>ne: (918) 669-7519 |     |  |  |
|        | Due Date: 21 Days   |  |     |  |  |
|        | CONTAINERS  |  |     |  |  |
|        | Glass Plastic Vials Chest # Custody Seal #                    | VOA Chest Sample Vials # Initials        |     |  |  |
| •      | 3 Z TC-86 _ 102586  | 2 TC-01 65                               |     |  |  |
|        | PARAMETERS SAMPI  | LED                                      |     |  |  |
|        | → pH, Conductivity, Temperature, DO & Turbidity               | EPA Method                               | (0) |  |  |
|        | Semi Volatile Organics  | 8270 C                                   |     |  |  |
|        | PCBs  | 8082 A                                   | (1) |  |  |
|        | Total Metals  | 6010 / 7470                              | [1] |  |  |
|        | (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)                             |  |     |  |  |
|        | Filtered Metals   | 6010 / 7470                              | [1] |  |  |
|        | (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)                             |  |     |  |  |
|        | Volatile Organics   | 8260 B                                   | {2} |  |  |
|        | * Containers: () = 1 L Amber Glass [] = 1 L<br>CUSTODY RECORD | Plastic { } = 40 mL Vials                |     |  |  |
|        | Relinquished By Received By                                   | Date Time                                |     |  |  |
|        | mubride>  | 10-25-99 1200                            | )   |  |  |
|        | MB  | ulsha as                                 |     |  |  |
|        |   |  |     |  |  |
|        |   | 7  |     |  |  |
|        | Fed Ex Shipping Bill No: 81407680984                          | <u></u>                                  |     |  |  |
|        | PID Reading (PID units):                                      |  |     |  |  |

#### MICROPURGING FIELD DATA FORM

18430

| Project: <u>Laredo AFB</u> | San   | aple ID: <u>LAFBCLF NW 43</u> | 21_     |
|----------------------------|-------|-------------------------------|---------|
| Casing Size/Diameter:      | 4"    | Pump System: QED T1200        | Bladder |
| Initial Water Level:       | 25.46 | _ Total Well Depth:           | 33.26   |

Water Quality Meter Type: FC 4000 Meter #: 93703

Meter Calibration Date: 10-23-99 Time: 1200

| Start<br>1232<br>Time | Cum<br>Vol<br>(gals) | Temp<br>(°C) | рн   | Cond<br>( ms//m) | Turb<br>(NTU) | DO<br>(ms/+) | MI    | Ft<br>Drawdown | Purge<br>Rate<br>(ml/min) |
|-----------------------|----------------------|--------------|------|------------------|---------------|--------------|-------|----------------|---------------------------|
| 1234                  |                      | 22-42        | 7.15 | 32.45            | 36            | 5.14         | 25.60 | 0.14           | 166                       |
| 1236                  |                      | 22.22        | 7.26 | 22.76            | 35            | 5.05         | 75.61 | 0-15           | 100                       |
| 1237                  |                      | 22-21        | 7.25 | 22.73            | 35            | 5.17         | 25.61 | 0.15           | 100                       |
| 1238                  |                      | 22.21        | 7.25 | 22.75            | 15            | 5.18         | 25.61 | 0.15           | 100                       |
| 12 39                 |                      | 22.21        | 7.25 | .22.76           | 7.            | 5-19         | 25.61 | 0.15           | 100                       |
| 1240                  |                      | 22.21        | 7.25 | 22.77            | ک             | 5.20         | 25.61 | 0.15           | 100                       |
| 1241                  | ·                    | 22-21        | 7.25 | 22-77            | کہ            | 5.21         | 25.61 | 0.15           | 100                       |
| 1242                  |                      | 22.21        | 7.25 | 22.77            | 5             | .5.22        | 25.61 | 0.15           | 100                       |
| 1243                  | 2                    | 22-21        | 7.25 | 22.77            | 5             | 5.23         | 25.61 | 0.15           | 100                       |
| ·                     |                      |              |      |                  | ·             | •            |       |                |                           |
|                       |                      |              |      |                  |               |              |       |                |                           |
|                       |                      |              |      |                  | ,             |              |       | ,              | •                         |

Final four water quality mesurements prior to sampling

| 4 |      | 2042 | 744   |      |       |   |      | Particular   Par |
|---|------|------|-------|------|-------|---|------|--|
|   | 1240 |      | 22.21 | 7.75 | 22.77 | 5 | 5.70 |  |
|   | 1241 |      | 22.21 | 7.25 | 22.77 | 5 | 5.21 |  |
|   | 1242 |      | 22.21 | 7.25 | 22.77 | 5 | 5.22 |  |
|   | 1743 |      | 22.21 | 7.75 | 22.77 | 5 | 5-23 |  |

water level measurements: ft BTOC

Final Well Drawdown: 0.15

comments: well seal 97456, Field TC-86, QA PTX067, QL TC86

Sample Collector(s): MM Sind

Lab#

Chest/Temp.

# GROUNDWATER MONITORING WELL

# CHAIN OF CUSTODY

U.S. Army Corps of Engineers Tulsa District

| Pro   | oject: Laredo Air Force Base Site: Construction La            | ndfill                            |     |  |  |  |
|---|---|-----------------------------------|-----|--|--|--|
| Sa  | 3-99 Time: 12 4 3   |                                   |     |  |  |  |
| USACE Sampling POC: Greg Snider Phone: (918) 832-4120 USACE Technical Manager: Carol Wies Phone: (918) 669-7519 |   |                                   |     |  |  |  |
| Dı  | ue Date: 21 Days  |                                   |     |  |  |  |
| L   | CONTAINERS  |                                   |     |  |  |  |
|   | Glass Plastic Vials Chest # Custody Seal #                    | VOA Chest Sample Vials # Initials |     |  |  |  |
|   | 3 Z TC-86 _102586   | 2 TC-01 65                        | _   |  |  |  |
| L   | PARAMETERS SAMPL  | ED                                |     |  |  |  |
| L   | pH, Conductivity, Temperature, DO & Turbidity                 | EPA Method                        | (0) |  |  |  |
| \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \   | C 'XI I dila Ornanian   | 8270 C                            |     |  |  |  |
| 一   | PCBs  | 8082 A                            | (1) |  |  |  |
|   | Total Metals  | 6010 / 7470                       | [1] |  |  |  |
|   | (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)                             | 6010 / 7470                       |     |  |  |  |
| -   | Filtered Metals (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)             | 6010 / 7470                       |     |  |  |  |
| _   | (As, Fo, Fig. Se, Ba, Cd, Cl & Fig)                           |                                   |     |  |  |  |
| -   | Volatile Organics   | 8260 B                            |     |  |  |  |
|   | * Containers: () = 1 L Amber Glass [] = 1 L<br>CUSTODY RECORD | Plastic { } = 40 mL Vials         |     |  |  |  |
|   | Relinquished By Received By                                   | Date Time                         |     |  |  |  |
|   | musind>   | 10-ZS-99 120                      | 0   |  |  |  |
|   | MB  | idzolan arco                      |     |  |  |  |
|   |   |                                   |     |  |  |  |
|   |   |                                   |     |  |  |  |
| Fe  | d Ex Shipping Bill No: 81402680984                            | 13                                |     |  |  |  |
|   | D Reading (PID units):  | •                                 |     |  |  |  |
| LL  | v 1.0001115 (1 110 011100).                                   |                                   |     |  |  |  |

#### GROUNDWATER MONITORING WELL

CHAIN OF CUSTODY
U.S. Army Corps of Engineers
Tulsa District

| 755 |                    | Project: Laredo Air Force Base Site: Construction Landfill  Sample ID: LAFBCLFMW 50   Date: 10-23-99 Time: / 44/ |  |     |  |  |  |  |  |  |  |
|-----|--------------------|--|--|-----|--|--|--|--|--|--|--|
| 001 | US<br>US           |  | ne: (918) 832-4120<br>ne: (918) 669-7519     |     |  |  |  |  |  |  |  |
|     | Du                 | e Date: 21 Days  |  |     |  |  |  |  |  |  |  |
| ,   | CONTAINERS         |  |  |     |  |  |  |  |  |  |  |
|     | _                  | Glass Plastic Vials Chest # Custody Seal #   | VOA Chest Sample Vials #  Initials           |     |  |  |  |  |  |  |  |
|     | <u>-</u>           | 3 2 TC84 102584 Z TC-01 GS   |  |     |  |  |  |  |  |  |  |
| •   | PARAMETERS SAMPLED |  |  |     |  |  |  |  |  |  |  |
|     | V                  | pH, Conductivity, Temperature, DO & Turbidity  | EPA Method                                   | (0) |  |  |  |  |  |  |  |
|     | ~                  | Semi Volatile Organics   | 8270 C                                       | (2) |  |  |  |  |  |  |  |
|     | ~                  | PCBs   | 8082 A                                       | (1) |  |  |  |  |  |  |  |
|     |                    | Total Metals   | 6010 / 7470                                  | [1] |  |  |  |  |  |  |  |
|     | -                  | (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)  |  |     |  |  |  |  |  |  |  |
|     | ~                  | Filtered Metals  | 6010 / 7470                                  |     |  |  |  |  |  |  |  |
|     |                    | (As, Pb, Hg, Se, Ba, Cd, Cr & Ag)  |  |     |  |  |  |  |  |  |  |
|     | _                  | Volatile Organics  | 8260 B                                       | {2} |  |  |  |  |  |  |  |
|     |                    | * Containers: () = 1 L Amber Glass [] = 1 L I<br>CUSTODY RECORD  | Plastic { } = 40 mL Vials                    |     |  |  |  |  |  |  |  |
|     |                    | Relinquished By Received By  | Date Time                                    |     |  |  |  |  |  |  |  |
|     |                    | my Smol>   | 10-25-99 1200                                | )   |  |  |  |  |  |  |  |
|     |                    | MB   | 10/26/00 9:00                                |     |  |  |  |  |  |  |  |
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| Į,  |                    | SUL 076 806 \$112  |  |     |  |  |  |  |  |  |  |
| ]   | Fed ]              | Ex Shipping Bill No: 814026 809 8 4 3  | May sub-sub-sub-sub-sub-sub-sub-sub-sub-sub- |     |  |  |  |  |  |  |  |
| 1   | em.                | Reading (PID units):   |  |     |  |  |  |  |  |  |  |

## MICROPURGING FIELD DATA FORM

::47**7** 

Project: Lgredo AFB Sample ID: LAFBCLF MW 501

Casing Size/Diameter: \_\_\_\_\_\_ Pump System: QED T1200 Bladder

Initial Water Level: 24.85 Total Well Depth: 37.69

Water Quality Meter Type: FC Y000 Meter #: \_\_\_\_\_

Meter Calibration Date: 10-73-99 Time: 1700

| S-lart<br>1433<br>Time | Cum<br>Vol<br>(gals) | Temp<br>(° C) | рн   | Cond<br>(ms/cm) | Turb<br>(NTU) | DO<br>(45/4) | МГ    | Pt<br>Drawdown | Purge<br>Rate<br>(ml/min) |
|------------------------|----------------------|---------------|------|-----------------|---------------|--------------|-------|----------------|---------------------------|
| 1.12 C                 | (gazz)               | 27.85         | 6.87 | 21.39           | 20            | 2.06         | 24.89 | 0.04           | 100                       |
| 1435                   |                      | 22.82         | 6.89 | 21.29           | 11            | 2.06         | 24.91 | 0.06           | 100                       |
| 1436                   |                      | 22.79         | 6.91 | 21.19           | 5             | 2.12         | 24.91 | 0.06           | 100                       |
| 1437                   |                      | 22.77         | 6.92 | 21.12           | 3             | 2-11         | 24.91 | 0.06           | 100                       |
| 1439                   |                      | 22.77         | 6.93 | 21.13           | 3 .           | 2.12         | 24.91 | 0.06           | 100                       |
| 1440                   |                      | 22.77         | 6.93 | 21.12           | 3             | 2-11         | 24-91 | 0.06           | 100                       |
| 1441                   |                      | 22.77         | 6.93 | 21.12           | 3             | 2-11         | 24-91 | 0.06           | 100                       |
| 1971                   |                      |               |      |                 |               |              |       |                |                           |
|                        | <del>-</del>         |               |      |                 |               |              |       |                |                           |
| ٠.                     | ·                    |               | ·    |                 | •             |              |       |                |                           |
|                        |                      |               |      | ·               |               |              |       |                |                           |
|                        |                      |               |      |                 |               |              |       | ·              |                           |

Final four water quality mesurements prior to sampling 3 2.11 6.92 21.12 22.77 1438 2.12 3 121.13 22.77 6.93 1439 2.11 21.12 6.93 1440 22.77 2-11 21.12

water level measurements: ft BTOC

Final Well Drawdown: 0.06

comments: well seal 48657, chest TC84, voc TC-01

Sample Collector(s): Mubriol

Lab ID#

Chest/Temp.

# CHAIN OF CUSTODY FOR VOLATILE ORGANCIS

U.S. Army Corps of Engineers **Tulsa District** 

Site: CONSTRUCTION LANDFILL Project: LAREDO AFB

TRAVEL BLANK DATA

Sample ID: LAFBCLFMW 105

Date: 10-23-99 Time: 0700

163238

Water Source: PSAP Millipore System ASTM Type II Water Analysis Requested: Volatile Organics / Method 8260 B

Date Mfg: 10-18-99 Custody Seal #: 101899 Meter Type: <u>Horiba U-10</u> #: <u>604046</u>

Turb: 0 NTU Temp: <u>16.9 °C</u> Cond: 0.001 mS/cm pH: <u>7.01</u>

Signature of Sampler: MM Smid

| SAMPLES                   | CONTA | LINED IN THIS SHI | PMENT         |           |
|---------------------------|-------|-------------------|---------------|-----------|
| Sample ID Number          | Vials | Site              | X-Chest #     | Lab#      |
| LAFBCLFMW105              | 2     |                   |               |           |
| LAFBCLF MWIOI -           | Z     | CLF               | TC-109        |           |
| BAFBCLF MW 201            | 2     | CLF               | TC-109        |           |
| LAFBCLFMW 401.            | Z     | CLF               | TC-86         |           |
| LAFBCLF MW40Z.            | 2     | CLF               | TC-86         |           |
| LAFBCLFMW 501             | 2     | CLF               | TC-84         |           |
|                           |       |                   |               |           |
|                           |       |                   |               |           |
| -                         |       |                   |               |           |
|                           |       |                   |               |           |
|                           |       |                   |               |           |
| Total Samples Shipped     | 12    |                   |               |           |
| CUSTODY RECORD            |       |                   |               |           |
| Relinquished By: Mulfinis | 1     |                   | Date 10-25-99 | Time /200 |
|                           |       | # 81402680        | 59843         |           |
| Received By:              | _     | 18                | Date 10/2/19n | Time      |

Appendix F Survey Data

# Monitor Well and Test Pit Survey Data Construction Landfill Site, Former Laredo Air Force Base

| Point No. | Northing (NAD 27) | Easting (NAD 27) | Elevation (NGVD 29) (ft) | Description           |
|-----------|-------------------|------------------|--------------------------|-----------------------|
| 1         | 694131.591        | 1685423.857      | 490.038                  | base point            |
| 2         | 694131.9447       | 1685423.297      | 490.147538               | office contl          |
| 6         | 685591.4491       | 1685602.83       | 499.139709               | top of casing MW-5    |
| 7         | 685591.1357       | 1685604.308      | 496.18009                | ground surface MW-5   |
| 8         | 685611.6291       | 1685635.238      | 495.987012               | trench 18             |
| 9         | 685639.8471       | 1685732.975      | 496.454062               | trench 23             |
| 10        | 685613.2352       | 1685798.968      | 497.881942               | trench 1              |
| 11        | 685589.4006       | 1685852.56       | 498.534852               | trench 26             |
| 12        | 685563.181        | 1685848.696      | 502.744154               | top of casing MW-4    |
| 13        | 685563.143        | 1685850.154      | 499.829488               | ground surface MW-4   |
| 14        | 685692.2016       | 1685935.459      | 499.150125               | conc mon us army LA-5 |
| 15        | 686308.2316       | 1685976.299      | 488.845636               | conc mon us army LA-6 |
| 16        | 686733.0849       | 1686064.566      | 477.020832               | top of casing MW-1    |
| 17        | 686732.976        | 1686066.069      | 473.930858               | ground surface MW-1   |
| 18        | 685199.4194       | 1685571.521      | 502.446863               | fir 5/8 tp5           |
| 19        | 682195.4375       | 1685938.435      | 496.588614               | base point airp       |
| 20        | 685617.5808       | 1685556.632      | 494.470681               | trench 11             |
| 21        | 685643.4247       | 1685459.304      | 492.771199               | trench 28             |
| 22        | 685621.4207       | 1685375.816      | 492.71939                | trench 17             |
| 23        | 686032.0867       | 1685108.271      | 480.835349               | top of casing MW-2    |
| 24        | 686031.6801       | 1685107.191      | 478.309708               | ground surface MW-2   |

Appendix G Waste Disposal Documentation



| wy 359  |   |   |
|---|---|---|
| AREDO, TX   | AZURDOUS WANTEST  |   |
|   | GENERATOL   |   |
| An age  |   | والقنصان  |
| Colorado s  |   |   |
| Address   | Actes a Cathoping Contion a   |   |
| Phone 75-79-75  | Phone   |   |
| Description of Waste Materials  | Profile Number Quantity   | Unit of Container Measure Type  |
| Bin the Same Cr. C.   |   | 11 (12)   |
|   |   |   |
|   |   |   |
|   |   |   |
| I hereby certify that the above-described   |   | <u></u>   |
| and are in proper condition for transports  | A Secretary of the second   |   |
| Generator Authorized Agent Name (Print  | Signature X   | Delivery Date   |
|   | TRANSPORTER   |   |
| Transporter Name  | Driver Name Truck Number Truck Type   |   |
| 4.4.  |   |   |
| I hereby acknowledge receipt of the above materials for transport from the generator above.   |   | nat the above described<br>om the generator site were   |
| materials for transport from the generator  | site listed materials were received from  | nat the above described<br>om the generator site were<br>not to the destination listed          |
| materials for transport from the generator above.   | materials were received fro transported without incides below.  | nat the above described om the generator site were  |
| materials for transport from the generator above.   | materials were received fro transported without incides below.  | pat the above described om the generator site were not to the destination listed  Delivery Date |
| materials for transport from the generator above.  Driver Signature Shipmen   | materials were received fro transported without incides below.  | nat the above described<br>om the generator site were<br>not to the destination listed          |
| materials for transport from the generator above.  Driver Signature Shipmen  Site Name Corr of LAASOD LAAS                            | materials were received from transported without incides below.  Driver Signature   | pat the above described om the generator site were not to the destination listed  Delivery Date |
| materials for transport from the generator above.  Driver Signature  Shipmon  Site Name  LANGE LARGO  Address  HWY 359 LARGO  Address | materials were received from transported without incides below.  Driver Signature   | pat the above described om the generator site were not to the destination listed  Delivery Date |
| Driver Signature  Site Name  Corr of IAABO LARGO  Address  Disposal Location: North   | materials were received from transported without incides below.  Driver Signature  Phone Number  7270  East  Level                        | pat the above described om the generator site were not to the destination listed  Delivery Date |
| materials for transport from the generator above.  Driver Signature Shipmen  Site Name Carr of LARGO LARGO  Address Hwy 359 LARGO     | materials were received from transported without incides below.  Driver Signature  Phone Number  7270  East  Level                        | pat the above described om the generator site were not to the destination listed  Delivery Date |
| Driver Signature  Site Name  Corr of IAABO LARGO  Address  Disposal Location: North   | materials were received from transported without incides below.  Driver Signature  Phone Number  East  Ve described materials.            | Delivery Date   |
| Driver Signature  Site Name  Corr of IAABO LARGO  Address  Disposal Location: North   | materials were received from transported without incides below.  Driver Signature  Phone Number  East  Ve described materials.  Signature | Delivery Date    1-27-00    Receipt Date   0 0 2  |
| Driver Signature  Shipmen  Site Name  Corp of IALIO  Address  Disposal Location:  North  I hereby acknowledge receipt of the above    | materials were received from transported without incides below.  Driver Signature  Phone Number  Fast  Level  Signature                   | Delivery Date   |

CETY OF LARBO. HANDFELL HWY 359 LAREDD, TX



39322

# NON-HAZARDOUS MANIFEST

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|---|---|----------------|-------------------------|-----------------------|
| Iddress Sez S MARN #400<br>Tursa OK 24103   | I.D. # Shipping Local Address                           | ion LARA       | DO ZA                   | Azeron                |
|   |   | Total          | Unit of                 | Container             |
| Description of Waste Materials  | Profile Number  | Quantity       | Measure                 | Type                  |
| VOW- HAZAR DOWS SOZE CHTTENS  |   |                |                         |                       |
|   |   |                |                         |                       |
| hereby certify that the above-described materials at art 261 or any applicable state law, have been fully are in proper condition for transportation accord | and accurately (  | lêzettoên' era | fined by 44 asified and | 0 CPR,<br>i packaged, |
|   | Si adhrusa  |                | <b>D</b>                | livery Date           |
| lenerator Authorized Agent Name (Print)   | Signature   |                |                         |                       |
| ransporter Name   | f and   |                |                         |                       |
| hereby acknowledge receipt of the above described naterials for transport from the generator site listed bove.  | I hereby acknown materials were transported with below. | received from  | the genera              | ator site were        |
| Oli uma Para  | Driver Signatu  |                | Deliv                   | ory Date              |
| Oriver Signature Shipment Date  |   |                |                         |                       |
|   | MINITAL   |                |                         |                       |
| lite Name Core of Masso LADSTAL   | Phone Num   | ber            | ) <sub>,</sub> 793 °£   | 319                   |
| Address HWY 359 LARCOD, TX 7841   | •   | Level          |                         |                       |
| 2 D P   |   |                |                         |                       |
| hereby acknowledge receipt of the above described   | materials.  |                |                         |                       |
| Samuel do la Vano   |   |                | 1 12                    | 17-10                 |
| Name of Authorized Agent (Print)  | Signature   |                | Re                      | ceipt Date 0 2        |
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| GENERATOR AUTHORIZED AGENT NAME  | SIGNATURE TRANSPORTER PHONE NO   | 900-234 5114   |
| TRUCK NO   | PHONE NO  TRANSPORTER  PHONE NO  PRINT DRIVER NAME (PRINT)   | 800-234 87114<br>JAMES ZAZIOLA   |
| TRUCK NO   | PHONE NO   | 900-234 47/14<br>JAMES ZAZGENI<br>STATE 1 HNT 66 TX  |
| TRUCK NO   | PHONE NO   | 900 - 254 - 5114<br>   |
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100-720TX

Appendix H Laboratory Analytical Data and Data Validation Report

# Data Validation Report

# Limited Groundwater Assessment Former Laredo Air Force Base Laredo, Texas

Prepared for

U.S. Army Corps of Engineers, Tulsa District

Contract No.

DACA56-97-D0010 Task Order No. 28

April 2000

**CH2MHILL** 

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Appendix A. Data Forms

# **Section 1 - Introduction**

CH2M HILL was retained by the United States Army Corps of Engineers (USACE), Tulsa District, to perform a Limited Groundwater Assessment (LGA) for the construction landfill (CLF) at the former Laredo Air Force Base (LAFB) located in Laredo, Texas. The CLF associated with the former LAFB is the subject of this investigation.

On 7 May 1942, the U.S. Government acquired 2,085.43 acres for the construction of Laredo Army Air Corps Base (now known as former Laredo Air Force Base). The Government constructed runways and numerous facilities from 1942 to 1974. The Base was initially deactivated on 17 June 1947; however, it was reactivated during the Korean conflict. The former Base was again deactivated on 29 March 1974. Approximately 309 acres were either deeded or sold to other federal, state and county agencies, or private firms. The remainder of the Base was deeded to the City of Laredo.

The former LAFB is located in the City of Laredo, Webb County, Texas. Most of the former LAFB is now operated as Laredo International Airport. Other areas have been developed for residential, commercial, and industrial use.

The CLF is located along the northwest boundary of the Laredo International Airport, near the runway terminus. The CLF was reportedly used both during the period of Department of Defense (DoD) occupancy and after the property was deeded to the City of Laredo. Machinery, vehicles, and concrete rubble were reportedly visible along the slope.

The project samples were collected by CH2M HILL personnel. The samples collected include four field groundwater samples, one QC field duplicate, one QA field duplicate, and one trip blank sample. The field samples, the QC field duplicate, and the trip blank sample were shipped to CRC & Associates, Inc (Tulsa, OK). The samples were then subcontracted to Specialized Assays, Inc. (Nashville, TN) for analysis. The QA field duplicated was shipped to Environmental Testing and Consulting (Memphis, TN) for analysis. The QA and QC duplicates were collected from well MW4. All samples except

the trip blank sample were analyzed for volatile organic compounds (VOCs) by EPA Method 8260B, semivolatile organic compounds (SVOCs) by EPA Method 8270C, polychlorinated biphenyls (PCBs) by EPA Method 8082A, and for total and dissolved RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by EPA Methods 6010B and 7470A, as appropriate. The trip blank sample was analyzed for VOCs only.

# Section 2 - Data Validation/Data Quality Review Process

The purpose of the data quality evaluation process is to assess the effect of the overall analytical process on the usability of the data. The two major categories of data evaluation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance with the method requirements; either the laboratory did, or did not, analyze the samples within the limits of the analytical method. Evaluation of matrix interferences is more subtle and involves the analysis of several areas of results including surrogate spike recoveries, matrix spike recoveries, and duplicate sample results.

Before the analytical results were released by the laboratory, both the sample and QC data were carefully reviewed to verify sample identity, instrument calibration, detection limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. Additionally, the QC data were reduced and the resulting data were reviewed to ascertain whether they were within the laboratory-defined limits for accuracy and precision. Any non-conforming data were discussed in the data package cover letter and case narrative.

All of the data packages were reviewed by the project chemists using the process outlined in such guidance documents as the Environmental Protection Agency (EPA) National Functional Guidelines for Evaluating Inorganic Analyses (July 1994) and National Functional Guidelines for Organic Data Review (July 1994). Engineering Manual 200-1-6 (EM 200-1-6) US Army Corps of Engineers Chemical Quality Assurance for Hazardous, Toxic and Radioactive Waste (HTRW) Projects (October 1997) was consulted as well.

The data validation and review process is independent of the laboratory's checks and focuses on the usability of the data to support the project data interpretation and decision-making processes. "Did it meet the Data Quality Objectives (DQOs) as defined in the workplan?" Areas of review included holding time compliance, surrogate recoveries, matrix spiked sample results, method blank results, initial and continuing

calibrations, laboratory control samples, internal standard response and retention times, instrument tuning criteria, laboratory duplicate sample results and field sample duplicate results. A data review worksheet was completed for each of these data packages.

Sample results that were not within the acceptance limits were appended with a qualifying flag, which consists of a single or double-letter abbreviation that indicated a potential problem with the data. Although the qualifying flags originate during the data review and validation processes, they are included in the data summary tables deliverable so that the data will not be used indiscriminately. The following flags were used in this text:

- U Undetected. Samples were analyzed for this analyte, but it was not detected above the method detection limit (MDL) or instrument detection limit (IDL).
- UJ Detection limit estimated. Samples were analyzed for this analyte, but the results were qualified as not detected. The result is estimated.
- J Estimated. The analyte was present, but the reported value may not be accurate or precise.
- R Rejected. The data are unusable. (NOTE: Analyte/compound may or may not be present.)
- = Detected. Target parameter detected at the concentration reported.

Numerical sample results that were greater than the method detection limit but less than the Reporting Limit (RL) were qualified with a "J" for estimated.

Once the data validation review and processes were completed, the entire data set was reviewed for chemical compound frequencies of detection, dilution factors that might affect data usability, and patterns of target compounds distribution. The data set was also evaluated to identify potential data limitations, uncertainties, or both in the analytical results.

# Section 3 - List of Common Acronyms and Abbreviations

CLF

Construction Landfill (CLF)

COC

Chain-of-Custody

DoD

Department of Defense

DOO

Data Quality Objective

EM

**Engineering Manual** 

**EPA** 

**Environmental Protection Agency** 

**HTRW** 

Hazardous, Toxic, Radioactive Waste

**ICP** 

Inductively Coupled Plasma

**IDL** 

Instrument Detection Limit

LAFB

Laredo Air Force Base

LB

Laboratory Blank

LCS/LCSD

Laboratory Control Sample/Laboratory Control Sample Duplicate

**LGA** 

Limited Groundwater Assessment

**MDL** 

Method Detection Limit

MS/MSD

Matrix Spike/Matrix Spike Duplicate

**PCBs** 

Polychlorinated Biphenyls

OA/QC

Quality Assurance/Quality Control

RL

Reporting Limit

**RPD** 

Relative Percent Difference

**SVOC** 

Semi-volatile Organic Compound

TB

Trip Blank

USACE

United States Army Corps of Engineers

VOC

Volatile Organic Compound

# **Section 4 - Chain of Custody Synopsis**

#### Chemical Analytical Methods

|                          |        |             |      | ICP Metals -<br>Total and<br>Filtered | Mercury -<br>Total and<br>Filtered | Volatile<br>Organics | Semivolatile<br>Organics | PCBs   |
|--------------------------|--------|-------------|------|---------------------------------------|------------------------------------|----------------------|--------------------------|--------|
| Sample ID:<br>LAFBCLFMW- | Matrix | Time        | Type | SW6010                                | SW7470                             | SW8260               | SW8270                   | SW8082 |
|                          |        |             | Samp | les Collected or                      | 21 July 1999                       |                      |                          |        |
| 101                      | GW     | 8:45:00 AM  | N    | Х                                     | X                                  | х                    | X                        | X      |
| 201                      | GW     | 9:48:00 AM  | N    | X                                     | X                                  | X                    | Х                        | X      |
| 401                      | GW     | 12:43:00 PM | N    | X                                     | X                                  | х                    | X                        | Х      |
| 402                      | GW     | 12:43:00 PM | FD   | X                                     | X                                  | X                    | X                        | X      |
| 501                      | GW     | 14:41:00 PM | N    | X                                     | X                                  | Х                    | X                        | Χ      |
| 105                      | WQ     | 8:30:00 AM  | ТВ   | NR                                    | NR                                 | х                    | NR                       | NR     |

Notes:

X - Specialized Assays, Inc. Nashville, TN

FD - Field Duplicate

NR - Not Requested TB - Trip Blank

# **Section 5 - Sample Cross Reference Tables**

Sample Cross Reference by Laboratory ID

| Lab Sample ID | Sample ID     | Sample Type |
|---------------|---------------|-------------|
| 99-A163233    | LAFBCLFMW-101 | N           |
| 99-A163234    | LAFBCLFMW-201 | N           |
| 99-A163235    | LAFBCLFMW-401 | N           |
| 99-A163236    | LAFBCLFMW-402 | FD          |
| 99-A163237    | LAFBCLFMW-501 | N           |
| 99-A163238    | LAFBCLFMW-105 | ТВ          |

Sample Cross Reference By Sample ID

| Sample ID     | Lab Sample ID | Sample Type |
|---------------|---------------|-------------|
| LAFBCLFMW-101 | 99-A163233    | N           |
| LAFBCLFMW-201 | 99-A163234    | N           |
| LAFBCLFMW-401 | 99-A163235    | N           |
| LAFBCLFMW-402 | 99-A163236    | FD          |
| LAFBCLFMW-501 | 99-A163237    | N           |
| LAFBCLFMW-105 | 99-A163238    | ТВ          |

# Section 6 – Laredo Air Force Base – Construction Landfill

# 6.1 Volatile Organic Compounds

Groundwater samples were collected and analyzed for VOCs using SW-846 method 8260. The total number of field samples analyzed during this sampling event, are outlined in Section 3.0 of this report. A Laboratory Quality Assurance Results table is included in this report. The only compound detected was Acetone, reported at a concentration of  $104 \, \mu g/L$  in sample LAFBCLFMW-201. The reported detection of Acetone is also listed in the attached Hits Tables.

### 6.1.1 Accuracy

All surrogate recoveries were within acceptable quality control limits.

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) recoveries were within acceptable quality control limits.

The sample selected for the matrix spike and matrix spike duplicate was not a clientspecified sample. However, the laboratory provided the MS/MSD sample information from the associated QC batch.

#### 6.1.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

Comparison of the field (MW401) and quality control duplicate (MW402) samples reflected no reportable differences. Both samples reported non-detects for all target parameters.

## 6.1.3 Representativeness

All travel and method blanks were free of contamination.

All samples were analyzed within the required fourteen-day holding time.

No dilutions were required in the analysis of these samples.

### 6.1.4 Comparability

A QA field duplicate groundwater sample was collected from MW4 (sample MW403). A comparison of the field and field duplicates will be provided by the USACE.

# 6.2 Semivolatile Organic Compounds

Groundwater samples were collected and analyzed for SVOCs using SW-846 method 8270. The total number of samples analyzed during this sampling event, are outlined in Section 3.0 of this report. A Laboratory Quality Assurance Results table is included in this section. There were no reported detections of any semivolatile target parameter.

### 6.2.1 Accuracy

All surrogate recoveries were within acceptable quality control limits.

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) recoveries were within acceptable quality control limits except as listed below:

The sample selected for the matrix spike and matrix spike duplicate was not a client-specified sample. However, the laboratory provided the MS/MSD sample information from the associated QC batch.

Matrix Spike and LCS Recoveries Out of Criteria

| Sample ID              | Compound               | Spike Recovery<br>(% rec) | Recovery<br>Limits |
|------------------------|------------------------|---------------------------|--------------------|
| Matrix Spike           | 1,4-Dichlorobenzene    | 31                        | 46 - 108           |
|                        | 1,2,4-Trichlorobenzene | 37                        | 41 - 127           |
| Matrix Spike Duplicate | 1,4-Dichlorobenzene    | 28                        | 46 - 108           |
|                        | 1,2,4-Trichlorobenzene | 34                        | 41 - 127           |
| LCS                    | n-Nitrosodimethylamine | 36                        | 37 - 136           |
|                        | Aniline                | <25                       | 39 – 124           |
|                        | 3,3'-Dichlorobenzidine | <20                       | 5 - 127            |
|                        | 4-Nitrophenol          | <25                       | 21 - 116           |

- Semivolatile data is not flagged based on spike recovery alone, but in conjunction with
  other QC parameters such as surrogate recoveries. The results for the dichlorobenzene
  isomers were also reported from the volatile fraction. The recoveries for the
  dichlorobenzene isomers in the LCS for the volatile fraction were within acceptable
  ranges. Taking into consideration all of the information, the results for the
  dichlorobenzene isomers were not flagged.
- As the recovery for n-nitrosodimethylamine was only one percent below QC limits in the LCS, no flags were applied.
- The recoveries for 4-Nitrophenol in the MS/MSD samples were within acceptable recovery limits, therefore no flags were applied.
- Although semivolatile data is not flagged based on spike recovery alone, in this case, the
  results for aniline and 3,3'-Dichlorobenzidine were flagged "UJ", as not detected,
  estimated, due to the low recoveries in the LCS.

#### 6.2.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

Comparison of the field (MW401) and quality control duplicate (MW402) samples reflected no reportable differences. Both samples reported non-detects for all target parameters.

## 6.2.3 Representativeness

The laboratory method blank was reported free of contamination.

All water samples were extracted within the seven day holding time, and analyzed within the subsequent forty day holding time.

No dilutions were required in the analysis of these samples.

# 6.2.4 Comparability

A QA field duplicate groundwater sample was collected from MW4 (sample MW403). A comparison of the field and field duplicates will be provided by the USACE.

# 6.3 Polychlorinated biphenyls (PCBs)

Groundwater samples were collected and analyzed for PCBs using SW-846 method 8082. The total number of samples analyzed during this sampling event, are outlined in Section 3.0 of this report. A Laboratory Quality Assurance Results table is included in this section. There were no reported detections of any target parameter.

#### 6.3.1 Accuracy

All surrogate recoveries were within acceptable quality control limits.

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) recoveries were within acceptable quality control limits.

The sample selected for the matrix spike and matrix spike duplicate was not a client-specified sample. However, the laboratory provided the MS/MSD sample information from the associated QC batch.

#### 6.3.2 Precision

All MS/MSD relative percent difference (RPD) values were within acceptable quality control limits.

Comparison of the field (MW401) and quality control duplicate (MW402) samples reflected no reportable differences. Both samples reported non-detects for all target parameters.

## 6.3.3 Representativeness

The laboratory method blank was reported free of contamination.

All water samples were extracted within the seven day holding time, and analyzed within the subsequent forty day holding time.

No dilutions were required in the analysis of these samples.

## 6.3.4 Comparability

A QA field duplicate groundwater sample was collected from MW4 (sample MW403). A comparison of the field and field duplicates will be provided by the USACE.

#### 6.4 Metals

Groundwater samples were collected and analyzed for both total and dissolved metals, following SW-846 method 6010 (arsenic, barium, cadmium, chromium, lead, selenium, and silver) and SW-846 method 7470 (mercury). The total number of samples analyzed during this sampling event, are outlined in Section 3.0 of this report. A Laboratory Quality Assurance Results table is included in this section. The report indicated the presence of some target elements in the samples. These concentrations are listed in the attached Hits Tables.

## 6.4.1 Accuracy

All matrix spike (MS), matrix spike duplicate (MSD), and laboratory control spike (LCS) and recoveries were within acceptable quality control limits with the following exceptions:

- The recoveries for chromium in the total and dissolved metal samples were slightly below the limits of 75 percent recovery at 73.4 and 69.9 percent, respectively. The results for chromium were flagged with a "UJ" as not detected, estimated, or a "J" as estimated.
- The case narrative stated that the spike recovery for dissolved cadmium was low, but this was not reflected in the summary forms. No further action was taken.

#### 6.4.2 Precision

The laboratory sample duplicate values were within acceptable quality control limits.

Comparison of the detected parameters in the field (MW 401) and quality control duplicate (MW402) samples reflected no reportable differences.

# 6.4.3 Representativeness

The laboratory method blank was reported free of contamination.

All samples were analyzed within the required six-month holding time. Mercury was analyzed within the required twenty-eight day holding time.

No dilutions were required in the analysis of these samples.

### 6.4.4 Comparability

A QA field duplicate groundwater sample was collected from MW4 (sample MW403). A comparison of the field and field duplicates will be provided by the USACE.

## 6.5 Technical Summary

A complete review of the laboratory data collected during the investigation of the Laredo AFB CLF groundwater assessment sampling event was performed. Upon completion, the following items were noted:

The chain-of-custody and field data forms were complete and contained the required information without any noted exceptions.

# 6.6 Completeness

All of the data have been qualified according to the findings in the sections listed above. None of the data validated for this sampling event were rejected (where no valid result for parameter remains) and 25 results were qualified as estimated (J/UJ). The data is 100 percent complete therefore, the goal of 90 percent completeness has been met.

#### 6.7 Conclusions

An overall evaluation of the samples collected indicates that the sampling procedures and laboratory analyses have been conducted in an acceptable manner.

| oject Name & Task: LARE                  |          | GC/MS V  |   |
|--|----------|--|---|
| Uject Hame & Lauri                       | DO AF    | В  |   |
| oject # & Case/SDG:                      | 153      | 3479.DV.ZZ   | 165856  |
| ethods: OLM03.2                          | Í-846 82 | 60B EPA 624 Other:   |   |
| П  | ESC      | Other  | Number of Samples:  |
| logram.                                  | /        |  | 5-TB  |
| ield QC Samples: 70                      | 1//4     | ing p. oup   | <del></del>   |
| eviewed by & Date:                       | 4./      | g lug  | 1/6/00  |
| [atrix: ☐ Water ☐ Soil                   |          | Other /  |   |
|  |          |  | Girl Diago Amelia   |
| Quality Control                          | Form     | Requirements   | Check Flags Applie (If No* checked, see comments) (see comments |
|  | #        | All  | (If No* checked, see comments) (see comments                    |
| ata Pkg Complete (DP)                    | Pkg      | All required deliverables in pkg.  All samples on COC reported | Flags Applie  |
| The Aller                                | 1        | Water 7/14d (unpres/pres)                                      | LOK No* Flags Appli   |
| Iolding Times (HT)                       | 1 -      | Soil 14d (low)   | OK No* Flags Appli  |
|  | 000      | Soil (med/high)  | OK No* Flags Appli  |
| urrogates (SS)                           | 2        | Method surrogates used   | OK No* Not provided Flags Appli                                 |
| arrogates (55)                           |          | Recovery Limits: Lab Meth                                      | OK No* Diluted out  |
| MS/MSD or MS/LD                          | 3        | Matrix Spikes Provided   | MS/MSD MS/LD None* Flags Appli                                  |
|  |          | Correct Spike Used   | ∠OK No*   |
|  |          | Acceptance Limits: Lab Meth                                    |   |
| LCS (BS)                                 | 3        | LCS per prep. batch  | UK  |
| Letcs only LCS/LCSD                      | +        | Acceptance criteria met  | AT ND see blnk wksht Flags Appli                                |
| Blanks (MB,TB,EB, FB/AB)                 | 1 5      | Detects (> MDL or RL/CRQL)  Meth Blnk per 12 hr shift          | LOK No*   |
| Method/Lab Blank (MB)                    | 5        | Initial & Begin of 12-hr shift                                 | 4 OK No* Flags Appl   |
| Fune - BFB (TN) prior to sample analysis |          | Mass Assignment Correct  | LOK No*   |
| prior to sample analysis                 |          | Ion Abundance Criteria met                                     | ☐OK ☐ No*   |
| Initial Calibration (IC)                 | 6        | Minimum of 5 levels  | COR No* Flags Appl  |
| initial Calibration (10)                 |          | Linearity criteria met   | OK No* see cal wksht  |
|  |          | Minimum RRF criteria met                                       | OK No* see cal wksht  |
| Continuing Calib. Verif. (CC)            | 7        | Analyzed at begin of 12-hr shift                               | Flags App   |
| prior to sample analysis                 |          | %diff or %drift criteria met                                   | OK No* see cal wksht  OK No* see cal wksht                      |
|  |          | Minimum RRF criteria met                                       |   |
|  | 8        | Int. Std. RT/Area criteria met                                 | LOK No* Flags App   |
| Internal Standards (IS)                  | 8        | Sample IS area criteria met All hits within cal. Range         | Flags App   |
| Sample Evaluation                        | 5        | Samples w/in 12-hr clock                                       | OK No*  |
|  | raw      | Manual Integration performed                                   | No_ see comments  |
|  | 1        | Precision of native vs Field Dup                               | OK No* N/A Flags App  |

#### SPECIALIZED ASSAYS, INC.



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC. 8311

JOHN STATHAM

916 W. 23RD STREET 74107 TULSA; DK

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Ethyl methacrylate

Lab Number: 99-A163233 Sample ID: LAFBCLFMW-101 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 8:45 Date Received: 10/26/99 7:00 Time Received:

Linit of Limit of Dilution Quantitation Detection Factor Tine Method Batca Result Flag Units Parameter EMVolatile Organics 11/ 5/99 8260B B. Elliott 1651 4.9 1.0 18:01 10.0 ΗĐ 99/1 Acetone 8260B B. Elliott 2035 11/ 5/99 18:01 5.0 1.0 ЖĐ my'15.0Acetonitrile 8260B B. Elliott 1651 1.0 11/ 5/99 18:01 09/1 10.0 2.5 HD Acrolein 82603 B. Elliott 1651 0.6 1.0 11/ 5/99 18:01 10.0 HD. 29/1 Acrylonitrile 11/ 5/99 18:01 8260B B. Elliott 2035 1.0 30 09/1 10.0 5.0 lul chloride 18:01 8260B B. Elliott 1651 1.0 11/ 5/99 2.0 0.4 vy/1HD azene B. Elliott 1651 1.0 11/ 5/99 18:01 8260B 0.2 09/12.0 HIL Bronoforn 11/ 5/99 8260B B. Elliott 1651 1.0 18:01 1971 2.0 0.2 HD. Brononethane 11/ 5/99 18:01 8260B B. Elliott 1651 10.0 0.6 1.0 g6 mq/17-Butanose 11/ 5/99 18:01 8260B B. Elliott 1651 0.7 1.0 2.0 QK. 09/1 Carbon disulfide 8260B B. Elliott 1651 0.4 1.0 11/ 5/99 18:01 89/1 2,00 CIK. Carbon tetrachloride 0.4 1.0 11/ 5/99 18:01 82608 B. Elliott 1651 2.0 20 69/1 Chlorobenzene 1.0 11/ 5/99 18:01 8266B B. Elliott 1651 2.0 0.5 WD. ug/l Chloroethane 11/ 5/99 18:01 8260B B. Elliott 1651 0.4 1.0 03/3 2.0 Chloroform ЯÜ 11/ 5/99 18:01 8260B B. Elliott 1651 0.5 1.0 ug/1 2.0 ЗD Chloronethane 18:01 8260B B. Elliott 2035 11/ 5/99 5.0 1.0 5.0 ďЯ 09/1 Chloroprene 18:01 8260B B. Elliott 1651 0.5 1.0 11/ 5/99 69/1 10.0 1,2-Dibrono-3-chloropropase 20 8260B B. Elliott 1651 11/ 5/99 18:01 1.0 ND 94/1 2.0 0.1Dibromochloromethane B. Elliott 1651 2.0 1.0 11/ 5/99 18:01 8260B PID: 114/1 0.4 1.2-Dibromoethage B. Elliott 1651 11/ 5/99 18:01 8260B 1/4/1 2.00.4 1.0 ÜK Dibromomethame B. Elliott 1651 18:01 8260B 00/12.9 1.6 1.0 11/ 5/99 ND. 1,4-Dichloro-2-butene B. Elliott 1651 0.51.0 11/ 5/99 18:01 8260B 7.0 ug/LAD. 1,2-Dicblorobenzene 11/ 5/99 18:01 8246B B. Elliott 1651 0.21.0 2.0 HD mg/1 1,3-Dichlorobenzene 18:01 8260B B. Elliott 1651  $\sigma q/1$ 0.3 1.0 11/ 5/99 2.0HD 1.4-Dichlorobenzene B. Elliott 1651 0.2 1.0 11/ 5/99 18:01 8260B 2.0 04/1 Dichlorodifluoronethane B. Elliott 1651 11/ 5/99 18:01 8260B 0.2 1.0 2.0 ug/l 1,1-Dichloroethane ND. B. Elliott 1651 18:01 8260B 1.0 11/ 5/99 0.1 2.6 ЖP 119/1 1,2-Dichloroethane 18:01 8260B B. Elliott 1651 11/ 5/99 0.6 1.0 aq/12.0 ЖD 1,1-Dichloroethene 8260A B. Elliott 1651 11/ 5/99 18:01 2.0 0.5 1.0 ab. 09/1 1,2-Dichloroethene (total) B. Elliott 1651 8260B 0.4 1.0 11/ 5/99 18:01 KD ug/l 2.0 1,2-Dichloropropane 8260B B. Elliott 1651 0.5 1.0 11/ 5/99 18:01 DK ug/1 2.0 ;-1.3-Dichloropropene 18:01 8260B B. Elliott 1651 11/ 5/99 0.5 1.0 **09/1** 2.0 DK \_rans-1,3-Dichloropropene 18:01 8260B B. Elliott 2035 1.0 11/ 5/99 2.0 U4/1 10.0 KD 1,4-Dioxane 8260B B. Elliott 1651 11/ 5/99 18:01 0.2 1.0 04/1 2.0 ИD Ethylbenzene B. Elligtt 2035 8260B 18:01 11/ 5/99

0.5

1.0

10.0

09/1

HD



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

Laboratory Number: 99-A163233 Sample ID: LAFBCLFMW-101

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| Parameter                 | Result | Flag | Units | Linit of<br>Quantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Tine  | Method | Analyst    | Batch  |
|---------------------------|--------|------|-------|--------------------------|-----------------------|--------------------|----------|-------|--------|------------|--------|
| Hexachlorobutadiene       | ДK     |      | ug/1  | 2. 0                     | 0.9                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | 1651   |
| 2-Hexanone                | ЖD     |      | ug/1. | 10.0                     | 2.4                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | 1651   |
| Iodonethane               | ЖD     |      | vg/1  | 2.0                      | 0.2                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | 1651   |
| Isobutyl alcohol          | HD.    |      | 09/1  | 10.0                     | 10.0                  | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott |        |
| Methacrylonitrile         | HD     |      | 09/1  | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | 2035   |
| Methyl methacrylate       | מא     |      | 09/1  | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 18:01 | 826GB  | B. Elliott | : 2035 |
| 4-Nethul-2-pentanone      | GK     |      | ug/1  | 10.0                     | 0.6                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | : 1651 |
| Nethulene chloride        | aк     |      | 09/1  | 10.0                     | 0.4                   | 1.0                | 11/ 5/99 | 18:01 | 82600  | B. Elliott | : 1651 |
| Pentachloroethane         | КD     |      | 03/1  | 5.0                      | 2.0                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | : 2035 |
| Propionitrile             | dк     |      | 09/1  | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | 2035   |
| Styrene                   | HD     |      | ug/l  | 2.0                      | 9.7                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | 1651   |
| 1,1,1,2-Tetrachloroethane | ОK     |      | 0g/3. | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | 1651   |
| 1,1,2,2-Tetrachloroethane | RD     |      | ug/l  | 2.0                      | 0.3                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | : 1651 |
| Tetrachloroethene         | QK     |      | ug/1  | 2.0                      | 0.1                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliott | 1651   |
| Toluene                   | ЖD     |      | #g/1  | 2.9                      | 0.3                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Ellioti | 1651   |
| .2.4-Trichlorobenzene     | DК     |      | ug/I  | 2.0                      | 0.6                   | 1.6                | 11/ 5/99 | 18:01 | 8260G  | B. Elllott |        |
| 1,1-Trichloroethane       | ЯD     |      | Ug/1  | 2.0                      | 0.1                   | 1.0                | 11/ 5/99 | 18:01 | 82608  | B. Elliot  | t 1651 |
| 1,1,2-Trichloroethane     | סא     |      | ug/1  | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Ellioti | t 1651 |
| Trichloroethene           | KD     |      | ug/1. | 2.0                      | 9.5                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Ellioti | t 1651 |
| 1,2,3-Trichloropropane    | OK     |      | ug/1  | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliot  |        |
| Vingl acetate             | RD     |      | ug/1  | 2.0                      | 1.6                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliot  | t 1651 |
| Vingl chloride            | סא     |      | 09/1  | 2.0                      | 1.4                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliot  | t 1651 |
| Xulenes                   | aк     |      | 09/1  | 2.0                      | 0.8                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliot  |        |
| Dichloroisopropylether    | HD     |      | ug/1  | 5.0                      | 2.0                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliot  | t 2035 |
| Bronodichloromethane      | ар     |      | 09/1  | 2.0                      | 0.6                   | 1.0                | 11/ 5/99 | 18:01 | 8260B  | B. Elliot  | t 1651 |
| Trichlorofluoromathame    | кр     |      | 09/1  | 2.0                      | 0.2                   | 1.0                | 11/ 5/99 | 18:01 | 82606  | B. Elliot  | t 1651 |

MD = Mot detected at the limit of quantitation.

| Surrecate                             | Z Recovery  | Target Range  |  |  |
|---------------------------------------|---|---|--|--|
|                                       | . A little tillag och v. v. and they seek date date | the party state, and made and state area shall the Addition |  |  |
| 90A Surrogate, 1,2-Dichlaraethame, d4 | 104.  | 50 138.   |  |  |
| UDA SUTT, 1,2-DCA, 04                 | 99.   | 60 138.   |  |  |
| UDA Surrogate, Toluene d3             | 106.  | 90 123.   |  |  |
| UDA Surr, Toluene d8                  | <b>91</b> .   | <b>80.</b> - <b>123.</b>                                    |  |  |
| VIA Surrogate, 4-Bronofluorobenzene   | <b>79</b> .   | 73 122.   |  |  |
| UNA Sorr 4-BFB                        | 90.   | 73 122.   |  |  |



#### SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr. P. O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

Laboratory Number: 99-A163233 Sample ID: LAFBCLFMW-101

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Authorized by:

Theodore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

00254 #1/6/02



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

MAHTATE NHOU

916 W. 23RD STREET TULSA, DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

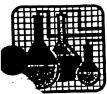
Sampler: GREG SNIDER

Lab Number: 99-A163234
Sample ID: LAFBCLFMW-201
Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 9:48 Date Received: 10/26/99 Time Received: 9:00

Linit of Dilution Linit of Result Flag Units **Ruantitation Detection** Factor Date Tine Nethod Batch Parameter %≋Volatile Organics 4.9 1.0 11/ 5/99 18:35 8260R B. Elliott 1651 104.0 99/1 10.0 Acetone 1.0 11/ 5/99 18:35 8260B B. Elliott 2035 'nр 5.0 5.0 Acetonitrile ug/1 10.0 2.5 1.0 11/ 5/79 18:35 8260R B. Elliott 1651 Acrolein MD Uq/1 10.0 0.6 1.0 11/ 5/99 18:35 82500 B. Elliott 1851 ND ug/1 Acrulonitrile B. Elliott 2035 1 0 11/ 5/99 18:35 82601 10.0 5.0 'lul chloride HD 09/1 11/ 5/99 18: 35 82600 B. Elliott 1651 2.0 0.4 1.0 ΚD 09/1 yzene 11/ 5/99 18:35 82600 B. Elliott 1651 2.0 0.2 1.0 90 ..onoforn 09/1 11/ 5/99 18:35 82600 1.0 B. Elliott 1651 Bronomethane HD 09/1 2.0 0.7 10.0 0.5 1.0 11/ 5/99 18:35 8260B B. Elliott 1651 ЯD 09/1 2-Kutanone 1.0 11/ 5/99 18:35 8260B B. Elliott 1651 2.0 0.7 Carbon disulfide 40 119/1 11/ 5/99 18:35 8260B 2.00 0.41.0 B. Elliott 1651 Carbon tetrachloride ЯĐ 19/1 11/ 5/99 18:35 8260B B. Elliott 1651 2.0 0.4 1.0 210 94/1 Chlorobenzene 11/ 5/39 18:35 82600 B. Elliott 1651 XD. 39/1 2.0 0.5 1.0 Chloroethane 8260B HD. 09/1 2.0 0.4 1.0 11/ 5/99 13:35 B. Elliott 1.651 Chlarafare 0.51.0 11/ 5/99 18:35 8260B 6. Elliott 1651 2.0 Chloromethane ΝŪ 09/11.0 11/ 5/99 18:35 8260B B. Elliott 2035 MD 99/1 5.0 5.8 Chloroprene 11/ 5/99 18: 35 8250R B. Elliott 1651 HD 10.0 9.5 1.0 04/] 1,2-Dibrono-3-chloropropane 1.0 11/ 5/99 18:35 8260B B. Elliott 1651 2.0 0 1 ЖD uq/1Dibromochloromethane 18:35 276BB B. Elliott 1651 0.4 1.0 11/ 5/99 ÜK 99/1 2.0 1,2-Dibronocthane 8260B B. Elliott 1651 1.0 11/ 5/99 18: 35 0.4 2.0 Dibromomethame ND 39/1 18:35 R7ADR R. Elliott 1651 11/ 5/39 2.0 1.6 1.0 HD 05/1 1,4-Dichloro-7-butene 11/ 5/99 18:35 8260B II. Elliott 1651 2.0 0.51.0 ND 09/1 1,2-Dichlorobenzene 1.0 11/ 5/99 18:35 3260R B. Elliott 1651 0.2 MD 6e/1 2.0 1,3-Dichlorobenzene B. Elliott 1651 8260B 11/ 5/99 18: 35 ЖD 96/1 2.0 0.31.0 1,4-Dichlorobenzene 11/ 5/99 18:35 8260B II. Elliott 1651 99/1 7.0 0.2 1.0 Dichlorodifluoromethame КD 11/ 5/99 18:35 8260B B. Elliott 1651 99/12.0 0.2 1.0 ND. 1,1-Dichloroethane 2.0 0.1 1.0 11/ 5/99 16: 35 826GB B. Elliott 1651 HD) 119/L 1,2-Dichloroethane 11/ 5/99 18: 35 8260B B. Elliott 1651 0.6 1.0 2.0 ИĐ ug/1 1,1-Dichloroethene 18: 35 8260A B. Elliott 1651 1.0 11/ 5/99 2.0 0.5 ИD Uq/1 1,2-Dichloroethene (total) 8260B B. Elliott 1651 1.0 11/ 5/99 18: 35 2.0 8.4 dk 04/1 1,2-Dichloropropane 11/ 5/99 18: 35 8260B B. Elllott 1651 0.5 1.0 DK Uq/1 2.0 3-1,3-Dichloropropene 18: 35 87600 B. Elliott 1651 11/ 5/99 0.5 1.0 HD 2.0 ans-1,3-Dichloropropene Uq/1 B. Elliott 2035 8260B 1.0 11/ 5/99 18:35 10.0 2.0 DK 1,4-Dioxane ug/l B. Elllott 1651 11/ 5/99 18:35 8260B Ethylbenzene 0.2 1.0 HD 2.0 uq/l B. Elliott 2035 18:35 8260B 0.5 1.0 11/ 5/99 10.0 Ethyl methacrylate ND Ug/1



#### ANALYTICAL REPORT

Laboratory Number: 99-A163234 Sample ID: LAFBCLFMW-201

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| Parameter                 | Result | Flag | Units         | Limit of<br>Auantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Tine    | Method         | Analyst    | Batch  |
|---------------------------|--------|------|---------------|--------------------------|-----------------------|--------------------|----------|---------|----------------|------------|--------|
| Hexachlorobutadiene       | КD     |      | uq/1          | 2. 0                     | 0. <i>3</i>           | 1.0                | 11/ 5/79 | 1.8: 35 | 8260B          | B. Elliott | 1651   |
| 2-Hexanone                | OK     |      | 09/1          | 10.0                     | 2.4                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott | 1651   |
| Iodonethane               | DК     |      | 09/1          | 2.0                      | 0.2                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott | 1651   |
| Isobutyl alcohol          | GK     |      | Ug/1          | 10.0                     | 10.0                  | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott | 2035   |
| Methacrylonitrile         | QК     |      | υ <u>9</u> /1 | 5.0                      | 5.0                   | 1.0                | 11/ 5/39 | 18: 35  | 82600          | B. Elliott | 2035   |
| Methyl methacrylate       | ND     |      | ug/l          | 5. 0                     | 5.0                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | R. Elliott | 2035   |
| 4-Methyl-2-pentanone      | В      |      | 09/1          | 10.0                     | 0.6                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott | 1651   |
| Methylene chloride        | סא     |      | ug/L          | 10.0                     | 0.4                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott | 1651   |
| Pentachloroethane         | ДK     |      | 09/1          | 5. 0                     | 2.0                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott | 2035   |
| Propionitrile             | αр     |      | 0g/1          | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 18: 35  | 826GB          | B. Elliott | 2035   |
| Styrene                   | HD     |      | 11g/3         | 2.0                      | 0.7                   | 1.8                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott | : 1651 |
| 1,1,1,2-Tetrachloroethane | OK     |      | 09/1          | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 18: 35  | 82608          | B. Elliott |        |
| 1,1,2,2-Tetrachloroethane | AD.    |      | 09/1          | 2. 6                     | 0.3                   | 1.0                | 11/ 5/99 | 18: 35  | 8 <b>Z</b> 600 | B. Elliott |        |
| Tetrachloroethene         | AD.    |      | 09/1          | 2.0                      | 0.1                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott | : 1651 |
| Toluene                   | КD     |      | ug/1          | 2.0                      | 0.3                   | 1.0                | 11/ 5/99 | 18: 35  | 826DB          | B. Elliott | 1651   |
| 2.4-Trichlorobenzene      | HD     |      | 0g/1          | 2.0                      | 0.6                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott |        |
| 1,1-Trichloroethane       | ИD     |      | 09/1          | 2.0                      | 0.1                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott |        |
|                           | ЖD     |      | ug/1          | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 18: 35  | 8260D          | R. Elliott |        |
| Trichloroethene           | HD     |      | ug/1          | 2. G                     | 0.5                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | R. Ellioti |        |
| 1,2,3-Trichloropropane    | HD     |      | ug/1          | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliott |        |
| Vinul acetate             | GK     |      | ug/1          | 2.9                      | 1.6                   | 1.0                | 11/ 5/99 | 18: 35  | 82606          | B. Ellioti |        |
| Vingl chloride            | מא     |      | og/1          | 2.0                      | 1.4                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliot  |        |
| Xylenes                   | HD     |      | ug/1          | 2.0                      | 0.8                   | 1.0                | 11/ 5/99 | 18: 35  | 82600          | B. Elliot  |        |
| Dichloroisopropylether    | מא     |      | ug/1          | 5.0                      | 2.0                   | 1.0                | 11/ 5/99 | 18: 35  | 82600          | []. Elliot |        |
| Bronodichloromethame      | 80     |      | ยสู/1         |                          | 0.6                   | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliot  |        |
| Trichlorofluoromethame    | ЯD     |      | 09/1          | 2.0                      | 0. 2                  | 1.0                | 11/ 5/99 | 18: 35  | 8260B          | B. Elliot  | t 1651 |

NO = Not detected at the limit of quantitation

| Surrogate                             | % Recovery  | Target Range              |
|---------------------------------------|-------------|---------------------------|
|                                       |             |                           |
| VDA Surrogate, 1,2-Dichloroethame, d4 | 103.        | 60 138.                   |
| VOA SURT, 1,2-DCA, 04                 | 100.        | 60 138.                   |
| VDA Surrogate, Toluene de             | 1.01        | 80 123.                   |
| UDA Surr. Toluene d8                  | <b>90</b> . | <b>30.</b> - <b>123</b> . |
| VIIA Surrogate, 4-Bronofluorobenzene  | 102.        | 73 122.                   |
| UDA SUTT. 4-RFR                       | 93.         | 73 122.                   |

HU 1/6/08 00256



### ANALYTICAL REPORT

Laboratory Number: 99-A163234 Sample ID: LAFBCLFMW-201

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Authorized by:

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Michael H. Dunn, M.S., Technical Dir.
Danny B. Hale, M.S., Laboratory Mgr.
Johnny A. Mitchell, Technical Serv. Dir.

00257



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311
JOHN STATHAM
916 W. 23RD STREET
TULSA, DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163235 Sample ID: LAFBCLFMW-401 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 12:43 Date Received: 10/26/99

Time Received: 9:00

| exVolatile Organics Acetone Acetonitrile Acrolein Acrylonitrile Vlyl chloride nzene Bronoforn Bronomethane 2-Butanone Carbon tetrachloride | 40<br>40<br>40<br>40<br>40<br>40<br>40<br>40 | ug/1<br>ug/1<br>ug/1<br>ug/1<br>ug/1   | 10.0<br>5.0<br>10.0<br>10.0 | 4. <b>9</b><br>5. <b>0</b><br>2.5 | 1.0<br>1.0 | 11/ 5/99 | 19:09 | 8260B | R   |          |        |
|--|--|--|-----------------------------|-----------------------------------|------------|----------|-------|-------|-----|----------|--------|
| Acetonitrile<br>Acrolein<br>Acrylonitrile<br>Vlyl chloride<br>nzene<br>Gronoforn<br>Bronomethane<br>2-Butanome<br>Carbon disulfide         | 08<br>08<br>08<br>08<br>08<br>08<br>08       | ug/1<br>ug/1<br>ug/1<br>ug/1<br>ug/1   | 5.0<br>10.0<br>10.0         | 5.0                               |            |          | 19:09 | 82608 | B   |          |        |
| Acetonitrile<br>Acrolein<br>Acrylonitrile<br>Vlyl chloride<br>nzene<br>Gronoforn<br>Bronomethane<br>2-Butanome<br>Carbon disulfide         | 08<br>08<br>08<br>08<br>08<br>08<br>08       | ug/1<br>ug/1<br>ug/1<br>ug/1<br>ug/1   | 10.0<br>10.0                |                                   | 1.0        | 11/5/00  |       |       |     | Elliott  | 1651   |
| Acrolein<br>Acrylonitrile<br>Niyl chloride<br>szene<br>Gronoforn<br>Bronomethane<br>2-Butanome<br>Carbon disulfide                         | 40<br>40<br>40<br>40                         | ug/1<br>ug/1<br>ug/1<br>ug/1           | 10.0                        | 2.5                               |            | 11/ 5/99 | 19:09 | 8260B | ₿.  | Elliott  | 2035   |
| Acrylonitrile<br>llyl chloride<br>mzene<br>oronoforn<br>Bronomethane<br>2-Butanome<br>Carbon disulfide                                     | 40<br>40<br>40<br>40                         | ug/1<br>ug/1<br>ug/1                   |                             | ~                                 | 1.0        | 11/ 5/99 | 19:09 | 8260B | ₿.  | Elliott  | 1651   |
| Nigh chloride<br>mzene<br>Gronoform<br>Bronomethane<br>2-Butanome<br>Carbon disulfide  | 40<br>40<br>40                               | ug/l<br>ug/l                           | าก ก                        | 0.6                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | ₿.  | Elliott  | 1651   |
| nzene<br>Gronoforn<br>Bronomethane<br>2-Butanome<br>Carbon disulfide   | но<br>Но<br>Но                               | 0g/l                                   | £4, 4                       | 5.0                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | В.  | Elliott  | 2035   |
| oronoforn<br>Bronomethane<br>2-Butanome<br>Carbon disulfide  | 40<br>04                                     |  |                             | 0.4                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | ß.  | Elliott  | 1551   |
| Bronomethane<br>2-Butanone<br>Carbon disulfide   | 40   | uq/1                                   |                             | 0.2                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | B.  | Elliott  | 1651   |
| 2-Butanone<br>Carbon disulfide   |  | 94/1                                   |                             | 0.2                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | В.  | Elliott  | 1651   |
| Carbon disulfide   | .411   | ug/1                                   |                             | 0.8                               | 1.0        | 11/ 5/99 | 19:09 | 82608 | ₿.  | Elliott  | 1651   |
|  | AD<br>QK                                     | ug/1                                   |                             | 0.7                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | K.  | Elliott  | 1651   |
| デオたりひは デデデレタのリエのしてべる   | HD   | ug/1                                   |                             | 9.4                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | В.  | Elliott  | 1651   |
| Chlorobeazene  | нD   | 99/ <u>1</u>                           |                             | 8.4                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | В.  | Elliott  | 1651   |
| Chloroethane   | ďΣ   | 0g/1                                   |                             | 0.5                               | 1. 0       | 11/ 5/99 | 19:09 | 8260E | K.  | Elliott  | 1351   |
| Chloroforn   | HD   | ug/1                                   |                             | 0.4                               | 1.0        | 11/ 5/99 | 19:09 | 826QB | K.  | Elliott  | 1651   |
|  | 4D   | 69/1<br>69/1                           |                             | 0.5                               | 1.0        | 11/ 5/99 | 19:09 | 826GB | В.  | Elliott  | 1651   |
| Chloronethane  | КD   | ∪q/1                                   |                             | 5.0                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | R.  | Elliott  | 2035   |
| Chloroprene  | un<br>Gk                                     | :/q/1                                  |                             | 9,5                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | В.  | Elliott  | : 1653 |
| 1,2-Dibrono-3-chluropropade  | ne<br>ND                                     | ## ### ############################### |                             | 0.1                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | B.  | Elliott  | : 1651 |
| Dibronochloromethane   | -  | -                                      |                             | 0.4                               | 1.0        | 11/ 5/99 | 19:07 | 8260B | Tt. | Elliott  |        |
| 1,2-Dibronoethame  | RD   | #g/1                                   |                             | 0.4                               | 1.0        | 11/ 5/99 | 19:09 | 8260B |     | Elliott  |        |
| Dibronomethane   | HD   | 99/1                                   |                             | 1.6                               | 1.0        | 11/ 5/99 | 19:09 | 8260B |     | Elliott  |        |
| 1,4-Dichloro-2-butene  | яD   | 69/1<br>/1                             |                             | 0.5                               | 1.0        | 11/ 5/99 | 19:09 | 8260B | ß.  |          |        |
| 1,2-Dichlorobenzene  | HD   | ug/1                                   |                             | 0.3                               | 1.0        | 11/ 5/99 | 19:09 | 8260B |     | Elliott  |        |
| i,3-Dichlorohenzene  | <del>ዝ</del> ቡ                               | 0.0/ <u>1</u>                          |                             | 9,3                               | 1.0        | 11/ 5/99 | 19:09 | 8260B |     | Ellioti  |        |
| 1,4-Dichlorobenzene  | 68   | 11g/1                                  |                             | 0, 2                              | 1.0        | 11/ 5/99 | 19:09 | 8260B |     | Ellioti  |        |
| Dichlorodifluoromethane  | ND:  | 9g/)                                   |                             | 0. 2                              | 1.0        | 11/ 5/99 | 19:07 | 82600 |     | Ellioti  |        |
| 1,1-Dichloroethane   | ЖD   | u9/1                                   |                             | 0. z<br>0. 1                      | 1.0        | 11/ 5/99 | 19:09 | 82608 |     | Elliot   |        |
| 1,2-Dichloroethane   | СК   | ₩ <u>4</u> 71                          |                             |                                   | 1.0        | 11/ 5/99 | 19:09 | 8260B |     | Elliot   |        |
| 1,1-Dichloroethene   | סא   | ug/I                                   |                             | 0.6                               | 1.0        | 11/ 5/99 | 19:07 | 8260A |     | Elliot   |        |
| 1,2-Dichloroethene (total)   | Ф  | nāv]                                   |                             | 0.5                               | 1.0        | 11/ 5/99 | 17:07 | 8260B | -   | Elliot   |        |
| '.Z-Dichloropropane  | סא   | iJg/1                                  |                             | 0.4                               |            | 11/ 5/99 | 17:07 | 8260B |     | Elliot   |        |
| s-1,3-Dichloropropene  | OK<br>                                       | ug/l                                   |                             | 0.5                               | 1.0        | 11/ 5/99 | 17:07 | 8260B | -   | Elliot   |        |
| rans-1,3-Dichloropropene   | סא   | ijg/]                                  |                             | 0.5                               | 1.0        | 11/ 5/99 | 17:07 | 8260B | _   | Elliot   |        |
| 1,4-Dloxane  | סא   | ug/I                                   |                             | 2.0                               | 1.0        | 11/ 5/99 |       |       | _   | . Elliot |        |
| Ethylbenzene<br>Ethyl methacrylate   | סא   | ug/I                                   | L 2.0                       | 0.2                               | 1.0        | 11/ 3/77 |       |       |     |          |        |

002534 1/6/00



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

### ANALYTICAL REPORT

Laboratory Number: 99-A163235 Sample ID: LAFBCLFMW-401

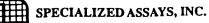
Page 2

| Parameter                 | Result   | Flag | Units        | Linit of<br>Ruantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Tine  | Method | Analyst    | Batch  |
|---------------------------|----------|------|--------------|--------------------------|-----------------------|--------------------|----------|-------|--------|------------|--------|
|                           | ND.      |      |              | 2.0                      | 0.9                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott | 1/51   |
| Hexachlorobutadiene       | ОК       |      | ug/1         |                          | 0.7<br>2.4            | 1.0                | 11/ 5/99 | 17:07 | 8260B  | B. Elliott |        |
| 2-Hexanone                | ИD       |      | Ug/1         | 10. 0<br>2. 0            | 2. 4<br>0. 2          | 1.0                | 11/ 5/97 | 17:07 | 6260B  | B. Elliott |        |
| Iodonethane               | GK<br>GK |      | 09/1         |                          |                       |                    | 11/ 5/99 | 19:09 | 8260B  |            |        |
| Isobutyl alcohol          | AG.      |      | 04/1         | 10.0                     | 10.0                  | 1.0                |          |       | 8260B  | B. Elliott |        |
| Methacrylonitrile         | dk<br>Z  |      | ug/l         | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 19:09 |        | R. Elliott |        |
| Methyl methacrylate       | ДK       |      | ug/1         | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 19:09 | 8260R  | R. Elliott |        |
| 4-Methyl-2-pentanone      | ЖÐ       |      | ug/l         | 10.0                     | 0.6                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott |        |
| Methylene chloride        | КD       |      | υg/1         | 10.0                     | 0.4                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott |        |
| Pentachloroethane         | ДK       |      | ug/1         | 5.0                      | 2.0                   | 1.0                | 11/ 5/99 | 19:09 | 8260E  | B. Elliott |        |
| Propionitrile             | KD.      |      | ug/1         | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | R. Elliott |        |
| Styrene                   | dЫ       |      | 09/1         | 2.0                      | 0.7                   | 1.0                | 11/ 5/99 | 19:09 | 8260D  | B. Elliott |        |
| 1,1,1,2-Tetrachloroethane | מא       |      | ug/l         | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott | 1651   |
| 1,1,2,2-Tetrachloroethane | AD.      |      | #g/1         | 2.0                      | 0.3                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott | 1651   |
| Tetrachloroethese         | ДK       |      | ug/1         | 2.0                      | 0.1                   | 1.0                | 11/ 5/39 | 19:09 | 3260B  | B. Elliott | 1551   |
| Toluene                   | RD       |      | ug/1         | 2.0                      | 9.3                   | 1.0                | 11/ 5/99 | 19:09 | 8260r  | R. Elliott | 1651   |
| 2.4-Trichlorobenzene      | פא       |      | 09/1         | 2.0                      | 0.6                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott | 1651   |
| 1,1-Trichloroethane       | dh       |      | ug/1         | 2.0                      | 0.1                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott | 1651   |
| ,1,2-Trichloroethane      | ИD       |      | Ug/1         | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 19:09 | 82501  | B. Elliott | 1651   |
| Trichloroethene           | סא       |      | ug/1         | 2.0                      | 0.5                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott | : 1651 |
| 1,2,3-Trichloropropane    | КD       |      | 09/1         | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 19:09 | 8250B  | B. Elliott | 1651   |
| Vingl acetate             | ЯD       |      | υ <b>g/1</b> | 2.6                      | 1.6                   | 1.0                | 11/ 5/99 | 19:09 | 82600  | B. Elliott | 1651   |
| Vinyl chloride            | дĸ       |      | ug/1         |                          | 1.4                   | 1.0                | 11/ 5/99 | 19:09 | 82600  | B. Elliott | 1651   |
| Xylenes                   | HD       |      | ug/l         |                          | 9.8                   | 1.0                | 11/ 5/99 | 19:09 | 82600  | B. Elliott | 1651   |
| Dichloroisopropylether    | ИD       |      | 09/1         |                          | 2. 0                  | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elllott | 2035   |
| Bronodichloromethane      | СK       |      | ug/l         |                          | 0.6                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott | 1651   |
| Trichlorofluoromethage    | סא       |      | ug/1         |                          | 0.2                   | 1.0                | 11/ 5/99 | 19:09 | 8260B  | B. Elliott |        |

MD = Hot detected at the limit of quantitation.

| Surrogate                            | % Recovery | Target Range              |
|--------------------------------------|------------|---------------------------|
|                                      |            |                           |
| UBA Surrogate, 1,2-Dichlomethame, d4 | 100.       | <b>60.</b> - 138.         |
| VDA SUTT, 1,2-DCA, 44                | 97.        | 60 138.                   |
| VUA Surrogate, Toluene d8            | 107.       | 80 123.                   |
| VDA Surr. Toluene 48                 | 91.        | <b>80.</b> - <b>123</b> . |
| VDA Surrogate, 4-Bronofluorobenzene  | 100.       | 73 122.                   |
| VDA Surr 4-RFR                       | 91.        | <b>73.</b> - <b>122</b> . |

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### ANALYTICAL REPORT

Laboratory Number: 99-A163235 Sample ID: LAFBCLFMW-401

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Authorized by:

Theore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

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2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

MAHTATE NHOL

716 W. Z3RD STREET TULSA, OK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163236 Sample ID: LAFBCLFMW-402 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 12:43 Date Received: 10/26/99

Time Received: 7:00

| Paraneter                                | Result   | Flag Unit      | Limit of<br>Ruantitation | Linit of Detection | Dilution<br>Factor | Date     | Tine   | Method | Analyst    | Date   |
|--|----------|----------------|--------------------------|--------------------|--------------------|----------|--------|--------|------------|--------|
| ××Volatile Organics                      |          |                |                          |                    |                    |          |        |        |            |        |
| Acetone                                  | מא       | ប្រ            | /1 10.0                  | 4. 9               | 1.0                | 11/ 5/99 | 19: 43 | 8260B  | B. Elliott | 1651   |
| Acetonitrile                             | КD       | Uģ             | 1 5.0                    | 5.0                | 1.0                | 11/ 5/99 | 17:43  | 8260E  | B. Elliott | 2035   |
| Acrolein                                 | ИD       | υ              |                          | 2.5                | 1.0                | 11/ 5/99 | 19:43  | 8260U  | B. Elliott | 1651   |
| Acrylonitrile                            | סא       | 13.6           | /1 10.0                  | 0.6                | 1.0                | 11/ 5/79 | 19: 43 | 82600  | B. Elliott | 1651   |
| `llyl chloride                           | ВD       | U Q            | /1 10.0                  | 5.0                | 1.0                | 11/ 5/39 | 19: 43 | 8260B  | B. Elliott | 2035   |
| nzene                                    | DX       | ย์             | /1 2.0                   | 0.4                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| огоно Гогн                               | HD .     | ម              | /1. 2.0                  | 0.2                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| Brononethane                             | HD       | មឲ្            | /1 2.0                   | 0.2                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| 2-Butanone                               | DK       | U              |                          | 0.6                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elllott | 1651   |
| Carbon disulfide                         | סא       | บ <sub>ุ</sub> | /1 2.0                   | 0.7                | 1.0                | 11/ 5/99 | 19:43  | 3260B  | B. Elllott | 1551   |
| Carbon tetrachloride                     | ИD       | w              |                          | 0.4                | 1.0                | 11/ 5/99 | 19:43  | 82600  | B. Elliott | 1651   |
| Chlorobenzene                            | HD       | -              | /1 2.0                   | 0.4                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| Chloroethane                             | ЭK       | ii j           |                          | 0.5                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| Chloroforn                               | ДK       |                | /1 2.0                   | 0.4                | 1.0                | 11/ 5/99 | 19:43  | 82600  | R. Elliott | 1651   |
| Chloromethane                            | КD       | •              | /1 2.0                   | 0.5                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| Chloroprene                              | ОK       | -              | /1 5.6                   | 5.0                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 2035   |
| 1.2-Dibrono-3-chloropropane              | ОК       |                | /1 10.0                  | 0,5                | 1.6                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | : 1651 |
| Dibronochloromethane                     | ЖD       |                | /1 2.0                   | 0.1                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | R. Elliott | 1651   |
| 1,2-Dibronoethame                        | מא       | -              | 73. 2.0                  | 0.4                | 1.0                | 11/ 5/99 | 17: 43 | 82600  | B. Elliott | 1651   |
| Dibronomethane                           | HD D     |                | /1 2.0                   | 0.4                | 1.0                | 11/ 5/99 | 17:43  | 82600  | B. Elliott | 1651   |
| 1,4-Dichloro-2-butene                    | מא       |                | /1 2.0                   | 1.6                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| 1,2-Dichlorobenzene                      | dк       |                | /1 2.0                   | 0.5                | 1.0                | 11/ 5/99 | 17:43  | 8260B  | B. Elliott | 1651   |
| 1,3-Dichlorobenzene                      | AD<br>AD |                | 71 2.0                   | 0.2                | 1.0                | 11/ 5/77 | 17:43  | 8260B  | B. Elliott | 1651   |
| 1,4-Dichlorobenzene                      | פא       |                | 71 2.0                   | 0.3                | 1.0                | 11/ 5/99 | 19: 43 | 8260B  | B. Elliott | 1651   |
| Dichlorodifluoromethane                  | סא       |                | /1 2.0                   | 8.2                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| 1,1-Dichloroethane                       | סא       | •              | /1 2.0                   | 0.2                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliott | 1651   |
| 1,2-Dichloroethane                       | סא       |                | /1 2.0                   | 0.1                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Ellioti | t 1651 |
| 1,1-Dichloroethene                       | סא       |                | /1 2.0                   | 0.6                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Ellioti | t 1651 |
| •  | KD       |                | /1 2.0                   | 0.5                | 1.0                | 11/ 5/99 | 19:43  | 8260A  | B. Elliot  | t 1651 |
| 1,2-Dichloroethene (total)               | HD       |                | /1 2.0                   | 0.4                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliot  |        |
| 1,2-Dichloropropane                      | ND<br>DK |                | /1 2.0                   | 0.5                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliot  |        |
| s-1,3-Dichloropropene                    | עא<br>מא | •              | /1 2.0                   | 0.5                | 1.0                | 11/ 5/99 | 19: 43 | 8260R  | B. Elliot  |        |
| .rans-1,3-Dichloropropene<br>1,4-Dioxane | עה<br>סא |                | /1 10.0                  | 2.0                | 1.0                | 11/ 5/99 | 19: 43 | 8260B  | B. Elliot  |        |
| •  | D        |                | /1 2.0                   | 0.2                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliot  |        |
| Ethylbeazene<br>Ethyl methacrylate       | טא<br>סא |                | /1 10.0                  | 0.5                | 1.0                | 11/ 5/99 | 19:43  | 8260B  | B. Elliot  |        |

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2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

### ANALYTICAL REPORT

Laboratory Number: 99-A163236 Sample ID: LAFBCLFMW-402

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| Parameter                 | Result | Flag | Units          | Limit of<br>Ruantitation | Linit of -<br>Detection | Dilution<br>Factor | Date     | Тіне  | Method | Analyst    | Batch  |
|---------------------------|--------|------|----------------|--------------------------|-------------------------|--------------------|----------|-------|--------|------------|--------|
| Hexachlorobutadiene       | ОК     |      | ug/1           | 2.0                      | 0.9                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 1651   |
| 2-Hexanone                | סא     |      | Uq/]           | 10.0                     | 2.4                     | 1.0                | 11/ 5/99 | 17:43 | 82608  | B. Elliott | 1651   |
| Iodonethane               | ЖD     |      | υ <b>q/</b> 1  | 2.0                      | 0.2                     | 1.0                | 11/ 5/79 | 19:43 | 8260R  | R. Elliott | 1651   |
| Isobutyl alcohol          | ЖD     |      | υ <b>q/1</b>   | 10.0                     | 10.0                    | 1.0                | 11/ 5/77 | 17:43 | 82600  | B. Elliott | 2035   |
| Methacrylonitrile         | ДK     |      | ug/1           | 5.0                      | 5.0                     | 1.0                | 11/ 5/79 | 19:43 | 8260B  | B. Elliott | 2035   |
| methyl methacrylate       | НD     |      | ug/1           | 5. 0                     | 5.0                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 2035   |
| 4-Nethyl-2-pentanone      | ND     |      | υ <b>q/1</b>   | 10.0                     | 0.6                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | R. Elliott | 1651   |
| Methylene chloride        | HD     |      | υ <b>σ/1</b>   | 10.0                     | 8.4                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 1651   |
| Pentachloroethane         | ND     |      | ug/l           | 5.0                      | 2.0                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 2035   |
| Propionitrile             | ЖD     |      | ug/1           | 5.0                      | 5.0                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 2035   |
| Styrene                   | ЖD     |      | uq/1           | 2.0                      | 0.7                     | 1.0                | 11/ 5/99 | 19:43 | 8260R  | D. Elliott | 1651   |
| 1,1,1,2-Tetrachloroethane | סא     |      | 99/1           | 2.0                      | 0.4                     | 1.0                | 11/ 5/99 | 19:43 | 82600  | B. Elliott | 1651   |
| 1,1,2,2-Tetrachloroethane | HD     |      | 04/1           | 2.0                      | 0.3                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 1651   |
| Tetrachloroethene         | ЖD     |      | υ <b>φ/</b> ]  | 2.0                      | 0.1                     | 1.0                | 11/ 5/99 | 19:43 | 82600  | B. Elliott | 1651   |
| Toluene                   | XD.    |      | บฐ/1           | 2.0                      | 0.3                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | R. Elliott | 1651   |
| 1,2,4-Trichlorobenzene    | ЖD     |      | uq/1           | 2.0                      | 0.6                     | 1.0                | 11/ 5/99 | 19:43 | 82601  | B. Elliott | 1651   |
| 1,1-Trichloroethane       | dЫ     |      | Ug/1           | 2.0                      | 0.1                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 1651   |
| 1,2-Trichloroethane       | HD     |      | 0g/1           |                          | 0.4                     | 1.0                | 11/ 5/99 | 19:43 | 82600  | B. Elliott | 1651   |
| Trichloroethene           | äD     |      | uq/1           |                          | 0.5                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 1651   |
| 1,2,3-Trichloropropase    | HD     |      | υq/1           | 2, 0                     | 0.4                     | 1.0                | 11/ 5/39 | 19:43 | 8260K  | B. Elliott | 1651   |
| Vinul acetate             | MD     |      | υ <b>ς/</b> 1  | 2.0                      | 1.6                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | 1651   |
| Vingl chloride            | HD     |      | ug/1.          | 2.0                      | 1.4                     | 1.0                | 11/ 5/99 | 19:43 | 82603  | B. Elliott | 1651   |
| Xylenes                   | HD.    |      | υ <b>q</b> /). |                          | 0.8                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | F. Elliott | 1651   |
| Dichloroisopropylether    | מא     |      | ug/l           |                          | 2.0                     | 1.0                | 11/ 5/99 | 19:43 | 82601  | R. Elliott | t 2035 |
| Bronodichloromethana      | KD     |      | 84/1           |                          | 0.6                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | t 1651 |
| Trichlorofluoromethane    | ND     |      | ug/1           |                          | 0.2                     | 1.0                | 11/ 5/99 | 19:43 | 8260B  | B. Elliott | t 1651 |

HD = Not detected at the limit of quantitation

| Surrogate                             | % Recovery   | Target Range                                     |
|---------------------------------------|--|--|
|                                       | and the second of the second o | 4. Lat. 400 Mile 310 Mile 4 W WW AND SHE SHE SHE |
| VBA Surrogate, 1,2-Dichloroethane, d4 | 100.   | 60 138.  |
| VUA Surr, 1,2-DCA, 44                 | 99.  | 60. <b>- 1</b> 36.                               |
| VDA Surrogate, Taluene 48             | 104.   | 80 123.  |
| VDA Surr, Toluene 48                  | 70.  | 80 123.  |
| VDA Surrogate, 4-Bronofluorobenzene   | 103.   | 73 122.  |
| UNA Surr 4-RFR                        | 94.  | 73 122.  |

AR 1/6/00



### ANALYTICAL REPORT

Laboratory Number: 99-A163236 Sample ID: LAFBCLFMW-402

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Authorized by:

Theodore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny R. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

ph 1/6/00



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311
JOHN STATHAM
916 W. 23RD STREET
TULSA, DK 74107

Site ID:

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

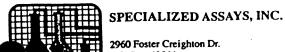
Date Collected: 10/23/99 Time Collected: 14:41 Date Received: 10/26/99 Time Received: 9:00

Lab Number: 99-A163237

Sample ID: LAFBCLFMW-501 Sample Type: Ground water

| Paraneter                   | Result   | Flag Un | nits         | Linit of Ruantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Тіне   | Method | Ana: | lyst<br> | Batch  |
|-----------------------------|----------|---------|--------------|-----------------------|-----------------------|--------------------|----------|--------|--------|------|----------|--------|
| ××Volatile Organics         |          |         |              |                       |                       |                    |          |        |        |      |          |        |
| Acetone                     | но       |         | Ug/1         | 10.0                  | 4.9                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | В.   | Elliott  | 1651   |
| Acetonitrile                | HD.      |         | ug/1         | 5.0                   | 5.0                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | ₿.   | Elliott  | 2035   |
| Acrolein                    | ЖD       |         | 09/1         | 10.0                  | 2.5                   | 1.0                | 11/ 5/99 | 20:18  | 82608  | B.   | Elliott  | 1651   |
| Acrylonitrile               | ОК       |         | ug/l         | 10.0                  | 0.6                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | ₿.   | Elliott  | 1651   |
| llyl chloride               | סא       |         | ug/1         | 10.0                  | 5.0                   | 1.0                | 11/ 5/99 | 20:18  | 826GB  | В.   | Elliott  | 2035   |
| `nzene                      | HD       |         | ug/l         | 2.0                   | 0.4                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | Β.   | Elliott  | 1651   |
| , onoforn                   | ИD       |         | uq/1         | 2.0                   | 0.2                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | R.   | Elliott  | 1651   |
| Uroнонеthane                | КD       |         | บตู/1        | 2.0                   | 0.2                   | 1.0                | 11/ 5/39 | 20:18  | 82600  | R.   | Elliott  | 1651   |
| 2-Butanone                  | ИD       |         | ug/1         | 10.0                  | 0.6                   | 1.0                | 11/ 5/99 | 20:18  | 826GB  | В.   | Elliott  | 1651   |
| Carbon disulfide            | ДK       |         | 09/1         | 2.0                   | 0.7                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | ₿.   | Elliott  | 1651   |
| Carbon tetrachloride        | פא       |         | uq/1         | 2.00                  | 0.4                   | 1.0                | 11/ 5/99 | 20:18  | 82600  | K.   | Elliott  | 1651   |
| Chlorobenzene               | סא       |         | 09/1         | 2.0                   | 0.4                   | 1.0                | 11/ 5/99 | 20:18  | 82600  | K.   | Elliott  | 1551   |
| Chloroethane                | ЭК       |         | uq/1         | 2.0                   | 0.5                   | 1.0                | 11/ 5/99 | 20:18  | 82600  | ₿.   | Elliott  | 1651   |
| Chloroforn                  | ко       |         | 09/1         | 2.0                   | 0.4                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | В.   | Elliott  | 1651   |
| Chloronethane               | НD       |         | ug/1         | 2. 0                  | 0.5                   | 1.0                | 11/ 5/99 | 20:18  | 826DB  | B.   | Elliott  | 1651   |
| Chloroprene                 | XD       |         | 09/1         | 5.8                   | 5.0                   | 1.0                | 11/ 5/99 | 20:18  | 82601  | R.   | Elliott  | 2035   |
| 1,2-Dibrono-3-chloropropane | HD.      |         | ug/1         | 10.0                  | 0.5                   | 1.0                | 11/ 5/39 | 20:18  | 82600  | B.   | Elliott  | 1651   |
| Dibromochloromethane        | НD       |         | ug/1         | 2.0                   | 0.1                   | 1.0                | 11/ 5/99 | 20:18  | 82600  | K.   | Elliott  | 1651   |
| 1.2-Dibronoethane           | ЖD       |         | 04/1         | 2.0                   | Ď. <b>4</b>           | 1.0                | 11/ 5/99 | 20:18  | 8260B  | ₿.   | Elliott  | 1651   |
| Dibronomethane              | HD       |         | 09/1         | 2.0                   | 0.4                   | 1.0                | 11/ 5/99 | 20:18  | 82600  | В.   | Elliott  | 1651   |
| 1,4-Dichloro-2-butene       | סא       |         | ug/1         | 2.0                   | 1.6                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | В.   | Elliott  | 1651   |
| 1,2-Dichlorobenzene         | סא       |         | Uq/1         | 2. 0                  | 0.5                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | B.   | Elliott  | 1651   |
| 1,3-Dichlorobenzene         | HD CH    |         | uq/1         | 2. 0                  | 0.2                   | 1.0                | 11/ 5/99 | 20: 18 | 82600  | R.   | Elliott  | 1651   |
| 1.4-Dichlorobenzene         | מא       |         | uq/1         | 2.0                   | 0.3                   | 1.0                | 11/ 5/99 | 20:18  | 8260E  | ß.   | Elliott  | 1651   |
| Dichlorodifluoromethane     | מא       |         | ug/l         | 2.0                   | 0.2                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  |      | Elliott  |        |
| 1,1-Dichloroethane          | RD       |         | ug/1         | 2.0                   | 0.2                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | В.   | Elliott  | : 1651 |
| 1,2-Dichloroethane          | מא       |         | uq/1         | 2. 0                  | 0.1                   | 1.0                | 11/ 5/79 | 20:18  | 826QB  | B.   | Elliott  | 1651   |
| 1,1-Dichloroethene          | מא       |         | uq/1         | 2.0                   | 0.6                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | B.   | Elliott  | 1651   |
| 1,2-Dichloroethene (total)  | НD       |         | Ug/1         | 2.0                   | 0.5                   | 1.0                | 11/ 5/99 | 20:18  | 8260A  |      | Elliott  |        |
| •                           | עה<br>סא |         | Ug/1         | 2.0                   | 0.4                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  |      | Ellioti  |        |
| 1,2-Dichloropropane         |          |         | -            | 2.0                   | 0.5                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  |      | Ellioti  |        |
| s-1,3-Dichloropropene       | Dא       |         | Ug/1         | 2.0                   | 0.5<br>0.5            | 1.0                | 11/ 5/99 | 20:18  | 8260B  |      | Ellioti  |        |
| rans-1,3-Dichloropropene    | מא<br>סא |         | Ug/1         | 10.0                  | 2.0                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  |      | Elliot   |        |
| 1,4-Dioxane                 | ND<br>ND |         | Ug/1         | 2.0                   | 0.2                   | 1.0                | 11/ 5/99 | 20:18  | 8260B  | В.   | Elliot   |        |
| Ethylbenzene                | D        |         | Ug/1         | 2. U<br>10. O         | 0.2                   | 1.0                | 11/ 5/99 | 20: 18 | 8260B  |      | Elltot   |        |
| Ethyl methacrylate          | ИD       |         | U <b>g/1</b> | 10.0                  | U. J                  | 1.0                | A. J. 77 | £4. £0 | 1.0    |      | 77       |        |

0020/2 1/6/00



#### ANALYTICAL REPORT

Laboratory Number: 99-A163237 Sample ID: LAFBCLFMW-501

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| Parameter                 | Result   | Flag | Units        | Limit of<br>Ruantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Тіне  | Hethod | Analyst<br> | Batch  |
|---------------------------|----------|------|--------------|--------------------------|-----------------------|--------------------|----------|-------|--------|-------------|--------|
| Hexachlorobutadiene       | QК       |      | ug/l         | 2.0                      | 0.9                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| 2-Hexanone                | AD OH    |      | υ <b>g/1</b> | 10.0                     | 2.4                   | 1.0                | 11/ 5/39 | 20:18 | 8260B  | B. Elliott  | 1651   |
| Iodonethane               | dk<br>dk |      | Uq/1         | 2.0                      | 0.2                   | 1.0                | 11/ 5/39 | 20:18 | 8260R  | B. Elliott  | 1651   |
| Isobutul alcohol          | - עא     |      | ug/1         | 10.0                     | 10.0                  | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 2035   |
| Mathacrylonitrile         | HD       |      | บฤ/โ         | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 2035   |
| Methyl methacrylate       | KD       |      | υg/1         | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 20:18 | 8260D  | B. Elliott  | 2035   |
| 4-Methyl-2-pentanone      | HD       |      | Uq/1         | 10.0                     | 0. 6                  | 1.0                | 11/ 5/99 | 20:18 | 82600  | B. Elliott  | 1651   |
| Methylene chloride        | HD       |      | uq/1         | 10.0                     | 0.4                   | 1.0                | 11/ 5/99 | 20:18 | 826DD  | B. Elliott  | 1651   |
| Pentachloroethane         | ЯD       |      | 04/1         | 5.0                      | 2.0                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 2035   |
| Propionitrile             | ЖD       |      | ug/l         | 5.0                      | 5.0                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 2035   |
| Styrene                   | ЖD       |      | ug/1         | 2. 0                     | 9.7                   | 1.0                | 11/ 5/99 | 20:18 | 8260T  | B. Elliott  | 1651   |
| 1,1,1,2-Tetrachloroethane | HD       |      | ug/1         | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| 1,1,2,2-Tetrachloroethane | מא       |      | 04/1         | 2.0                      | 0.3                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| Tetrachloroethene         | ЖD       |      | ug/1         |                          | 0.1                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| Toluene                   | dк       |      | บฤ/1         |                          | 0.3                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| 2,4-Trichlorobenzene      | КО       |      | 69/1         |                          | 0.6                   | 1.0                | 11/ 5/99 | 20:18 | 82600  | B. Elliott  | 1651   |
| 1.1-Trichloroethane       | HD       |      | 69Z).        |                          | 0.1                   | 1.0                | 11/ 5/99 | 20:18 | 826GB  | B. Elliott  | 1651   |
|                           | ОК       |      | ug/1         |                          | 0.4                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| (richloroethene           | HD       |      | υ <b>g/1</b> |                          | 0.5                   | 1.0                | 11/ 5/99 | 20:18 | 3260B  | B. Elliott  | 1651   |
| 1,2,3-Trichloropropane    | ND       |      |              |                          | 0.4                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| Dinyl acetate             | MD.      |      | ug/l         |                          | 1.6                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| Vinyl chloride            | ИD       |      | ug/1         |                          | 1.4                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliott  | 1651   |
| Kulenes                   | ЖD       |      | ug/1         |                          | 0.8                   | 1.0                | 11/ 5/99 | 20:18 | 82600  | B. Elliot   | t 1651 |
| Dichloroisopropylether    | סא       |      | 09/l         |                          | 2.0                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliot   | t 2035 |
| Bronadichloromethane      | HD       |      | 09/1         |                          | 0.6                   | 1.0                | 11/ 5/99 | 20:18 | 82600  | B. Elliot   | t 1651 |
| Trichlorofluoromethame    | מא       |      | 09/1         |                          | 0.2                   | 1.0                | 11/ 5/99 | 20:18 | 8260B  | B. Elliot   | t 1651 |

NO = Mot detected at the limit of quantitation

| Surrogate                             | % Recovery   | Target Range |
|---------------------------------------|--------------|--------------|
| VIA Surrogate, 1,2-bichloroethame, d4 | <b>10</b> 3. | 60 138.      |
| VUA Surr. 1.2-DCA. 44                 | 101.         | 60 138.      |
| VOA Surrogate, Toluene 48             | 1.02.        | 80 123.      |
| VDA Surr, Toluene 48                  | 71.          | 80 123.      |
| VIIA Surrogate, 4-Bronofluorobenzene  | 104.         | 73 122.      |
| VDA Surr, 4-lifti                     | <b>95</b> .  | 73 122.      |

Hd 1/6/00





### ANALYTICAL REPORT

Laboratory Number: 99-A163237 Sample ID: LAFBCLFMW-501

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Authorized by:

Theodore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

AR 1/6/00



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

JOHN STATHAM

916 W. 23RD STREET TULSA, DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163238 Sample ID: LAFBCLFMW-105 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99

Time Collected: 7:00 Date Received: 10/26/99

Time Received: 9:00

| <br>  |     | <br> |    | _ |    | <br> | <br> | <br> | _ | - | <br>_ | <br> | <br>_ | <br> | <br>_ | <br>- | <br>- | - | - | <br> | <br> | • |
|-------|-----|------|----|---|----|------|------|------|---|---|-------|------|-------|------|-------|-------|-------|---|---|------|------|---|
| <br>_ | - r | n:   | ٦. |   | ٠. |      |      |      |   |   |       |      |       |      |       |       |       |   |   |      |      |   |

| Parameter                   | Result   | Flag | Units               | Limit of Ruantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine   | Method | Analyst     | Datch  |
|-----------------------------|----------|------|---------------------|-----------------------|-----------------------|--------------------|----------|--------|--------|-------------|--------|
| xxVolatile Organics         |          |      |                     |                       |                       |                    |          |        |        |             |        |
| Acetone                     | פא       |      | ug/1                | 10.0                  | 4. 9                  | 1.0                | 117 5/99 | 20:52  | 8260B  | II. Elliott | 1651   |
| Acetonitrile                | ИD       |      | 09/1                | 5.0                   | 5.0                   | 1.0                | 11/ 5/99 | 20:52  | 3260B  | B. Elliott  | 2035   |
| Acrolein                    | מא       |      | ug/l                | 10.0                  | 2.5                   | 1.0                | 11/ 5/39 | 20: 52 | 826DB  | B. Elliott  | 1851   |
| Acrylonitrile               | ЯD       |      | ug/1                | 10.0                  | 0.8                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | R. Elliott  | 1651   |
| llyl chloride               | DA       |      | 09/1                | 10.0                  | 5.0                   | 1.0                | 11/ 5/39 | 20: 52 | 8260B  | B. Elliott  | 2035   |
| +nzene                      | ИD       |      | 09/1                | 2.0                   | 0.4                   | 1.0                | 11/ 5/99 | 20:52  | 82600  | B. Elliott  |        |
| conoforn                    | HD       |      | ug/l                | 2.0                   | 0.2                   | 1.0                | 11/ 5/99 | 20:52  | 826GB  | B. Elliott  |        |
| Brononethane                | סא       |      | 09/1                | 2.0                   | 0.2                   | 1.0                | 11/ 5/99 | 20:52  | 8260U  | R. Elliott  | 1351   |
| 2-Butanone                  | dя       |      | ug/l                | 10.0                  | 0.8                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott  | 1651   |
| Carbon disulfide            | HD.      |      | eg/1                | 2.0                   | 0.7                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott  | 1651   |
| Carbon tetrachloride        | ЯD       |      | 09/1                | 2.00                  | 0.4                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott  | 1651   |
| Chlorobenzene               | HD       |      | 09/1                | 2.6                   | 0.4                   | 1.6                | 11/ 5/99 | 20:52  | 6260G  | B. Elliott  | 1651   |
| Chloroethane                | מא       |      | 0g/1                | 2.0                   | 0.5                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott  | 1651   |
| Chloreforn                  | 80       |      | 09/1                | 2.0                   | 0.4                   | 1.0                | 11/ 5/99 | 20: 52 | 8260B  | B. Elliott  | 1851   |
| Chloronethane               | G.S      |      | 0973                | 2.0                   | 0.5                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott  | 1651   |
| Chloroprene                 | dк       |      | ugZI.               | 5.0                   | 5.9                   | 1.0                | 11/ 5/99 | 20:52  | 82608  | B. Elliott  | 2035   |
| 1,2-Dibrono-3-chloropropane | КD       |      | 1\pe                | 10.0                  | 0.5                   | 1.0                | 11/ 5/99 | 20: 52 | 826DB  | B. Elliott  | 1651   |
| Dibrenochloromethane        | ďК       |      | ng/1                | 2.0                   | 0.1                   | 1.0                | 11/ 5/99 | 20:52  | 82600  | R. Elliott  | t 1651 |
| 1.2-Dibromoethane           | HD.      |      | uý/1                | 2.0                   | 8.4                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Ellioti  | t 1651 |
| Dibronomethane              | ИÐ       |      | ug/1                | 2.0                   | 0.4                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Ellioti  | t 1651 |
| 1,4-Dichloro-2-butene       | 14D      |      | 04/1                | 2.0                   | 1.5                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | R. Elliot   | t 1651 |
| 1.2-Dichlorobenzene         | סא       |      | 04/1                |                       | 0.5                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot   | t 1651 |
| 1.3-Dichlorobenzene         | жp       |      | 04/1                | 2.0                   | 0.2                   | 1.0                | 11/ 5/99 | 20: 52 | 8260B  | B. Elliot   | t 1651 |
| 1.4-Dichlorobenzene         | HD       |      | ω <mark>/</mark> /1 | 2.0                   | 8.3                   | 1.0                | 11/ 5/99 | 20: 52 | 8260B  | B. Elliot   | t 1651 |
| Dichlorodifluoromethame     | מא       |      | 94/1                |                       | 0.2                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot   | t 1651 |
| 1,1-Dichloroethane          | ב מא     |      | 04/1                |                       | 0.2                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot   | t 1651 |
| 1,2-Dichloroethane          | яp       |      | 9 <b>4/3</b>        | 2.0                   | 0.1                   | 1.0                | 11/ 5/99 | 20: 52 | 8260B  | B. Elliot   | t 1651 |
| 1.1-Dichloroethene          | סא       |      | uq/1                |                       | 0.6                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot   | t 1651 |
| 1,2-Dichloroethene (total)  | סא       |      | u <b>q/</b> 1       |                       | 0.5                   | 1.0                | 11/ 5/99 | 20:52  | 8260A  | B. Elliot   | t 1651 |
| 1.2-Dichloropropane         | סא       |      | υq/1                |                       | 0.4                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot   | t 1651 |
| 3-1,3-Dichloropropene       | סא       |      | ug/1                |                       | 0.5                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot   | t 1651 |
| rans-1,3-Dichloropropene    | מא<br>סא |      | ug/1                |                       | 0.5                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot   | t 1651 |
| 1,4-Dioxane                 | סא       |      | υ <b>q/1</b>        |                       | 2.0                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot   | t 2035 |
| Ethylbenzene                | סא       |      | ug/1                |                       | 0. 2                  | 1.0                | 11/ 5/99 | 20:52  | 8260R  | R. Elliot   | t 1651 |
| Ethyl methacrylate          | סא       |      | Ug/1                |                       | 0.5                   | 1.0                | 11/ 5/99 | 20:52  | 826DB  | R. Elliot   | t 2035 |

COPY 1

00267 HL 1/6/08



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

### ANALYTICAL REPORT

Laboratory Number: 99-A163238

Sample ID: LAFBCLFMW-105

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|                           |          |      |              |                          |                       |                    |          |        |        | L/         |        |
|---------------------------|----------|------|--------------|--------------------------|-----------------------|--------------------|----------|--------|--------|------------|--------|
| Paroneter                 | Result   | Flag | Units        | Limit of<br>Ruantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine   | Method | Analyst    | Batch  |
| Hannahl ambada di ana     | פא       |      | ua Zī        | 2.0                      | 0.9                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott | 1,651  |
| Hexachlorobutadiene       | טא<br>מא |      | ug/1<br>ug/1 | 10. 0                    | 2.4                   | 1.0                | 11/ 5/99 | 20:52  | 6260B  | B. Elliott |        |
| 2-Hexanone                | טא<br>טא |      | -            | 2.0                      | 0.2                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott |        |
| Iodonethane               |          |      | ug/1         | 2. V<br>10. 0            | 10.0                  | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott |        |
| . Esabutyl alcohol        | OK<br>Ok |      | 0g/1         | 5. 0                     | 5.0                   | 1.0                | 11/ 5/77 | 20:52  | 8260R  | B. Elliott |        |
| Methacryloaltrile         |          |      | 09/1         | 5. 0                     | 5.0<br>5.0            | 1.0                | 11/ 5/99 | 20: 52 | 8260B  | B. Elliott |        |
| Methyl methacrylate       | dk<br>ar |      | 11g/1        |                          | 3. 6<br>0. 6          | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott |        |
| 4-Methyl-Z-pentanone      | סא       |      | ug/1         | 10.0                     |                       |                    | 11/ 5/99 | 20:52  | 6260B  | B. Elliott |        |
| Methylene chloride        | סא       |      | ug/l         | 10.0                     | 0.4                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott |        |
| Pentachloroethane         | HD       |      | 09/1         | 5.0                      | 2.0                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott |        |
| Propionitrile             | ДX       |      | 99/1         | 5.0                      | 5.0                   | 1.0                |          | 20:52  | 8260B  | B. Elliott |        |
| Styrene                   | KD       |      | nā\J         | 2.0                      | 0.7                   | 1.0                | 11/ 5/99 |        |        |            |        |
| 1,1,1,2-Tetrachloroethane | Жō       |      | ug/l         |                          | 0.4                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott |        |
| 1,1,2,2-Tetrachloroethane | Ø5       |      | ug/1         | 2. 0                     | 0.3                   | 1.0                | 11/ 5/99 | 20:52  | 82600  | U. Elliott |        |
| Tetrachloroethene         | ВÐ       |      | 09/1         | 2. 0                     | 0.1                   | 1.0                | 11/ 5/39 | 20:52  | 8260R  | R. Elliott |        |
| Toluene                   | ЖÐ       |      | u <b>ğ/1</b> | 2. 0                     | 0.3                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott |        |
| 2.4-Trichlorobenzene      | 89       |      | ug/l         |                          | 0.6                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliott |        |
| ,1-Trichloroethane        | ИD       |      | 0g/1         |                          | 0.1                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot  |        |
| ,1,2-Trichloroethane      | HD       |      | 0g/ <b>1</b> |                          | 0.4                   | 1.0                | 11/ 5/99 | 20:52  | 8260K  | B. Elliot  |        |
| Trichloroethene           | HD.      |      | υg/1         | 2.0                      | 0.5                   | 1.0                | 11/ 5/99 | 20: 52 | 8260B  | D. Elliot  |        |
| 1,2,3-Trichloropropane    | AD       |      | ug/1         | 2.0                      | 0.4                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | II. Elliot |        |
| Vinyl acetate             | HD       |      | vg/1         | 2.0                      | 1.6                   | 10                 | 11/ 5/99 | 20:52  | 8260E  | R. Elliot  |        |
| Vinul chloride            | ЖD       |      | ug/1         | 2.0                      | 1.4                   | 1.9                | 11/ 5/99 | 20:52  | 3260D  | R. Elliot  | t 1651 |
| Xulenes                   | #D       |      | . ug/1       | 2. 0                     | 0.8                   | 1.0                | 11/ 5/99 | 20:52  | 82600  | B. Elliot  | t 1651 |
| Michloroisopropylether    | ИD       |      | 59/1         | 5.0                      | 2.0                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elliot  | t 2035 |
| DronodichLoronethans      | 22       |      | 09/1         | 2.0                      | 0.6                   | 1.0                | 11/ 5/99 | 20:52  | 82600  | B. Elliot  | t 1651 |
| Trichlorofluoromethase    | HD       |      | ug/l         | 2.0                      | 0.2                   | 1.0                | 11/ 5/99 | 20:52  | 8260B  | B. Elllot  | t 1651 |
|                           |          |      |              |                          |                       |                    |          |        |        |            |        |

MD = Not detected at the limit of quantitation.

| Surrogate                             | X Recovery              | Target Range   |
|---------------------------------------|-------------------------|--|
| # T                                   | a single lead to retain | read they have not the same point that the third the time of the |
| VDA Surrogate, 1,2-Dickluroethame, d4 | 100                     | 60 138.  |
| VUA Surr, 1,2-DCA, 44                 | 9 <b>9</b> .            | 60 138.  |
| VDA Surrogate, Toluene 43             | 103.                    | 80 123.  |
| VDA Surr, Toluene d8                  | 92.                     | 80 123.  |
| VDA Surrogate, 4-Bronofluorobenzene   | 100.                    | 73 122.  |
| VDA Surr, 4-DFR                       | <b>31</b> .             | 73 122.  |

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2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

### ANALYTICAL REPORT

Laboratory Number: 99-A163238 Sample ID: LAFBCLFMW-105

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Authorized by:

Theodore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

> Hd 1/6/00 00269

aredo: Project Name & Task: 165856 153479.DV.ZZ Project # & Case/SDG: OLM03.2 45W-846 8270C EPA 625 Other: Methods: 5 AFCEE NFESC Other Number of Samples: Program: Field QC Samples: Reviewed by & Date: Water Soil Other Matrix: Form Check Flags Applied **Quality Control** Requirements (see comments) (If No\* checked, see comments) Flags Applied All required deliverables in pkg. U-OK No\* Not provided Data Pkg Complete (DP) Flags Applied COC All samples on COC reported e OK No\* YOK No\* Flags Applied Extraction HT (water 7d, soil 14d) Holding Times (HT) No\* Flags Applied COC Analysis HT (40d from extraction) OK No\* Flags Applied OK Flags Applied Method surrogates used 4OK No\* Not provided Surrogates (SS) Recovery Limits: tab Meth DOK. No\* Diluted out MS/MSD or MS/LD Matrix Spikes Provided ∠ MS/MSD MS/LD None\* 40K No\* Correct Spike Used Ок ☑ No\* ☐ Diluted out Acceptance Limits: Flags Applied LCS per prep. batch LOK No\* LCS (BS) ∏оқ. ☐tCS only ☐LCS/LCSD Acceptance criteria met PNo\* Detects (> MDL or RL/CRQL) 2 All ND see blnk wksht ☐ Flags Applied Blanks (MB,TB,EB, FB/AB) **₽**OK No\* Method/Lab Blank (MB) Meth Blnk per prep batch Flags Applied L-OR No\* Initial & Begin of 12-hr shift Tune - DFTPP (TN) Mass Assignment Correct . J⊕K No\* prior to sample analysis LOK Ion Abundance Criteria met No\* Flags Applied LOK No\* Initial Calibration (IC) Minimum of 5 levels **∃**ok see cal wksht No\* Linearity criteria met POK No\* see cal wksht Minimum RRF criteria met Analyzed at begin of 12-hr shift ☐ Flags Applied COK No\* Continuing Calib. Verif. (CC) see cal wksht %diff or %drift criteria met -JOK No\* prior to sample analysis 4 OK No\* see cal wksht Minimum RRF criteria met **∃**ok No\* Int. Std. RT/Area criteria met 8 No\* Flags Applied Sample IS area criteria met e OK Internal Standards (IS) All hits within cal. Range **₽** ok No\* LAIND Flags Applied 1 Sample Evaluation Samples w/in 12-hr clock LOK No\* 5 4 No Manual Integration performed see comments No\* N/A Flags Applied 40K Precision of native vs Field Dup Field Duplicate (FD) This sheet is applicable to multiple methods. All requirement items may not apply to every analytical method. **Case Narrative Comments:** Comments QC Item Page 5 of 8

GC/MS Semivolatiles

Data Review and Validation for:



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

JOHN STATHAM

916 W. 23RD STREET TULSA, DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163233 Sample ID: LAFBCLFMW-101 Sample Type: Ground water

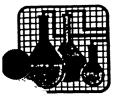
Site ID:

Date Collected: 10/23/99 Time Collected: 8:45 Date Received: 10/26/99

Time Received: 9:00

| Paraneter                                       | Result    | Flag | Units                 | Limit of<br>Quantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine   | Method | Analyst     | Bate  |
|---|-----------|------|-----------------------|--------------------------|-----------------------|--------------------|----------|--------|--------|-------------|-------|
| * Extractable Organics                          |           |      |                       |                          |                       |                    |          |        |        |             |       |
| aakkhana  | АВ        |      | 09/1                  | 10.0                     | 1,8                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodrich | 785   |
| cenaphthene                                     | OK        |      | ug/l                  | 10.0                     | 1.8                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrich | 785   |
| cenaphthylene<br>cetophenone                    | 4D        |      | u9/1                  | 47.6                     | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrich | 4656  |
| -Acetylaminofluorene                            | סא        |      | 04/1                  | 47.6                     | 5.0                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodrich | 4656  |
| -Aninobiphenal                                  | ЖD        |      | 0971                  | 47.6                     | 5.0                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodrich | 4656  |
| iline   | LUCK      | 85   | 99/1                  | 25.0                     | 1.3                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | N. Goodrich | 785   |
| nthracene                                       | нD        |      | 99/1                  | 10.0                     | 0.9                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrich | 785   |
| menracene<br>Pramite                            | нD        |      | 1790                  | 47.6                     | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | N. Goodrich | 4656  |
| renzo(a)anthracene                              | ₩D        |      | uq/1                  | 10.0                     | 1.4                   | 1.0                | 11/ 2/39 | 23: 57 | 3270C  | n. Goodrich | 785   |
| lenzo(a) pyrene                                 | AD<br>GK  |      | υ <b>q/</b> 1         | 10.0                     | 1.1                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodrich | 785   |
| denzo(b)fluoranthene                            | dk<br>Gk  |      | UQ/L                  | 10.0                     | 0. <b>7</b>           | 1.0                | 11/ 2/33 | 23:57  | 8270C  | n. Goodrich | 785   |
| Genzo(g,h,i)perylene                            | 80        |      | 0 <b>q/1</b>          | 10.0                     | 1.2                   | 1.0                | 11/ 2/79 | 23: 57 | 8270C  | n. Goodrich | 785   |
| Benzo(k)fluoranthene                            | ак        |      | 94/1.                 |                          | 1.4                   | 1 0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrich | 785   |
| 9-Bronophenyl-phenylether                       | פא        |      | Ug/1                  | 10.0                     | 1.1                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodrich | 785   |
| • • •   | нD        |      | ug/1                  | 10.0                     | 1.2                   | 1.0                | 11/ 2/99 | 23:57  | 3270C  | n. Goodrich | 785   |
| Mutylbenzylphthalate<br>4-Chloro-3-methylphenol | ND<br>ON  |      | 0g/1                  |                          | 1.2                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodrick | 785   |
| 4-Chloroaniline                                 | HD        |      | -3<br>09/1            |                          | 2.4                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrict | 785   |
|   | HD.       |      | 09/1                  |                          | 5.0                   | 1.0                | 11/ 2/99 | 23:57  | 8278C  | M. Goodric  | 465   |
| Chlorbenzilate                                  | dk<br>u   |      | 997I                  | 10.0                     | 1. 7                  | 1.0                | 11/ 2/99 | 23:57  | 82700  | n. Goodrici | n 785 |
| Ris(2-chloroethoxy)nethame                      | 77.<br>UK |      | υ <b>ą/1</b>          |                          | 1.9                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Soodricl | h 785 |
| Gis(2-chloroethyl)ether                         | ND        |      | 09/1<br>04/1          |                          | 1.7                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Soodrici | h 785 |
| Bis(2-chloro(sopropyl)ether                     | HD        |      | 09/1                  |                          | 2.5                   | 1.0                | 11/ 2/79 | 23: 57 | 8270C  | M. Goodric  | h 785 |
| 2-Chloronaphthalese                             | HD        |      | ∂9/3<br>09/1          |                          | 2. 0                  | 1.0                | 11/ 2/33 | 23:57  | 8270C  | n. Soodric  | h 785 |
| 7-Chlorophenol                                  | HD        |      | 09/1                  |                          | 2.0                   | 1.0                | 11/ 2/39 | 23:57  | 8270C  | n. Goodric  | h 785 |
| 4-Chlorophenul-phenylether                      | סא        |      | 04/1                  |                          | . 12                  | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodric  | h 785 |
| Chrysene<br>Diallate                            | NO<br>MD  |      | 09/1                  |                          | 10.0                  | 1.0                | 11/ 2/39 | 23: 57 | 8270C  | n. Goodric  | h 465 |
|   | HD<br>GH  |      | 9 <b>4/1</b>          |                          | 2.3                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodric  | h 785 |
| Dibeazofuran                                    | סא        |      | 99<br>90/3            |                          | 1. 2                  | 1.0                | 11/ 2/39 | 23: 57 | 3270C  | n. Goodric  | h 785 |
| Dibenz(a,b)anthracene                           | #8 US     | T RS | 0g/1                  |                          | 4.0                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodric  | h 785 |
| 3,3'-Dichlorobenzidine                          | אם<br>סא  |      | ug. 1                 | •                        | 1.7                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodric  |       |
| 7,4-Dichlorophenol                              | AD<br>AN  |      | υ <b>ય/</b> ]         |                          | 3. 6                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodric  |       |
| )-Dichlorophenol                                | מא<br>מא  |      | 99/3<br>1/9/3         |                          | 1.3                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodfic  | h 78  |
| viethylphthalate<br>Diwathnata                  | סא        |      | 09/3<br>U <b>q/</b> 3 |                          | 20.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodric  | h 46  |
| Dinethoate                                      | עה<br>מא  |      | ug/]                  |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodfic  | h 46  |
| p-Dinethylaminoazobenzene                       | ' מא      |      | ug/1                  |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrig  | A 46  |

00271 Al 1/6/00



### ANALYTICAL REPORT

Laboratory Number: 99-A163233 Sample ID: LAFBCLFMW-101

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| Parameter                                     | Result    | Flag | Units        | Linit of Avantitation |      | Dilution<br>Factor | Date                 | Tine   | Nethod         | Analyst            | Bato |
|---|-----------|------|--------------|-----------------------|------|--------------------|----------------------|--------|----------------|--------------------|------|
| ,12-Dinethylbenz(a)anthrac                    | ND        |      | ug/1         | 47.6                  | 10.0 | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | N. Goodrich        | 4656 |
| ,4-Dimethylphenol                             | СK        |      | ug/1         | 10.0                  | 1.7  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | n. Goodpich        | 785  |
| inethylphthalate                              | ЖD        |      | ug/1         | 10.0                  | 1.7  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | M. Goodrich        | 785  |
| ,a-Dimethylphenethylam                        | סא י      |      | 69/1         | 47.6                  | 10.0 | 1.0                | 11/ 2/99             | 23:57  | 8270C          | n. Goodrich        | 4656 |
| i-n-Butylphthalate                            | ФK        |      | 09/1         | 10. G                 | 1.1  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | n. Goodrich        | 785  |
| ,o-Dinitro-2-methylphenol                     | HD        |      | ug/1         | 25.0                  | 1.2  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | n. Goodrich        | 785  |
| .3-Dimitrobenzeme                             | סא        |      | Ug/1         | 47.6                  | 10.0 | 1.0                | 11/ 2/77             | 23:57  | 3270C          | n. Goodrich        | 4656 |
| ,4-Dinitrobenzene                             | ∺D        |      | ug/1         | 47. 6                 | 10.0 | 1.0                | 11/ 2/77             | 23:57  | 8270C          | n. Goodrich        | 4656 |
| ,2-Dinitrobenzene                             | HD        |      | 99/1         | 47.6                  | 10.0 | 1.0                | 11/ 2/99             | 23:57  | 8270C          | N. Goodrich        | 4656 |
| 4-Dinitrophenol                               | ЯD        |      | 09/1         | 25.0                  | 1.1  | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | M. Goodrich        | 785  |
| 4-dimitrotoluene                              | ЯD        |      | 0g/1         | 10.0                  | 1. 2 | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | n. Goodrich        | 785  |
| ,5-Dimitrotolueme                             | ЖD        |      | υğ/l         | 10.0                  | 4.0  | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | M. Goodrich        | 785  |
| )i-n-octylphthalate                           | dн        |      | ug/1         | 10.0                  | 1.2  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | n. Goodplak        | 785  |
| )inoseb                                       | פא        |      | 99/1         | 47.5                  | 10.0 | 1.0                | 11/ 2/39             | 23:57  | 8270C          | n. Goodrich        | 4656 |
| Diphenylamine                                 | ЖD        |      | ug/1         | 47.6                  | 10.0 | 1.0                | 11/ 2/99             | 23:57  | 8270C          | M. Goodrich        | 4656 |
| isulfoton                                     | ₩D        |      | 0g/1         | 47.6                  | 10.0 | 1.0                | 11/ 2/99             | 23:57  | 8270C          | M. Goodrich        | 4656 |
| aphor   | QK        |      | #g/1         |                       | 4.0  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | n. Goodrict        |      |
| ·luoranthene                                  | ND.       |      | 9 <b>9/1</b> |                       | 0.9  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | M. Goodrick        | 785  |
| Fluorene                                      | KD<br>QK  |      | 09/1         |                       | 1.8  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | M. Goodrich        |      |
| Hexachlorobenzene                             | жо<br>    |      | ug/l         |                       | 0.9  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | N. Goodrici        |      |
|   | ЖD        |      | ug/1         |                       | 1.3  | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | H. Goodrick        |      |
| Hexachlorocyclopentadiene<br>Hexachloroethane | AD        |      | ug/).        |                       | 3.6  | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | H. Goodrici        |      |
|   | ЖD        |      | 0g/1<br>0g/1 |                       | 19.0 | 1.0                | 11/ 2/99             | 23: 57 | 3270C          | M. Goodric         |      |
| Hexachlorophene                               | RD<br>QR  |      | 1\0\1        |                       | 10.0 | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | M. Goodric         |      |
| Hexachloropropese                             |           |      | 19/1<br>19/1 |                       | 1.3  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | H. Goodric         |      |
| Indeno(1,2,3-cd)pyrene                        | 80        |      | -            |                       | 5.8  | 1.0                | 11/ 2/99             | 23:57  | 8270C          | M. Goodric         |      |
| Isodrin                                       | 46        |      | 9g/1         |                       | 2.0  | 1.0                | 11/ 2/39             | 23:57  | 8270C          | M. Goodric         |      |
| Isophorone                                    | HD<br>No. |      | eg/1         |                       | 10.6 | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | n. Goodric         |      |
| Isosafrole                                    | ND<br>ND  |      | 0g/1         |                       | 5.0  | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | M. Goodric         |      |
| Methapyrilene                                 | AD        |      | 09/1         |                       | 10.0 | 1.0                | 11/ 2/99             | 23:57  | 8270C          | M. Goodric         |      |
| 3-Methylcholanthrene                          | ЯD        |      | 9g/1         |                       |      |                    |                      | 23: 57 | 3270C          | M. Goodric         |      |
| Methylmethanesulfonato                        | HD        |      | ₩ <b>g/1</b> |                       | 10.0 | 1.0                | 11/ 2/99             | 23: 57 | 8270C          | M. Goodric         |      |
| 2-Methylnaphthalene                           | מא        |      | 09/1         |                       | 1.9  | 1.0                | 11/ 2/99<br>11/ 2/99 | 23:57  | 8270C          | n. Goodric         |      |
| 2-Methylphenol                                | ΧD        |      | 29/1         |                       | 1.9  | 1.0                |                      | 23: 57 |                | M. Goodric         |      |
| 3 and 4-Methylphenol                          | SD        |      | 99/3         |                       | 2.5  | 1.0                | 11/ 2/99             | 23:57  |                | M. Goodric         |      |
| Haphthalene                                   | ЯĎ        |      | ावृत्यी      |                       | 1.9  | 1.0                | 11/ 2/99             |        |                | n. Goodric         |      |
| 1,4-Hapthaquinone                             | НD        |      | e4/1         |                       | 10.0 | 1.0                | 11/ 2/99             | 23: 57 |                | M. Goodric         |      |
| 2-Mapthylumine                                | ЯD        |      | vy I         |                       | 10.0 | 1.0                | 11/ 2/99             | 23: 57 |                |                    |      |
| 1-Napthylamine                                | HD        |      | 09/1         |                       | 10.0 | 1.0                | 11/ 2/77             | 23: 57 |                | n. Goodric         |      |
| 2-Nitroaniline                                | MD.       |      | ug/1         |                       | 1.5  | 1.0                | 11/ 2/99             | 23: 57 |                | n. Goodric         |      |
| 3-Witroaniline                                | DK        |      | ug/1         |                       | 1.5  | 1.0                | 11/ 2/99             | 23: 57 |                | n. Goodric         |      |
| 4-Witroaniline                                | ФK        |      | 09/1         |                       | 1.2  | 1.0                | 11/ 2/99             | 23: 57 |                | n. Goodric         |      |
| trobenzene                                    | מא        |      | ug/1         |                       | 2. 2 | 1.0                | 11/ 2/99             | 23: 57 |                | n. Goodric         |      |
| א-Kitro-o-toluidine                           | В         |      | 0g/1         | 47.6                  | 10.0 | 1.0                | 11/ 2/99             | 23: 57 |                | M. Goodric         |      |
| 2-Mitrophenol                                 | ФK        |      | ug/1         |                       | 2.0  | 1.0                | 11/ 2/99             | 23: 57 |                | n. Goodric         |      |
| 4-Nitrophenol                                 | סא        |      | vg/1         | 25.0                  | 0.7  | 1.0                | 11/ 2/99             | 23: 57 |                | n. Goodric         |      |
| X-mitrosodibutylanine                         | DK        |      | ug/1         | 47.6                  | 10.0 | 1.0                | 11/ 2/99             | 23: 57 | 2 <b>8270C</b> | ŋ∕6og <b>e</b> rio | 40   |



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

Laboratory Number: 99-A163233 Sample ID: LAFBCLFMW-101

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| and the same and the same and the same and the same and the same and |          |      |               |                          |                       |                    |          |        |        |             |       |
|--|----------|------|---------------|--------------------------|-----------------------|--------------------|----------|--------|--------|-------------|-------|
| Paraneter  | Result   | Flag | Units         | Limit of<br>Quantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine   | Nethod | Analyst     | Rato  |
| t -: b tiskhul suina   | НD       |      | ug/1          | 47.6                     | 5.0                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | M. Goodrich | 4656  |
| M-nitrosodiethylamine<br>M-Nitroso-Di-n-Propylamine                  | ND       |      | ug/1          | 10.6                     | 3.4                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodpleh | 785   |
| K-Witrosodiphenglamine   | UK       |      | uq/1          | 10.0                     | 1.1                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodrich | 785   |
| M-nitrosodinethylanine   | KD       |      | 09/1          | 10.0                     | 1.4                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | N. Goodrich | 785   |
| M-nitrosomethylethylamine  | מא       |      | ug/1.         | 47.6                     | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 827GC  | M. Goodfloh | 4656  |
| R-nitrosomernylernylanine  | פא       |      | ug/1          | 47.6                     | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrich | 4656  |
| K-mitrosopiperidise  | KD<br>   |      | υ <b>q/1</b>  | 47.6                     | 5.0                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrich | 4656  |
| x-nitrosopyperiaine<br>X-nitrosopyprolidine                          | סא       |      | Ug/1          |                          | 5.0                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrich | 4656  |
| n-nicrosopyrroliuine<br>Pentachlorobenzena                           | ИD       |      | U4/1          | 47.6                     | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodrich | 465   |
| rentachloromitrobenzene  | КD       |      | 04/1          |                          | 5.0                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodrich | 465   |
|  | סא       |      | ug/l          |                          | 0.4                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrich | 785   |
| Pentachlorophenol<br>Phenacetin                                      | HD<br>GH |      | ug/1          |                          | 5.0                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodrich | 465   |
|  | פא       |      | ug/l          |                          | 0.3                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | M. Goodrich | 785   |
| Phenanthrene<br>Phenol   | ИD       |      | 99/l          |                          | 1.2                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrict | 785   |
|  | סא       |      | ug/1          |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | N. Goodrict | 465   |
| 1,4-Phenylenediamine<br>`horate                                      | dk<br>D  |      | uq/1          |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | N. Goodric) | h 463 |
| Picoline   | ФК       |      | ug/1          |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 3270C  | N. Goodric  | 455   |
| rronanide  | טא       |      | ug/1          |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodrici | h 465 |
|  | סא       |      | uq/1          |                          | 1.7                   | 1.0                | 11/ 2/99 | 23: 57 | 3270C  | n. Goodric  | h 785 |
| Pyrene   | HD<br>OH |      | 09/1          |                          | 3.5                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Soodric  | h 783 |
| Pyridine   | KD.      |      | 534/1         |                          | 10.0                  | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodric  | h 463 |
| Safrole  | HD       |      | uq/1          |                          | 5.0                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodric  | n 465 |
| 1,2,4,5-Tetrachlorobenzene   | 80       |      | 119/J         |                          | 2.0                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Soodric  | h 785 |
| Bis(2-ethylhexyl)phthalate   | GK<br>GA |      | ug/l          |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodric  | h 465 |
| 2,3,4,6-Tetrachlorophenol  |          |      |               |                          | 5.0                   | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | M. Goodric  | h 46  |
| Tetraethyldithiopyrophosphat   | 0K       |      | 997.<br>1397. |                          | 5.0                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodric  | h 46  |
| Thionazine   | ND<br>ND |      | 997)<br>997)  |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodric  | h 46  |
| o-Toluidine  | 70<br>70 |      |               |                          | 2.8                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | N. Goodrie  | h 78  |
| 1,2,4-Trichlorobenzene   | KD<br>un |      | 1197          |                          | 1.6                   | 1.0                | 11/ 2/99 | 23:57  | 8270C  | M. Goodric  | h 78  |
| 2,4,5-Trichlorophenol  | 80       |      | 9 <b>9</b> /3 |                          | 1. 9                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodria  | h 78  |
| 2,4,5-Trichlorophenol  | MD<br>MD |      | ogr.<br>ug/:  |                          | 10.0                  | 1.0                | 11/ 2/99 | 23:57  | 8270C  | n. Goodric  | h 46  |
| o,o,o-Triethylphosphorothio  | MD<br>MD |      | 090.<br>097)  |                          | 10.0                  | 1.0                | 11/ 2/99 | 23: 57 | 8270C  | n. Goodric  | h 46  |
| 1,3,5-Trinitrobenzene  |          |      | vgo.<br>Vgo   |                          | 1.5                   | 1.0                | 11/ 2/99 | 23: 57 |        | n. Goodric  | h 46  |
| Genzyl alcohol   | ЯĎ       |      | ogz.          |                          | 5.0                   | 1.0                | 11/ 2/79 |        |        | n. Goodric  |       |
| Ethylmethane sulfonate   | HD       |      | oye.<br>baZ   |                          | 10.0                  | 1.0                | 11/ 2/99 |        |        | n. Goodric  | n 48  |
| 4-Hitroquinoline H-oxide<br>AD = Not detected at the lim             | 40       |      | •             | y 31.0                   | 20.0                  | 1.0                |          |        |        |             |       |

Sample Extraction Data

Parameter Extracted Extract Vol Date Analyst Method

00273 1/6/00



### ANALYTICAL REPORT

Laboratory Number: 99-A163233 Sample ID: LAFBCLFMW-101

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Sample Extraction Data

| Parameter | Mt/Vol<br>Extracted | Extract Vol | Date     | Analyst  | Method |
|-----------|---------------------|-------------|----------|----------|--------|
| CHA's     | 1050 ml             | 1.0 ml      | 10/28/99 | C. Terry | 3510   |

| Surrogate                 | % Recovery                              | Target Range                              |
|---------------------------|---|---|
|                           | *************************************** | 48 A1 80 84 A3 10 10 10 40 40 40 40 50 10 |
| surr-Witrobenzene-dS      | 31.                                     | 15 105.                                   |
| surr-2-Fluorobiphenyl     | 31.                                     | 17 110.                                   |
| surr-Terphenyl d14        | 24.                                     | 10 116.                                   |
| surr-Phenol d5            | 19.                                     | 10 100.                                   |
| surr-2-Fluorophenol       | 26.                                     | 9 100.                                    |
| surr-7 4 6-Tribronophenol | 37.                                     | 15 134.                                   |

Authorized by:

Theolore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

Ad 1/6/00

5 7 5



### SPECIALIZED ASSAYS, INC.

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#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

MAHTATE NHOL

916 W. 23RD STREET TULSA, DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163234 Sample ID: LAFBCLFMW-201 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 9:48 Date Received: 10/26/99

Time Received: 9:00

| Parameter                   | Result | Flag<br> | Units          | Limit of<br>Quantitation | Linit of<br>Detection | Dilution<br>Factor | Date      | Tine  | Method | Analyst     | Batch |
|-----------------------------|--------|----------|----------------|--------------------------|-----------------------|--------------------|-----------|-------|--------|-------------|-------|
| ** Extractable Organics     |        |          |                |                          |                       |                    |           |       |        |             |       |
| Acenaphthene                | HD     |          | og/1           | 10.0                     | 1.8                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| Acenaphthylene              | ЯD     |          | ug/1           | 10.0                     | 1.8                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Soodrich | 785   |
| Acetophenone                | DK     |          | 09/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrich | 9656  |
| 2-Acetylaminofluorene       | מא     |          | 119/1          | 47.2                     | 5.0                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrich | 4656  |
| -Aninobiphenul              | ДK     |          | _ ug/1         | 47.2                     | 5.0                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | N. Goodrich | 4656  |
| illine                      | LN CH  | 83       | ug/1           | 25.0                     | 1.9                   | 1.0                | 11/ 3/99  | 9: 33 | 8270C  | M. Scodrich | 785   |
| anthracene                  | КD     |          | ug/1           | 10.0                     | 0.9                   | 1.0                | 11/ 3/39  | 0: 33 | 8270C  | n. Goodrich | 785   |
| Aranite                     | פא     |          | Uq/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | N. Goodrich | 4656  |
| Nenzo(a)anthracene          | ЖD     |          | 09/1           | 10.0                     | 3., 4                 | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| Nenzo(a)pyrene              | ЖD     |          | Ug/1           | 10.0                     | 1.1                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| Senzo(b)fluoranthene        | ЖD     |          | ue/l           | 10.0                     | 0.9                   | 1.0                | 11/ 3/39  | 0: 33 | 8270C  | M. Goodrich | 785   |
| Benzo(g,h,i)perylana        | ND     |          | 69/1           | 10.0                     | 1. 2                  | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | N. Goodrich | 785   |
| Benzo(k)fluoranthene        | מא     |          | ug/1.          | 10.0                     | 1.4                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| 4-Bronophenyl-phenylether   | КD     |          | 09/1           | 10.0                     | 1.1                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrich | 785   |
| Butulbenzulphthalate        | AD.    |          | uq/1           | 19.0                     | 1.2                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| 4-Chloro-3-methylphenol     | #D     |          | va/1           | 10.0                     | 1 2                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrich | 785   |
| 4-Chloroaniline             | CK     |          | υ <b>σ/</b> 3. | 10.0                     | 2.4                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| Chlorbenzilate              | дк     |          | 1941           | 47.2                     | 5.6                   | 1.0                | 11/ 3/99, | 0: 33 | 8279C  | M. Soodfich | 4656  |
| Bis(2-chloroethoxy)methane  | ?{D    |          | 99/7.          | 19.0                     | 1.7                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| His(2-chloroethyl)ether     | QH.    |          | U9/1           | 10.0                     | 1.9                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| Bis(2-chloroisograpyl)ether | สอ     |          | 09/1           | 10.0                     | 1.9                   | 1.0                | 11/ 3/99  | 9: 33 | 8270C  | M. Goodrich | 785   |
| 2-Chloronaphthalene         | ЭK     |          | 99/1           | 19.0                     | 2.5                   | 1.0                | 11/ 3/99  | 0: 33 | 827GC  | M. Goodrich | 785   |
| 2-Ghlorophenol              | 80     |          | 69/1           | 10.6                     | 2.0                   | 1.0                | 11/ 3/97  | 0: 33 | 8270C  | n. Soodrich | 785   |
| 4-Chlorophenyl-phenylether  | 8D     |          | υ <b>φ/1</b>   | 10.0                     | 2.0                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrich | 785   |
| Chrysene                    | HР     |          | 119/1          | 19.0                     | 1.2                   | 1.0                | 11/ 3/99  | 0: 33 | 3270C  | N. Goodrich | 785   |
| Diwilate                    | KD     |          | 119/1          | 47. 2                    | 10.0                  | 1.0                | 11/ 3/99  | 0: 33 | 3270C  | M. Goodrich |       |
| Dibenzofuran                | טא     |          | 09/1           | 10.0                     | 2.3                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | N. Goodrich | 785   |
| Dibenz(a,h)anthracene       | HD.    |          | - ug/1         | 10.0                     | 1.2                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrich | 785   |
| 3,3'-Dichlorobenzidine      | HOUT   | B3       | ug/1           | 20.0                     | 4.0                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrich | 785   |
| 7 4-Dichlorophenol          | מא     |          | uq/1           | 10.0                     | 1.7                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrick |       |
| ;-Dichlorophenol            | סא     |          | Ug/1           | 47.2                     | 3.6                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | M. Goodrick |       |
| iethylphthalate             | סא     |          | 09/1           | 10.0                     | 1.3                   | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrick |       |
| Dinethoate                  | סא     |          | Ug/1           | 47.2                     | 20.0                  | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrich | 4656  |
| p-Dinethylaniaoazobenzene   | סא     |          | uq/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99  | 0: 33 | 8270C  | n. Goodrici | 4656  |
| 3,3'-Dinethylbenzidine      | סא     |          | 04/1           | 18.9                     | 10.0                  | 1.0                | 11/ 3/59  | 0: 33 | 8270C  | n. Egodrici | 4656  |
| -1 maradencuerarie          | •14    |          | - 3            |                          |                       |                    |           |       | 1.     | /./         |       |

COPY 1

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S & C &



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### ANALYTICAL REPORT

Laboratory Number: 99-A163234 Sample ID: LAFBCLFMW-201

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| Parameter                   | Result   | Flag | Units        | Limit of<br>Ruantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Tine           | Method | Analyst                  | Bato       |
|-----------------------------|----------|------|--------------|--------------------------|-----------------------|--------------------|----------|----------------|--------|--------------------------|------------|
| 7,12-Dinethylbenz(a)anthrac | ЖD       |      | ug/l         | 47. 2                    | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | N. Goodrich              | 4656       |
| 2,4-Dinethylphenol          | DК       |      | υ <b>g/1</b> | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | n. Goodrich              | 785        |
| Dinethylphthalate           | HD       |      | 09/1         | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | N. Goodrich              | 785        |
| a,a-Dinethylphenethylam     | HD -     |      | ug/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | N. Soodrich              | 4656       |
| )i-n-Butglphthalate         | סא       |      | 09/1         | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 0: 33          | 827CC  | N. Soodrich              | 785        |
| 1,6-Dinitro-2-methylphenol  | OK       |      | ug/1         | 25. 0                    | 1.2                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | n. Soodrich              | 785        |
| .3-Dimitrobenzene           | HD CH    |      | ug/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/39 | 0: 33          | 8270C  | n. Goodrich              | 4656       |
| 1,4-Dimitrobenzene          | ВD       |      | ug/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/97 | 0: 33          | 8270C  | n. Goodrich              | 4656       |
| 1,2-Dinitrobenzene          | ЯD       |      | ug/l         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | n. Goodrich              | 4656       |
| 2,4-Dimitrophenol           | סא       |      | 09/1         | 25. 0                    | 1.1                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | N. Goodrich              | 785        |
| 2.4-dimitrotoluene          | ЯD       |      | ug/1         | 10.0                     | 1. 2                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | n. Goodrich              | 785        |
| 2,6-Dinitrotoluene          | КD       |      | ug/1         | 10.0                     | 4.0                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | n. Goodrich              | 785        |
| Di-n-octylphthalate         | НD       |      | 00/1         | 10.0                     | 1.2                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | n. Goodrich              | 785        |
| Dinoseb                     | ЖD       |      | ug/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/39 | 0:33           | 3270C  | M. Goodrich              | 4658       |
| Diphenglamine               | ΝĐ       |      | 09/1         | 47.2                     | 10.0                  | 1.9                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodrich              | 4658       |
| 'sulfoton                   | ИD       |      | 09/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | n. Goodrich              | 4656       |
| aphur                       | НD       |      | ug/1         |                          | 4.0                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodrich              |            |
| Luoranthene                 | ДK       |      | ug/1         |                          | 0.9                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodrich              |            |
| Fluorene                    | HD.      |      | 09/1         |                          | 1.8                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodrici              |            |
| Hexachlorobenzene           | OK OK    |      | 09/1         |                          | 0.9                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodrici              |            |
| Hexachlorocyclopentadiene   | ИĎ       |      | 0g/l         |                          | 1.3                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodric               |            |
| Hexachloroethane            | HD       |      | 0g/1<br>0g/1 |                          | 3.6                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodrici              |            |
| Hexachlorophene             | HD.      |      | 9g/1         |                          | 10.0                  | 1.9                | 11/ 3/99 | 0: 33          | 827GC  | M. Scodric               |            |
| Hexachloropropene           | HD       |      | ug/l         |                          | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodric               |            |
| • •                         | HD       |      | 0g/1<br>0g/1 |                          | 1. 3                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodric               |            |
| Indeno(1,2,3-cd)pyrene      | 9K       |      | -            | _                        | 5.0                   | 1.0                | 11/ 3/99 | 0:33           | 827GC  | M. Goodric               |            |
| Isodrin                     |          |      | ug/i         |                          | 2.0                   | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodric               |            |
| Isophorone                  | 315      |      | Ug/1         |                          | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Soodrie               |            |
| Isosafrole                  | GK<br>UU |      | 09/1         |                          | 5. 0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodric               |            |
| Methapyrilene               | MD<br>MB |      | 9g/1         | •                        | 10.0                  | 1.0                | 11/ 3/99 | 0:33           | 8270C  | M. Goodric               |            |
| 3-Methyloholanthrene        | 40       |      | ug/l         |                          |                       | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodric               |            |
| Methylmethanesulfonate      | 4D       |      | ug/l         |                          | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodric               |            |
| 2-Methylnaphthalene         | פא       |      | 5g/1         |                          | 1.9                   | 1.0                | 11/ 3/99 | 0:33           | 8270C  | M. Goodric               |            |
| 2-Methylphenol              | OK       |      | 0g/1         |                          | 1. 9                  |                    | 11/ 3/99 | 0: 33          | 8270C  | n. Goodric               |            |
| 3 and 4-Methylphenoi        | дĸ       |      | 1997]        |                          | 2. 5                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | M. Goodric               |            |
| Haphthalene                 | ДH       |      | ug/1         |                          | 1. 9                  | 1.0                | 11/ 3/99 | 0: 33<br>0: 33 | 8270C  | M. Goodfic               |            |
| 1,4-Mapthaquinone           | НD       |      | 19/1         |                          | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          |        | n. Goodric               |            |
| 2-Hapthylanine              | KD)      |      | ug/1         |                          | 10.0                  | 1.0                |          | 0. 33<br>0: 33 |        | n. Goodfic               |            |
| 1-Hapthylanine              | HD       |      | ug/1         |                          | 10.0                  | 1.0                | 11/ 3/99 |                |        | n. Goodric               |            |
| 2-Mitroaniline              | סא       |      | ug/1         |                          | 1.5                   | 1.0                | 11/ 3/99 |                |        | n. Goodric               |            |
| 3-Xitroaniline              | סא       |      | ug/1         |                          | 1.5                   | 1.0                | 11/ 3/99 |                |        | n. Goodfic               |            |
| 4-Mitroaniline              | סא       |      | ug/1         |                          | 1.2                   | 1.0                | 11/ 3/99 |                |        | n. Goodric               |            |
| irobenzene                  | ИD       |      | Ug/1         |                          | 2. 2                  | 1.0                | 11/ 3/99 |                |        | n. Goodric               |            |
| -Nitro-o-toluidine          | פא       |      | vg/1         |                          | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          |        |                          |            |
| 2-Hitrophenol               | ДK       |      | Ug/1         |                          | 2.0                   | 1.0                | 11/ 3/99 |                |        | n. Goodric<br>n. Goodric |            |
| 4-Mitrophenol               | סא       |      | ug/1         |                          | 0.7                   | 1.0                | 11/ 3/99 |                |        | n. Goodrie               |            |
| X-mitrosodibutylamine       | סא       |      | Ug/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33          | 8270C  | 11. #00 gr 10            | # 400<br>/ |

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COPY 1



#### ANALYTICAL REPORT

Laboratory Number: 99-A163234 Sample ID: LAFBCLFMW-201

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| Parameter                     | Result | Flag | Units        | Limit of<br>Ruantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine  | Method | Analyst     | Bato   |
|-------------------------------|--------|------|--------------|--------------------------|-----------------------|--------------------|----------|-------|--------|-------------|--------|
| X-mitrosodiethylamine         | HD     |      | ug/1         | 47.2                     | 5.0                   | 1.0                | 11/ 3/39 | 0: 33 | 8270C  | N. Goodrich | 4656   |
| H-Hitroso-Di-n-Propylanine    | СK     |      | uq/1         | 10.0                     | 3. 4                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrich | 785    |
| N-Nitrosodiphenylanine        | ЯD     |      | 09/1         | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrich | 785    |
| M-nitrosodinethylanine        | סא     |      | 09/1         | 10.0                     | 1.4                   | 1.0                | 11/ 3/97 | 0: 33 | 8270C  | M. Goodrich | 785    |
| H-mitrosomethylethylamine     | dн     |      | ug/].        | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | N. Goodrich | 4656   |
| N-mitrosomorpholine           | HD     |      | ug/l         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | M. Goodrich | 4656   |
| X-nitrosopiperidine           | КD     |      | υ <b>9/1</b> | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrich | 4656   |
| M-nitrosopyrrolidine          | ЯD     |      | 09/1         | 47.2                     | 5.8                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrich | 4656   |
| Pentachlorobenzene            | ЭK     |      | 09/1         | 47.2                     | 10.0                  | 1.6                | 11/ 3/99 | 0: 33 | 8270C  | N. Goodrich | 4656   |
| Pentachloronitrobenzene       | ΝО     |      | ug/l         | 47.2                     | 5.0                   | 1.9                | 11/ 3/99 | 0: 33 | 8270C  | M. Goodrich | 4656   |
| Pentachlorophenol             | QК     |      | υ <b>g/1</b> | 25.0                     | 0.4                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | M. Goodrich | 785    |
| Phenacetin                    | RD     |      | 64/1         | 47.2                     | 5.9                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | N. Goodrich | 4656   |
| Phenanthrene                  | ВD     |      | υg/1         | 10.0                     | 0.8                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrich | 785    |
| Phenol                        | но     |      | 09/1         | 10.0                     | 1.2                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrici | 785    |
| 1,4-Phenylenedianine          | ИD     |      | ug/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrici | 4656   |
| `horate                       | HD     |      | Uq/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrici | 4655   |
| -Picoline                     | ИD     |      | 09/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | N. Goodric  | 4656   |
| ,⁴ronanide                    | ЖD     |      | υg/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodricl | h 4656 |
| Pyrene                        | סא     |      | V9/1         | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodrici | h 785  |
| Puridiae                      | HD     |      | 09/1         | 10.0                     | 3.5                   | 1.0                | 11/ 3/79 | 0: 33 | 8270C  | N. Goodrici | 785 h  |
| Safrole                       | ИD     |      | ug/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0:33  | 8270C  | n. Goodrici | h 4656 |
| 1,2,4,5-Tetrachlorobenzene    | КD     |      | 09/1         | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | N. Goodric  | 4656   |
| Bis(2-ethylhexyl)phthalate    | Фń     |      | 9q/1         | 10.0                     | 2.0                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodric  | h 785  |
| 2,3,4,6-Tetrachlorophenul     | ŊD     |      | 1\pu         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | N. Goodric  | h 4656 |
| Tetraethyldithiopyrophosphate | . KD   |      | ug/1         | <b>34.</b> 3             | 5.0                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodric  | h 4656 |
| Thionazine                    | מא     |      | ug/1         | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | M. Goodric  | n 4656 |
| o-Toluidine                   | СK     |      | uq/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | n. Goodric  | h 4656 |
| 1,2,4-Trichlorobenzene        | סא     |      | υ <b>ά/1</b> | 10.9                     | 2.8                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | M. Goodric  | h 785  |
| 2,4,5-Trichlorophenol         | ИD     |      | 09/1         | 25. 0                    | 1.5                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | N. Goodric  | h 785  |
| 2,4,6-Trichlorophenol         | ) QIS  |      | 09/1         |                          | 1.9                   | 1.0                | 11/ 3/99 | 0:33  | 827GC  | M. Goodfla  | h 785  |
| a,a,o-Triethylphosphorathio   | HD     |      | ug/l         |                          | 10.0                  | 1.0                | 11/ 3/99 | 0:33  | 8270C  | M. Goodric  | h 4656 |
| 1,3,5-Trinitrobenzene         | ND     |      | 0g/1         |                          | 10.0                  | 1.8                | 11/ 3/99 | 0: 33 | 8270C  | M. Goodric  | h 4658 |
| benzul alcohol                | סא     |      | uq/1         |                          | 1.5                   | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | M. Goodric  | h 4656 |
| Ethylmethame sulfonate        | HD     |      | 09/2<br>09/1 |                          | 5.0                   | 1.0                | 11/ 3/99 | 0: 33 | 82700  | M. Goodric  | h 4656 |
| 4-Mitroquinoline M-oxide      | HD.    |      | 69/1         |                          | 1.G. Q                | 1.0                | 11/ 3/99 | 0: 33 | 8270C  | M. Goodple  | h 4656 |

Sample Extraction Data

ND = Not detected at the limit of quantitation.

Parameter Extracted Extract Vol Date Analyst Method



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### ANALYTICAL REPORT

Laboratory Number: 99-A163234

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Sample Extraction Data

Ht/Vol

Parameter Extracted Extract Vol Date Analyst Method

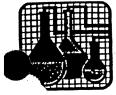
BMA's 1060 Hl 1.0 Hl 10/28/99 C. Terry 3510

|                           | % Recovery    | Target Range |
|---------------------------|---------------|--------------|
| Surrogate                 | 7. USCOALE! À |              |
| surr-Hitrobenzene-45      | 39.           | 15 105.      |
| surr-Z-Fluorobiphenyl     | 37.           | 17 110.      |
| surr-Terphenyl d14        | 41_           | 10 116.      |
| surr-Phenol d5            | 23.           | 10 100.      |
| surr-2-fluorophenol       | <b>33</b> .   | 9 100.       |
| surr-2,4,6-Tribronophenol | <b>51</b> .   | 15 134.      |

Authorized by:

Theodore J. Duello, Ph.D., QA Officer Michael H. Donn, M.S., Technical Dir. Donny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

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#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

JOHN STATHAM

716 W. 23RD STREET TULSA, -DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163235 Sample ID: LAFBCLFMW-401 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 12:43 Date Received: 10/26/99

Time Received: 9:00

| Parameter                     | Result   | Flag | Units | Limit of<br>Ruantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Тіне | Method | Analyst     | Bate |
|-------------------------------|----------|------|-------|--------------------------|-----------------------|--------------------|----------|------|--------|-------------|------|
| ≪ Extractable Urganics        |          |      |       |                          |                       |                    |          |      |        |             |      |
| Acenaphthene                  | ďВ       |      | ug/1  | 10.0                     | 1.8                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 785  |
| Acemaphthylene                | סא       |      | 99/1  | 10.0                     | 1.8                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Soodrich |      |
| Acetophenone                  | WD<br>QN |      | ug/1  | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodfich | -    |
| 2-Acetylaminofluorene         | מא       |      | 0g/1  | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich |      |
| Aninobiphenyl                 | HD       |      | 110/1 | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich |      |
| line                          | JAP U.J  | - 35 | uq/1  | 25.0                     | 1.3                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich |      |
| thracene                      | סא       |      | ug/3. | 10.0                     | 0.7                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich |      |
| Aranite                       | HD.      |      | 99/1  | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich |      |
| Genzo(a)anthracene            | HD.      |      | uq/1  | 10.0                     | 1.4                   | 1.0                | 11/ 3/39 | 1:10 | 8270C  | n. Goodrich |      |
| Kenzo(a)pyrene                | HD       |      | ug/1  | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich |      |
| Denzo(b)fluoranthene          | ИD       |      | 09/1  | 10.0                     | 0.9                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 735  |
| Benzo(g,h,i)perylene          | ЖD       |      | 09/1  | 10.0                     | 1.2                   | 1.0                | 11/ 3/99 | 1:16 | 8270C  | M. Goodrich |      |
| Nenzo(k)fluoranthene          | 36       |      | 09/1  | 10.0                     | 1.4                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 735  |
| 4-Bronophenyl-phenylether     | מא       |      | ug/1  | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich |      |
| Butylbenzylphthalate          | ОЖ       |      | 09/1  | 10.0                     | 1. 2                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n, Goodrich | 785  |
| 4-Chloro-3-methylphenol       | HD       |      | 96/1  | 10.6                     | 1.2                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 785  |
| 4-Chloroaniline               | КD       |      | 1700  | 10.0                     | 2.4                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 785  |
| Chlorbenzilate                | ЯÐ       |      | 11q/1 | 47. 2                    | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 4556 |
| Ris(2-chloroethoxy)methane    | ND       |      | 15/1  | 10.0                     | 1.3                   | 1.0                | 11/ 3/39 | 1:10 | 8270C  | n. Goodrich |      |
| Bis(2-chloroethul)ether       | ЖĐ       |      | 04/1  | 16.0                     | 1.9                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 785  |
| Ris(2-chloroisopropyl)ether   | RD       |      | 04/1  | 10.9                     | 1.9                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich |      |
| 2-Chloronaphthalene           | סא       |      | 09/3  | 10.0                     | 2.5                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 785  |
| ?-Chlorophenol                | HD       |      | 99/3  | 10.0                     | 2. 0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 785  |
| 4-Chlorophenul-phenulether    | HD       |      | 9ÿ/1  | 10.0                     | 2.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 785  |
| Chrysene                      | מא       |      | 114/1 | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 785  |
| Diallate                      | MD       |      | 04/1  | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 4656 |
| Dibenzofuran                  | HD       |      | ∪ÿ/1  | 10.0                     | 2.3                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 785  |
| Dibenz(a,h)anthracene         | AD.      |      | ug/1  | 10.0                     | 1. 2                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 785  |
| 3,3'-Dichlorobenzidise        | HO 45    | T BS | 99/1  | 20.0                     | 4.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 785  |
| <sup>2</sup> 4-Dichlorophenol | HD       |      | ug/1  | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrick | 785  |
| -Dichlorophenol               | КD       |      | 05/1  | 47.2                     | 3. 6                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 4656 |
| athylphthalate                | Фĸ       |      | 09/1  | 10.0                     | 1.3                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodpich | 785  |
| Dinethoate                    | AD       |      | Ug/1  | 47.2                     | 20.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodfich | 4656 |
| p-Dinethylanimoazobenzene     | DK       |      | Ug/1  | 47.2                     | 10.0                  | 1.0                | 11/ 3/59 | 1:10 | 8270C  | n. Goodrich | 4656 |
| 3,3'-Dinethylbenzidine        | DИ       |      | 09/1  | 18. 9                    | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Gogerica | 4656 |

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### ANALYTICAL REPORT

Laboratory Number: 99-A163235 Sample ID: LAFBCLFMW-401

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|                                    |          |      |               |                          | 3 -                   | <del></del>        |          |       |        |             |        |
|------------------------------------|----------|------|---------------|--------------------------|-----------------------|--------------------|----------|-------|--------|-------------|--------|
| Parameter                          | Result   | Flag | Units         | Limit of<br>Quantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Тіне  | Method | Analyst     | Bate   |
| ,12-Dinethylbenz(a)anthrac         | מא       |      | ug/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | N. Goodrich | 4656   |
| ,4-Dinethylphenol                  | מא       |      | 09/1          | 10.0                     | 1.7                   | 1.0                | 11/ 3/39 | 1:10  | 8270C  | N. Goodrich | 785    |
| inethylphthalate                   | סא       |      | 09/1          | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | N. Goodrict | 785    |
| ,a-Dinethylphenethylan             | ДK       | •    | ug/l          | 47. 2                    | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodrict | 4656   |
| l-n-Butylphthalate                 | DK       |      | üg∕1          | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodrici | 785    |
| ,6-Dimitro-2-methylphenol          | סא       |      | 13g/1         | 25.6                     | 1.2                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | N. Goodrict | 785    |
| ,3-Dinitrobenzene                  | סא       |      | 0g/l          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | N. Goodplel | 4656   |
| ,4-Dinitrobenzene                  | HD       |      | ug/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodrici | 4656   |
| ,2-Dinitrobenzene                  | ЯD       |      | ug/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodricl | 4658   |
| ,4-Dimitrophenol                   | מא       |      | 99/1          | 25.0                     | 1.1                   | 1.0                | 11/ 3/99 | 1:10  | 827GC  | n. Goodrici | h 785  |
| 2,4-dimitrotolueme                 | טא       |      | 09/1          | 10.0                     | 1.2                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 785  |
| ,6-Dimitrotoluene                  | КD       |      | ug/l          | 10.0                     | 4. 0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | N. Goodric  | h 785  |
| )i-n-octylphthalate                | מא       |      | ug/1          | 10.9                     | 1. 2                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodric  | h 785  |
| Dinoseb                            | dк       |      | 09/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 4658 |
| Diphenglamine                      | ЖD       |      | 09/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 455  |
| sulfoton                           | HD       |      | ug/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 465  |
| nphur                              | ИD       |      | ug/1          | 47.2                     | 4.6                   | 1.0                | 11/ 3/99 | 1:18  | 8270C  | M. Goodric  | h 465  |
| Luoranthene                        | HD       |      | 0g/1          |                          | 0. <b>9</b>           | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 795  |
| Fluorene                           | НD       |      | υg/).         |                          | 1.8                   | 1.6                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 785  |
| Hexachlorobenzena                  | HD       |      | ug/l          |                          | 0.9                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 785  |
| H <b>exachlorocyclopent</b> adiene | dk       |      | ug/1          |                          | 1.3                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 785  |
| Hexachloroethane                   | קא       |      | บฐ/1          |                          | 3. 6                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 785  |
| Hexachlorophene                    | RD       |      | ug/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 465  |
| Hexachloropropene                  | 80       |      | 0g/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | N. Goodric  |        |
| Indeno(1,2,3-cd)pyrene             | MD       |      | 09/1          |                          | 1.3                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  | h 785  |
| Isodria                            | HD       |      | 09/1          |                          | 5.0                   | 1.6                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  |        |
| Isophorone                         | OK       |      | 09/1          |                          | 2.0                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  |        |
| Isosafrole                         | סא       |      | 09/1          |                          | 16.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodric  |        |
| Methapyrilene                      | סא       |      | ug/1          |                          | 5.0                   | 1.0                | 11/ 3/99 | 1:16  | 8270C  | M. Goodric  |        |
| 3-Methylcholanthrene               | ИD       |      | 09/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  |        |
| Methylmethanesulfonate             | HD       |      | ug/l          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1: 10 | 8270C  | M. Goodric  |        |
| Z-Mathylnaphthalene                | ND<br>OK |      | 09/1<br>09/1  |                          | 1.9                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodric  |        |
| •                                  | HD.      |      | 0g/1          |                          | 1.9                   | 1.0                | 11/ 3/97 | 1:16  | 8270C  | M. Goodric  |        |
| 2-Methylphenol                     | HD       |      | ug/l          |                          | 2.5                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodric  |        |
| 3 and 4-Methylphenol               | ON<br>ON |      | ug/l          |                          | 1.9                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodrie  |        |
| Naphthalene                        | KD       |      | ugen<br>ug/1. |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | M. Goodric  |        |
| 1,4-Mapthaquinume                  |          |      | -             |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodrie  |        |
| 2-Mapthylanine                     | GK<br>GK |      | ij√i<br>ug/l  |                          | 10.0                  | 1.0                | 11/ 3/79 | 1:10  | 8270C  | n. Goodric  |        |
| 1-Mapthylanine                     | אט<br>מא |      | -             |                          | 1.5                   | 1.0                | 11/ 3/99 | 1: 10 | 8270C  | n. Goodric  |        |
| 2-Mitroaniline                     |          |      | Ug/1          |                          | 1.5                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodric  |        |
| 3-Mitroaniline                     | טא<br>קא |      | Ug/1          |                          | 1.2                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodric  |        |
| 7-Nitroaniline                     | טא<br>סא |      | Ug/1          |                          | 2. 2                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodric  |        |
| trobenzene                         | ио<br>ДХ |      | Ug/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodrie  |        |
| **Kitro-o-toluidine                | מע<br>מע |      | Ug/1          |                          | 2.0                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodfic  |        |
| 2-Hitrophenol                      | ИD       |      | ug/1          |                          |                       |                    |          |       |        |             |        |
| 4-Nitrophenol                      | D        |      | 09/1          | 25.0                     | 0.7                   | 1.0                | 11/ 3/99 | 1:10  | 8270C  | n. Goodpie  | 38 //  |

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00284 1/6/00





2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

Laboratory Number: 99-A163235 Sample ID: LAFBCLFMW-401

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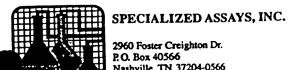
| Parameter Re               |           |      |                |                          |                       |                    |          |      |        |             |       |
|----------------------------|-----------|------|----------------|--------------------------|-----------------------|--------------------|----------|------|--------|-------------|-------|
|                            | esult     | Flag | Units          | Linit of<br>Quantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine | Method | Analyst     | Bato  |
| -mitrosodiethylamine }     | HD        |      | ug/1           | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 4656  |
|                            | פא        |      | υ <b>q/</b> ]  | 10.0                     | 3.4                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 785   |
|                            | ah        |      | Ug/1           | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 785   |
| · -                        | чр        |      | Uq/1           | 10.0                     | 1.4                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 785   |
| -                          | ОК        |      | 09/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:16 | 8270C  | M. Goodpich | 4656  |
| <b>-</b> -                 | KD        |      | ug/l           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 4656  |
| •                          | НD        |      | Ug/1           | 47. 2                    | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 4656  |
| • •                        | סא        |      | ug/1           | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 4656  |
|                            | DK        |      | ug/l           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 4656  |
| entachloronitrobenzese     | нD        |      | ug/1           | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 4656  |
| entachlorophenol           | סא        |      | ug/1           | 25.0                     | 0.4                   | 1.0                | 11/ 3/79 | 1:10 | 8270C  | n. Goodrich | 785   |
| •                          | dh<br>dh  |      | ug/l           | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 4656  |
| henanthrene i              | סא        |      | ug/1           | 10.0                     | 0.8                   | 1.0                | 11/ 3/99 | 1:16 | 8270C  | n. Goodrich | 785   |
| henol                      | КD        |      | υ <b>ą/</b> Ί  | 10.0                     | 1. 2                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 785   |
| 1,4-Phenylenedianine       | מא        |      | 09/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 465   |
| _                          | QK        |      | ug/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 465   |
| Picoline                   | AD.       |      | 09/1           | 47.2                     | 10.6                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 465   |
| ebinanos                   | <b>30</b> |      | ug/l           | 47.2                     | 19.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 465   |
| Pyrene                     | מא        |      | uq/1           | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | N. Goodrich | 785   |
| <del>-</del>               | RD        |      | 0g/1           | 10.0                     | 3.5                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 785   |
| <del>. T</del>             | D         |      | 09/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 1 465 |
| 1,2,4,5-Tetrachlorobenzene | סא        |      | 0g/l           | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Soodrich | 1 465 |
| Bis(2-ethylhexyl)phthalate | HD        |      | 09/1           | 10.0                     | 2.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 1 785 |
|                            | HD        |      | 09/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | 465   |
| • • •                      | XO.       |      | ug/1           | 94. 3                    | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrich | 465   |
|                            | ЯĐ        |      | ug/l           | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodpiet | 1 465 |
| o-Toluidine                | סא        |      | 09/1           | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrici | 1 465 |
| 1,2,4-Trichlorobenzene     | dk        |      | uq/1           | 10.0                     | 2.8                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrici | h 785 |
| • •                        | KD        |      | ug/T           | 25.0                     | 1. \$                 | 1.0                | 11/ 3/99 | 1:10 | 8270C  | M. Goodrich | h 785 |
| · · ·                      | КD        |      | 99/1           | 10.0                     | 1.9                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n, Goodrici | h 785 |
|                            | KD (JK    |      | υ <b>σ</b> /3. |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrici | h 46: |
|                            | HD        |      | υ <b>φ/1</b>   |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrici | h 462 |
| · ·                        | סא        |      | 11g/1          |                          | 1.5                   | 1.0                | 11/ 3/99 | 1:10 | 8270C  | n. Goodrici | h 46t |
|                            | KD        |      | ug/1           |                          | 5.0                   | 1.0                | 11/ 3/79 | 1:10 | 8270C  | n. Goodrici | h 46  |
| •                          | סא        |      | 46/1           |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:16 | 8270C  | n, Goodrici | h 463 |

Sample Extraction Data

Parameter Extracted Extract Vol Date Analyst Method

#1 //6/00 00281

47 15



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

Laboratory Number: 99-A163235

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| Sample Extracti       | on Data             |             |             |          |         |
|-----------------------|---------------------|-------------|-------------|----------|---------|
| <sup>9</sup> 3raneter | Ht/Vol<br>Extracted | Extract Vol | Date        | Analyst  | Nethod  |
| BHA's                 | 1040 nl             | 1.0 ml      | 10/28/99    | C. Terry | 3510    |
| Surrogate             |                     |             | X Recovery  | Targel   | t Range |
| surr-Witrobenz        | ene-d5              |             | <b>31</b> . | 15       | 105.    |
| surr-2-Fluorob        | iphenyl             |             | <b>30</b> . |          | 110.    |
| surr-Terphenyl        | <b>614</b>          |             | 34.         |          | 116.    |
| surr-Phenol d5        |                     |             | 17.         |          | 100.    |
| surr-2-Fluorop        | henol               |             | 24.         | 9.       | - 100.  |

Authorized by:

surr-2,4,6-Tribronophenol

Theodore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

41.

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## SPECIALIZED ASSAYS, INC.



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311 JOHN STATHAM

916 W. 23RD STREET TULSA, DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163236 Sample ID: LAFBCLFMW-402 Sample Type: Ground water

Site ID:

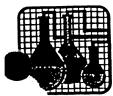
Date Collected: 10/23/99 Time Collected: 12:43 Date Received: 10/26/99 Time Received: 9:00

Linit of Limit of Dilution Ruantitation Detection Factor Tine Method Analyst Result Flag Units Date Batch Parameter \*\* Extractable Organics 8270C 10.0 1.8 1.0 11/ 3/99 1:46 M. Goodrich 785 09/1 Acenaphthene ÜЖ 11/ 3/99 1:46 8270C M. Soodrich 785 10.0 1.8 1.0 Acenaphthylene КD 99/1 1.0 11/ 3/99 1:46 8270C n. Goodrich 4636 ND. 09/1 48.5 10.0 Acetophenone 43.5 1.0 11/ 3/99 1:46 3270C M. Goodrich 4656 КD 5.0 2-Acetylaminofluorene ug/1 8270C M. Goodrich 4656 ЯD 99/1 48.5 5.0 1.0 11/ 3/99 1:46 Artinobiphenyl HOUS BS M. Scodrick 785 94/1 25.0 1.3 1.0 11/ 3/99 1:46 827GC iline 1.0 11/ 3/99 1:46 8270C M. Goodrich 785 Anthracene ЖĐ 04/1 10.0 0.9 43.5 10.0 1.0 11/ 3/99 1:46 8270C n. Sondrich 4656 Aranite סא ue/1 1.4 1.0 11/ 3/99 1:46 827GC M. Goodrich 785 10.0 dk ug/1 Denzo(a) anthracene 11/ 3/99 1:46 8270C M. Goodrich 785 1.0 ИD uq/1 10.0 1.1 Benzo(a)pyrene 11/ 3/99 1:46 8270C M. Goodrich 785 КD Uq/1 10.0 0.5 1.0 Benzo(b)fluoranthene 11/ 3/99 1:45 3270C n. Goodrich 785 1.0 XD 10.0 1.7 Renzo(q,h,i)perulene 04/1 8270C 11/ 3/99 1:46 M. Goodrich 785 10.6 1.4 1.0 Penzo(k)fluoranthene ND. 09/111/ 3/99 1:46 827GC M. Goodrich 785 10.0 1.1 1.0 4-Bronophenyl-phenylether ЯD 09/1 8270C M. Goodrich 785 11/ 3/99 1:46 **Sutylbenzylphthalate** ИD 04/1 19.0 1.2 1.0 3270C M. Goodrich 785 MD U#/1 10.0 1.2 1.0 11/ 3/99 1:46 4-Chloro-3-methylphenol 827GC M. Goodrich 785 ND vq/110.0 2 4 1.0 11/ 3/99 1:46 4-Chloroaniline 1.0 11/ 3/99 1:46 827GC M. Goodrich 4656 69/148.5 5.0 Chlorbenzilate M. Goodeleh 785 10.0 1.7 1.0 11/ 3/99 1:46 8270C ND: 99/1 Bis(2-chloroethoxy)Hethane 10.0 1.7 1.0 11/ 3/97 1:46 8270C M. Goodrich 785 ďВ U9/1 Bis(2-chloroethyl)ether 11/ 3/99 1:46 8270C M. Goodrich 783 10.0 1.9 1.0 98 uu/1Bis(2-chloroisogropy1)ether 11/ 3/99 1:46 8270C M. Goodrich 785 10.0 2.5 1.0 09/1 2-Chloronaphthalene ND: 1.0 8270C M. Goodrich 785 11/ 3/99 1 . 46 2.0 HD 09/1 10.0 2-Chlorophenol n. Soudrich 785 8270C 2.0 1.0 11/ 3/99 1:46 119/1 10.9 4-Chlorophenyl-phenylether DK 8270C M. Goodrich 785 10.0 1.2 1.0 11/ 3/99 1:46 Chrysene dh. ug/1 8270C M. Goodrich 4656 11/ 3/99 1:46 48.5 10.0 1.0 Diallate HD 04/1 8270C M. Goodrich 785 11/ 3/99 1:46 10.0 2.3 1.0 מא 49/1 Dibenzofuras 8270C M. Goodrich 785 11/ 3/99 1:46 1.0 Dibenz(a,h)anthracene U4/1 10.0 1.2 ND. HOUS BS 8270C M. Goodrich 785 1:46 11/ 3/99 ug/1 20.0 4.0 1.0 3,3'-Dichlorobenzidine M. Scodrick 785 8270C 11/ 3/99 1:46 10.0 1.7 1.0 ".4-Dichlorophenol ИD uq/l M. Goodfich 4656 11/ 3/99 1:46 8270C 1.0 U4/1 48.5 3.6 6-Dichlorophenol DK M. Goodrich 785 8270C 1.0 11/ 3/99 1:46 ЯD ug/1 10.0 1.3 ≠iethylphthalate n. Goodrich 4656 20.0 1.0 11/ 3/99 1:46 8270C Dinethoate 48.5 KD ug/l n. Goodrich 4656 10.0 1.0 11/ 3/99 1:46 827DC p-Dinethylaniaoazobeazene 43.5 DK U4/1 8270C n. Goodrich 4656 1.0 11/ 3/99 1:46 3,3'-Dinethylbeazidine 10.0 19 4 HD Ug/1

COPY 1

1/6/00

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### ANALYTICAL REPORT

Laboratory Number: 99-A163236 Sample ID: LAFBCLFMW-402

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| Paraneter                   | Result   | Flag | Units         | Limit of<br>Quantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Тіне  | Method | Analyst     | Batel |
|-----------------------------|----------|------|---------------|--------------------------|-----------------------|--------------------|----------|-------|--------|-------------|-------|
| 7,12-Dinethylbenz(a)anthrac | ОК       |      | ug/l          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | N. Goodrich | 4656  |
| 2,4-Dinethylphenol          | סא       |      | 0g/l          | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodrich | 785   |
| Dinethylphthalate           | סא       |      | ug/1          | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodrich | 785   |
| i,a-Dinethylphenethylam     | KD       |      | 09/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/97 | 1:46  | 8270C  | M. Goodrich |       |
| )i-n-Rutylphthalate         | QK       |      | 09/1          | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 1:46  | 3270C  | n. Goodrich |       |
| 1.6-Dimitro-2-Hethylphenol  | HD       |      | vg/1          | 25.0                     | 1.2                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | n. Goodrich |       |
| i,3-Dimitrobenzene          | HD       |      | vg/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | n. Goodrich | 4656  |
| i,4-Dimitrobenzene          | מא       |      | ug/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | N. Goodrich | 4656  |
| 1,2-Dimitrobenzene          | מא       |      | ug/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | N. Goodrich |       |
| Z,4-Dimitrophenol           | סא       |      | uq/1          | 25.0                     | 1.1                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodrich | 785   |
| 2,4-dinitrotoluene          | סא       |      | ug/1          | 10.0                     | 1. 2                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodrich | 785   |
| 2,6-Dimitrotoluene          | HD.      |      | ug/1          |                          | 4.0                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | N. Goodrici | 785   |
| Di-n-octylphthalate         | סא       |      | 09/1          |                          | 1.2                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | n. Goodrici |       |
| Divosep<br>Divosep          | HD       |      | ug/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 827GC  | M. Goodrici |       |
| Diphenylamina               | HD       |      | uq/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodrici |       |
| vipuengranine<br>isulfoton  | KD       |      | uq/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | N. Goodriel |       |
| nphur                       | HD       |      | ug/1          |                          | 4.0                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | N. Goodric  | 4656  |
| r luoranthene               | מא       |      | ug/1          |                          | 0. 9                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  | 785   |
| Fluorene<br>Fluorene        | סא       |      | 09/1<br>09/1  |                          | 1.8                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  |       |
|                             | סא       |      | ug/1          |                          | 0.9                   | 1.0                | 11/ 3/99 | 1: 46 | 8270C  | M. Goodric  |       |
| Hexachlorobenzene           | סא       |      | 09/1<br>09/1  |                          | 1.3                   | 1.0                | 11/ 3/99 | 1: 46 | 8270C  | n. Goodric  |       |
| Hexachlorocyclopentadiene   | DK<br>DK |      | ug/1          |                          | 3. 6                  | 1.0                | 11/ 3/99 | 1: 46 | 8270C  | M. Goodric  |       |
| Hexachloroethane            | AD<br>GK |      | 09/1<br>09/1  |                          | 10.0                  | 1.0                | 11/ 3/99 | 1: 46 | 8270C  | M. Goodric  |       |
| Hexachlorophene             | 7D       |      | og/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  |       |
| Hexachloropropene           |          |      |               |                          | 1.3                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  |       |
| Indeno(1,2,3-cd)pyrene      | GK       |      | #₫/1          |                          | 5.0                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  |       |
| Isodrin                     | 90       |      | 09/1          |                          | 2.0                   | 1.0                | 11/ 3/99 | 1: 46 | 8270C  | M. Goodric  |       |
| Isophorone                  | KD.      |      | <i>03/1</i>   |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  |       |
| Isosafrole                  | KD       |      | ug/l          |                          | 5.0                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  |       |
| Methapyrilene               | ND.      |      | ug/1          |                          |                       | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  |       |
| 3-Nethylcholanthrene        | סא       |      | ug/1          |                          | 10.0                  |                    | 11/ 3/77 | 1: 46 | 8270C  | M. Goodric  |       |
| MethylmethanesulFonate      | ДŊ       |      | ug/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | N. Goodric  |       |
| 2-Methylnaphthalene         | Фĸ       |      | ug/l          |                          | 1.9                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Soodric  |       |
| 2-Methylphenol              | סא       |      | ug/1          |                          | 1.9                   | 1.0<br>1.0         | 11/ 3/99 | 1: 46 | 8270C  | M. Goodria  |       |
| 3 and 4-Methylphenol        | ОЖ       |      | ug/1          |                          | 2.5                   |                    | 11/ 3/99 |       | 8270C  | n. Goodric  |       |
| Haphthalene                 | KD       |      | 09/1          |                          | 1.9                   | 1.0                |          | 1:46  | 8270C  | n. Goodrie  |       |
| 1,4-Napthaquinone           | מא       |      | 09/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  |        | M. Goodric  |       |
| 2-Napthylanine              | ОK       |      | ug/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 82700  |             |       |
| 1-Hapthylanine              | סא       |      | ∪ğı/1         |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | n. Goodric  |       |
| 2-Mitroaniline              | ወሄ       |      | ug/1          |                          | 1.5                   | 1.0                | 11/ 3/99 | 1:46  | 8270C  | M. Goodric  |       |
| 3-Mitroaniline              | DK       |      | ug/1          |                          | 1.5                   | 1.0                | 11/ 3/99 | 1:46  |        | M. Goodric  |       |
| 4-Hitroaniline              | RD       |      | U <b>g/</b> ] |                          | 1. 2                  | 1.0                | 11/ 3/99 | 1:46  |        | n. Goodric  |       |
| trobenzene                  | dk       |      | U <b>g/</b> 1 |                          | 2. 2                  | 1.0                | 11/ 3/99 | 1:46  |        | n. Goodrie  |       |
| -Nitro-o-toluidine          | סא       |      | Ug/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46  |        | M. Goodrie  |       |
| 2-Hitrophenol               | מא       |      | Ug/1          |                          | 2.0                   | 1.0                | 11/ 3/99 |       |        | M. Goodrie  |       |
| 4-Mitrophenol               | D        |      | Ug/1          |                          | 0.7                   | 1.0                | 11/ 3/99 |       |        | n. Goodfid  |       |
| N-mitrosodibutylanine       | סא       | •    | Ug/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46  | 8270C  | n. Goodfi   | ,     |

CONVI

0028444 /6/60



#### ANALYTICAL REPORT

Laboratory Number: 99-A163236 Sample ID: LAFBCLFMW-402

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| Parameter                     | Result   | Flag   | Units         | Linit of<br>Quantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Тіне | Method | Analyst     | Batel  |
|-------------------------------|----------|--------|---------------|--------------------------|-----------------------|--------------------|----------|------|--------|-------------|--------|
| X-nitrosodiethylanine         | нр       |        | ug/1          | 48.5                     | 5. 0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | N. Goodrich | 4656   |
| N-Hitroso-Di-a-Propylanine    | פא       |        | ug/1          | 10.0                     | 3.4                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | N. Goodrich |        |
| X-Xitrosodiphenylanine        | מא       |        | ug/1          | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 1:46 | 3270C  | M. Goodrich |        |
| X-nitrosodinethylanine        | HD       |        | 09/1          | 10.0                     | 1.4                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Soodrick | 785    |
| N-mitrosomethylethylamine     | DK       |        | ug/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrich | 4555   |
| X-mitrosonorpholine           | סא       |        | ug/1          | 43.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | n. Goodrich | 4656   |
| N-mitrosopiperidine           | GK       |        | ug/1          | 48.5                     | 5.0                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Soodrich | 4656   |
| X-mitrosopyrrolidine          | KD       |        | ug/1          | 48.5                     | 5.0                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrich | 4656   |
| Pentachlorobenzene            | מא       |        | 0q/l          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrich | 4656   |
| Pentachloronitrobenzene       | HD.      |        | ug/1          | 43.5                     | 5.0                   | 1.0                | 11/ 3/99 | 1:46 | 3270C  | N. Goodrich | 4656   |
| Pentachlorophenol             | ЖD       |        | Ug/1          | 25.0                     | 0.4                   | 1.0                | 11/ 3/79 | 1:46 | 8270C  | n. Goodrich |        |
| Phenacetin                    | QK       |        | 0q/l          | 48.5                     | 5.0                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrich |        |
| Phenanthrene                  | КD       |        | 0g/l          | 10.0                     | 0.8                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrich | 785    |
| Phenol                        | HD       |        | 09/1          | 10.0                     | 1.2                   | 1.0                | 11/ 3/39 | 1:46 | 3270C  | M. Goodrich | 785    |
| 1,4-Phenylenedianine          | מא       |        | ug/l          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | n. Goodrich | 4656   |
| _ <sup>o</sup> horate         | КD       |        | 89/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 827GC  | M. Goodrich | 4656   |
| -Picoline                     | КĎ       |        | Ug/1          | 48.5                     | 10.9                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | n. Geodrich | 4656   |
| Pronani de                    | ЯD       |        | 09/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrich | 4656   |
| Pyrene                        | ЖD       |        | vg/1          | 10.0                     | 1.7                   | 1.0                | 11/ 3/39 | 1:46 | 8270C  | M. Goodrich | 785    |
| Pyridine                      | מא       |        | ug/1          | 10.0                     | 3.5                   | 1.0                | 11/ 3/79 | 1:46 | 8270C  | n. Goodrich | 785    |
| Safrole                       | ОK       |        | ug/l          | 48.5                     | 10.0                  | 1.0                | 11/ 3/39 | 1:46 | 8270C  | n. Goodrich | 4656   |
| 1,2,4,5-Tetrachlorobenzene    | HD       |        | 09/1          | 43.5                     | 5.0                   | 1.0                | 11/ 3/39 | 1:46 | 8270C  | n. Goodrich | 4656   |
| Bis(2-ethylhexyl)phthalate    | RD       |        | υ <u>q</u> /1 | 10.0                     | 2.0                   | 1.0                | 11/ 3/39 | 1:46 | 3270C  | N. Goodrich | 785    |
| 2,3,4,6-Tetrachlorophenol     | ИD       |        | ug/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrich | 4656   |
| Tetraethyldithiopyrophosobate | ОК       |        | 93/1          | 97.1                     | 5.0                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | n. Goodrich | 4656   |
| Thionazine                    | סא       |        | 09/1          | 48.5                     | 5.0                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | N. Goodrich | 4656   |
| o-Toluidine                   | 615      |        | 09/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrich | 4656   |
| 1,2,4-Trichlorobenzene        | ИĐ       |        | 09/1          | 10.0                     | 2.8                   | 1.0                | 11/ 3/99 | 1:46 | 827GC  | M. Goodrict | 785    |
| 2,4,5-Trichlorophenol         | ND       |        | ug/l          | 25.0                     | 1.6                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrick | 785    |
| 2,4,6-Trichlorophenol         | HD       |        | 0g/1          | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 1:46 | 6270C  | n. Goodrici | 1 785  |
| o,o,o-Triethylphosphorothio   | 450      |        | ug/1          | 48.5                     | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | n. Goodrict | 4656   |
| 1,3,5-Trinitrobenzene         | סא       |        | 0 <b>g/1</b>  | 48.5                     | 10.0                  | 1.0                | 117 3/99 | 1:46 | 8270C  | n. Goodrici | 4656   |
| Benzyl alcohol                | ND:      |        | 09/1          |                          | 1.5                   | 1.0                | 11/ 3/99 | 1:46 | 8270C  | M. Goodrici | 4656   |
| Ethylmethane sulfonate        | HP       |        | 69/1          |                          | 5.0                   | 1.9                | 117 3/99 | 1:46 | 8270C  | n. Goodfiel | 4656   |
| 4-Nitroquinoline N-oxide      | ЯÐ       |        | 0g/1          |                          | 10.0                  | 1.0                | 11/ 3/99 | 1:46 | 8270C  | n. Goodrici | h 4656 |
| ND = Not detected at the Lini | t of au. | antita | -             |                          |                       |                    |          |      |        |             |        |

Sample Extraction Data

Ht/Vol
Parameter Extracted Extract Vol Date Analyst Method

AL 1/6/08 00285





#### ANALYTICAL REPORT

Laboratory Number: 99-A163236 Sample ID: LAFBCLFMW-402

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Sample Extraction Data

| Parameter | Ht/Vol<br>Extracted | Extract Vol | Date     | Analyst  | Method<br> |
|-----------|---------------------|-------------|----------|----------|------------|
| BHA's     | 1030 Hl             | 1.0 nl      | 10/28/33 | C. Terry | 3510       |

| Surrogate                 | % Recovery                                       | Target Range |
|---------------------------|--|--------------|
|                           | on I said manuface in a said Title 1997 may said |              |
| surr-Nitrobenzene-d5      | 42.  | 15 105.      |
| surr-2-Fluorobiphenyl     | 40.  | 17 110.      |
| surr-Terphenyl dl4        | 33.  | 10 116.      |
| surr-Phenol d5            | 24.  | 10 100.      |
| surr-2-Fluorophenol       | 33.  | 9 100.       |
| surr-2.4.6-Tribronovhenol | 50.  | 15 134.      |

Authorized by:

Theodore J Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

He 16/00



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

### ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

JOHN STATHAM

916 W. 23RD STREET TULSA, DK. 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163237 Sample ID: LAFBCLFMW-501 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 14:41 Date Received: 10/26/99

Time Received: 9:00

| Paraneter                   | Result            | Flag | Vaits        | Limit of<br>Ruantitation | Linit of<br>Detection | Pilution<br>Factor | Date     | Tine        | Method | Analyst     | Bate          |
|-----------------------------|-------------------|------|--------------|--------------------------|-----------------------|--------------------|----------|-------------|--------|-------------|---------------|
| ≭ Extractable Organics      |                   |      |              |                          |                       |                    |          |             |        |             |               |
| cenaphthene                 | ФЖ                |      | ug/1         | 10.0                     | 1.8                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | M. Goodrich | 785           |
| cenaphthylene               | ИD                |      | 04/1         | 10.0                     | 1.8                   | 1.0                | 11/ 3/99 | 2:22        | 8270C  | n. Goodrich | 785           |
| cetophenone                 | ЯD                |      | uq/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/79 | <b>7:22</b> | 8270C  | n. Goodrich | 4656          |
| !-Acetylaminofluorene       | סא                |      | uq/1         | 47. 2                    | 5.0                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrich | 4656          |
| Aninobiphenyl               | מא                |      | 119/1        | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrich | 4656          |
| iline                       | HOW               | B5   | 04/1         | 25.0                     | 1.8                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | M. Goodrich | 785           |
| inthracene                  | dк                |      | uq/1         | 10.0                     | 0. <b>9</b>           | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | N. Goodrich | 785           |
| iranite                     | סא                |      | 09/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2: 22       | 3270C  | N. Goodrich | 4656          |
| Benzo(a)anthracene          | ИD                |      | 04/1         | 10.0                     | 1.4                   | 1.0                | 11/ 3/99 | 2:22        | 8270C  | n. Soodrich | 765           |
| Senzo(a) pyrene             | dк                |      | 09/1         | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | N. Goodrich | 785           |
| Benzo(b)fluoranthene        | дк                |      | 5g/1         | 10.0                     | 0.3                   | 1.9                | 11/ 3/99 | 2:22        | 8270C  | n. Goodrich | 785           |
| !enzo(g,h,i)perylone        | КD                |      | 99/1         | 10.0                     | 1.2                   | 1.0                | 11/ 3/33 | 2: 22       | 8270C  | M. Goodrich | 785           |
| Genzo(k)fluoranthene        | ND CE             |      | ug/1         | 10.0                     | 1.4                   | 1.0                | 11/ 3/79 | 2: 22       | 8270C  | n. Goodrich | 785           |
| 9-Bronophenyl-phenylether   | KD                |      | 09/1         | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 2:22        | 8270C  | M. Goodrich | 785           |
| Butylbenzylphthalate        | ИD                |      |              | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 2:22        | 8270C  | n. Goodrich | 785           |
| 4-Chloro-3-methqlphenol     | טא                |      | 09/1         | 10.6                     | 1.2                   | 1.0                | 11/ 3/99 | 2:22        | 8270C  | n. Goodrich | 785           |
| 4-Chloroaniline             | ИD                |      | ug/1         | 10.0                     | 2.4                   | 1.0                | 11/ 3/99 | 2:22        | 8270C  | n. Goodrich | 785           |
| Chlorbenzilate              | פא                |      | 09/1.        | 47.2                     | 5.0                   | . 1.0              | 11/ 3/99 | 2: 22       | 827GC  | M. Goodrich | 4656          |
| Bis(Z-chloroethoxy)Hethane  | HD.               |      | 09/1         | 1G. G                    | 1.9                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrich | 785           |
| Ris(2-chloroethyl)ether     | HD<br>QH          |      | 09/1         | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | M. Goodrich | 785           |
| Ris(2-chloroisopropyl)ether | סא                |      | 0g/1         | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | M. Goodrich | 785           |
| 2-Ghloronaphthalene         | НD                |      | ug/1.        | 10.0                     | 2.5                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrich | 785           |
| 2-Chlorophenol              | סא                |      | 0g/1         | 10.0                     | 2.0                   | 1.0                | 117 3/99 | 2: 22       | 8270C  | N. Goodrich | 785           |
| d-Chlorophenyl-phenylether  | ЭK                |      | ug/1         | 10.0                     | 2.0                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrich | 785           |
| Chrysene                    | HD<br>AR          |      | 09/1         | 10.0                     | 1. 2                  | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrich | 785           |
| Diallate                    | HD<br>QH          |      | ug/I         | 47 2                     | 10.0                  | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | M. Goodrich | 4656          |
| Dibenzofuran                | סא                |      | 09/1         | 10.0                     | 2.3                   | 1.0                | 11/ 3/77 | 2: 22       | 8270C  | n. Goodrich | n 785         |
| Dibenz(a,h)anthracene       | סא                |      | Ug/1         | 10.0                     | 1.2                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrici | n 785         |
| 3,3'-Dichlorobenzidine      | <del>110</del> UJ | B5   | U4/1         | 20.0                     | 4. 0                  | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodfici | 785 A         |
| ° 4-Dichlorophenol          | HD                | • /  | Ug/1         | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 2:22        | 8270C  | n. Goodrici | 785           |
| -Dichlorophenol             | סא                |      | 09/1         | 47.2                     | 3.6                   | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrici | h 4656        |
| /iethylphthalate            | ND<br>DX          |      | 99/1<br>99/1 | 10.0                     | 1.3                   | 1.0                | 11/ 3/99 | 2:22        | 8270C  | n. Goodrici | 785           |
| Dinethoate                  | סא                |      | ug/1         | 47.2                     | 20.0                  | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrici |               |
| p-Dinethylanimoazobenzene   | סא                |      | ug/1         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2: 22       | 8270C  | n. Goodrici | <b>a</b> 4658 |
| 3,3'-Dimethylbenzidime      | סא<br>סא          |      | U <b>q/1</b> | 18.9                     | 10.0                  | 1.0                | 11/ 3/99 | 2:22        | 8270C  | n. Goodfiel | 4638          |

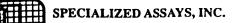


### ANALYTICAL REPORT

Laboratory Number: 99-A163237 Sample ID: LAFBCLFMW-501

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|                             |           |      |               |                          | raye                  | ~                  |          |       |                |             |        |
|-----------------------------|-----------|------|---------------|--------------------------|-----------------------|--------------------|----------|-------|----------------|-------------|--------|
| Parameter                   | Result    | Flag | Units         | Limit of<br>Quantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Tine  | Method         | Analyst     | Batch  |
| 7,12-Dinethylbenz(a)anthrac | ЖD        |      | υ <b>g/1</b>  | 47. 2                    | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodrich | 4656   |
| 2,4-Dinethylphenol          | HD        |      | 09/1          | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | N. Goodrich | 785    |
| Dinethylphthalate           | НD        |      | ug/1          | 10.0                     | 1.7                   | 1.0                | 11/ 3/79 | 2: 22 | 8270C          | M. Goodrich | 785    |
| a,a-Dinethylphenethylan     | סא        |      | υg/I          | 47. 2                    | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | n. Goodrich | 4656   |
| Di-m-Rutylphthalate         | HD        |      | ug/1          | 10.0                     | 1.1                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | n. Goodrich | 785    |
| 4,6-Dimitro-2-methylphenol  | ВD        |      | 09/1          | 23.0                     | 1.2                   | 1.0                | 11/ 3/99 | 2:22  | 8270C          | M. Goodrich | 765    |
| 1,3-Dinitrobenzene          | Ю         |      | 99/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2:22  | 8270C          | M. Goodrich | 4656   |
| 1,4-Dimitrobemzene          | HD        |      | ug/l          | 47. 2                    | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodrich | 4656   |
| 1,2-Dinitrobenzene          | HD        |      | 99/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/77 | 2: 22 | 8270C          | N. Goodrich | 4656   |
| 2,4-Dinitrophenol           | RD        |      | 09/1          | 25.0                     | 1.1                   | 1.0                | 11/ 3/79 | 2: 22 | 8270C          | M. Goodrich | 785    |
| 2,4-dimitrotolueme          | HD        |      | u <u>ā</u> /1 | 10.0                     | 1.2                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | N. Goodrich | 785    |
| 2,6-Dimitrotoluene          | КD        |      | 9g/1          | 10.0                     | 4.0                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodrich | 785    |
| Di-n-octylphthalate         | MD        |      | ug/1          | 10.0                     | 1.7                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | n. Goodrich | 785    |
| Vinoseb                     | HD        |      | ug/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2:22  | 8270C          | n. Goodrich | 4656   |
| Diphenylamine               | ЖD        |      | 69/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2:22  | 827GC          | M. Goodrich | 4656   |
| sulfoton                    | КО        |      | 09/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2:22  | 8270C          | M. Goodrick | 4656   |
| Tohur                       | ND        |      | ug/3.         | 47.2                     | 4.0                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodrick | 4656   |
| rluoranthene                | AD CR     |      | 09/1          | 10.0                     | 0.9                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodrich | 785    |
| Fluorene                    | ЗĐ        |      | 89/1          | 10.0                     | 1.8                   | 1.0                | 11/ 3/99 | 2:22  | 8270C          | M. Goodrich | 765    |
| Hexachlorobenzene           | RD.       |      | 99/1          | 10.0                     | 0.9                   | 1.0                | 11/ 3/99 | 2:22  | 8270C          | M. Goodrici | 785    |
| Hexachlorocyclopentadiene   | MD:       |      | 0g/1          | 10.0                     | 1.3                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  | 785    |
| Hexachloroethane            | дк        |      | 0973.         |                          | 3.6                   | 1.0                | 11/ 3/99 | 2:22  | 8270C          | M. Goodric! | 785    |
| Nexachlorophene             | НD        |      | 99/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2:22  | 827GC          | H. Goodric  |        |
| Hexachloropropene           | 80        |      | 99/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodriel | 4656   |
| Indeno(1,2,3-cd)pyrene      | MD        |      | uq/1          | 10 0                     | 1.3                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  | 785    |
| Isodrin                     | НD        |      | #4/L          |                          | 5.0                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | n. Goodric  |        |
| Isophorone                  | ИD        |      | 09/1          |                          | 2.0                   | 1.0                | 11/ 3/99 | 2:22  | 8270C          | H. Goodric  |        |
| Isosafrole                  | H0        |      | ug/1.         | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  |        |
| Methapyrilene               | жD        |      |               | 47.2                     | 5.0                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  |        |
| 3-Methylcholanthrese        | NO.       |      | 119/1         | 47. 2                    | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 3270C          | M. Goodric  |        |
| Methylmethanesulfonate      | ан        |      | ug/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  |        |
| 2-Methylnaphthalene         | סא        |      | 09/1          | 10.0                     | 1.9                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  |        |
| 2-Methylphenol              | סא        |      | 09/1          | 10.0                     | 1.9                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  |        |
| 3 and 4-Methylphenol        | HD<br>GH  |      | 09/1          | 10.0                     | 2. 5                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  |        |
| Naphthalene                 | dk<br>dk  |      | 04/1          |                          | 1.9                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  |        |
| •                           | סא        |      | 09/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2:22  | 8270C          | n. Goodric  |        |
| 1,4-Napthaquinone           | HD        |      | -             | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodric  |        |
| 2-Mapthylamine              |           |      | uğz'i.        |                          | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 3270C          | M. Goodric  |        |
| 1-Mapthylanine              | MD<br>MD  |      | 99/1<br>44/1  | 47 . 2<br>25 . <b>0</b>  | 1.5                   | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | M. Goodpic  |        |
| 2-Nitroaniline              | אם<br>פא  |      | 0g/1          |                          |                       | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | n. Goodfic  |        |
| 3-Xitroaniline              | סא<br>פע  |      | 9g/1          | 25. 0<br>25. 0           | 1.5                   |                    | 11/ 3/99 | 2: 22 | 8270C          | n. Goodfic  |        |
| Nitroaniline                | סא<br>מיי |      | 09/1          | 25. 0<br>10. n           | 1.2                   | 1.0                |          |       | 8270C          |             |        |
| trobenzene                  | KD<br>OK  |      | 09/1          | 10.0                     | 2. 2                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C<br>8270C | M. Goodric  |        |
| -Hitro-o-toluidine          | D<br>QK   |      | Ug/1          | 47.2                     | 10. 0                 | 1.0                | 11/ 3/99 | 2: 22 |                | N. Goodric  |        |
| 2-Hitrophenol               | OK<br>CV  |      | ug/l          | 10.0                     | 2.0                   | 1.0                | 11/ 3/99 | 2:22  |                | M. Goodfic  |        |
| 4-Xitrophenol               | סא        |      | Ug/1          | 25.0                     | 0.7                   | 1.0                | 11/ 3/99 | 2:22  |                | M. Goodric  |        |
| X-mitrosodibutylanine       | 'AD       |      | Ug/1          | 47.2                     | 10.0                  | 1.0                | 11/ 3/99 | 2: 22 | 8270C          | n. Goodrio  | # 4696 |





### ANALYTICAL REPORT

Laboratory Number: 99-A163237 Sample ID: LAFBCLFMW-501

Page 3

|                               |          |      |              |                       | _                     |                    |          |              |        |             |       |
|-------------------------------|----------|------|--------------|-----------------------|-----------------------|--------------------|----------|--------------|--------|-------------|-------|
| Paraneter                     | Result   | Flag | Units        | Limit of Ruantitation | Linit of<br>Detection | Dilution<br>Factor | Date     | Tine         | Method | Analyst     | Bato  |
| X-nitrosodiethylanine         | HD OH    |      | uq∕l         | 47. 2                 | 5. 0                  | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | M. Goodrich | 4656  |
| M-Hitroso-Di-m-Propylanine    | HD       |      | υ <b>q/1</b> | 10.0                  | 3.4                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrich | 785   |
| X-Xitrosodiphenylamine        | HD 0H    |      | ug/1         | 10.0                  | 1.1                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrich | 785   |
| H-mitrosodinethylanime        | HD       |      | 119/1        | 10.0                  | 1.4                   | 1.0                | 117 3/99 | 2: 22        | 8270C  | M. Goodrich | 785   |
| M-mitrosomethylethylamine     | ЯD       |      | ug/1         | 47.2                  | 10.0                  | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrich | 4656  |
| H-mitrosonorpholime           | מא       |      | ug/1         | 47. 2                 | 10.0                  | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrich | 4656  |
| R-nitrosopiperidine           | NO.      |      | 49/1         | 47.2                  | 5.0                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | N. Goodrich | 4656  |
| R-mitrosopyrrolidine          | סא       |      | ug/l         | 47.2                  | 5.0                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrich | 4656  |
| Pentachlorobenzene            | ЯD       |      | 04/1         | 47.2                  | 1.9.0                 | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | M. Goodrich | 4656  |
| Pentachloronitrobenzene       | ИD       |      | ug/1         | 47.2                  | 5.8                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | M. Goodrich | 4656  |
| Fentachlorophenol             | КD       |      | 09/1         | 25. 0                 | 0.4                   | 1.0                | 11/ 3/99 | 2: <b>22</b> | 8270C  | n. Goodrich | 735   |
| Phenacetin                    | ፈጽ       |      | 09/1         | 47.2                  | 5.0                   | 1.0                | 11/ 3/99 | 2: <b>22</b> | 8270C  | n. Goodrich | 4656  |
| Phenanthrene                  | ΧD       |      | 99/1         | 10.0                  | 0.3                   | 1.0                | 11/ 3/39 | 2: 22        | 3270C  | N. Goodrich | 785   |
| Phenol                        | HD       |      | υ <b>ý/1</b> | 10.6                  | 1.2                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrich | 785   |
| 1,4-Phenylenediamine          | 40       |      | 09/1         | 47.2                  | 10.0                  | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrich | 465   |
| √orate                        | КĎ       |      | ug/1         | 47.2                  | 10.0                  | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrich | 4654  |
| Picoline                      | ИD       |      | 09/1         | 47.2                  | 10.0                  | 1.0                | 11/ 3/99 | 2: <b>22</b> | 8270C  | n. Goodrict | 465   |
| ronanide                      | 40       |      | ug/1         | 47.2                  | 10.0                  | 1.0                | 11/ 3/99 | 2:22         | 8270C  | n. Goodrict | 465   |
| Pyrene                        | HD       |      | vq/1         | 10.0                  | 1.7                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrici | 785   |
| Pyridine                      | ДK       |      | ug/1.        | 10.0                  | 3.5                   | 1.0                | 11/ 3/99 | 2: 22        | 9270C  | N. Goodrich | 735   |
| Safrole                       | ИD       |      | 04/1         | 47.2                  | 10.0                  | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | N. Goodricl | 465   |
| 1,2,4,5-Tetrachlorobenzene    | ИD       |      | 04/1         | 47.2                  | 5.0                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | n. Goodrici | 465   |
| Bis(Z-ethylhexyl)phthalate    | ЖD       |      | 04/1         | 10.0                  | 2.0                   | 1.0                | 11/ 3/99 | 2:22         | 8270C  | n. Goodrici | n 785 |
| 2,3,4,6-Tetrachlorophenol     | MD.      |      | ug/1         | 47.2                  | 10.0                  | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | M. Goodric  | 465   |
| Tetraethyldithiopyrophosphate | MD.      |      | ug/1         | 74.3                  | 5.0                   | 1.0                | 11/ 3/39 | 2: 22        | 8270C  | n. Goodric  | 465   |
| (hionazine                    | HD       |      | ug/l         | 47.2                  | 5.0                   | 1.0                | 11/ 3/77 | 7: 22        | 8270C  | n. Goodric  | h 465 |
| o-Toluidine                   | 90       |      | ug/1         |                       | 10.0                  | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | M. Goodric  | h 465 |
| 1,2,4-Trichlorobenzene        | ЖÞ       |      | 09/1         |                       | 2.8                   | 1.0                | 11/ 3/39 | 2: 22        | 8270C  | M. Goodric  | h 785 |
| 2,4,5-Trichlorophenol         | ΗD       |      | 99/1         |                       | 1.6                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | M. Spodric  | h 785 |
| 2,4,6-Trichlorophenol         | סא       |      | 0g/1         |                       | 1.8                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | M. Goodric  | h 785 |
| o,o,o-Triethylphosphorothio   | ND.      |      | 09/l         |                       | 10.0                  | 1.6                | 11/ 3/99 | 2: 22        | 827GC  | M. Goodric  | h 465 |
| 1,3,5-Trinitrobenzene         | ND<br>DH |      | 9g/1<br>9g/1 |                       | 10.0                  | 1.0                | 11/ 3/99 | 7: 22        | 3270C  | n. Goodric  |       |
| Senzul alcohol                | HD       |      | 09/1         |                       | 1.5                   | 1.0                | 11/ 3/79 | 2: 22        | 8270C  | M. Goodric  | h 465 |
| Ethylmethane sulfonate        | HD       |      | 09/1         |                       | 5.0                   | 1.0                | 11/ 3/99 | 2: 22        | 8270C  | M. Goodric  | h 465 |
| 4-Mitroquinoline N-oxide      | dЯD      |      | 99/1         |                       | 10.0                  | 1.0                | 11/ 3/99 | 2:22         | 8270C  | M. Goodrie  |       |

Sample Extraction Data

yo = Not detected at the limit of quantitation.

Ht/Vol
Parameter Extracted Extract Vol Date Analyst Method



# ANALYTICAL REPORT

Laboratory Number: 99-A163237 Sample ID: LAFBCLFMW-501

Page 4

| Sampla    | Evtwo  | tion | First's |
|-----------|--------|------|---------|
| A 2M N 12 | TALLSC | rina | 17.41.4 |

|           | Ht/A01    |             |          |          |        |
|-----------|-----------|-------------|----------|----------|--------|
| Parameter | Extracted | Extract Vol | Date     | Analyst  | Method |
|           |           |             |          |          |        |
|           |           |             |          |          |        |
| IMA's     | 1060 nl   | 1.0 Hl      | 10/28/99 | C. Terry | 3510   |

| Surrogate                 | % Recovery | Target Range |
|---------------------------|------------|--------------|
| The Wiles bearing IF      | 41         | 1F 10F       |
| surr-Hitrobenzene-d5      | 41.        | 15 105.      |
| surr-2-Fluorobiphenyl     | 38.        | 17 110.      |
| surr-Terphenyl d14        | 36.        | 10 116.      |
| surr-Phenol d5            | 15.        | 10 100.      |
| surr-2-Fluorophenol       | 21.        | 9 100.       |
| surr-2,4,6-Tribronophenol | 24.        | 15 134.      |

Authorized by:

Theodore J. Duello, Ph.D., GA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

00290 1666

| Data Review and Vandation I             | VI.             | GC Organocritornie i  | Concrac      |               | . 555 (45 4100)   | .010,       |               |
|---|-----------------|---|--------------|---------------|-------------------|-------------|---------------|
| Project Name & Task:                    | LA              | AREDO AFB   |              |               |                   |             |               |
| Project # & Case/SDG:                   | 15              | 3479.DV.ZZ  |              | 165856        | ·                 |             |               |
| Methods: OLM03.2 SV                     | V-846 80        | 081A 25W846 8082 (aroclors)                                   | EPA 608      | Other:        |                   |             |               |
| Program: AFCEE NF                       | ESC             | Other   |              | Numb          | er of Samples:    | ح           |               |
|   | 6011            | 402 F. DUP  |              |               |                   |             |               |
|   | 7/              | Velle   |              | 11.10         | ^                 |             |               |
| Reviewed by & Date:                     | <del>// .</del> | Mar.  |              | 10100         |                   |             |               |
| Matrix:                                 | <u> </u>        | Other /   |              |               |                   |             |               |
| Quality Control                         | Form            | Requirements  |              | Check         | · ·               | Fla         | ags Applied   |
| Quanty Control                          | #               | Kequii ements   | (If No       | * checked, se | 1                 |             | e comments)   |
| Data Pkg Complete (DP)                  | Pkg             | All required deliverables in pkg.                             | <b>L</b> OK  |               | Not provided      | Ù           | Flags Applied |
|   |                 | All samples on COC reported                                   | <b>L</b> OK  | □ No*         |                   |             | Flags Applied |
| Holding Times (HT)                      | 1,              | Extraction HT (water 7d, soil 14d)                            | ∠J-OK        | ☐ No*         |                   | П           | Flags Applied |
|   | COC             | Analysis HT (40d from extraction)                             | <b>⊟</b> oκ  | ☐ No*         |                   |             | Flags Applied |
| ·                                       |                 |   | ОК           | ☐ No*         |                   |             | Flags Applied |
| Surrogates (SS)                         | 2               | Method surrogates used  | 40K          | No*           | Not provided      | Ц           | Flags Applied |
|   |                 | Recovery Limits: Lab Meth                                     | ₽ OK         | No*           | Diluted out       |             |               |
| MS/MSD or MS/LD                         | 3               | Matrix Spikes Provided  | MS/N         |               | /LD None*         | Ш           | Flags Applied |
|   |                 | Correct Spike Used  | OK           | ∐ No*         | 1                 |             |               |
|   | <del> </del>    | Acceptance Limits: Lab Meth                                   |              | No*           | Diluted out       | П           | Flags Applied |
| LCS (BS)  LCS/LCSD                      | 3               | LCS per prep. batch   | → OK         | □ No*         |                   | <u> </u>    | riags Applied |
|   | 1               | Acceptance criteria met Detects (> MDL or RL/CRQL)            | HAIN         | *********     | blnk wksht        |             | Flags Applied |
| Blanks (MB,TB,EB, FB/AB)                | 4               | MB per prep batch or 20 samples                               | Z OK         | No*           | DITIK WKSITC      | ш           | riays Applieu |
| Method/Lab Blank (MB) Resolution        |                 | Resolution met for IC   | ОК           |               | C-N/A             | П           | Flags Applied |
| Resolution                              | 7/raw           |   | ОК           |               | -N/A              | لـــــا     |               |
| Initial Calibration (IC)                | 6, 8            | Minimum levels per method                                     | ₽ OK         | □ No*         | =11973            | П           | Flags Applied |
| (primary & confirmation)                | 6               | Linearity criteria met  | OK           | No*           | see cal wksht     |             | 3. 77         |
| (primary & commission)                  | "7"             | Degradation criteria met                                      | Ок           |               | -N/A              |             |               |
| Continuing Calib. Verif. (CC)           | 8               | Analyzed at proper frequency                                  | Lex          | ☐ No*         |                   |             | Flags Applied |
| including degradation                   | 7               | %diff or %drift criteria met                                  | LOK          | □ No* □       | see cal wksht     |             |               |
| (primary & confirmation)                | "7"             | Degradation criteria met                                      | Ок           |               | 4N/A              |             |               |
|   | "8"             | Int. Std. RT/Area criteria met                                | ОК           |               | - N/A             |             |               |
| Cleanup Criteria                        | 9               | All cleanup criteria met                                      | L OK         | No*           | N/A               |             | Flags Applied |
| Internal Standards (IS)                 |                 | Internal Standards used                                       | Yes          | 446           | see comments      | $  \sqcup $ | Flags Applied |
|   | "8"             | Sample IS area criteria met                                   | Ц ок         |               | N/A               |             |               |
| Sample Evaluation                       | 1               | All hits within cal. Range                                    | OK           |               | AITND             | Ш           | Flags Applied |
|   | 8               | Samples bracketed by CCV & Deg.                               | LJOK         | No*           | 1—· ·             |             |               |
|   | 10              | Hits w/in RT windows  | ОК           |               | N7A               |             |               |
|   | 10              | Confirmation %D criteria met                                  | OK           | No* L         |                   |             |               |
|   | raw<br>1        | Manual Integration performed Precision of native vs Field Dup | □ No<br>□ OK | N/A<br>No*    | see comments  N/A |             | Flags Applied |
| Field Duplicate (FD)                    |                 |   |              |               | 114/4             |             | тадо гарине   |
| This sheet is applicable to multiple me | thods. A        | ll requirement items may not apply to ever                    | у апагунса   | и тетоа.      |                   |             |               |
| Case Narrative Comments:                |                 |   |              |               |                   |             |               |
|   |                 | 110 EXCEPTING   | <u>'\S</u>   | 4018          | =)                |             |               |
|   |                 |   |              |               | _                 |             |               |
| OC Item                                 |                 | Comm  | <u>nents</u> |               |                   |             |               |
|   |                 |   | •            |               |                   |             |               |
| 1//                                     | 5               | THES APPLIE   | 50           |               |                   |             | · ·           |
|   |                 | VIII HIPORG   |              |               |                   |             |               |
|   |                 |   |              |               |                   |             |               |



## ANALYTICAL REPORT

CRC & ASSOCIATES: INC 8311

JUHN STATHAM

916 W. SGRD STREET TULSA: DK 74107

Progest:

Project Name: LAREDO AIR FORCE BASE

Samplar GREG SNIDER

Lab Number: 99-A163233 Sample ID: LAFBCLFMW-101 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99

Time Collected: 8:45

Date Received: 10/26/99

Time Received: 9:00

| 41        | Parameter | Result | Flag ! | Units | Limit of<br>Quantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Тіне  | Method | Analyst    | 8    |
|-----------|-----------|--------|--------|-------|--------------------------|-----------------------|--------------------|----------|-------|--------|------------|------|
|           |           |        |        |       |                          |                       |                    |          |       |        |            |      |
| KK Pesti  | oides     |        |        |       |                          |                       |                    |          |       |        |            |      |
| Aroclor   | 1016      | КD     |        | 09/1  | 0.50                     | 0.380                 | 1.0                | 11/ 6/99 | 19:20 | 8082   | Carmichael | 53   |
| Aroclor   | 1221.     | ЖD     |        | 09/1  | 9.50                     | 0.410                 | 1.0                | 11/ 6/99 | 19:20 | 8082   | Carmichael | 33   |
| Aroclor   | 1232      | HD     |        | uq/1  | 0.50                     | U. 400                | 1.0                | 11/ 6/99 | 17:20 | 8082   | Carmichael | 53   |
| nroclar   | 1242      | HD     |        | ug/1  | 0.50                     | 0.480                 | 1.0                | 11/ 6/99 | 19:20 | 8082   | Carmichael | 53   |
| · ···cler |           | HD     |        | 00/1  | 6, 50                    | 0.480                 | 1.0                | 11/ 6/99 | 19:20 | 8032   | Carmichael | 53   |
|           | 1254      | жо     |        | 99/1  | 0.50                     | 0.500                 | 1.0                | 11/ 6/99 | 19:20 | 8082   | Carmichael | . 53 |
| Brucler   |           | СK     |        |       | 0.50                     | 0,500                 | 1.0                | 11/ 6/99 | 19:20 | 8082   | Carmichael | . 5: |

MD = Mot detected at the limit of quantitation.

| 2 autite | EXCL | ROLLOR | para |
|----------|------|--------|------|
|          |      |        |      |

| Paraheter       | Ht/Vol<br>Extracted | Extract Vol | Date       | Analyst      | Method  |
|-----------------|---------------------|-------------|------------|--------------|---------|
| <b>P</b> ር((' s | 500. н1             | 5.00 Hl     | 10/28/99   | C. Terry     | 3510    |
| Surrogate       |                     |             | % Recovery | <del>-</del> | t Range |

20. - 122.

Authorized by:

pet surr - ICMX

Theodore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

87.

All 1/6/00



### ANALYTICAL REPORT

CRC & ASSOCIATES, INC. 8311

JOHN STATHAM

916 W. ZORD STREET TULSA, DK 74107

Project: -

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163234 Sample ID: LAFBCLFMW-201 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99

Time Collected: 9:48 Date Received: 10/26/99

Time Received:

Limit of Dilution Limit of Į, Result Flag Units Quantitation Detection Factor Date Tine Method Analyst Parameter \*\* Pesticides 0.501.0 11/ 6/99 19:44 8082 Carmichael 53 0.380 Aroclor 1016 ΝŪ ug/l 11/ 6/99 19:44 8082 0.50 0.410 1.0 Carmichael 53 Aroclor 1221 MD 09/1 1.0 11/6/39 19:44 8082 Carmichael 53 0.500.400 Aroclor 1237 AD. 09/3 19:44 8082 11/ 5/99 Carmichael 53 Oroclor 1242 ND 09/10.500.430 1.011/ 6/99 19:44 8082 Carmichael 53 HD. 99/1 0.500.480 1.0 rector 1248 1.0 11/6/99 Carmichael 53 0.500 19:44 8082 0.50lor 1254 ЯĐ 69/18082 Carmichael 53 0.500.500 1.0 11/ 6/99 19:44

ND = Not detected at the limit of quantitation.

Sample Extraction Data

... octor 1260

| Parameter | Ht/Vol<br>Extracted | Extract Vol | Date     | Analyst  | Method |  |
|-----------|---------------------|-------------|----------|----------|--------|--|
| PCI('s    | 500. н1             | 5.00 nl     | 10/28/99 | C. Terry | 3510   |  |

19473.

Z Recovery Target Range Surrogate

pob surr - TCMX

78.

20. - 122.

Authorized bu:



#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC. 8311

JOHN STATHAM

916 W RORD STREET TULSA, DK 74107

Lab Number: 99-A163235 Sample ID: LAFBCLFMW-401

Sample Type: Ground water

Site ID:

Date Collected: 10/23/99

Time Collected: 12:43 Date Received: 10/26/99

Time Received:

Projecti

Project Name: LAREDO AIR FURCE BASE

Sampler GREG SNIDER

Limit of Dilution Limit of Result Flag Units Avantitation Detection Factor Date Tine Method Analyst Ha Pesticides 1.0 11/6/99 20:07 8082 Carmichael 53 SD 0.9730.500.330preclor 1016 20:07 E082 Carmichael 53 0.410 1.0 11/6/99 0.50ΝÜ 04/1 Sroclor 1221 1.0 11/6/99 Carmichael 53 20:07 8082 HD. 09/1 0.50 0.400Arcolor 1232 1.0 11/6/99 20:07 8082 Carmichael 53 ΗD uq/10.50 0.460 Aroclor 1242 1.0 11/6/99 20:07 8082 Carmichael 53 0.50 0.480inclor 1243 ЖD 0.97111/ 6/99 1.0 20:07 8082 Carmichael 53 9.500lor 1254 HO m/10.5020:07 8082 Carmichael 53 1.0 11/ 6/99 m. oclor 1260  $v\psi/1$ 0.500.50080

HD = Not detected at the limit of quantitation.

Sample Extraction Data

| Parameter | Ht/Vol<br>Extracted | Extract Vol | Date     | Analyst  | Method |
|-----------|---------------------|-------------|----------|----------|--------|
| PCB's     | 500. nl             | 5.00 H1     | 10/28/99 | C. Terry | 3510   |

| Surrogate   | % Recovery                                      | Target Range                                    |
|---|---|---|
| No. 400 talk data data data data data data data dat | unin gape may tree fact dat \$10 plan 664 files | carr a par man man man man man man har feet was |
|   | 0.4   | 20 - 122  |

pob surr - TCMX

84.

Authorized by:



### ANALYTICAL REPORT

ORC & ASSOCIATES, INC 8311

MAHTATE MHOU

916 W. ZERD STREET TULSA, OK 74107

Lab Number: 99-A163236 Sample ID: LAFBCLFMW-402 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99

Time Collected: 12:43 Date Received: 10/26/99

Time Received: 9:00

Projecti

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

| Paranete   | er Result | Flag Units | Limit of<br>Ruantitation | Limit of<br>Detection              | Dilution<br>Factor | Date     | Tine   | Method | Analyst B     |
|--|-----------|------------|--------------------------|------------------------------------|--------------------|----------|--------|--------|---------------|
| and the second s |           |            |                          | UNU AND SER TO STY AND SEA AND SEA |                    |          |        |        |               |
| *K Pesticides  |           |            |                          |                                    |                    |          |        |        |               |
| Areclor 1016   | ЖD        | ug/1       | 0.50                     | 0.330                              | 1.0                | 11/ 8/99 | 20: 29 | 8082   | Carmichael 53 |
| Arocler 1221   | OK        | 0g/l       | 0.50                     | 0.410                              | 1.0                | 11/ 6/99 | 20:29  | 8082   | Carmichael 53 |
| Aroclor 1232   | ОК        | 4g/1       | 0.50                     | 0.400                              | 1.0                | 11/ 6/99 | 20:29  | 8082   | Carmichael 53 |
| Aroclor 1242   | DK        | ug/1       | 0.50                     | 0.480                              | 1.0                | 11/ 6/99 | 20: 29 | 8082   | Carmichael 53 |
| melor 1246   | NO        | 09/1       | 0.50                     | 0.480                              | 1.6                | 11/ 6/99 | 20:29  | 8082   | Carmichael 53 |
| lor 1254   | жо        | ug/3.      | 0.50                     | 0. <b>50</b> 0                     | 1.0                | 11/ 6/99 | 20:29  | 8082   | Carmichael 53 |
| muclor 1260  | КО        | ug/l       | 0.50                     | 0.500                              | 1.0                | 11/ 6/99 | 20:29  | 8082   | Carmichael 53 |

ND = Not detected at the limit of quantitation.

| Sample | Extraction | Data |
|--------|------------|------|
|--------|------------|------|

| Parameter       | Wt/Vol<br>Extracted | Extract Vol | Date            | Analyst  | Method  |
|-----------------|---------------------|-------------|-----------------|----------|---------|
| PCR's           | 500. н1             | 5.00 н1     | 10/28/99        | С. Тетту | 3510    |
| Surrogate       |                     |             | % Recovery      | -        | : Range |
| pob surr - TCMX |                     |             | <del>7</del> 4. | 20.      | - 122.  |

Authorized by:



## ANALYTICAL REPORT

CRC & ASSOCIATES, INC

916 W. ZORD STREET TULSA, DK 74107

JOHN STATHAM

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler GREG SNIDER

Lab Number: 99-A163237 Sample ID: LAFBCLFMW-501 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 14:41 Date Received: 10/26/99

Time Received: 9:00

|          | Paraneter | Result | Flag Units    | Limit of<br>Quantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine   | Method | Analyst &     |
|----------|-----------|--------|---------------|--------------------------|-----------------------|--------------------|----------|--------|--------|---------------|
| H# Pesti | loides    |        |               |                          |                       |                    |          |        |        |               |
| Arcelor  | 1014      | ЯD     | 99/1          | 0,50                     | 0.380                 | 1 0                | 11/ 6/99 | 20: 51 | 8082   | Carmichael 53 |
| Aroclor  |           | KD     | 96/]          |                          | 0.410                 | 1.0                | 11/ 6/99 | 20:51  | 8082   | Carmichael 53 |
| Aroclor  |           | ОК     | មច្ច/3        | 0.50                     | 0.400                 | 1.9                | 11/ 6/99 | 20:51  | 8082   | Carmichael 33 |
| Aroclor  |           | ND     | ย์สูงไว้      |                          | 0.480                 | 1.0                | 11/ 6/99 | 20:51  | 8082   | Carmichael 53 |
| ^mocler  |           | HD     | ug/l          | 0.50                     | 9,480                 | 1.0                | 11/ 6/99 | 20:51  | 8082   | Carmichael 53 |
|          | 1254      | ДK     | υ <b>ς</b> /3 | 0.50                     | 0.500                 | 1.0                | 11/ 6/99 | 20:51  | 8082   | Carmichael 53 |
| lor      |           | RD     | υ <u>σ</u> /3 | 0.50                     | 0.500                 | 1.0                | 11/ 6/99 | 20:51  | 8082   | Carmichael 53 |

ND = Not detected at the limit of quantitation.

| Sample Extraction | Data |
|-------------------|------|
|-------------------|------|

| Surrogate % Recovery                         | Target Range   |
|--|----------------|
| PCR's 500 Hl 5.00 Hl 10/28/99                | C. Terry 3510  |
| Ht/Vol Parameter Extracted Extract Vol. Date | Analyst Method |

pob surr - TCMX

87.

20. - 122.

Authorized by:

Theodore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

00296

| Data Review and Validation              | for:  | Metals and/                                | or Cy              | yani              | de       |       | į.             |                  |   |
|---|---|--|--------------------|-------------------|----------|-------|----------------|------------------|---|
| Project Name & Task:                    | LA  | REDO AFB                                   |                    |                   |          |       |                |                  |   |
| Project # & Case/SDG:                   | 15  | 3479.DV.ZZ                                 |                    |                   |          | 1658  | 56             |                  |   |
| Methods: ILM04.0 나 SW                   | -846 (6   | 010B,7000 Series)                          |                    | 200               | seri     | es [  | 300 series     | SM               | 3000 series                                       |
| Program: AFCEE NF                       | ESC   | Other:                                     | Number of Samples: |                   |          |       |                |                  | 5   |
| Field QC Samples:                       | 401   | 1402 - 1. Dup.                             |                    |                   |          |       | _              |                  |   |
|   |   | Valle                                      |                    |                   |          | //    | 16/00          |                  |   |
| Reviewed by & Date:                     | <u>&amp;/                                    </u> | <u> </u>                                   |                    |                   |          |       | <i>w</i> /00_  |                  |   |
| Matrix: Water Soil                      | <u> </u>  | Other /                                    |                    |                   |          |       |                |                  |   |
| O. lite Control                         | Form  | Requirements                               |                    |                   |          | Che   | ck             | F                | lags Applied                                      |
| Quality Control                         | #   | Kequii ements                              | au                 | f No <sup>4</sup> | ' ch     | l     | ee comments)   |                  |   |
| Data Pkg Complete (DP)                  |   | All required deliverables in pkg.          | 4                  |                   | _        | No*   | Not provided   | È                | Flags Applied                                     |
| Jaila 1 kg Complete (21)                | _   | All samples on COC reported                | 4                  |                   | _        | No*   |                |                  | Flags Applied                                     |
| Holding Times (HT)                      |   | Cyanide 14 day HT met                      |                    | OK .              |          | No*   |                |                  | Flags Applied                                     |
| ,                                       | 14,   | Mercury 28 day HT met                      | 4                  | 5K_               |          | No*   |                |                  | Flags Applied                                     |
|   | coc   | Other metals 160 day HT met                | 12                 | <u>5κ</u>         |          | No*   |                | L                | Flags Applied                                     |
| Initial Calibration (IC)                | 14  | Min. initial # of levels per method        | <u></u>            | 5K                |          | No*   | Not provided   | L                | Flags Applied                                     |
|   | raw   | Linearity method criteria                  | 1                  | OK_               |          | No* [ | Not provided   |                  |   |
|   | 2   | ICV criteria                               | 4                  |                   | _        | No*   |                | <u>_</u>         |   |
| Continuing Calibration (CC)             | 14  | CCV frequency                              | 1                  |                   | Ц        | No*   |                | L                | ] Flags Applied                                   |
|   | 2   | CCV critieria                              | 4                  |                   |          | No*   |                | <del>  -</del>   | <b>T</b>  |
| Blanks (PB,EB,FB/AB)                    | 3   | Detects (>RL/CRDL)                         |                    | OK_               | 4        | No*   | see blnk wksht | 1                | J Flags Applied                                   |
| ICB and CCB                             | 3   | ICB, CCB                                   | 10                 |                   | Ц        | No*   | see blnk wksht | -                |   |
| Prep Blank Frequency (PB)               | 3   | 1 PB per batch                             | 101                |                   | Ц        | No*   |                | <del> </del>     | 1   |
| ICP Interference Check (ICS)            | 4   | Method criteria met                        | 14                 |                   | $\sqcup$ | No*   |                | 片                | Flags Applied                                     |
| MS/MSD or MS/LD                         | 5   | MS/MSD MS/LD None*                         | -                  | OK                | -        | MO*   |                | 1                | Flags Applied                                     |
|   | 5   | Recovery Limits: Lab 4 Meth                | +=                 | OK_               | 4        | No*   |                | -                |   |
|   | 6   | Precision criteria                         |                    |                   | H        | No*   | 77             | ╁                | T=1 A   |
| Post Spike Samp. Recov.                 | 5   | Criteria met                               |                    | OK_               | ┡        | No*   | N/A            | 뉴                | Flags Applied                                     |
| Duplicate Samples (LD)                  | 6   | Criteria met                               | 2                  | _                 | ┝        | No*   | N/A            | 卄                |   |
| LCS (BS)                                | 7   | Frequency                                  | 14                 |                   | ┾        | No*   | ∐ N/A          |                  | J riags Applied                                   |
| LCS/LCSD                                | -   | Acceptance criteria met                    | -                  |                   | 누        | No*   | □ N/A          | ╁┲               | Flags Applied                                     |
| Standard Addition                       | 8   | Criteria met                               |                    | OK_               | ╁        | No*   | □ N/A          | ╫                | Flags Applied                                     |
| ICP Serial Dilution (SD)                | 9   | Criteria met Internal Standards used       | 1                  | OK<br>OK          | ┝        | No*   | 4N/A           | ┼┺               | _ riags Applica                                   |
| Internal Standard (IS)                  | 1   | All hits within cal. Range                 |                    |                   | ۲        | No*   | All ND         | $\dagger \Gamma$ | Flags Applied                                     |
| Sample Evaluations (SAM)                | 1   | Total > Dissolved                          |                    | OK                | 1        | 100*  | □ N/A          |                  | Flags Applied                                     |
| Et ald Daniel and (ED)                  | 1   | Precision of native vs Field Dup           | 14                 |                   | Ť        | No*   | N/A            | 忊                | Flags Applied                                     |
| Field Duplicates (FD)                   |   | ll requirement items may not apply to ever |                    |                   | me       |       |                |                  |   |
| This sheet is applicable to mulliple me |   |  | <i>«</i> ,         |                   |          |       | < + D15501     | 1.1.             | A as  |
| Case Narrative Comments:                |   | Momium LOW,                                | /N                 |                   | -        | 1 AC  |                | <u> </u>         | W My  |
|   | 2 A B   | millon how ju                              | 015                | 501               | <u>u</u> | ell   | M& NO          |                  | Externe   |
|   |   | ,  |                    |                   |          |       |                | 6                | on Jones  |
|   |   | C  |                    |                   |          |       |                |                  |   |
| QC Item                                 |   | Comn                                       | nents              |                   |          |       |                |                  |   |
|   |   |  |                    |                   |          |       |                |                  |   |
| RANKS AU                                |   | ND   |                    |                   |          |       |                |                  |   |
| TINKIT TIVE                             |   |  |                    |                   |          |       |                |                  |   |
|   | 7   |  | 2 11               | , 0               | ,        |       | -M. "-         | 7                | <del>, , , , , , , , , , , , , , , , , , , </del> |
| MS/NSD CH                               | Bon   | 111m - 10486 > 1:                          | 2.4                |                   | 2        |       | 4/49 -         | <u>_</u>         | WS  |
| 1 6                                     | num   | 1 cm - D1650/ved =                         | 69.                | 9                 | 7        | 3     |                |                  |   |
|   | W 1/  | William William Control                    | <u> </u>           |                   |          |       | ,              |                  |   |
|   |   | ,  |                    |                   |          |       | 10 . /         |                  | 110 71  |
| 407 1/4 Distobed -                      | 201   | Num (mw-402)                               | 10                 | 1/                | 2        | _     | 10 ug/c        |                  | NO HA   |
|   | 7-  | <u>-</u>                                   | Dr                 | 554               | /        | ed    | =11 ug/L       |                  | •   |



## ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

JOHN STATHAM

716 W. ZERD STREET

TULSA, DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler: GREG SNIDER

Lab Number: 99-A163233 Sample ID: LAFBCLFMW-101 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 8:45 Date Received: 10/26/99

Time Received: 9:00

| Parameter           | Result Flag  | Units | Limit of<br>Quantitation                 | Linit of<br>Detection | Dilution<br>Factor | Date     | Tine | Method                    | Analyst   | Ŗ9:                                     |
|---------------------|--|-------|--|-----------------------|--------------------|----------|------|---------------------------|-----------|---|
| KeMetals            | and the second s |       | and the desire the case of the desire of |                       |                    |          | ~~~  | 1 00 TEV STE SEA ON. 1188 |           | *************************************** |
| and the state of    |  |       |  |                       |                    |          |      |                           |           |   |
| Arsenic, Total      | טא   | 99/1  | 5.0                                      | 2.5                   | 1.0                | 11/ 9/99 | 7:08 | 6010B                     | R. Kelley | 793                                     |
| Arsenic, Dissolved  | ЖD   | ug/1  | 5.                                       | 2.0                   | 1.0                | 11/ 9/99 | 7:10 | 6010E                     | R. Kelley | 793                                     |
| Narium, Total       | 27.0   | 09/1  | 10.0                                     | 1., 5                 | 1.0                | 11/ 9/99 | 7:08 | 6010R                     | R. Kelley | 793                                     |
| Barium, Dissolved   | 26.0   | 09/1  | 10.0                                     | 0.2                   | 1.0                | 11/ 9/99 | 7:10 | 60108                     | R. Kelleÿ | 793                                     |
| Cadmium, total      | AD.  | 09/1  | 10                                       | 0.5                   | 1.0                | 11/ 9/39 | 7:08 | 80100                     | R. Kelley | 793                                     |
| " datum, Dissolved  | ar<br>Gr   | 69/1  | 1.0                                      | 0.2                   | 1.0                | 11/ 9/99 | 7:10 | 6010B                     | R. Kelley | 793                                     |
| rion, total         | HE UJ MS   | ug/L  | 5.0                                      | 1.9                   | 1.0                | 11/ 9/99 | 7:08 | 60106                     | R. Kelley | 793                                     |
| onium, Dissolved    | HE UJ MS   | 1/gu  | 5.0                                      | 0.4                   | 1.0                | 11/ 9/99 | 7:10 | 6010B                     | R. Kelley | 793                                     |
| Lead                | RD   | 06/1  | 3.0                                      | -0.5-                 | 1.0                | 11/ 9/99 | 7:08 | 6010B                     | R. Kelley | 793                                     |
| Lead, Dissolved     | MD   | บอุ/โ | 3.0                                      | 2.6                   | 1.0                | 11/ 9/99 | 7:16 | 6010B                     | R. Kelley | 793                                     |
| Mercury, Total      | סא   | 99/1  | 0.20                                     | 0.1                   | 1.0                | 11/ 9/99 | 7:13 | 7470                      | G. NcCord | 793                                     |
| Mercury, Dissolved  | טא   | 09/1  | 0.20                                     | 0.1                   | 1.0                | 11/ 9/99 | 7:13 | 7470                      | G. McCord | 793                                     |
| Selenium, Total     | 10.0   | 09/1  | 5.0                                      | 2.4                   | 1.0                | 11/ 9/99 | 7:08 | 6010B                     | R. Kelley | 793                                     |
| Sclenium, Dissolved | KD   | 06/1  | 5, 0                                     | 4.7                   | 1.0                | 11/ 9/99 | 7:10 | 6010E                     | R. Kelley |   |
| Silver, Total       | KD   | ug/1  | 5.0                                      | 0.6                   | 1.0                | 11/ 9/99 | 7:08 | 6010B                     | R. Kelley | 793                                     |
| Silver, Dissolved   | KD   | ug/1. | 5.6                                      | 1.2                   | 1.0                | 11/ 9/99 | 7:10 | 6010B                     | R. Kelley | 793                                     |

HD = Not detected at the limit of quantitation.

Authorized by:

Therdore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

> M 1/6/08 00298

# SPECIALIZED ASSAYS, INC.



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC. 8311

JOHN STATHAM

916 W. 23RD STREET TULSA, DK 74107

Project:

Project Name: LAREDO AIR FORCE BASE

Sampler, GREG SNIDER

Lab Number: 99-A163234 Sample ID: LAFBCLFMW-201 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99

Time Collected: 9:48

Date Received: 10/26/99

Time Received: 9:00

| Paraneter           | Result Flag | Units         | timit of<br>Quantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine  | Hethod | Analyst   | 831           |
|---------------------|-------------|---------------|--------------------------|-----------------------|--------------------|----------|-------|--------|-----------|---------------|
| *#hetals            |             |               |                          |                       |                    |          |       |        |           |               |
| Arsenic, Total      | X):         | uę/l          | 5. 0                     | 2.5                   | 1.0                | 11/ 9/99 | 7: 08 | 60100  | R. Kelley | 7 <b>93</b> 0 |
| Arsenic, Dissolved  | aя          | uq/l          | <b>5</b> .               | 2.0                   | 1.0                | 11/ 9/99 | 7:16  | 601GB  | R. Kelley | 793           |
| Barium, Total       | 28.0        | uq/l          | 10.0                     | 1.5                   | 1.0                | 11/ 9/99 | 7: 08 | 60106  | R. Kelley | 793           |
| Barium, Dissolved   | 27.0        | 09/1          | 10.0                     | 0 2                   | 1.0                | 11/ 9/99 | 7:10  | 6010E  | R. Kelley | 793           |
| Cadmium, total      | 1.0         | 09/1          | 1.0                      | 0.5                   | 1.0                | 11/ 9/99 | 7:08  | 6010B  | R. Kelleÿ | 793           |
| 'mion, Dissolved    | 1.0         | uq/1          | 1.0                      | 0.2                   | 1.0                | 11/ 9/99 | 7:10  | 6010B  | R. Kelley | 793           |
| nium, total         | # U5 MS     | 09/1          | 5.0                      | 1.7                   | 1.0                | 11/ 9/99 | 7:08  | 6010B  | R. Kelley | 793           |
| um-onium, Dissolved | MUI MS      | ug/1          | 5.0                      | 0.4                   | 1.0                | 11/ 9/39 | 7:10  | 6010B  | R. Kelley | 793           |
| Lead                | HD          | ug/3.         | 3, 0                     | 0.5                   | 1.0                | 11/ 9/99 | 7:08  | 6010B  | R. Kelley | 793           |
| Lead, Dissolved     | HD          | υ <u>σ</u> /1 | 3.0                      | 2. 6                  | 1.0                | 11/ 7/99 | 7:10  | 6010E  | R. Kelley | 793           |
| Mercury, Total      | AD:         | vg/1          | 0.20                     | 0.1                   | 1.0                | 11/ 9/99 | 7:13  | 7470   | G. McCord | 793           |
| Mercury, Dissolved  | KD.         | Vq/1          | 0.20                     | 0.1                   | 1.0                | 11/ 9/99 | 7:13  | 7470   | 6. NcCord | 793           |
| Selemium, Total     | KD          | ug/1.         | 5.0                      | 2.4                   | 1.0                | 11/ 9/99 | 7:08  | 6010E  | R. Kelleg | 793           |
| Selemium, Dissolved | HD          | ug/1          | 5.0                      | 4.7                   | 1.0                | 11/ 9/99 | 7:10  | 6010B  | R. Kelley | 793           |
| Silver, Total       | нр          | uq/1          | 5.0                      | 0.6                   | 1.0                | 11/ 9/99 | 7:08  | 6010B  | R. Kelley | 793           |
| Silver, Dissolved   | OK          | uq/1          | 5.0                      | 1.2                   | 1.0                | 11/ 9/99 | 7:10  | 6010B  | R. Kelley | 793           |

MD = Not detected at the limit of quantitation.

Authorized by:

Theodore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr.

Johnny A. Mitchell, Technical Serv. Dir.

UK 1/6/00

## SPECIALIZED ASSAYS, INC.



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

## ANALYTICAL REPORT

CRC & ASSOCIATES, INC 8311

JOHN STATHAM

916 W. 23RD STREET FULSA: OK 74107

Project:

Project Name: LAREDU AIR FORCE BASE

Hampler: GREG SNIDER

Lab Number: 99-A163235 Sample ID: LAFBCLFMW-401 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 12:43 Date Received: 10/26/99 Time Received: 9:00

| Parameter           | Result flag | Units | Limit of<br>Ruantitation | Limit of Detection | Pilution<br>Factor | Date     | Tine | Method         | Analyst   | Ba          |
|---------------------|-------------|-------|--------------------------|--------------------|--------------------|----------|------|----------------|-----------|-------------|
| ≪Metals             |             |       |                          |                    |                    |          |      |                |           |             |
| Prsenic, Total      | HD:         | ug/1  | 5, 0                     | 2.5                | 1.0                | 11/ 9/99 | 7:08 | 6010E          | R. Kelley | <b>79</b> 3 |
| Arsenic, Dissolved  | סא          | 09/1  | 5.                       | 2.0                | 1.0                | 11/ 9/99 | 7:10 | 6010B          | R. Kelley | 793         |
| Barium, Total       | 44.0        | 09/1  | 10.6                     | 1.5                | 1.0                | 11/ 9/99 | 7:08 | 60100          | R. Kelley | 793         |
| Bartun, Dissolved   | 37.0        | 09/1  | 10.0                     | 0.2                | 1.0                | 11/ 9/99 | 7:10 | 6 <b>010</b> 0 | R. Kelley | 793         |
| Cadmium, total      | 2 0         | 09/1  | 1.0                      | 0.5                | 1.0                | 11/ 9/99 | 7:08 | 6010B          | R. Kelley | 793         |
| Anium, Dissolved    | HD          | 09/1  | 1.0                      | 0.2                | 1.0                | 11/ 9/99 | 7:10 | 60108          | R. Kelley | 79          |
| nium, total         | 42.8 J ms   | 69/1  | 5.0                      | 1.9                | 1.0                | 11/ 9/99 | 7:08 | 60109          | R. Kelleş | 79:         |
| unconium, Dissolved | MY UJ MS    | 00/1  | 5.0                      | 0.4                | 1.0                | 11/ 9/99 | 7:10 | 60100          | R. Kelley | 79:         |
| Lead                | 6.0         | Ug/1  | 3.0                      | 0.5                | 1.0                | 11/ 9/99 | 7:08 | 60100          | R. Kelley | 79:         |
| .ead, Dissolved     | AD.         | ug/3. | 3.0                      | 2.6                | 1.0                | 11/ 9/99 | 7:10 | 60106          | R. Kelley | 79          |
| Mercury, Total      | но          | 09/1  | 0.20                     | 0.1                | 1.0                | 11/ 9/99 | 7:13 | 7470           | G. NcCord | 79          |
| Mercury, Dissolved  | aк          | 09/1  | 0.26                     | 0.1                | 1.0                | 11/ 9/99 | 7:13 | 7470           | G. NcCord | 79          |
| Selenium, Total     | 13.0        | uq/1  | 5.0                      | 2.4                | 1.0                | 11/ 9/39 | 7:03 | 6010E          | R. Kelley | 79          |
| Selenium, Dissolved | 7. 0        | ug/1  | 5.0                      | 4.7                | 1.0                | 11/ 9/99 | 7:10 | 6010B          | R. Kelley | 79          |
| Silver, Total       | טא          | ug/1  | 5.0                      | 0.6                | 1.0                | 11/ 9/99 | 7:08 | 6010B          | R. Kelley | 79          |
| Silver, Dissolved   | אט          | ug/l  | 5.0                      | 1.2                | 1.0                | 11/ 9/99 | 7:10 | 6010B          | R. Kelley | 79          |

XD = Not detected at the limit of quantitation.

Authorized by:

Theotore J. Duello, Ph.D., QA Officer Michael H. Dunn, M.S., Technical Dir. Danny B. Hale, M.S., Laboratory Mgr. Johnny A. Mitchell, Technical Serv. Dir.

HK 1/6/6C

# SPECIALIZED ASSAYS, INC.



2960 Foster Creighton Dr. P.O. Box 40566 Nashville, TN 37204-0566 Phone 1-615-726-0177

## ANALYTICAL REPORT

CRC & ASSUCIATES. INC 8311

JOHN STATHAM

916 W. ZORD STREET TULSA, OK 74107

Project

Project Name: LAREDO AIR FORCE BASE

Sampler GREG SNIDER

Lab Number: 99-A163236 Sample ID: LAFBCLFMW-402 Sample Type: Ground water

Site ID:

Date Collected: 10/23/99 Time Collected: 12:43 Date Received: 10/26/99 Time Received: 7:00

| Paraneter           | Result Flag | Units | Limit of<br>Ruantitation | Limit of<br>Detection | Dilution<br>Factor | Date     | Tine | Method         | Analyst   | B2  |
|---------------------|-------------|-------|--------------------------|-----------------------|--------------------|----------|------|----------------|-----------|-----|
| <pre>sxMetals</pre> |             |       |                          |                       |                    |          |      |                |           |     |
| Arsenio, Iotal      | НD          | ug/1  | 5, 6                     | 2.5                   | 1.0                | 11/ 9/99 | 7:08 | 6010E          | R Kelley  | 79: |
| Arsenic, Dissolved  | HD          | Ug/1. | <b>5</b> .               | 2.0                   | 1.0                | 11/ 9/99 | 7:10 | 6010B          | R. Kelley |     |
| Narium, Total       | 46.0        | 09/1  | 10.0                     | 1.5                   | 1.0                | 11/ 9/99 | 7:08 | 6010R          | R. Kelley |     |
| Barium, Dissolved   | 36.0        | 09/1  | 10.0                     | 0.2                   | 1.0                | 11/ 9/99 | 7:16 | 60106          | R. Kelley |     |
| Cadmium, total      | 1.0         | 0g/l  | 1.6                      | 0.5                   | 1.0                | 11/ 9/99 | 7:08 | 6010B          | R. Kelley |     |
| Tidmium, Dissolved  | KD          | ug/l  | 1.0                      | 0.2                   | 1.0                | 11/ 9/99 | 7:10 | 60108          | R. Kelley |     |
| mium, total         | 55.0 J Mg   | ug/1  | 5.0                      | 1.9                   | 1.0                | 11/ 9/99 | 7:08 | 60108          | R. Kelley |     |
| union, Dissolved    | JH UJ MS    | ug/l  | 5.0                      | 0.4                   | 1.0                | 11/ 9/99 | 7:10 | 6010B          | R. Kelley |     |
| i.ead               | 6. Ü        | Ug/1  | 3.0                      | 0.5                   | 1.0                | 11/ 9/39 | 7:08 | 60100          | R. Kelley |     |
| Lead, Dissolved     | NE:         | ug/l  | 3.0                      | 2. 6                  | 1.0                | 11/ 9/99 | 7:10 | 6010B          | R. Kelley | 79  |
| Mercury, Total      | XD          | 09/1  | 0.20                     | 0.1                   | 1.0                | 11/ 9/99 | 7:13 | 7470           | G. HcCord | 79  |
| Mercury, Dissolved  | Hi)         | 11q/3 | 0, 20                    | 0.1                   | 1.0                | 117 9799 | 7:13 | 7470           | G. McCord | 79  |
| Selenium, Total     | 10.0        | ug/1  | 5.0                      | 2.4                   | 1.0                | 11/ 9/99 | 7:08 | 60108          | R. Kelley | 79  |
| Selemium, Dissolved | 11.0        | ย์จ/1 | 5.0                      | 4.7                   | 1.0                | 11/ 9/99 | 7:10 | 601 <b>0</b> B | R. Kelley | 79  |
| Silver, Total       | МБ          | ug/l  | 5.0                      | 0.6                   | 1.0                | 11/ 9/99 | 7:08 | 6010B          | R. Kelley |     |
| Silver, Dissolved   | HD          | ug/1  | 5. 0                     | 1.2                   | 1.0                | 11/ 9/99 | 7:10 | 6010E          | R. Kelley |     |

ND = Not detected at the limit of quantitation.

Authorized by:



Project Name: LAREDO AIR FURCE SASE

20.0

20.0

ND

#### ANALYTICAL REPORT

CRC & ASSOCIATES, INC. 8311

JUHN STATHAM

Project

Barium, Total

Cadmium, total

Barium, Dissolved

916 W. 23RD STREET TULSA, DK 74107

Sampler: GREG SNIDER

Lab Number: 99-A163237 Sample ID: LAFBCLFMW-501 Sample Type: Ground water

Site JD:

Date Collected: 10/23/99

Time Collected: 14:41

Date Received: 10/26/99

Time Received:

1.0 11/ 5/55

1.0 11/ 9/39

1.0 11/ 9/99

60100

6010B

7:08

7:10

7:08 6010B

R. Kelley 79

R. Kelley 79

R. Kelley 79

Limit of Limit of Dilution Result Flag Units Ruantitation Detection Factor Date Tine Method Analyst ..... plants are not as a set that the notion of the set of t \*\*Metals Arsenic, Total ND. 5.0 2.5 R. Kelley 79 80/1 1.0 11/ 9/99 7:08 6010B Arsenic, Dissolved ÜĦ vq/15. 2.0 1.0 11/ 9/99 7:10 60108 R. Kelley 79

10.0

10.0

1.0

69/1

10/1

99/1

| ' Anium, Dissolved  | КD       | 497).  | 1.0   | 0.2  | 1.0 | 11/ 9/99 | 7:10 | 60100 | R. Kelleg 79 | } |
|---------------------|----------|--------|-------|------|-----|----------|------|-------|--------------|---|
| mium, total         | # UJ M   | ∕ ug/1 | 5.0   | 1.9  | 1.0 | 11/ 9/99 | 7:08 | 6010B | R. Kelleg 79 | ì |
| onium, Dissolved    | M IN THE | 0g/l   | 5, 6  | 8.4  | 1.0 | 11/ 9/99 | 7:10 | 6010B | R. Kelley 79 | 7 |
| Lead                | סא       | ug/1   | 3. 0  | 9.5  | 1.0 | 11/ 9/99 | 7:08 | 6010B | R. Kelley 79 | 3 |
| Lead, Dissolved     | קא       | 09/1   | 3.0   | 2.6  | 1.0 | 11/ 9/99 | 7:10 | 60100 | R. Kelley 79 | ; |
| Mercury, Total      | HD OH    | ug/1   | 0. 20 | 0.1  | 1.0 | 11/ 9/39 | 7:13 | 7470  | G. McCord 79 | 7 |
| Mercury, Dissolved  | дĸ       | ug/l   | 0. 20 | 0.1  | 1.0 | 11/ 9/99 | 7:13 | 7470  | 6. NeCord 79 | 3 |
| Selenium, Total     | 11.0     | ug/1   | 5.0   | 2.4  | 1.0 | 11/ 9/99 | 7:08 | 6010B | R. Kelley 79 | 9 |
| Selenium, Dissolved | 8.0      | Ug/1   | 5.0   | 4.7  | 1.0 | 11/ 9/99 | 7:10 | 6010B | R. Kelley 79 | ş |
| Silver, Total       | סא       | ug/l   | 5.0   | 0.6  | 1.0 | 11/ 9/99 | 7:08 | 6010B | R. Kelley 79 | 5 |
| Silver, Dissolved   | סא       | Ue/1   | 5.0   | 1. 2 | 1.0 | 11/ 9/99 | 7:10 | 60100 | R. Kelleu 79 | 9 |

1.5

0.2

0.5

ND = Not detected at the limit of quantitation.

Authorized by: