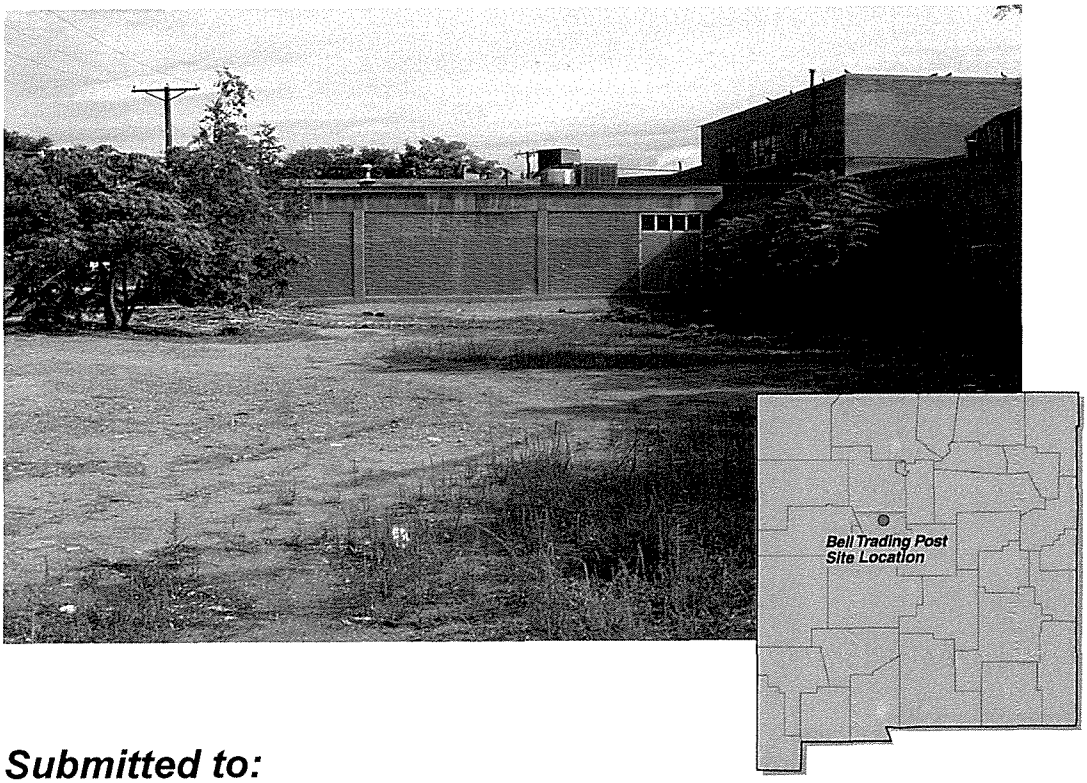
Phase II
Site Characterization Report

Former Bell Trading Post Property
Albuquerque, New Mexico



Submitted to:

New Mexico Environment Department
Voluntary Remediation Program

Submitted by:

Duke Engineering & Services
A Duke Energy Company

Duke Engineering & Services, Inc.
6501 Americas Parkway NE, Suite 810
Albuquerque, New Mexico 87110

90097058

November 2001

PHASE II
SITE CHARACTERIZATION REPORT
FORMER BELL TRADING POST PROPERTY
ALBUQUERQUE, NEW MEXICO

Prepared under Contract No. 99-667-5000-0015
Project No. 00736.00.0004.02.00011 for:

New Mexico Environment Department
Voluntary Remediation Program
1190 St. Francis Drive
Santa Fe, New Mexico 87502

Prepared by:

Duke Engineering & Services SM
A Duke Energy Company

6501 Americas Parkway Northeast, Suite 810
Albuquerque, New Mexico 87110

November 2001

TABLE OF CONTENTS

Section	Page
LIST OF TABLES	ii
LIST OF FIGURES	ii
LIST OF APPENDICES	ii
ACRONYMS AND ABBREVIATIONS	iii
1.0 INTRODUCTION	1
1.1 General Project Background	1
1.1.1 Limitations and Exceptions of Assessment	3
1.2 Site History	3
1.2.1 Site Description and Features	4
1.2.2 Physical Setting	4
1.2.3 Site History and Land Use	5
1.2.4 Adjacent Property Land Use	5
1.3 Contaminants of Concern	5
1.4 List of Reports Submitted to the Voluntary Remediation Program	6
2.0 SUMMARY OF SITE SAMPLING AND ANALYSIS ACTIVITIES	7
2.1 Purpose of Site Characterization	7
2.1.1 Soil Boring Methods and Procedures	7
2.1.2 Soil Sampling Collection Methods and Procedures	8
2.1.3 Soil Gas Sampling Collection Methods and Procedures	8
2.1.4 Groundwater Sampling Collection Methods and Procedures	9
2.1.5 Sample Handling and Chain of Custody Documentation	9
2.1.6 Health and Safety Plan	10
2.1.7 Quality Assurance/Quality Control	10
2.1.8 Field Documentation	11
2.1.9 Waste Management	11
2.2 Results of Sampling and Analysis	12
2.2.1 Soil	12
2.2.2 Soil Gas	14
2.2.3 Groundwater	15
3.0 DISCUSSION OF HOW ACTIVITIES MEET THE VRP PERFORMANCE STANDARD	18
4.0 CONCLUSIONS AND RECOMMENDATIONS	19
4.1 Conclusions	19
4.2 Recommendations	20
5.0 REFERENCES	21
WARRANTY STATEMENT AND CERTIFICATION	23

LIST OF TABLES

Table	Title	Page
2.1	Photoionization Detector Headspace Results	12
2.2	Subsurface Soil Metals and Cyanide Results	13
2.3	Surface Soil PCB Results	14
2.4	Soil Gas PID Results	14
2.5	Soil Gas VOC Results	15
2.6.	Groundwater Sample VOC Results	15
2.7	Groundwater Metals and Cyanide Results	16
2.8.	Groundwater Cations/Anions Results	16
2.9.	Groundwater Ammonia and pH Results	17

LIST OF FIGURES

Figure	Title
1	Site Location Map
2	Soil Boring Location Map

LIST OF APPENDICES

Appendix	Title
A	Work Plan
B	Soil Boring Logs
C	Field Forms and Field Notes
D	Analytical Results
E	Photographic Log

ACRONYMS AND ABBREVIATIONS

ASTM	American Society for Testing and Materials
bgs	below ground surface
COA	City of Albuquerque
COC	chain-of-custody
C/C	Certificate of Completion
CNC	Covenant Not to Sue
DE&S	Duke Engineering and Services
EDTA	ethylene diamine tetraacetic acid
EPA	U.S. Environmental Protection Agency
ESI	Environmental Services, Inc.
ESA	Environmental Site Assessment
eV	electron-Volt
ft^2	square foot/feet
ft^2/day	square feet per day
HEAL	Hall Environmental Analysis Laboratory
Keers	Keers Environmental, Inc.
Kg	Kilogram(s)
LUST	Leaking Underground Storage Tank
MCL	maximum contaminant level
MDL	minimum detection limit
mg/Kg	milligram(s) per Kilogram
mg/L	milligram(s) per Liter
mL	milliliter(s)
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
PAHs	Polynuclear Aromatic Hydrocarbons
PCB	polychlorinated biphenyl
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act

ACRONYMS AND ABBREVIATIONS (Continued)

SB	soil boring
Site	Former Bell Trading Post Property
SSL	NMED VRP Soil Screening Levels
TCE	trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbon(s)
ug/l	micrograms per liter
UST	Underground Storage Tank
USTB	Underground Storage Tank Bureau
VOCs	Volatile Organic Compounds
VRP	Voluntary Remediation Program
World Motel UST	UST site at the World Motel, 1721 Central Ave. NW

1.0 INTRODUCTION

Duke Engineering & Services (DE&S) has completed a Phase II Site Characterization at the former Bell Trading Post property (Site) located in Albuquerque, New Mexico. The Phase II Site Characterization was completed at the request of the New Mexico Environment Department (NMED) Voluntary Remediation Program (VRP). The Site is located at 1503 Central Avenue, in the downtown area of Albuquerque, New Mexico (Figure 1). NMED required adherence to the American Society for Testing and Materials (ASTM) Standard 1903-97, "Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process" (ASTM 1997) for the format and content of this report.

1.1 General Project Background

Mr. J. T. Michelson owns the Site property, which currently consists of one large (approximately 30,000 square-foot [ft^2]) vacant building. The City of Albuquerque (COA) is considering acquiring this piece of property and is proposing converting the vacant building on the Site into affordable housing units or demolishing the building prior to new construction. The Site qualifies as a Brownfields property, defined by the U.S. Environmental Protection Agency (EPA) as "a site within the United States once used for industrial and/or commercial purposes that is currently abandoned or under-used." The building has been vacant for more than 5 years. The primary soil and groundwater contaminants of concern to the COA are those associated with the jewelry manufacturing and photographic development commercial activities previously conducted at the Site. To assure potential developers and/or the COA of the Site's readiness, and to alleviate concerns regarding liability related to environmental media contamination, the COA has initiated the process for obtaining a Certificate of Completion (C/C) and a Covenant Not To Sue (CNS) through the NMED VRP. The VRP CNS releases landowners from potential liability for environmental contamination associated with a re-developed Brownfield.

The most recent Phase I Environmental Site Assessment for the Bell Trading Post property, "Phase I Environmental Site Assessment, Bell Trading Post and Adjacent Parcels," was completed by Keers Environmental, Inc., (Keers) in December 2000 (Keers 2000). DE&S reviewed this report and found the following important conclusions:

- An active Underground Storage Tank (UST) site has been identified approximately one-eighth of a mile northwest of the Site. The UST site is identified as The World Motel at 1721 Central Avenue NW (World Motel UST). The NMED Underground Storage Tank Bureau (USTB) has indicated that a release of gasoline has impacted groundwater upgradient of the Site.
- The age of the structure located on this Site indicates the potential for construction materials containing either lead or asbestos or both.
- The Site location in a designated flood zone indicates the potential for environmental impact during a major flood event.

A Phase II ESA, "Limited Subsurface Investigation at 1503 Central Avenue, Albuquerque, New Mexico," was completed by Keers in April 1994 (Keers 1994). DE&S reviewed this report and noted the following findings and conclusions:

- Ten surficial soil samples were collected in a crawl space beneath the building. The samples were collected at suspected highly contaminated areas under drains, sumps, and piping. The samples were analyzed for volatile organic compounds (VOCs) and halogenated hydrocarbons using EPA laboratory method SW-846 8010, total cyanide using EPA laboratory method SW-846 9010, and Resource Conservation and Recovery Act- (RCRA-) regulated metals using EPA laboratory method SW-846 AA.

- Results from the limited crawl space investigation revealed that silver, chromium, and lead were present in several surficial soil samples collected from within the crawl space under the building. Two of the subsurface soil samples collected contained metals with concentrations exceeding the Toxicity Characteristic Leaching Procedure (TCLP) regulatory limit. One subsurface soil sample contained 134 parts per million (ppm) lead, and the other subsurface soil sample contained 174 ppm chromium and 1,670 ppm lead. The elevated concentrations of these compounds prompted further field investigation and the collection of soil samples from a depth of 5 feet below the soil surface at each of the two locations where elevated concentrations were detected in the initial investigation. These deeper subsurface soil samples were analyzed using TCLP methods for the specific metals originally detected. Silver concentrations of <0.010 ppm were reported in samples from below locations where initial samples reported elevated silver concentrations. The sample collected below the location where chromium and lead had been detected contained 0.047 ppm chromium and 0.890 ppm lead. Keers indicated that the results from the 5-foot deep samples were well below the EPA regulatory limits and did not recommend additional testing (Keers 1994).

The recommendations from the Keers Phase II ESA report (Keers 1994) included the following:

- Periodic review of the most current UST information to determine and assess the extent of soil and groundwater contamination, if any, that may be caused by the upgradient active World Motel UST and possibly impact the Site. A site that may be unaffected by contamination at the time an assessment is performed may later become contaminated through a natural phenomenon (such as groundwater flow) or through human intervention.

- Comprehensive Site asbestos and lead-based paint surveys following OSHA and EPA regulations for demolition and renovation practices prior to any planned demolition or renovation activities.

- Determination of Site flood potential through review of the most current Bernalillo County Flood Control District flood information.

- Evaluation of the two rectangular depressions in the asphalt to confirm the presence of abandoned septic tanks and to investigate potential soil contamination.

- Depending upon planned Site use and occupancy, possible further evaluation of the subsurface soil beneath the Site structure.

After reviewing these recommendations, NMED requested that DE&S perform a Phase II Site Characterization at the facility to address some of the issues raised during the Phase I ESA. The Phase II Site Characterization scope of work was developed primarily from the completion of a historical Site use review, a series of interviews with individuals knowledgeable of historical Site

uses, and from NMED recommendations. The objectives of the Phase II Site Characterization were to:

- Sample groundwater as it enters and exits the Site area to determine if the groundwater meets the definition of "background" contained in the VRP regulations;
- Characterize exposed surface soil at the Site to determine whether it has been impacted by solvents, cyanide, or heavy metals used in the jewelry manufacturing or commercial film development activities that were previously conducted at the Site; and
- Compare laboratory soil results to NMED VRP Soil Screening Levels (SSL) to determine if soils pose a potential risk to human health and to support Site closure for soil within the context of the NMED VRP requirements.

The scope of the Phase II Site Characterization included the advancement of 12 Geoprobe® soil borings, soil gas sampling, groundwater sampling, headspace analysis of soil samples collected, and collection of soil samples for laboratory analysis. Soil, soil gas, and groundwater samples were submitted to Hall Environmental Analysis Laboratory (HEAL) for analysis. Samples were analyzed for cations, anions, laboratory pH, and cyanide using EPA method 335.4, New Mexico Water Quality Control Commission (NMWQCC)-regulated metals using EPA methods 6010 and 7470/7471A, and VOCs using EPA Method 8260B. The Phase II Site Characterization sampling was completed in general accordance with the Phase II Site Characterization Work Plan (provided as Appendix A).

1.1.1 Limitations and Exceptions of Assessment

Although this report is prepared for NMED only and is intended solely for reliance by NMED, it is a public document and can be reviewed by any member of the public who may wish to do so. DE&S prepared this report in a manner consistent with the level of care and expertise exercised in the field of environmental consulting. The conclusions of this Phase II Site Characterization are based on the results of activities performed in accordance with the Work Plan for this project (Appendix A).

1.2 Site History

Prior to 1947, historical uses of the property were primarily residential. After 1947, historical property use was commercial. From 1947 until 1975, Bell Trading Post occupied the Site building and conducted commercial jewelry manufacturing. The Site is identified as vacant from 1976 until 1982. From approximately 1982 until 1984, Albuquerque Photo Lab occupied the Site building and performed commercial film development. Finally, from 1985 until 1992, Michelson Metals occupied the Site building, using the property as an office for commodity trading only (office use, non-industrial). Site property owner Mr. J. T. Michelson has stated that neither metal work nor jewelry production occurred at the Site after 1975 (Interviews with Mr. J. T. Michelson on April 18 and May 3, 2001, see Appendix A for further information).

1.2.1 Site Description and Features

The Site is located in the COA, Bernalillo County, New Mexico, and consists of approximately 2.5 acres near Old Town. It is bounded to the south by Central Avenue, to the north and northeast by Roma Avenue, to the northwest by Fifteenth Street, to the east by an apartment complex and a vacant business, and to the west by Laguna Boulevard. Currently, one large (approximately 30,000-ft^2) building occupies the Site at 1503 Central Avenue. The Site is legally described as Lots 1 through 7, Block 19, Perea addition, Lot 24, Block 13 of Perea addition, and Lots 3 and 4 of the West End addition. The Site is currently owned by Mr. J. T. Michelson of Sun Country Industries and is currently vacant.

1.2.2 Physical Setting

The Site is located in the southern-central portion of the Albuquerque Basin. This Basin is one of the largest of the southerly trending series of grabens that form the Rio Grande Drainage Basin. The Rio Grande Drainage Basin was formed in response to the Rio Grande Rift (Thorn et al. 1993). The Rio Grande Rift is a northerly to southerly trending, down-dropped crustal extension that originates in Colorado and extends southward for more than 600 miles across New Mexico to south of the Mexico/Texas border.

The Albuquerque Basin is filled with up to 10,000 feet of clastic sediments. These sedimentary deposits are of two types: 1) sediment that has filled the subsiding trough and 2) floodplain deposits, terraces, dunes, alluvial fans and cones, spring deposits, caliche blankets, landslides, and some pediments. The latter group of deposits represent processes of erosion and deposition that may have prevailed throughout subsidence and filling of the basin (Kelley 1977). The Santa Fe Formation sediments fill the majority of the basin.

The Tertiary and Quaternary Santa Fe Formation is composed of unconsolidated to loosely consolidated gravels, sands, silts, and clays. The thickness of this unit ranges from 2,400 feet on the basin margins to 14,000 feet along the axis of the basin. In the vicinity of the Site, the thickness of this formation is approximately 4,700 feet. The Santa Fe Group is overlain by Quaternary sediments, which have a similar facies distribution. These post-Santa Fe deposits are alluvial fan and floodplain deposits and are up to 200 feet thick (Thorn et al. 1993).

The Santa Fe Group and post-Santa Fe deposits are the principal water bearing units in the vicinity of the Site and are hydraulically connected (Thorn et al. 1993). However, the Albuquerque Basin aquifer is anisotropic laterally and vertically due to spatial variations in the lithology of these two water-bearing units (Chamberlin et al. 1992). Clay layers 12 to 15 feet thick are commonly observed in the alluvium of the Albuquerque Basin; these clay layers restrict vertical movement of water and may locally limit hydraulic interconnection between the shallow Quaternary aquifer and the Santa Fe Group aquifer (Thorn et al. 1993). As a result of spatial variations in lithology, variation in the hydraulic transmissivity of the Albuquerque aquifer is extremely large, from less than 10 to 80,000 ft^2/day (Thorn et al. 1993). The hydraulic conductivity of the upper part of the Santa Fe Group varies also, but is estimated to be approximately 20 ft/day, average in the vicinity of the Site (Thorn et al., 1993).

Over time, population growth and the resulting increased water pumpage and use have considerably changed the water table configuration in the Albuquerque area. Groundwater flow in the vicinity of the Site prior to large-scale groundwater development is thought to have been to the southwest, and this condition existed at least into the mid- to late-1930s (Thorn et al. 1993). Groundwater elevation contours representing 1960 to 1961 conditions in the Albuquerque area show a continued general southwesterly flow direction on the eastern side of the Rio Grande; however, a cone of depression is evident in the general area of the Site (Bjorklund and Maxwell 1961). The cone of depression resulted primarily from pumping of the Main Plant well field, previously located in the downtown Albuquerque area. The Main Plant wells were drilled between 1920 and 1948 and consisted of more than 23 wells; the Main Plant well field is now completely abandoned.

Groundwater beneath the Site currently flows in an easterly direction. City-wide groundwater contours from 1992 and simulated 1994 hydraulic head levels reflect a large cone of depression developing on the eastern side of Albuquerque as a result of groundwater withdrawal (Kernodle et al. 1995). The Kernodle study supports the conclusion that this cone of depression may have influenced the groundwater flow direction beneath the Site.

1.2.3 Site History and Land Use

The Site is currently vacant. Mr. J. T. Michelson of Sun Country Industries currently owns the Site.

Past Site uses were identified through historical records review, reconnaissance, observation, interviews, and client-provided information. These property uses are identified in the Phase II Site Characterization Work Plan (Appendix A) and are summarized hereafter:

- Residential housing;
- Former commercial jewelry manufacturing activities; and
- Former commercial photographic development activities.

1.2.4 Adjacent Property Land Use

The area surrounding the Site is developed with commercial buildings. Roma Avenue and a vacant, paved automobile parking lot located beyond Roma Avenue bound the Site to the north. An apartment building and dentist office bordered by a gravel alley are located east of the Site. Central Avenue acts as the Site's southern boundary; vacant lots line the Site's entire southern perimeter across Central Avenue. An apartment building and an office building are located west of the Site, beyond Laguna Boulevard.

1.3 Contaminants of Concern

The potential contaminants of concern are those associated with the jewelry manufacturing and photographic development businesses previously conducted at the Site. These potential contaminants include but are not limited to solvents, cyanide, and heavy metals. The potential contaminants of concern and their possible origins are discussed further in the following paragraphs.

- Based on limited background research of the jewelry manufacturing industry and current jewelry industry practices, the following chemicals can be present at a jewelry manufacturing facility: sodium and/or potassium cyanide, hydrogen peroxide, sulfuric and boric acids, ammonia hydroxide, calcium sulfate, sulfurated potash, potassium bifluoride (and potassium tetraborate), and heavy metals such as gold, silver, and copper.

- Chemicals used in the development of black and white photographic films are: silver halide (contained in emulsifiers); hydroquinone, metol, and phenidone (used as developing agents); sodium hydroxide, sodium carbonate, and sodium tetraborate (applied to activate development); sodium sulfite and potassium metabisulfite (used as preservatives), potassium bromide and benztriazole (restrainers); acetic acid; sodium or ammonium thiosulfate (used to fix development); sodium bisulfite and potassium metabisulfite (employed as neutralizers); and potassium aluminum sulfate and potassium chromium sulfate (applied as hardeners). Chemicals used in the color photographic processes are: potassium ferricyanide and potassium bromide, ethylenediamine tetraacetic acid (EDTA), bleach, hexavalent chromium, and organic dyes.

- Although not identified by the site owner, the potential historical use of chlorinated or other solvents at this type of site is a concern based upon NMED's prior experience.

1.4 List of Reports Submitted to the Voluntary Remediation Program

Keers completed a Phase I ESA of the Site in December 2000. A Phase II ESA, "Limited Subsurface Investigation at 1503 Central Avenue, Albuquerque, New Mexico," was completed by Keers in April 1994. DE&S is not aware of any other environmental assessments and/or site investigations conducted at this Site.

2.0 SUMMARY OF SITE SAMPLING AND ANALYSIS ACTIVITIES

2.1 Purpose of Site Characterization

The primary objective of the Phase II Site Characterization field activities was to collect sufficient environmental data to characterize the Site for evaluation under NMED VRP performance standards. Specific Phase II Site Characterization objectives included:

- Sample groundwater as it enters and exits the Site area to determine if the groundwater would meet the definition of "background" contained in the VRP regulations;
- Characterize soil at the Site to determine whether it has been impacted by solvents, cyanide, or heavy metals; chemicals used in the jewelry manufacturing or commercial film development businesses that occurred at the Site; and
- Compare laboratory soil results to NMED SSL to determine if soils pose a potential risk to human health and to support Site closure for soil within the context of the NMED VRP.

The Work Plan (Appendix A) specifies the sample types, quantities, locations, and analytical methods associated with the Site characterization. The following sections describe the methodologies and standard operating procedures that were used by DE&S personnel to meet the stated objectives of the Phase II Site Characterization field activities at the Site.

2.1.1 Soil Boring Methods and Procedures

Using a Geoprobe® soil investigation unit, 12 soil borings were completed. Drilling was performed by GeoRecovery Systems, Inc. of Arvada, Colorado. Soil boring locations were determined by the DE&S Site geologist and were completed in the proposed locations identified in the Work Plan (see Figure 2 and Appendix A). Two soil borings (SB-01 and SB-02) were located near the northeastern corner of the Site, adjacent to the gravel alley. One soil boring (SB-03) was located near the northwestern corner of the Site, adjacent to the intersection of Roma Avenue and Laguna Boulevard. One soil boring (SB-04) was located near the northern end of the apartment building adjacent to the eastern side of the Site building. Five soil borings (SB-05 to SB-09) were located in the southwestern corner area of the Site, adjacent to the western side of the Site building. Three soil borings (SB-10 to SB-12) were located along the southern side of the Site building, adjacent to the northern side of Central Avenue NW.

Eight soil borings were completed to 4 feet below ground surface (bgs), while four soil borings (SB-01, SB-03, SB-04, and SB-12) were completed to approximately 23 feet bgs. Soil samples were collected continuously from the ground surface to 4 feet bgs in a single 4-foot increment using a transparent acetate liner within a 4-foot macro-sampler. All soil boring equipment used for boring advancement was decontaminated using potable water, washed with Liquinox®, and rinsed with distilled water prior to use in order to remove any potential oils, chemicals, and soil. The soil boring equipment was also cleaned between each boring to minimize any potential cross contamination. Sampling tools (i.e. macro-sampler) were also decontaminated with potable water, washed with Liquinox®, and rinsed with distilled water.

The DE&S Site geologist visually examined the soil cores from each soil boring for lithology and evidence of staining. Lithology was logged in accordance with the Unified Soil Classification System. Soil field screening was conducted using a Rae Systems, Inc., Mini Rae Model PGM-75 portable photoionization detector (PID). The PID was equipped with a 10.5 electron Volt (eV) lamp. The lamp provides the sensitivity needed to ionize the organic compounds suspected to be present at the Site. Prior to sampling and work activities completed at the Site each day, the PID was calibrated with 100-parts-per-million (ppm) isobutylene span gas.

Soil samples were screened with the PID following the heated headspace method. A portion of each soil sample was placed in a polyethylene bag and placed in direct sunlight to warm to ambient air temperature. The tip of the PID probe was then inserted in a small opening in the bag. The organic compound concentration in the air above the soil sample (or headspace) was then analyzed using the PID. PID screening results were recorded at the corresponding depth interval on the soil-boring log and are presented in Table 2.1. The lithologic descriptions, PID readings, and soil sampling intervals were recorded on the soil boring logs (Appendix B).

2.1.2 Soil Sampling Collection Methods and Procedures

In each of the 12 borings, a soil sample was collected from the 0 to 2-foot bgs interval and the 2- to 4-foot bgs interval. All of the shallow soil samples (the 0 to 2-feet bgs interval) collected from each soil boring were submitted for laboratory analysis.

A steel shovel was used to collect one soil sample, SS-01, from the ground surface after stained soil was observed below an electrical transformer on the northeastern corner of the Site, adjacent to the building and soil boring SB-02. This sample was collected only after DE&S discussed the presence of stained soil with NMED and received the approval to collect and submit the surface soil sample for analytical analysis.

2.1.3 Soil Gas Sampling Collection Methods and Procedures

A soil gas sample was collected at each of the 12 boring locations. After the initial soil samples were collected at each soil boring, the Geoprobe®, using a hollow steel tube equipped with an expendable-drive point, advanced the sample tubing to approximately 12 feet bgs (approximately halfway between the ground surface and the groundwater table contact). Upon reaching 12 feet bgs, the expendable drive point was removed from the tip of the steel Geoprobe® drive tubing. Polyethylene tubing was then placed within the hollow center of the Geoprobe® drive tubing and the drive tubing was removed, leaving the polyethylene tubing in place. The polyethylene tubing was slotted at the top and the bottom 1 to 2 feet of the tubing. Before collecting the soil gas sample, air from within the tubing was evacuated. Then the soil gas sample was collected in tedlar bags using a hand-held air pump. The tedlar bags were stored in a cooler at ambient temperature pending delivery to the laboratory.

Prior to soil gas sample collection, the soil gas was analyzed using a PID (the same PID used to screen soil sample headspace). The polyethylene tubing was attached to the tip of the PID and the PID was allowed to evacuate soil gas from the soil boring for a period of approximately two minutes. The PID soil gas reading was then recorded on each respective soil boring log.

2.1.4 Groundwater Sampling Collection Methods and Procedures

Four groundwater samples (SB-01, SB-03, SB-04, and SB-12) were collected at the Site. Groundwater samples from soil borings SB-01, SB-03, and SB-04 (upgradient) are representative of groundwater entering the Site, and the groundwater sample collected from boring SB-12 (downgradient) is representative of groundwater exiting the Site.

Groundwater samples were collected through the annular portion of the Geoprobe® piping using polyethylene sample tubing and a peristaltic pump. Dedicated polyethylene was used to collect each groundwater sample; the polyethylene tubing was discarded immediately following groundwater sample collection.

The sampling equipment was decontaminated prior to sample collection. The sampling equipment was cleaned using a solution of Alconox laboratory soap and tap water and rinsed using deionized water. Clean latex gloves were used at all times while collecting and handling the samples. In addition, the polyethylene tubing was discarded after sample collection of each groundwater sample.

2.1.5 Sample Handling and Chain of Custody Documentation

Each subsurface soil sample was containerized in two 4-ounce glass sample containers. Each soil gas sample was collected in one tedlar bag. Each groundwater sample was placed in three 1-liter plastic bottles, one 500 milliliter (mL) plastic bottle, and three 40-mL glass vials. The three 40-mL glass vials were preserved with mercuric chloride. Sample containers were provided by HEAL. Sample containers were labeled with the following information:

- Project name;
- Field sample number;
- Depth interval;
- Initials of collector;
- Date and time of collection;
- Required analysis; and
- Sample preservation.

Upon completion of sample collection and labeling, the samples were wrapped with bubble wrap, placed in a Zip-Lock™ plastic bag, and placed in an ice-filled cooler. The soil gas samples were placed in a cooler without ice in order to keep the soil gas samples out of direct sunlight. All project samples were collected between October 9 and October 10, 2001. DE&S representatives delivered the samples to HEAL in Albuquerque, New Mexico. Proper chain-of-custody (COC) procedures were adhered to during sample collection, transport, and delivery to HEAL.

Sample field and analytical results are summarized on Tables 2.2 through 2.9 in Section 2.2 of this report. A complete copy of all laboratory analytical results and COCs are included as Appendix D.

2.1.6 Health and Safety Plan

All of the field activities were conducted using Level D personal protection equipment (PPE), including hardhat, gloves, and steel-toed boots. Nitrile gloves were used to handle all samples. Tailgate safety meetings were conducted each morning, and the chemical and physical hazards of the work were reviewed. The breathing air zone was monitored by the on-Site geologist for organic vapors using the PID.

2.1.7 Quality Assurance/Quality Control

Quality assurance (QA) samples were collected to measure precision and accuracy in accordance with the specified QA/quality control (QC) requirements outlined in the Quality Assurance Project Plan for the Site (NMED 2001). For this project, one field blank, one trip blank, two equipment rinsate blanks, one soil sample duplicate, one soil gas sample duplicate, and one groundwater sample duplicate were collected.

The trip blank was analyzed for VOCs by EPA Method 8260B. No VOCs were detected in the trip blank sample analyzed.

Two equipment blanks were collected to determine if sampling equipment and decontamination procedures were contributing contaminants to the soil and water samples. The two equipment blanks were collected by pouring deionized water over the drilling shoe. The equipment blanks were analyzed for cyanide using EPA method 335.4 and metals using EPA methods 6010 and 7470/7471A.

Cyanide was not identified in either of the two equipment rinsate samples. No metals, other than calcium, iron, and sodium, were detected in either of the two equipment rinsate samples. Calcium and iron were detected in the Equipment Rinsate Sample 1 (collected on field day 1) and calcium, sodium, and iron were detected in Equipment Rinsate Sample 2 (collected on field day 2). The concentrations of iron detected in these samples are well below the NMWQCC Standard. There are no NMWQCC Standards for calcium and/or sodium.

The field blank was collected to determine if ambient air contaminants were contributing contaminants to the soil, air, and water samples. The field blank was collected by pouring deionized water through the air and into the sampling vials. The field blank was analyzed for VOCs using EPA method 8260. Field blank analytical results identified only toluene as present in the field blank sample matrix. Toluene was identified at a concentration of 1.2 micrograms per liter (ug/L). The presence of this small concentration of toluene is most likely the result of using a Sharpie® marker to label the sample bottle (these markers contain petroleum compounds).

Duplicates for soil, soil gas, and groundwater were collected to assess field sampling reproducibility. The duplicate soil sample was analyzed for cyanide using EPA method 335.4 and metals using EPA methods 6010 and 7470/7471A. The duplicate for soil gas was analyzed

using EPA method 8260. The duplicate groundwater sample was analyzed for cations and anions using EPA methods 200.7, 300.0, 340.1, 340.1, 350.2, and 353.2, laboratory pH and VOCs using EPA method 8260, cyanide using EPA method 335.4, and metals using EPA methods 6010 and 7470/7471A.

The duplicate for soil was collected from SB-08 at a depth interval of 0 to 2 feet bgs. Relative percent differences between the primary sample and duplicate results were between 0 and 20%. Variability in samples occurred between the primary and duplicate soil sample for the analytes arsenic, lead, and zinc. This type of sample variability is usually attributable to natural variability within the sample matrix.

The soil gas duplicate sample was collected from SB-12 and the relative percent difference between the results were the same (not detected or less than the laboratory detection limit of 0.1 mg/L) for all of the VOC analytes in the EPA Method 8260 list.

The groundwater duplicate sample was collected from SB-12, and the relative percent differences between analytes varied from 1% (pH analysis) to 112% (barium results). The highest relative percent differences occurred within the metal analyses and were most likely the result of variable amounts of suspended sediments within the sample. The QA/QC duplicate sample results for soil, soil gas, and groundwater duplicate samples are included in Tables 2.2 through 2.8 in Section 2.2 of this report.

2.1.8 Field Documentation

Information pertinent to the work performed was recorded in a field logbook. Items included in the logbook were as follows:

- Field activity/subject;
- Personnel on Site;
- Weather conditions;
- Equipment operations and/or problems; and
- Deviations from the Work Plan, including rationale.

Each entry in the field logbook was signed and dated by the author. All data recorded in the field logbook were written using permanent, waterproof ink. Copies of the field notes are provided as Appendix C. Photographs were taken of the field activities at the subject Site. Photographs are provided in Appendix E.

2.1.9 Waste Management

Acetate liners as well as a minimal amount of PPE, such as gloves, were generated as waste during the Site Characterization activities. These materials were discarded as municipal waste. The trash bags were sealed prior to placement in the waste receptacle. No other investigation derived wastes (soil, groundwater. etc.) were generated during this investigation; therefore no containers were left at the Site.

2.2 Results of Sampling and Analysis

The soil, soil gas, and groundwater sample Phase II Site Characterization results are presented in the following sections.

2.2.1 Soil

Subsurface soil encountered during installation of soil borings SB-01 to SB-12 is typical of post-Santa Fe Quaternary alluvial fan and floodplain deposits (described in Section 1.2.2). The borings are comprised primarily of fine-grained sands with some thin interbedded clay layers. No odors were detected in any of the soil samples collected from any of the soil borings. PID readings ranged from 1.2 ppm (SB-01 and SB-02) to 6.6 ppm (SB-06). The PID headspace readings are presented in Table 2.1. Soil boring logs are provided in Appendix B.

Table 2.1.
Photoionization Detector Headspace Results

Soil Boring Number	Depth of Soil Material (feet bgs)	PID Reading (ppm)	Comments
SB-01	0 to 2	1.7	Sand
	2 to 4	1.2	Caliche and sand
SB-02	0 to 2	1.7	Sand and silt
	2 to 4	1.2	Silt and clay
SB-03	0 to 2	4.8	Sand
	2 to 4	4.8	Sand, silt, caliche
SB-04	0 to 2	4.0	Fine sand
	2 to 4	1.7	Fine sand
SB-05	0 to 2	2.4	Sand, silt, caliche
	2 to 4	3.2	Sand, silt, caliche
SB-06	0 to 2	2.4	Fine sand, silt
	2 to 4	6.6	Fine sand, silt
SB-07	0 to 2	4.2	Sand, caliche, silt
	2 to 4	3.8	Sand, caliche, silt
SB-08	0 to 2	4.0	Sand and clay
	2 to 4	5.7	Sand and clay
SB-09	0 to 2	3.9	Sand, clay, silt
	2 to 4	4.4	Sand, clay, silt
SB-10	0 to 2	2.6	Sand, clay, silt
	2 to 4	3.0	Sand, clay, silt
SB-11	0 to 2	4.3	Sand, silt
	2 to 4	4.5	Sand, silt
SB-12	0 to 2	3.8	Sand, silt
	2 to 4	1.7	Sand, silt

NOTES:
bgs = below ground surface
PID = Photoionization detector
ppm = part(s) per million

A total of 13 soil samples were analyzed for cyanide using EPA method 335.4 and metals using EPA methods 6010 and 7470/7471A. The laboratory results and the residential SSLs for the analytes are provided in Table 2.2. Soil sample SB-07(0 to 2 feet) exceeded the SSL concentration for arsenic and soil sample SB-10(0 to 2 feet) exceeded the SSL concentrations for arsenic and iron. These values, although above the residential SSLs for arsenic and iron, are within natural variance levels for soils in the southwestern United States (Welch et al. 1993). Based on this fact, NMED determined that further soil sample analysis (of deeper soil samples collected from the 2- to 4-foot bgs interval from these soil borings) was not necessary.

Table 2.2.
Subsurface Soil Metals and Cyanide Results

Analyte	Residential SSLs (mg/Kg)	SOIL SAMPLE NUMBER/INTERVAL (FEET)												
		SB-01 0 to 2 feet (mg/Kg)	SB-02 0 to 2 feet (mg/Kg)	SB-03 0 to 2 feet (mg/Kg)	SB-04 0 to 2 feet (mg/Kg)	SB-05 0 to 2 feet (mg/Kg)	SB-06 0 to 2 feet (mg/Kg)	SB-07 0 to 2 feet (mg/Kg)	SB-08 0 to 2 feet (mg/Kg)	SB-08D 0 to 2 feet (mg/Kg)	SB-09 0 to 2 feet (mg/Kg)	SB-10 0 to 2 feet (mg/Kg)	SB-11 0 to 2 feet (mg/Kg)	SB-12 0 to 2 feet (mg/Kg)
Arsenic	3.9	3.3	2.8	2.0	4.5	3.7	2.3	**5.7**	2.3	2.9	3.8	**5.2**	2.0	2.2
Barium	5,200	234	115	133	314	130	128	186	115	116	144	103	93.7	124
Cadmium	70	0.3	0.5	0.3	0.4	0.3	<0.2	0.6	<0.2	<0.2	0.3	0.6	<0.2	0.5
Chromium	100,000	7.0	7.7	8.3	13.6	7.6	5.3	10.8	7.2	7.0	8.0	10.2	6.0	11.1
Lead	400	5.2	7.3	7.7	17.8	34.0	3.9	100	62.7	52.2	35.6	38.3	16.3	144
Mercury (Total)	23	<0.033	<0.033	<0.033	<0.033	0.096	<0.033	0.555	0.100	0.112	0.128	0.055	<0.033	0.120
Selenium	380	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	380	2.7	0.4	0.7	1.2	0.9	0.6	1.8	0.8	0.7	1.0	4.3	2.3	9.3
Copper	2,800	10.5	19.1	8.5	15.5	9.0	3.8	27.1	8.1	7.4	13.7	48.1	6.5	13.5
Iron	23,000	8240	9600	9570	12,300	8420	8860	20,500	8180	8270	12,700	**34,900**	7350	9920
Manganese	7,800	709	281	427	259	284	480	319	258	276	311	296	184	245
Zinc	230,000	25.5	30.6	31.0	91.6	61.3	14.9	119	38.5	32.4	51.5	49.6	24.9	89.4
Cyanide	1,200	<0.5	<0.5	2.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

NOTES:
D denotes a duplicate sample
Bold concentrations indicate a concentration identified greater than the New Mexico Soil Screening Level (SSL) for residential soil concentrations.
All results in milligram(s) per Kilogram (mg/Kg)
NA = Not analyzed

DE&S personnel noticed heavy soil staining at the base of a transformer located at the northeastern corner of the Site building. The soil staining appeared black and may be the result of oil leaking from the formerly operating transformer. DE&S collected a surface soil sample from the base of the transformer after discussions with Ms. Christine Bynum, NMED Voluntary Remediation Program Manager. The surface soil sample was analyzed for polychlorinated biphenyls (PCBs) by EPA Method 8082. Surface soil sample results did not indicate the presence of PCBs. The PCB results are outlined in Table 2.3.

Table 2.3.
Surface Soil PCB Results

Analyte	SS-01 (mg/Kg)
Aroclor 1016	<0.5
Aroclor 1221	<2.5*
Aroclor 1232	<0.5
Aroclor 1242	<0.5
Aroclor 1248	<0.5
Aroclor 1254	<0.5
Aroclor 1260	<0.5

NOTES:
Bold concentrations indicate a concentration identified greater than the laboratory detection limit.
All results reported in milligram(s) per Kilogram (mg/Kg).
* - Surface Soil Sample SS-01 had to be diluted due to the presence of oil staining within the soil sample matrix.

2.2.2 Soil Gas

Soil gas samples were screened using a PID prior to soil gas sample collection in tedlar bags. Concentrations of soil gas readings using the PID ranged from 0.1 ppm in soil boring SB-01 to >9,999 ppm in soil borings SB-05 and SB-07. The soil gas PID results are presented in Table 2.4. As discussed further in Section 4.0, the readings for SB-05 and SB-07 are most likely the result of equipment problems.

Table 2.4.
Soil Gas PID Results

Soil Gas Screening	Sample Location											
	SB-01 ppm	SB-02 ppm	SB-03 ppm	SB-04 ppm	SB-05 ppm	SB-06 ppm	SB-07 ppm	SB-08 ppm	SB-09 ppm	SB-10 ppm	SB-11 ppm	SB-12 ppm
Photoionization Detector (PID)	0.1	1.7	30.3	271	>9,999	3,275	>9,999	711	770	572	16.2	59.3

NOTE:
All results are in parts per million (ppm)

Thirteen soil gas samples were analyzed for VOCs using EPA method 8260 (see Table 2.5.). Only trichloroethene (TCE) was identified in any of the soil gas samples. The concentrations of TCE detected ranged from 0.2 mg/L in soil gas sample SB-06/soil gas to 3.4 mg/L in soil gas sample SB-03/soil gas.

Table 2.5.
Soil Gas VOC Results

Analyte	Sample Location												
	SB-01 mg/L	SB-02 mg/L	SB-03 mg/L	SB-04 mg/L	SB-05 mg/L	SB-06 mg/L	SB-07 mg/L	SB-08 mg/L	SB-09 mg/L	SB-10 mg/L	SB-11 mg/L	SB-12 mg/L	SB-12D mg/L
Trichloroethene (TCE)	<0.1	**0.45**	**3.4**	**0.68**	**0.65**	**0.2**	**1.7**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

NOTES:
D denotes duplicate sample
Bold concentrations indicate a concentration identified greater than the laboratory detection limit.
All results are in milligram(s) per Liter (mg/L).

2.2.3 Groundwater

Five groundwater samples were analyzed for cations and anions using EPA methods 200.7, 300.0, 340.1, 340.1, 350.2, and 353.2; laboratory pH and VOCs using EPA method 8260; cyanide using EPA method 335.4; and metals using EPA methods 6010 and 7470/7471A. The groundwater sample results are outlined in Tables 2.6, 2.7, 2.8, and 2.9.

Trichloroethene (TCE) was the only VOC compound identified by the laboratory above the method detection limit. TCE was detected at a concentration of 1.5 ug/L in groundwater samples SB-12/water and its duplicate SB-12D/water.

Table 2.6.
Groundwater Sample VOC Results

Analyte	NMWQCC Standard (ug/L)	GROUNDWATER SAMPLE NUMBER				
		SB-01 (ug/L)	SB-03 (ug/L)	SB-04 (ug/L)	SB-12 (ug/L)	SB-12D (ug/L)
Trichloroethene (TCE)	100	<1.0	<1.0	<1.0	**1.5**	**1.5**

NOTES:
D denotes duplicate sample
Bold concentrations indicate a concentration identified greater than the laboratory detection limit.
All results are in microgram(s) per Liter (ug/L)

The groundwater sample metal results are outlined in Table 2.7. Chromium and iron were the only metals identified in groundwater samples above the NMWQCC Standards. Chromium was identified at concentrations of 0.057 mg/L and 0.072 mg/L in groundwater samples SB-03/water and SB-12/water, respectively. Iron was detected at concentrations of 25.1 mg/L, 27.3 mg/L, 12.8 mg/L, 51.3 mg/L, and 8.93 mg/L in groundwater samples SB-01/water, SB-03/water, SB-04/water, SB-12/water, and SB-12D/water, respectively.

Table 2.7.
Groundwater Metals and Cyanide Results

Analyte	NMWQCC Standards mg/L	GROUNDWATER SAMPLE NUMBER				
		SB-01 mg/L	SB-03 mg/L	SB-04 mg/L	SB-12 mg/L	SB-12D mg/L
Arsenic	0.1	0.02	<0.01	<0.01	<0.01	<0.01
Barium	1.0	0.523	0.583	0.363	0.795	0.222
Cadmium	0.01	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium	0.05	0.027	**0.057**	0.019	**0.072**	0.009
Lead	0.05	0.014	0.012	0.006	0.027	<0.005
Mercury (Total)	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Silver	0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Copper*	1.0	0.016	0.013	0.008	0.031	0.005
Iron*	1.0	**25.1**	**27.3**	**12.8**	**51.3**	**8.93**
Magnesium	NA	19.2	24.6	14.9	25.6	19.8
Manganese	0.2	1.30	2.42	1.14	2.31	1.71
Zinc*	10.0	0.059	0.054	0.043	0.122	0.019
Cyanide	0.2	<0.01	<0.01	<0.01	<0.01	<0.01

NOTES:
* - Standards for Copper, Iron, and Zinc are for domestic water supply
D denotes duplicate sample
All results in milligram(s) per Liter (mg/L)
Bold values indicate concentration above the New Mexico Water Quality Control Commission (NMWQCC) Standards.

The groundwater sample results for cations/anions are present in Table 2.8. All cations/anions identified were below their respective NMWQCC Standard (if applicable).

Table 2.8.
Groundwater Cations/Anions Results

Analyte	NMWQCC Standards mg/L	GROUNDWATER SAMPLE NUMBER				
		SB-01 mg/L	SB-03 mg/L	SB-04 mg/L	SB-12 mg/L	SB-12D mg/L
Calcium	NA	104	160	97.9	159	126
Chloride	250	32	41	36	57	54
Fluoride	2.0 (EPA MCL)	0.67	0.70	0.80	0.89	0.80
Nitrate	10.0	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrite	NA	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium	NA	22.5	22.5	17.6	23.9	17.9
Phosphorus	NA	<0.50	<0.50	<0.50	<0.50	<0.50
Sodium	NA	57.3	117	75	137	135
Sulfate	600	110	280	100	180	170

NOTES:
D denotes duplicate sample
All results are in milligram(s) per Liter (mg/L)

The groundwater sample results for ammonia/pH are presented in Table 2.9. The pH readings identified were within the NMWQCC Standard (6.0 9.0). There is no NMWQCC Standard for ammonia.

Table 2.9.
Groundwater Ammonia and pH Results

Analyte	NMWQCC Standards	GROUNDWATER SAMPLE NUMBER				
		SB-01	SB-03	SB-04	SB-12	SB-12D
Ammonia (mg/L)	NA	0.7	<0.5	0.7	0.84	0.8
pH	6.0 - 9.0	7.3	7.5	7.70	7.2	7.13

NOTES:
D denotes duplicate sample
mg/L = milligram(s) per Liter
NA - Not applicable

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Subsurface soil encountered during installation of soil borings SB-01 to SB-12 is typical of post-Santa Fe Quaternary alluvial fan and floodplain deposits (described in Section 1.2.2). The borings are comprised primarily of fine-grained sands with some thin interbedded clay layers. No odors were observed from soil samples collected from any of the soil borings. PID readings ranged from 1.2 ppm (SB-01 and SB-02) to 6.6 ppm (SB-06).

A total of 13 soil samples were analyzed for cyanide using EPA method 335.4 and metals using EPA methods 6010 and 7470/7471A. The laboratory results were compared to the residential SSLs for the analytes in Table 2.2. Soil sample SB-07/(0 to 2 feet) exceeded the SSL concentration for arsenic and soil sample SB-10/(0 to 2 feet) exceeded the SSL concentrations for arsenic and iron. These exceedance values, although above the residential SSLs for arsenic and iron, are within natural variance levels for soils in the western United States (Welch et al 2000) and are indicative of natural "background" conditions. Based on this fact, NMED determined that further sample analysis (of soil samples collected from the 2- to 4-foot bgs interval collected from these soil borings) was not necessary.

DE&S personnel noticed heavy soil staining at the based of a transformer located at the northeastern corner of the Bell Trading Post building. The soil staining appeared black and the result of oil leaking from the formerly operating transformer. DE&S collected a surface soil sample from the base of the transformer after discussions with Ms. Christine Bynum of NMED. The surface soil sample was analyzed for PCBs by EPA Method 8082. Surface soil sample results did not indicate the presence of PCBs.

Soil gas samples were screened using a PID prior to soil gas sample collection in tedlar bags. Concentrations of soil gas readings using the PID ranged from 0.1 ppm in soil boring SB-01 to >9,999 ppm in soil borings SB-05 and SB-07. Thirteen soil gas samples were analyzed for VOCs using EPA method 8260. Only TCE was identified in any of the soil gas samples. The concentrations of TCE detected ranged from 0.2 mg/L in soil gas sample SB-06/soil gas to 3.4 mg/L in soil gas sample SB-03/soil gas. It should be noted that the lack of correlation between the PID and laboratory analytical results is most likely a function of the presence of water vapor accumulating on the PID bulb during soil gas screening. The fact that TCE is present in soil gas indicates that most likely a historical release of chlorinated solvents took place at the former Site property, however, the relatively low contamination levels indicate that the release was either small in extent or took place some time ago.

Five groundwater samples were collected at the Site. The groundwater sampling locations were selected in order to demonstrate that past or current land uses at the Site most likely did not contribute and are not currently contributing to the known groundwater contamination in the area. (If environmental conditions at the Site are not contributing to groundwater contamination, groundwater exiting the Site will be of the same or higher quality than groundwater entering the Site.). Groundwater flow in the area is believed to be towards the east (Anderholm 1988).

Five groundwater samples were analyzed for cations and anions using EPA methods 200.7, 300.0, 340.1, 340.1, 350.2, and 353.2, laboratory pH and VOCs using EPA method 8260, cyanide using EPA method 335.4, and metals using EPA methods 6010 and 7470/7471A.

TCE was the only VOC compound identified by the laboratory above the method detection limit in any of the groundwater samples. TCE was detected at a concentration of 1.5 ug/L in groundwater samples SB-12/water and its duplicate, SB-12D/water. This concentration is not above the NMWQCC Standard for TCE, which is 100.0 ug/L.

Chromium and iron were the only metals identified above the NMWQCC Standards in groundwater samples. Chromium was identified at concentrations of 0.057 mg/L and 0.072 mg/L in groundwater samples SB-03/water and SB-12/water, respectively. Iron was detected at concentrations of 25.1 mg/L, 27.3 mg/L, 12.8 mg/L, 51.3 mg/L, and 8.93 mg/L in groundwater samples SB-01/water, SB-03/water, SB-04/water, SB-12/water, and SB-12D/water, respectively. These levels of chromium and iron, even though they are above the NMWQCC Standards (0.05 mg/L for chromium and 1.0 mg/L for iron) are within variances often observed in groundwater within the Albuquerque alluvial aquifer (USGS 1995) and are believed to represent natural "background" conditions.

Cyanide was not detected in any of the groundwater samples above the laboratory detection limit (0.01 mg/L). The NMWQCC Standard for cyanide is 0.2 mg/L.

All cations/anions identified in groundwater samples were below their respective NMWQCC Standard (if applicable). The pH readings identified in the groundwater samples were within the NMWQCC Standard (6.0 to 9.0). There is no NMWQCC Standard for ammonia. Ammonia concentrations detected ranged from <0.5 mg/L in groundwater sample SB-03/water to 0.84 mg/L in groundwater sample SB-12/water.

4.2 Recommendations

Based on the results of this Phase II ESA, DE&S believes there are sufficient grounds for the VRP Manager to evaluate the Site for closure under VRP regulations.

The fact that TCE has been detected at low levels (below NMWQCC standards) in this area indicates that there was a release of chlorinated solvents at this site in the past. The likely release mechanism was the dissolution of solvents going down the drains within and around the building and being released through cracks in the sumps and drain lines at the site. The fact that heavy metals were detected in the crawlspace further indicates that there were leaks in the drains and/or sumps beneath the Site. Although no evidence was encountered at the site of a release of free phase TCE, the groundwater data are considered inconclusive because chlorinated solvents will tend to sink in the water column and contamination is typically found in deeper groundwater samples. The grab groundwater samples collected with the Geoprobe are representative only of water quality at the water table. Additional groundwater characterization may be warranted for closure of groundwater at this Site under the VRP.

5.0 REFERENCES

Anderholm, S.K., 1988. *Groundwater Geochemistry of the Albuquerque-Belen Basin, Central New Mexico,* United States Geological Survey, Water-Resources Investigations Report 86-4094.

ASTM (American Society for Testing and Materials), 1997. ASTM Standard 1903-97, *Standard Guidance for Environmental Site Assessments: Phase II Environmental Site Assessment Process,* American Society for Testing and Materials, West Conshohocken, Pennsylvania.

Bjorklund, L. J., and B. W. Maxwell, 1961. *Availability of Groundwater in the Albuquerque Area, Bernalillo and Sandoval Counties, New Mexico*, New Mexico State Engineer Technical Report 21.

Chamberlin et al. (R. M. Chamberlin, J. M. Gillentine, C. S. Haase, J. W. Hawley, R. P. Lozinsky, and P. S. Mozley), 1992. *Hydrogeologic Framework of the Northern Albuquerque Basin*, Open-File Report 387, New Mexico Bureau of Mines and Mineral Resources, New Mexico Institute of Mining and Technology, Socorro, New Mexico, September 1992.

Duke Engineering & Services, 2001. *Scope of Work and Cost Proposal Task 1, Further Investigation into Chemical Use and Disposal associated with the Bell Trading Post Property, 1503 Central Avenue, Albuquerque, New Mexico*, March 30, 2001.

Duke Engineering and Services, 2001. *Phase II Site Characterization Work Plan, Former Bell Trading Post Property, Albuquerque, New Mexico,* October 1, 2001.

Keers Environmental, 2000. *Phase I Environmental Site Assessment, Bell Trading Post & Adjacent Parcels, 1503 Central Avenue NW, Albuquerque, New Mexico*, December 18, 2000.

Keers Technical Services, 1994. *Limited Subsurface Investigation at 1503 Central Avenue, NW, Albuquerque, New Mexico*, April 26, 1994.

Kelley, V. C., 1977. *Geology of Albuquerque Basin, New Mexico, Memoir 33,* New Mexico Bureau of Mines & Mineral Resources, a Division of New Mexico Institute of Mining & Technology, Socorro, New Mexico.

Kernodle, J. M., D. P. McAda, and C. R. Thorn, 1995. *Simulation of Groundwater Flow in the Albuquerque Basin, Central New Mexico, 1901–1994, with Projections to 2020,"* U.S. Geological Survey Water-Resources Investigations Report 94-4251.

Interview with Mr. J. T. Michelson on April 18 and May 3, 2001.

New Mexico Environment Department, 1999. *New Mexico Voluntary Remediation Regulations (20 NMAC 6.3).* Santa Fe, New Mexico, July 15, 1999.

WARRANTY STATEMENT AND CERTIFICATION

This report was prepared for the New Mexico Environment Department (NMED) only, and is intended for use solely by NMED.

Duke Engineering & Services prepared this report in accordance with generally accepted professional standards used in the field of environmental consulting. These standards were current at the time the work was performed.

Duke Engineering & Services has used professional judgement in collecting and analyzing the information included in this report and in formulating conclusions or recommendations. No other warranty or representation is expressed or implied as to the accuracy of the information, conclusions, or recommendations included or intended in this report. In the case of environmental audits and property assessments, the report relies on information provided to Duke Engineering & Services by the client or the property owner.

Duke Engineering & Services disclaims any liability or responsibility to any person or party for any loss, damage, expenses, fines, or penalties that may arise or result from the use of any information, conclusions, or recommendations contained in this report.

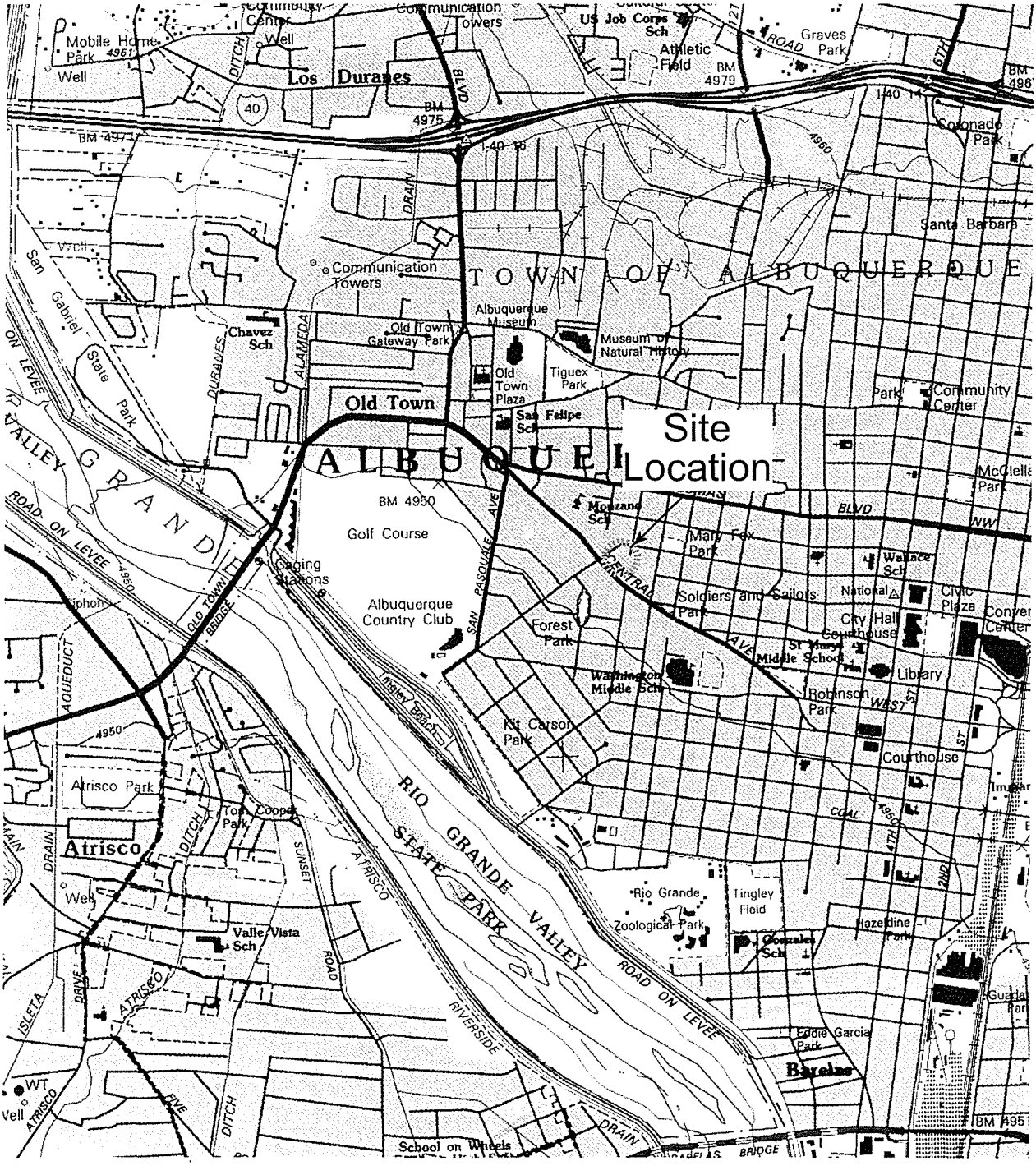
The following person has prepared and/or reviewed this report, is personally familiar with the information submitted in the report, and verifies, to the best of her knowledge, that the contents are true and correct.

Name: Cynthia P. Ardito

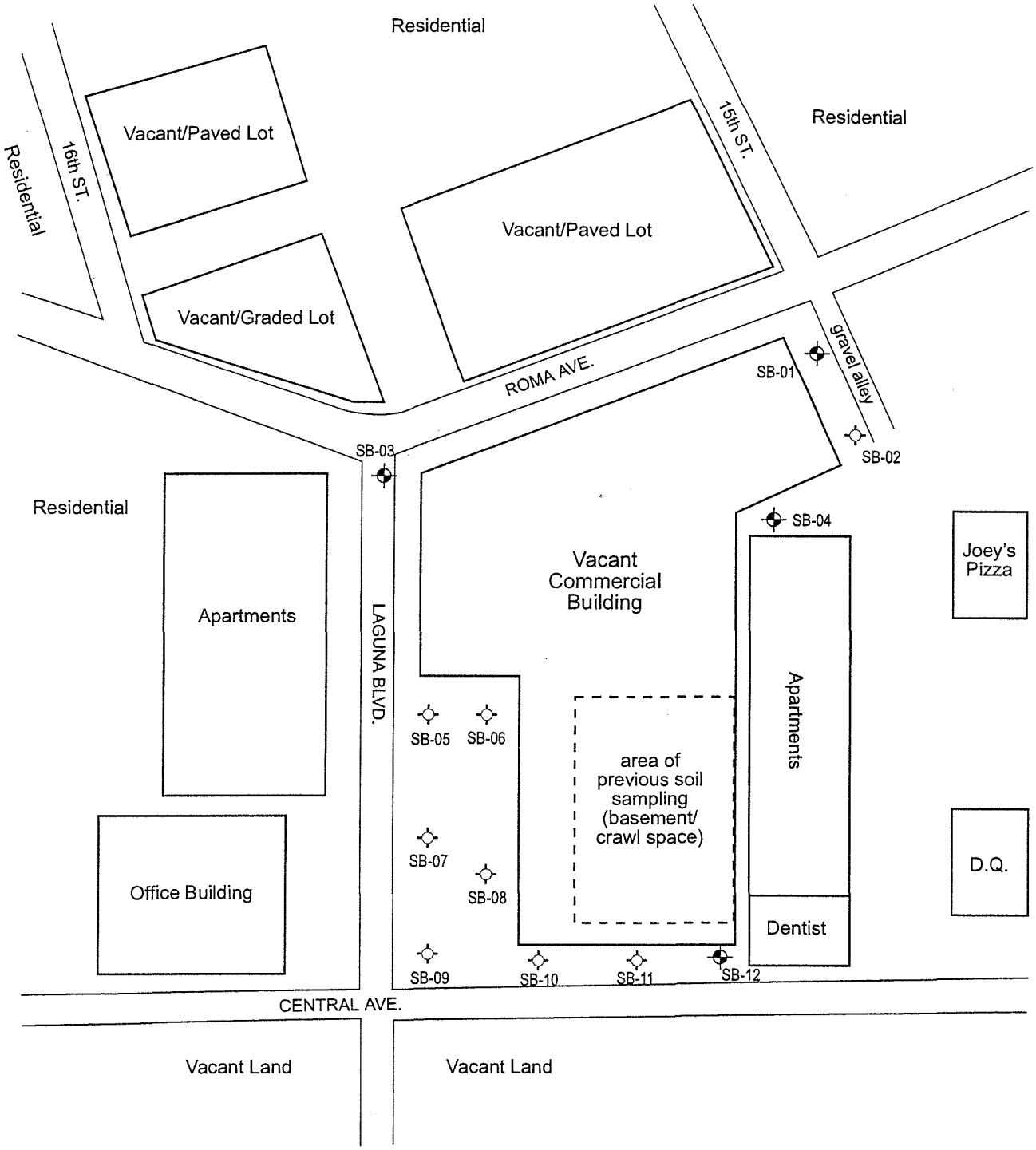
Signature: _____

Title: General Manager, Environmental Services
New Mexico Certified Scientist No. 072

FIGURES



File: Bell-sitemap.fh8	**Site Location Map – Bell Trading Post Property**	Figure 1
Duke Engineering & Services. A Duke Energy Company	Albuquerque, New Mexico	



NOT TO SCALE

LEGEND

Soil Sampling Location (8 total)

Soil and Groundwater Sampling Location (4 total)

File: Bell-sampling.fh8	**Site Sketch and Sampling Location Map – Bell Trading Post Property**	Figure 2
Duke Engineering & Services. A Duke Energy Company	Albuquerque, New Mexico	

APPENDIX A

Work Plan

PHASE II SITE CHARACTERIZATION WORK PLAN

Former Bell Trading Post Property
Albuquerque, New Mexico

Prepared for:

The New Mexico Environment Department
Voluntary Remediation Program
1190 St. Francis Drive
Santa Fe, New Mexico 87504

Prepared by:

Duke Engineering & Services
A Duke Energy Company

One Park Square
6501 Americas Parkway NE, Suite 810
Albuquerque, New Mexico 87110

October 1, 2001

TABLE OF CONTENTS

Section **Page**

EXECUTIVE SUMMARY iii

1.0 INTRODUCTION 1
- 1.1 General Project Background 1
- 1.2 Site History 1
- 1.3 Potential Contaminants of Concern 1
- 1.4 Other Environmental Issues of Concern 2
- 1.5 NMED Requirements for Phase II Investigation 3
- 1.6 Work Plan Overview 3
- 1.7 Prior Reports Review/Historical Site Uses 3
- 1.8 Interviews 4
- 1.9 Recognized Environmental Conditions 5

2.0 SITE SETTING 7
- 2.1 Geologic and Hydrogeologic Setting 7
- 2.2 Adjoining Property Usage and Potential Receptors 7
- 2.3 Site Location 8

3.0 PAST OPERATING PROCEDURES 8
- 3.1 Jewelry Manufacturing 9
  - 3.1.1 Chemical Storage 10
- 3.2 Photograph Development 11
  - 3.2.1 Black and White Photograph Development 12
  - 3.2.2 Color Photograph Development 12

4.0 SAMPLING AND ANALYSIS ACTIVITIES 14
- 4.1 Purpose of Investigation 14
- 4.2 Sampling and Analysis 14
  - 4.2.1 Soil Boring Installation and Continuous Soil Sampling 14
  - 4.2.2 Ground Water Sample Collection 16
- 4.3 Quality Assurance Measures 17
- 4.4 Data Evaluation 17
- 4.5 Laboratory Analysis 18
- 4.6 Equipment Decontamination and Investigation Derived Waste 18
- 4.7 Project Organizational Chart 18

5.0 DELIVERABLES AND SCHEDULE FOR COMPLETION OF WORK 19

6.0 DISCUSSION OF HOW PROPOSED ACTIVITES MEET THE VRP PERFORMANCE STANDARD 20

7.0 REFERENCES 21

LIST OF FIGURES

Figure	Title
1	Site Location Map – Bell Trading Post Property
2	Proposed Soil Boring/Ground Water Sample Locations

LIST OF APPENDICES

Appendix	Title
Appendix A	Health and Safety Plan
Appendix B	Direct-Push Subsurface Soil Sampling Standard Operating Procedure
Appendix C	New Mexico Environment Department Underground Storage Tank Bureau Heated Headspace Standard Operating Procedure
Appendix D	Equipment Decontamination Methods Standard Operating Procedure
Appendix E	Investigation Derived Waste Plan

EXECUTIVE SUMMARY

This document presents the Phase II Site Characterization Work Plan for soil and ground water sampling and analysis at the Former Bell Trading Post Property (Site) located in Albuquerque, New Mexico. This document was prepared based on letter correspondence and discussions with State of New Mexico Environment Department (NMED) and City of Albuquerque (COA) representatives. This Work Plan was prepared for the NMED Ground Water Quality Bureau's Voluntary Remediation Program (VRP) and follows the Duke Engineering and Services (DE&S) "Scope of Work and Cost Estimate" (SOW) submitted to NMED on March 30, 2001.

The Site consists of approximately 2.5 acres near Old Town Albuquerque and is bounded to the south by Central Avenue, on the north and northeast by Roma Avenue, on the northwest by Fifteenth Street, to the east by an apartment complex and a vacant business, and to the west by Laguna Boulevard. The Site is located in Bernalillo County, New Mexico. Currently, there is one large (approximately 30,000 square feet) vacant building on the Site (1503 Central Avenue NW).

Prior to 1947, historical uses of the property were primarily residential. After 1947, historical property use was commercial. From 1947 until 1975, Bell Trading Post occupied the Site building and conducted commercial jewelry manufacturing. The Site is identified as vacant from 1976 until 1982. From approximately 1982 until 1984, Albuquerque Photo Lab occupied the Site building and performed commercial film development. Finally, from 1985 until 1992, Michelson Metals occupied the Site building, using the property as an office for commodity trading only (office use, non-industrial). Site property owner Mr. J.T. Michelson has stated that neither metal work nor jewelry production occurred at the Site after 1975 (Interviews with Mr. J. T. Michelson on April 18 and May 3, 2001).

Based on limited background research of the jewelry manufacturing industry and current jewelry industry practices, the following chemicals are likely to be present at a jewelry manufacturing facility: sodium and/or potassium cyanide, hydrogen peroxide, sulfuric and boric acids, ammonia hydroxide, calcium sulfate, sulfurated potash, potassium bifluoride (and potassium tetraborate), and heavy metals such as gold, silver, and copper.

Chemicals used in the development of black and white photographic films are: silver halide (contained in emulsifiers); hydroquinone, metol, and phenidone (used as developing agents); sodium hydroxide, sodium carbonate, and sodium tetraborate (applied to activate development); sodium sulfite and potassium metabisulfite (used as preservatives), potassium bromide and benztriazole (restrainers); acetic acid; sodium or ammonium thiosulfate (used to fix development); sodium bisulfite and potassium metabisulfite (employed as neutralizers); and potassium aluminum sulfate and potassium chromium sulfate (applied as hardeners). Chemicals used in the color photographic processes are: potassium ferricyanide and potassium bromide, ethylenediamine tetraacetic acid (EDTA), bleach, hexavalent chromium, and organic dyes.

This Work Plan recommends that soil and ground water samples collected at the Former Bell Trading Post property (using a Geoprobe® or comparable direct-push drilling method) be analyzed for the parameters outlined in Section 4.5.

1.0 INTRODUCTION

This document presents the Phase II Site Characterization Work Plan (Work Plan) for soil and ground water sampling and analysis at the Former Bell Trading Post Property (Site) located at 1503 Central Avenue, in Albuquerque, New Mexico. This document was prepared based on letter correspondence and discussions with the State of New Mexico Environment Department (NMED) and City of Albuquerque (COA) representatives. This Work Plan was prepared for the NMED Ground Water Quality Bureau's Voluntary Remediation Program (VRP) and follows the Duke Engineering and Services (DE&S) "Scope of Work and Cost Estimate" (SOW) submitted to NMED on March 30, 2001.

This Work Plan is not intended to cover all of the necessary health and safety processes and procedures that should be followed to carry out the activities described in the sections of this Work Plan. A Site-specific Health and Safety Plan (HSP) is included in Appendix A.

1.1 General Project Background

In a letter dated April 12, 2001, Ms. Christine Bynum, Program Manager of the NMED VRP, authorized DE&S to complete Subtasks 1, 2, and 3 of the DE&S proposed SOW dated April 5, 2001. Subtasks 1, 2, and 3 are defined as follows:

Subtask 1: Project coordination/background review, SOW and Cost Estimate preparation.

Subtask 2: Further investigation into past site uses and operating procedures.

Subtask 3: Work Plan and Cost Estimate for Phase II site characterization activities.

DE&S has developed this Work Plan (as outlined in Subtask 3 above) to perform Phase II site characterization based on the following activities:

- Completion of a historical Site use review and a series of interviews with individuals knowledgeable with the historical Site uses; and
- Several telephone conversations with Ms. Christine Bynum of the NMED.

This document is the deliverable associated with Subtask 3.

1.2 Site History

Prior to 1947, historical uses of the property were primarily residential. After 1947, historical property use was commercial/industrial. From 1947 until 1975, Bell Trading Post occupied the Site building and conducted commercial jewelry manufacturing. The Site is identified as vacant from 1976 until approximately 1981 or 1982. From approximately 1982 until 1984, Albuquerque Photo Lab occupied the Site building and performed commercial film development. Finally, from 1985 until 1992, Michelson Metals occupied the Site building, using the property as an office for commodity trading only (office use, non-industrial). Site property owner Mr. J.T. Michelson has stated that neither metal work nor jewelry production occurred at the Site after 1975 (Interviews with Mr. J. T. Michelson on April 18 and May 3, 2001).

1.3 Potential Contaminants of Concern

The potential contaminants of concern derive from the industrial processes associated with the jewelry manufacturing and photographic development previously conducted at the Site. These potential contaminants include but are not limited to solvents, cyanide, and heavy metals. The potential contaminants of concern and their possible origins are discussed in the following paragraphs.

- Based on limited background research of the jewelry manufacturing industry and current jewelry industry practices, the following chemicals are likely to be present at a jewelry manufacturing facility: sodium and/or potassium cyanide, hydrogen peroxide, sulfuric and boric acids, ammonia hydroxide, calcium sulfate, sulfurated potash, potassium bifluoride (and potassium tetraborate), and heavy metals such as gold, silver, and copper.

- Chemicals used in the development of black and white photographic films are: silver halide (contained in emulsifiers); hydroquinone, metol, and phenidone (used as developing agents); sodium hydroxide, sodium carbonate, and sodium tetraborate (applied to activate development); sodium sulfite and potassium metabisulfite (used as preservatives), potassium bromide and benztriazole (restrainers); acetic acid; sodium or ammonium thiosulfate (used to fix development); sodium bisulfite and potassium metabisulfite (employed as neutralizers); and potassium aluminum sulfate and potassium chromium sulfate (applied as hardeners). Chemicals used in the color photographic processes are: potassium ferricyanide and potassium bromide, ethylenediamine tetraacetic acid (EDTA), bleach, hexavalent chromium, and organic dyes.

1.4 Other Environmental Issues of Concern

Although DE&S did not perform a Phase I Environmental Assessment at the Site, other environmental issues of concern were noted its review of the Phase I ESA by Keers Environmental (Keers 2000). The other environmental issues of concern identified were:

- The potential for the presence of lead-based paint based on the age of the Site improvements and the potential for the presence of lead in the drinking water from pipe dope and solder.

- The possible presence of asbestos-containing materials in the Site structures based on age of Site improvements. The interior materials include Thermal System Insulation (TSI) on an active hot water tank, sheet flooring, floor tile, mastic, and drywall.

- The potential for contaminants to be introduced onto the Site or transported from the Site to adjoining properties by surface water runoff. The Site and vicinity are located in a designated flood zone and could be environmentally impacted during a flood event.

- The possible presence of septic tanks that may have been active while the Site was in use for residential purposes. The possible presence of septic tanks is indicated by two rectangular depressions in the asphalt surface of the 309 15th Street property (as observed on Historic Sanborn Fire Insurance Maps during the development of the Keers Phase I ESA Report). Nitrate contamination of ground water has been extensively documented in the Albuquerque area.

- An active NMED leaking Underground Storage Tank (UST) site has been identified approximately one-eighth of a mile northwest of the site. The UST site is identified as The World Motel at 1721 Central Avenue NW (World Motel UST). The NMED Underground Storage Tank Bureau (USTB) has indicated that a release of gasoline impacted ground water upgradient of the Site. According to NMED USTB representative Norman Pricer, the ground water impact from this UST has been delineated and identified as limited in extent to the World Motel, and the associated contamination resulting from this leaking UST will not be considered a potential contaminate of concern.

1.5 NMED Requirements for Phase II Investigation

Ms. Christine Bynum, Program Manager of the NMED VRP, submitted a Site Phase II Task Assignment to DE&S in a letter dated March 16, 2001. This Work Plan covers Phase II Site Characterization activities in accordance with the contract between NMED and DE&S, with the NMED Task Assignment, and with the NMED recommendation for Phase II activities at the Site based on the following comments from Christine Bynum in a letter dated March 16, 2001:

- "The City of Albuquerque is contemplating the purchase of this property and potentially converting the building to affordable housing. To NMED knowledge, there is a Phase I that has been done on this property by the current owner and there has been some soil sampling performed. It is my understanding that all of the sampling performed was beneath the building, around drains and in the crawlspace. Additional sampling is necessary in exposed portions of the yard, especially since they are proposing to use the property for housing."

1.6 Work Plan Overview

This Work Plan includes a description of the following activities:

- Soil sample collection using a Geoprobe® and laboratory analysis of the soil samples;
- Ground Water sample collection and laboratory analysis of ground water samples from selected Geoprobe® soil boring locations;
- Final report completion.

DE&S will interact with NMED VRP and COA representatives to coordinate the schedule for any and all of the field work pertaining to this Work Plan.

1.7 Prior Reports Review/Historical Site Uses

The COA is considering this piece of property for condemnation. COA is proposing plans to redevelop the Site into residential multi-family housing. The most recent Phase I Environmental Site Assessment for the Bell Trading Post property, "Phase I Environmental Site Assessment, Bell Trading Post and Adjacent Parcels," was completed by Keers Environmental, Inc. (Keers) in December 2000 (Keers 2000). DE&S has reviewed this report and finds the following important conclusions:

- An active UST site has been identified approximately one-eighth of a mile northwest of the site. The UST site is identified as The World Motel at 1721 Central Avenue NW (World Motel UST). The NMED USTB has indicated that a release of gasoline has impacted ground water upgradient of the Site.
- Because of the age of the Site structure, the potential for construction materials containing either lead or asbestos or both should be considered.
- The Site is located in a designated flood zone and could be environmentally impacted during a major flood event.

A Phase II ESA, "Limited Subsurface Investigation at 1503 Central Avenue, Albuquerque, New Mexico," was completed by Keers in April 1994 (Keers 1994). DE&S has reviewed this report and notes the following findings and conclusions:

- Ten surficial soil samples were collected in a crawl space beneath the building. The samples were collected at suspected highly contaminated areas under drains, sumps, and piping. The samples were analyzed for volatile organic compounds (VOCs) and halogenated hydrocarbons using laboratory method SW-846 8010, total cyanide using laboratory method SW-846 9010, and RCRA metals using laboratory method SW-846 AA.
- Results from the limited subsurface investigation revealed that silver, chromium, and lead were present in several surficial soil samples collected from within the crawl space under the building. Two of the subsurface soil samples collected contained compounds with concentrations exceeding the Toxicity Characteristic Leaching Procedure (TCLP) regulatory limit. One subsurface soil sample contained 134 parts per million (ppm) lead, and the other subsurface soil sample contained 174 ppm chromium and 1,670 ppm lead. The elevated concentrations of these compounds prompted further field investigation and the collection of soil samples from a depth of 5-feet below the soil surface at each of the two locations where elevated concentrations were detected in the initial investigation. These deeper subsurface soil samples were analyzed using TCLP methods for the specific metals originally detected. Silver concentrations of <0.010 ppm were reported in samples from below locations where initial samples reported elevated silver concentrations. The sample collected below the location where chromium and lead had been detected contained 0.047 ppm chromium and 0.890 ppm lead. Keers indicated that the results from the 5-feet deep samples were well below the United States Environmental Protection Agency (EPA) regulatory limits and that additional testing was not recommended at that time (Keers 1994).

1.8 Interviews

DE&S representatives interviewed the following individuals for information pertaining to historic site uses of the Former Bell Trading Post property.

Mr. J.T. Michelson is the current owner of the Site. DE&S representatives contacted Mr. Michelson by telephone on April 18 and May 3, 2001. Mr. Michelson provided the following information:

- Mr. Michelson was involved with the day-to-day operations of the jewelry manufacturing business previously located at the Site.

- Bell Trading Post used sulfurated potash, also known as "Liver of Sulfur," to oxidize or clean silver and copper metal jewelry. The liver of sulfur was stored in 10 to 20-pound bags within the facility. The liver of sulfur is mixed with water to form a solution to clean copper and silver.
- Bell Trading Post casting operations used gypsum (plaster of Paris) molds. The molds were disposed of at the COA dump after use. Wax castings were not used at Bell Trading Post.
- Bell Trading Post polished silver jewelry with a mild soap solution. Mr. Michelson did not know the type of soap used or the amount stored at the facility.
- Bell Trading Post performed soldering operations. Soldering operations utilize fluxes that contain acids. During soldering operations, acids may become very fluid when heated. Mr. Michelson could not recall the types of fluxes that were used at Bell Trading Post, nor could he specify the types of acids they may have contained. Mr. Michelson did recall that silver solder was the primary solder employed at Bell Trading Post.
- Mr. Michelson stated that the area above the crawl space or sub-basement was used for storage of finished jewelry and a shipment loading dock area.
- Bell Trading Post employed 200 workers. The facility consisted of a tool room, soldering room, parts storage, stamping area, and administrative offices. The second story of the facility was used as a casting area.
- Mr. Michelson stated that Bell Trading Post ceased jewelry manufacturing operations in 1976.
- According to Mr. Michelson, a photographic development shop was located in the facility for five years in the early 1980s. Mr. Michelson could recall neither the name of the business that leased the property nor its owner's name. Mr. Michelson was also unable to say how much of the building and which sections were occupied by the photographic development business.

Mr. Norman Pricer, Field Representative of the NMED USTB was interviewed by telephone on May 10, 2001 to discuss the status of the World Motel UST. The World Motel UST is considered to be hydraulically upgradient relative to the Site (to the west of the Site). According to the most recent information available on the USTB web site, the World Motel UST has impacted ground water and discharged free product. Mr. Pricer stated the following:

- The petroleum compound released at the facility was kerosene/diesel fuel;
- A soil vapor extraction (SVE) remediation system was previously in place at the World Motel UST; however; ground water monitoring is the only activity currently taking place at the World Motel UST;
- The World Motel UST ground water plume has been delineated, with no apparent easterly migration.

A former Albuquerque Photo Lab, Inc., employee, Mr. Steven Donahue, a photographer who worked only in the photo shop at the facility, was interviewed by telephone on May 8, 2001. Mr. Donahue stated the following:

- Albuquerque Photo Lab, Inc., operated for four to five years in the early 1980s and employed 8 to 10 people.
- Albuquerque Photo Lab, Inc. performed color photo processing, black and white photo processing, off-set printing, and blue print production. Two large printing presses were in use at the Site facility.
- Mr. Donahue was uncertain about all chemicals used by Albuquerque Photo Lab, Inc., at the Site facility building; however, he stated that ammonia, inks, solvents, and silver halide were in use at the facility, and also that the silver (metal) recycling was conducted.
- According to Mr. Donahue, Albuquerque Photo Lab, Inc. went out of business in the mid-1980s.

1.9 Recognized Environmental Conditions

Recommendations from the Keers Report (Keers 1994) include:

- Periodic review of the most current UST information to determine and assess the extent of soil and ground water contamination, if any, that may be caused by the upgradient active World Motel UST and possibly impact the Site. A site that may be unaffected by contamination at the time an assessment is performed may later become contaminated through a natural phenomenon (such as ground water flow) or through human intervention.
- Comprehensive Site asbestos and lead-based paint surveys prior to any planned demolition or renovation activities following OSHA and EPA regulations for demolition and renovation practices.
- Determination of Site flood potential through review of the most current Bernalillo County Flood Control District flood information.
- Evaluation of the two rectangular depressions in the asphalt to confirm the presence of abandoned septic tanks and to investigate potential soil contamination.
- Depending upon planned Site use and occupancy, possible further evaluation of the subsurface soil beneath the Site structure.

2.0 SITE SETTING

2.1 Geologic and Hydrogeologic Setting

The Site is located in the southern-central portion of the Albuquerque Basin. This Basin is one of the largest of the southerly trending series of grabens that form the Rio Grande Drainage Basin. The Rio Grande Drainage Basin was formed in response to the Rio Grande Rift (Thorn et al. 1993). The Rio Grande Rift is a northerly to southerly trending, downdropped crustal extension that originates in Colorado and extends for more than 600 miles, crossing New Mexico to south of the Mexico/Texas border.

The Albuquerque Basin is filled with up to 10,000-feet of clastic sediments. These sedimentary deposits are of two types: 1) sediment that has filled the subsiding trough, and 2) floodplain deposits, terraces, dunes, alluvial fans and cones, spring deposits, caliche blankets, landslides, and some pediments. The latter group of deposits represent processes of erosion and deposition that may have prevailed throughout subsidence and filling of the basin (Kelley 1977). The Santa Fe Formation sediments fill the majority of the basin.

The Tertiary and Quaternary Santa Fe Formation is composed of unconsolidated to loosely consolidated gravels, sands, silts, and clays. The thickness of this unit ranges from 2,400-feet on the basin margins to 14,000-feet along the axis of the basin. In the vicinity of the Site, the thickness of this formation is approximately 4,700-feet. The Santa Fe Group is overlain by Quaternary sediments, which have a similar facies distribution. These post-Santa Fe deposits are alluvial fan and floodplain deposits and are up to 200-feet thick (Thorn et al. 1993).

The Santa Fe Group and post-Santa Fe deposits are the principal water bearing units in the vicinity of the Site and are hydraulically connected (USACE 1979; Thorn et al. 1993). However, the Albuquerque Basin aquifer is anisotropic laterally and vertically due to spatial variations in the lithology of these two water-bearing units (Chamberlin et al. 1992). Clay layers 12- to 15-feet thick are commonly observed in the alluvium of the Albuquerque Basin; these clay layers restrict vertical movement of water and may locally limit hydraulic interconnection between the shallow Quaternary aquifer and the Santa Fe Group aquifer (Thorn et al. 1993). As a result of spatial variations in lithology, variation in the hydraulic transmissivity of the Albuquerque aquifer is extremely large, from less than 10 square feet (ft^2)/day to 80,000 ft^2/day (Thorn et al. 1993). The hydraulic conductivity of the upper part of the Santa Fe Group varies also, but is estimated to be approximately 20 ft/day, average in the vicinity of the Site (Thorn et al., 1993).

Over time, population growth and the resulting increased water pumpage and use have considerably changed the water table configuration in the Albuquerque area. Ground water flow in the vicinity of the Site prior to large-scale ground water development is thought to have been to the southwest, and this condition existed at least into the mid- to late-1930s (Thorn et al. 1993). Ground water elevation contours representing 1960–1961 conditions in the Albuquerque area show a continued general southwesterly flow direction on the eastern side of the Rio Grande; however, a cone of depression is evident in the general area of the Site (Bjorklund 1961). The cone of depression resulted primarily from pumping of the Main Plant well field, previously located in the downtown Albuquerque area. The Main Plant wells were drilled

between 1920 and 1948 and consisted of more than 23 wells; the Main Plant well field is now completely abandoned.

Ground water beneath the Site currently flows in an easterly direction. City-wide ground water contours from 1992 and simulated 1994 hydraulic head levels reflect a large cone of depression developing on the eastern side of Albuquerque as a result of ground water withdrawal (Kernodle et al. 1995). Based on the Kernodle study, this cone of depression appears to have influenced the ground water flow direction beneath the Site.

2.2 Adjoining Property Usage and Potential Receptors

The area surrounding the Site is developed with urban commercial buildings. Roma Avenue and a vacant, paved automobile parking lot located beyond the Avenue bound the Site to the north. An apartment building and dentist office bordered by a gravel alley are located east of the Site. Central Avenue acts as the Site's southern boundary; vacant lots line the Site's entire southern perimeter across Central Avenue. An apartment building and an office building are located west of the Site, beyond Laguna Boulevard.

Potential human receptors in the vicinity of the Site include area workers, pedestrians, and trespassers on the Site. On-site workers are not considered potential receptors as the Site building is not currently occupied by any reported employees. Potential exposure of environmental workers (field consultants, field technicians, environmental samplers, remediation contractors, etc.) is addressed in the HSP that accompanies this Work Plan.

2.3 Site Location

The Site consists of approximately 2.5 acres near Old Town Albuquerque and is bounded to the south by Central Avenue, on the north and northeast by Roma Avenue, on the northwest by Fifteenth Street, to the east by an apartment complex and a vacant business, and to the west by Laguna Boulevard. The Site is located in the COA, Bernalillo County, New Mexico. Currently, there is one large (approximately 30,000 square feet) vacant building on the Site (1503 Central Avenue).

A site location map is included as Figure 1.

3.0 PAST OPERATING PROCEDURES

Subtask 2 of the approved Task assignment work was to determine what processes and chemical uses were employed at the Site commercial building for the manufacturing of jewelry and also in photographic development. The identification of these processes and chemical uses enabled DE&S to prepare a more efficient Site-specific environmental sampling Work Plan.

Subtask 2 included researching chemical usage and disposal techniques employed in the jewelry and photographic industries generally and, if possible, at the Site specifically. DE&S contacted the current owner of the Site, Mr. J. T. Michelson. Mr. Michelson was involved with the day-to-day operations of the jewelry manufacturing business at the Site. Mr. Michelson was contacted and questioned as to what chemicals were used at the facility, what typical maintenance procedures were followed, and what disposal methods were typically used. Mr. Michelson was questioned as to whether or not he could recall any catastrophic chemical releases at the Site. In addition, Mr. Michelson was asked, but he was unable to remember, who had leased the building and operated the photographic development business. Mr. Michelson's comments are included hereafter:

- Bell Trading Post used sulfurated potash, also known as "Liver of Sulfur," to oxidize or clean silver and copper metal jewelry. The liver of sulfur was stored in 10 to 20-pound bags within the facility. The liver of sulfur is mixed with water to form a solution to clean copper and silver.
- Bell Trading Post casting operations used gypsum (plaster of Paris) molds. The molds were disposed of at the COA dump after use. Wax castings were not used at Bell Trading Post.
- Bell Trading Post polished silver jewelry with a mild soap solution. Mr. Michelson did not know the type of soap used or the amount stored at the facility.
- Bell Trading Post performed soldering operations. Soldering operations utilize fluxes that contain acids. During soldering operations, acids may become very fluid when heated. Mr. Michelson could not recall the types of fluxes that were used at Bell Trading Post, nor could he specify the types of acids they may have contained. Mr. Michelson did recall that silver solder was the primary solder employed at Bell Trading Post.
- Mr. Michelson stated that the area above the crawl space or sub-basement was used for storage of finished jewelry and a shipment loading dock area.
- Bell Trading Post employed 200 workers. The facility consisted of a tool room, soldering room, parts storage, stamping area, and administrative offices. The second story of the facility was used as a casting area.
- Mr. Michelson stated that Bell Trading Post ceased jewelry manufacturing operations in 1976.
- According to Mr. Michelson, a photographic development shop was located in the facility for five years in the early 1980s. Mr. Michelson could recall neither the name of the business that leased the property nor its owner's name. Mr. Michelson was also unable to say how

much of the building and which parts were occupied by the photographic development business.

Additional research into chemical uses at jewelry manufacturing and photographic development operations were accomplished by reviewing relative journals, documents, books, and other printed media. In addition, interviews of industry representatives associated with this property were conducted. Review of documents related to case studies or remediation at these types of industries was undertaken. Sections 3.1 and 3.2 of this SOW detail information collected concerning the jewelry manufacturing and photograph development industries.

3.1 Jewelry Manufacturing

DE&S personnel conducted local library reference material and Internet research to obtain information pertaining to the jewelry manufacturing industry. The general processes employed at a jewelry manufacturing facility are outlined hereafter.

Soldering: The Bell Trading Post employed soldering processes at the facility during its years of operation. A flux is applied to the metal to be soldered. Heating the solder and the metal causes them to form a strong bond. Mr. Michelson stated that the Bell Trading Post used silver solder. No records of the silver solder used by the Bell Trading Post were made available to DE&S; however, DE&S obtained and reviewed material safety data sheets (MSDS) for currently manufactured silver solder and silver solder fluxes. According to these documents, silver solders normally consist of ammonium chloride, antimony, copper, rosin, silver, tin, urea, and zinc chloride. Silver solder fluxes consist of boric acid, potassium bifluoride, and potassium tetraborate. Silver soldering with silver solder flux produces fumes of boron oxide and fluoride. A hydrofluoric acid may be produced if the materials soldered are rinsed with water shortly after soldering. In turn, the acid may cause metals present in the soldered materials to go into solution. If Bell Trading Post silver soldering practices included water rinsing, these acid and metal mixtures may have resulted. Rinsed from the floor of the facility into one of the sumps, the mixture may have threatened or possibly impacted localized ground water either through a sump leak or through a leak in the piping associated with the sump.

Casting: Mr. Michelson stated that castings were created at the Bell Trading Post with gypsum (plaster of Paris). This material was stored as a solid (powder) in 50-pound bags and mixed with tap water when designated for use. Plaster of Paris chemically consists of hemi-hydrated calcium sulfate and is created when the mineral gypsum is heated and then hydrated with water. Further addition of water causes plaster of Paris to become very hard, and this hardened version is used industrially to form several types of casts and molds. Plaster of Paris is environmentally hazardous as a nuisance dust that can be harmful under recurring inhalation exposure. Mr. Michelson has stated that all plaster of Paris materials have been removed from the Site and have been disposed of at the COA dump. Based on these statements, DE&S finds that no current potential exposure exists in the ambient air in the Site facility building. If the plaster of Paris is found to be present, DE&S recommends removal of the plaster of Paris from the building as soon as is feasible. Calcium sulfate is not very soluble in water and can contribute to water hardness. Localized ground water hardness may exist in the area of the Site facility building if aqueous mixtures of plaster of Paris leaked through drains into the underlying ground water table.

Bombing: It is not known if the practice referred to in the jewelry industry as "bombing" was employed at the Bell Trading Post facility. "Bombing," also called "striping," is a technique used for brightening and removing tarnish from soldered metals. In bombing, a solution of sodium cyanide, heated almost to the boiling point, is poured over a piece of jewelry placed in a container and covered with a hydrogen peroxide solution. The solution formed by the bombing process contains sodium cyanide and a small amount of hydrogen peroxide. Decomposition of the hydrogen peroxide in the solution causes vigorous evolution of oxygen and induces the removal of the oxide layer. The process also causes the formation of metal cyanide complex ions and the dissolution of metal oxides. After use, bombing solutions may contain silver, copper, and other metal ions from the constituents of the jewelry cleaned. These metals can be recovered by electrolysis of the solution. The bombing process and the use of similar cleaning techniques employing sodium cyanide are extremely common in the jewelry manufacturing industry. Although Bell Trading Post is not known to have used the bombing process described here, the likelihood that it employed sodium cyanide in a similar technique is very strong.

Applying Luster - According to Mr. Michelson, jewelry at the Bell Trading Post was oxidized with sulfurated potash (also known as "liver of sulfur"). Liver of sulfur is a very effective oxidizer of sterling of silver but is sometimes difficult to apply. Jewelry to be oxidized is placed in a solution of liver of sulfur and water. The solution is heated and the jewelry is oxidized according to design specifications (normally until the metal has a blue-black appearance). Liver of sulfur as a solid produces a nuisance dust and is a particulate breathing inhalation environmental hazard. Common decomposition products of the liver of sulfur oxidation process are hydrogen sulfide and oxides of sulfur. Based on the Keers Environmental Phase I ESA report and a DE&S representative visit to the Bell Trading Post property building, DE&S believes that all remaining quantities of liver of sulfur have been removed from the Site facility building.

Polishing - Polishing wheels commonly used in the jewelry industry will cause silica dust. It is not known if polishing wheels were in use at the Site facility during jewelry manufacturing operations. Polishing wheels will cause an inhalation environmental hazard when in use. Since the facility ceased operation several years ago, the risk associated with polishing wheels is considered minimal.

3.1.1 Chemical Storage

According to Mr. Michelson, liver of sulfur, plaster of Paris, fluxes, silver solder, and several of the chemicals used in the soldering, casting, bombing, luster, and polishing processes were used and stored at the Site facility building. Mr. Michelson neither knew what quantities were used or stored nor could he identify storage areas within the facility building. Mr. Michelson is able to recall only the materials listed as present at the Site facility. However, research of current jewelry manufacturing practices indicates that, the following chemicals are likely to be present at jewelry manufacturing facilities and therefore may be or have been present at the Site:

Sodium and/or potassium cyanide

Hydrogen peroxide

Sulfuric and boric acids

Ammonia hydroxide

Calcium sulfate

Sulfurated potash

Potassium bifluoride, and potassium tetraborate

Heavy metals (gold, silver, copper, etc.)

As part of this Work Plan environmental media at the Site (soil and ground water) will be sampled and analyzed for the presence of these common jewelry-manufacturing chemicals. The concentrations of these chemicals identified in soil and ground water will be compared with applicable soil and/or ground water NMED or EPA standards where available.

3.2 Photograph Development

According to Mr. Michelson, a photographic development business operated in the Bell Trading Post building for approximately five years in the early 1980s. The Keers Phase I ESA report (Keers 2000) indicates that the 1982 Albuquerque City Directory lists a business called " Albuquerque Photo Lab" at the Site address. A former Albuquerque Photo Lab employee, Mr. Steven Donahue, was interviewed by telephone on May 8, 2001. According to Mr. Donahue, Albuquerque Photo Lab, Inc. operated for four to five years in the early 1980's. Mr. Donahue stated that the business employed approximately 8 to 10 people. The Albuquerque Photo Lab, Inc. performed color photographic processing, black and white photographic processing, offset printing, and blue print production. Mr. Donahue was a photographer who worked only in the facility's photo shop. He stated knowledge of ammonia, inks, solvents, and silver halide use by Albuquerque Photo Lab, Inc., at the Site facility, and also stated that the business recycled silver and operated two large printing presses on site. However, Mr. Donahue's knowledge of chemical use at the Site by Albuquerque Photo Lab, Inc., was in general limited. According to Mr. Donahue, Albuquerque Photo Lab, Inc. went out of business in the mid-1980s. Mr. Phil Herkenhoff is the former owner of Albuquerque Photo Lab, Inc. and the current owner and operator of Herkenhoff Enterprises, Inc. DE&S has attempted to but as of the writing of this Work Plan, have been unable to contact Mr. Herkenhoff

Specific examples of photographic development processes that took place at the Site facility building are not available. The following sections describe general examples of common photographic processes. Processes undertaken at the Site during its use as a photographic development facility are likely to have been the same as or similar to the processes discussed hereafter.

In general, photographic processing consists of producing a visible black and white or color image by applying a series of chemical solutions and wash waters to a silver halide-sensitized material. Current photographic development practices employ over 20 different processes with

variations in solution chemistry and treatment sequence. As stated in the preceding paragraph, specific processes used at the Site facility building are not known.

Process wastewater from photographic processing commonly contains large amounts of silver, cyanide, and chromium. Silver results from the processing of silver-halide-sensitized photographic materials. Cyanide and chromium result from bleaches that are commonly used in photographic processing. Cadmium, the result of additional development practices, is also found in photographic processing wastewater. The observed presence of cadmium in photographic wastewater is statistically smaller than that of silver, cyanide, or chromium, but still regarded as a significant quantity.

Ion exchange or reverse osmosis systems are commonly used for recovery of silver for after-fix wash wastewater. Mr. Donahue has stated that silver was recycled at the Site facility building. He also stated that ferrous sulfate treatment was used to reduce the amount of cyanide in photographic process wastewater.

3.2.1. Black and White Photograph Development

Black and white film or paper consists of a base material or substrate that is coated with a light-sensitive emulsion. Silver halide crystals are spread evenly throughout the emulsion. When the emulsion is exposed to light, electrons are ejected from the halide ions. Crystal imperfections or other chemicals trap these "free electrons." The electrons attract positively charged free silver ions in crystal lattice-forming clusters of metallic silver at the trap sites. These clusters of silver form a latent image of the original light exposure pattern. During processing, the developer solution causes additional silver to be attached at the cluster site to the image (chemical amplification). The film image then undergoes further chemical treatment to stabilize the image and to remove excess chemicals. Chemicals and their uses in the development of black and white photographs are:

Chemical	Use
Silver halide	Emulsion
Hydroquinone and metol or phenidone	Developing agent
Sodium hydroxide or sodium carbonate or borax (sodium tetraborate)	Activator
Sodium sulfite or potassium metabisulfite	Preservative
Potassium bromide or benztriazole	Restrainer
Acetic acid	Short Stop
Sodium or ammonium thiosulfate	Fixer

Sodium bisulfite or potassium metabisulfite	Neutralizer
Potassium aluminum sulfate or potassium chromium sulfate	Hardener

3.2.2 Color Photograph Development

Unmodified silver halide emulsions are sensitive to only a limited range of wavelengths, including the blue-violet region of the visible spectrum, ultraviolet, and shorter wavelengths. However, the inclusion of certain organic dyes in the emulsion can extend sensitivity to longer wavelengths through the visible spectrum into the infrared and can increase emulsion sensitivity to a particular region of the visible spectrum. Color films have three separate light-sensitive emulsion layers. After inclusion of the appropriate dyes, these layers record images of the blue light components, the green light components, and the red light components on first, second, and third layers respectively.

The commonly used color photographic materials are color negative films; color reversal films; color print films; and color print papers. The three basic color development processes are negative, reversal with couplers in the emulsion, and reversal with coupler in the developers.

Chemicals and their uses in the development of color photographs are:

Chemical	Use
Silver halide	Emulsion
Diethylpara-phenylene diamine salt	Developer
Hydroxlamine hydrochloride	Fog restrainer
Acetic acid and/or sodium acetate	Developer removal agent
Ferricyanide bleach	Film bleaching agent
Formalin and sodium carbonate solution	Hardener

4. 0 SAMPLING AND ANALYSIS ACTIVITIES

4.1 Purpose of Investigation

The purpose of this Phase II investigation is to acquire enough information to characterize the Site for evaluation under NMED VRP performance standards. Soil samples will be collected to assess soil conditions in areas of the Site with exposed soil (or areas now covered with asphalt/concrete believed to have been formerly exposed during building operations). Ground water samples will be collected from selected Geoprobe® soil borings (completed along the Site boundaries) to assess any impacts that the site may have had on local ground water quality.

4.2 Sampling and Analysis

The sampling and analysis section of this Work Plan includes the following activities:

- Soil sample collection and analysis;
- Ground water sample collection and analysis.

4.2.1 Soil Boring Installation and Continuous Soil Sampling

DE&S will advance 12 Geoprobe® soil borings in the following locations at the Bell Trading Post property (Figure 2). These locations were selected from a sampling grid of all open areas (not covered by the Site building):

- Two (2) near the northeastern corner of the Site (adjacent to the gravel alley);
- One (1) near the northwestern corner of the Site (adjacent to the intersection of Roma Avenue and Laguna Boulevard);
- One (1) near the northern end of the adjacent apartment building (adjacent to the eastern side of the Site building);
- Five (5) in the southwestern corner area of the Site (adjacent to the western side of the Site building); and
- Three (3) along the southern side of the Site building (adjacent to the north side of Central Avenue NW).

Prior to initiating soil boring, DE&S will contact New Mexico One-Call Systems, Inc., and all local utility companies to determine the locations of underground utilities.

In order to minimize the cost for disposal and decontamination of soil cuttings, DE&S recommends that direct-push methods (i.e. Geoprobe®) be used for the soil borings completed as part of this assessment. A subcontractor will be utilized to conduct the exploratory boring advancement and sampling program. The subcontractor will be under the direct supervision of

the DE&S representative and will conduct the subsurface sampling program using a truck-mounted Geoprobe® soil investigation unit. The Geoprobe® utilizes a rotary hammer mounted on a hydraulic ram that, in conjunction with the weight of the vehicle, advances a 2-inch, threaded, hollow-probed steel tube into the subsurface. Soil and ground water samples can be extracted at discrete intervals using various down-hole tools in conjunction with the Geoprobe®.

If the Geoprobe® is not capable of penetrating the subsurface materials, then a drilling rig utilizing a hollow-stem auger drilling and sampling method will be used to complete the project. Use of a hollow-stem auger drilling rig would indicate a change in the Scope of Work and associated costs. NMED will be notified immediately if hollow-stem auger drilling is required to discuss project options and to determine how to proceed. It should be noted that Geoprobe® drilling practices have previously been successful in close proximity of the Bell Trading Post property.

The DE&S Standard Operating Procedures (SOP) for the direct-push soil boring advancement and subsurface soil sampling are included in Appendix B of this SOW.

Soil samples will be collected continuously from the ground surface to the terminal depth of each boring (ranging from approximately 4- to 25-feet). All soil borings will be completed to an approximate depth of 4-feet below ground surface (bgs), with the exception of soil borings SB-01, SB-03, SB-04, and SB-12, which will be completed to depths of approximately 25-feet bgs (suspected local ground water contact). The DE&S geologist will produce a lithologic log of each soil boring. The soil cuttings will be described in accordance with Unified Soil Classification System (USCS). Descriptions of the soil cuttings will include lithologic type, minerals present, color, particle size range, particle angularity, density, plasticity, particle sorting, moisture content, and structure.

Each soil boring will be abandoned by pouring bentonite pellets or chips into the vacant soil boring, then hydrating the bentonite using potable water.

Each soil sample collected will be screened in the field for VOCs using a photoionization detector (PID) via heated headspace technique. The NMED USTB SOP for heated headspace reading collection is included in Appendix C of this Work Plan. The PID will be equipped with an 11.7 ionization potential electron volt lamp that provides the sensitivity necessary to identify VOCs suspected to be present in site soils. The PID provides screening of ionizable organic compound concentrations in air and gives a direct readout in ppm. The PID determines the concentration of total ionizable VOCs, but does not differentiate between specific compounds. The operational range of the PID is 0 to 2,000 ppm, with a minimum instrument detection of 0.1 ppm. Soil samples collected for PID headspace screening will be placed in a laboratory pre-cleaned glass jars, and the jar openings will be sealed with aluminum foil. The soil samples will be allowed to reach ambient temperature either by placement in the sun and/or a warm-water bath. After the soil sample has been at ambient air temperature for approximately 10 minutes, the tip of the PID will be inserted into the jar by piercing the aluminum foil, and the reading returned will be recorded in the field notebook or appropriate field form.

In each of the 4-feet deep soil borings, a soil sample will be collected from the 0 to 2-feet bgs interval and the 2- to 4-feet bgs interval. All of the shallow soil samples (the 0 to 2-feet bgs

interval) collected from each soil boring will be submitted for laboratory analysis. If metals are detected in any of these soil samples (0 to 2-feet bgs intervals) above normal background levels, then the associated deeper soil sample (the 2- to 4-feet interval) from the same soil boring will be analyzed by the laboratory in order to assess the potential for leaching at the Site.

Each of the deeper soil borings (SB-01, SB-03, SB-04, and SB-12) may also be sampled at the 0 to 2-feet bgs and 2- to 4-feet bgs intervals (if the soil boring is located in an area where additional coverage of surface soils is needed; in areas where the results may be useful for comparison as background soil samples; and/or if the soil borings are located in areas of exposed soil where potential releases might have occurred). In addition, any soil samples exhibiting a significant PID reading, soil staining, and/or odor will be considered for laboratory analysis.

In addition, a maximum of three of the soil samples will be submitted for analysis of soil geotechnical properties (parameters to be used in a potential site-specific risk analysis). These samples will be selected based upon lithology type. The geotechnical soil samples will only be analyzed if Site soil samples submitted for analytical analysis indicate the presence of metals or other contaminants of concern. Each of the three selected geotechnical soil samples will be submitted for the following soil geotechnical parameters: dry bulk density (ASTM Method D2937-94), porosity (ASTM Method D854), volumetric water content/moisture content (ASTM Method D2216-92), fractional organic carbon content in soil (ASTM Method 2974), and sieve analysis (or soil gradation analysis).

Each soil sample selected for laboratory analysis will be placed in glass jar with a Teflon™-lined lid, labeled with the location, time, and date of collection, sampler's name, and required analyses. The soil samples selected for laboratory analysis will be immediately placed in a cooler filled with ice for delivery to the contract laboratory. Standard chain-of-custody procedures will be adhered to throughout the investigation.

All drilling equipment used for boring advancement will be steam-cleaned prior to drilling to remove oils, chemicals, and soil. All soil boring equipment will also be steam cleaned between locations to eliminate the possibility of cross contamination between two borings. Sampling tools will be decontaminated between each use, using established protocols. Equipment decontamination procedures are outlined in Appendix D of this Work Plan.

4.2.2 Ground Water Sample Collection

Four of the Geoprobe® soil borings (SB-01, SB-03, SB-04, and SB-12) will be completed to a depth of approximately 25-feet bgs (suspected local ground water contact). Ground water samples will be collected at these locations. Two of these ground water samples will be collected near the northeastern corner of the Site, one ground water sample will be collected from the southeastern corner of the Site, and one ground water sample will be collected from near the northwestern corner of the Site.

The locations of the proposed ground water sample collection points are shown in Figure 2. These locations were chosen based on their proximity to the Site property corners and current local ground water flow direction (to the east, southeast).

Each ground water sample will be collected from each Geoprobe® soil boring by constructing a mini-well. The mini-well will be constructed of 1.0 inch-diameter schedule 40 PVC casing. The lower 5-feet of the casing will be slotted (0.01 inch). Polyethylene tubing will then be placed inside the casing and ground water will be removed from the Geoprobe® soil boring using a peristaltic pump. The mini-well casing and polyethylene tubing will be discarded after use by the drilling subcontractor.

All ground water samples collected for laboratory analysis will be analyzed for those parameters outlined in Section 4.5 of this Work Plan.

4.3 Quality Assurance

QA/QC samples for the soil samples will consist of field duplicates and decontaminated equipment blanks. A duplicate is obtained by collecting two samples at one sampling location and labeling one sample as the primary sample name and the other as a field duplicate. The time of collection should be left off the sample container label and chain-of-custody (COC) so that the analytical laboratory does not have an indication of which sample is the field duplicate. In addition, one equipment blank per day will be collected. The equipment blanks will be analyzed in the same manner as the primary samples.

QA/QC ground water samples will be collected at a minimum frequency of 5 % (or 1 for every 20 samples) and will include duplicate samples, field blanks, and equipment rinsate blanks. There will be one trip blank per cooler shipment, if samples are collected for VOA analyses. The field blank sample will be collected by pouring deionized water through the air into a sample container at the Site. The rinsate sample will be collected after decontamination of the equipment by pumping deionized water through the sampling pump or sampling device. Trip blanks will be provided in the sample cooler and accompany the samples from the Site to the contract laboratory. Trip blank samples will only be analyzed if unusual or unexpected laboratory results are identified in the primary samples.

The selected laboratory's QA/QC Plan will be followed, which should require matrix spike and method blank samples to be run at frequencies dictated by laboratory certification requirements. The analytical laboratory will have State- and EPA-certifications for conducting the specific analytical methods.

4.4 Data Evaluation

DE&S will complete a final report describing the work completed at the Site, including the following:

- Any additional information concerning Site conditions discovered during completion of the Phase II Investigation;
- A summary of the historical background of the Site;
- A complete description of the technical approach and field methods used during field activities;

- A complete description of the results of the field investigation tasks;
- All field forms and field notes taken during the investigation;
- A risk assessment for potential exposures to contaminated soil and ground water at the Site, using the Tier I approach specified in the "Technical Background Document for Development of Soil Screening Guidelines" (NMED 2000). This is equivalent to a Method 2 assessment specified in 20 New Mexico Administrative Code (NMAC) 6.3 Subpart I Section 110 of the VRP Regulations;
- DE&S conclusions and recommendations.

4.5 Laboratory Analysis

Table 1 outlines the laboratory analysis for the soil samples and ground water samples collected from the Geoprobe® soil borings. All soil and ground water samples will be analyzed for these parameters.

Table 1. Soil and Ground Water Sample Analysis
Bell Trading Post Property Work Plan

Chemicals Potentially Used at the Site	Sample Matrix	Analysis	Number of Samples*	EPA Method Number(s)
Sodium cyanide, sodium carbonate	Ground Water	Sodium	5	200.7
Sodium cyanide, potassium cyanide, potassium ferricyanide	Soil/Ground Water	Cyanide	13 soil/5 gw	335.4
Potassium cyanide, potassium tetraborate, potassium bromide, potassium aluminum sulfate, potassium chromium sulfate, potassium ferrycyanide	Ground Water	Potassium	5	200.7
Calcium sulfate	Ground Water	Calcium	5	200.7
Potassium bifluoride	Ground Water	Fluoride	5	340.1
Sodium carbonate	Ground Water	Carbonate	5	300.0
Sulfuric acid, calcium sulfate, potassium aluminum sulfate, potassium chromium sulfate	Ground Water	Sulfate	5	300.0
Ammonia hydroxide	Ground Water	Ammonia	5	350.2
Metals	Soil/Ground Water	NWQCC Metals**	13 soil/5 gw	6010
Zinc	Soil/Ground Water	Zinc	13 soil/5 gw	6010
Mercury	Soil/Ground Water	Mercury	13 soil/5 gw	7470/7471A
Sulfuric Acid	Soil/Ground Water	Acid/Base (pH)	13 soil/5gw	150.1 gw 9045 soil
Nitrates	Ground Water	Nitrate - Nitrite	5	353.2
Hydrogen peroxide	Ground Water	Dissolved Oxygen	5	Field Meter

Table 1. Soil and Ground Water Sample Analysis (Continued)
Bell Trading Post Property Work Plan

Chemicals Potentially Used at the Site	Sample Matrix	Analysis	Number of Samples*	EPA Method Number(s)
N/A	soil	Fractional Organic Carbon	4	2974
N/A	soil	Sieve Analysis	4	D422-63
N/A	soil	Specific Gravity	4	D2932-94
N/A	soil	Moisture Content	4	D2216-92
N/A	soil	Bulk Density	4	D2937-94
N/A	soil	Dry Sieve Analysis	4	D422-63

Notes:

* - This is a minimum number of samples for analyses. Additional samples may be collected based upon field screening criteria.

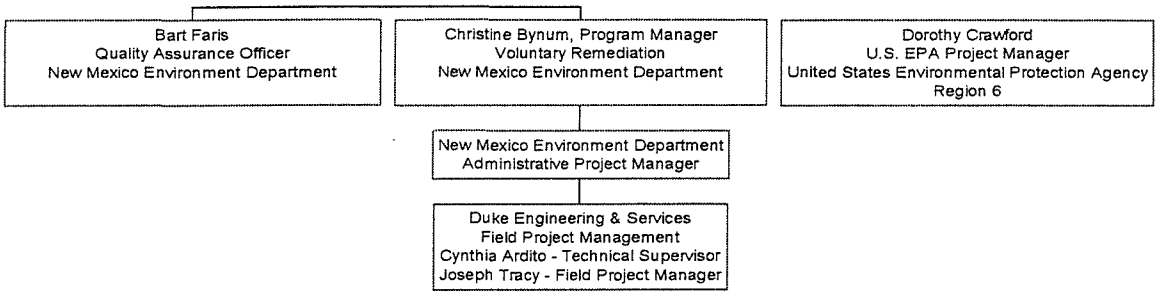
** - NMWQCC Metal analyte list includes: Arsenic, Barium, Cadmium, Chromium, Lead, Mercury (total), Selenium, Silver, Copper, Iron, Manganese, and Zinc.

4.6 Investigation Derived Waste

A plan to address the issue of investigation derived waste (IDW) produced during the implementation of this Work Plan is included in Appendix E.

4.7 Project Organizational Chart

The project organizational chart for the Site is outlined below.



5.0 DELIVERABLES AND SCHEDULE FOR COMPLETION OF WORK

The only deliverable for this project is a final report describing the technical approach, the field sampling/investigation, and results of sample analytical analysis. Included with the final report will be conclusions and recommendations for additional work (if determined warranted).

• **Approval and Finalization of Work Plan**	**Week 0 - Week 2**
• NMED Development of QAPP	Week 2 - Week 4
• Complete Field Work	Week 4 - Week 6
• Draft Final Report	Week 6 - Week 8
• NMED Review and Comment Period	Week 8 - Week 10
• **Submittal of Final Report**	**Week 10 - Week 12**

6.0 DISCUSSION OF HOW PROPOSED ACTIVITES COMPLY WITH THE VOLUNTARY REMEDIATION PERFORMANCE STANDARD

The VRP allows for the completion of a risk assessment to address potential risks associated with site contaminants and to determine when compliance with VRP Performance standard is met (20 NMAC 6.3, Subpart I, Section 110B) (NMED, 1999a). A risk assessment will address human exposures to Site contaminants in soil and ground water resulting from previous Site use. The risk assessment will be conducted by comparing historical and current soil and ground water concentrations as an initial step. When background concentrations are exceeded, the average soil and individual ground water concentrations shall be compared to New Mexico Soil Screening Guidance (NMSSG) and New Mexico Water Quality Control Commission (WQCC) standards, respectively (where applicable). If comparison results indicate noncompliance with the NMSSG and WQCC standards, then a site-specific risk assessment and targeted removal actions may be undertaken as a later stage of work, as approved by NMED.

7.0 REFERENCES

Bjorklund, L. J., and B. W. Maxwell, 1961. *Availability of Ground Water in the Albuquerque Area, Bernalillo and Sandoval Counties, New Mexico*, New Mexico State Engineer Technical Report 21.

Chamberlin et al. (R. M. Chamberlin, J. M. Gillentine, C. S. Haase, J. W. Hawley, R. P. Lozinsky, and P. S. Mozley), 1992. *Hydrogeologic Framework of the Northern Albuquerque Basin*, Open-File Report 387, New Mexico Bureau of Mines and Mineral Resources, New Mexico Institute of Mining and Technology, Socorro, New Mexico, September 1992.

Duke Engineering & Services, 2001. *"Scope of Work and Cost Proposal Task 1, Further Investigation into Chemical Use and Disposal associated with the Bell Trading Post Property, 1503 Central Avenue, Albuquerque, New Mexico,"* March 30, 2001.

Keers Environmental, 2000. *"Phase I Environmental Site Assessment, Bell Trading Post & Adjacent Parcels, 1503 Central Avenue NW, Albuquerque, New Mexico,"* December 18, 2000.

Keers Technical Services, 1994. *"Limited Subsurface Investigation at 1503 Central Avenue, NW, Albuquerque, New Mexico,"* April 26, 1994.

Kelley, V. C., 1977. *"Geology of Albuquerque Basin, New Mexico, Memoir 33,"* New Mexico Bureau of Mines & Mineral Resources, a Division of New Mexico Institute of Mining & Technology, Socorro, New Mexico.

Kernodle, J. M., D. P. McAda, and C. R. Thorn, , 1995. *"Simulation of Ground-Water Flow in the Albuquerque Basin, Central New Mexico, 1901–1994, with Projections to 2020,"* U.S. Geological Survey Water-Resources Investigations Report 94-4251.

Interview with Mr. J. T. Michelson on April 18 and May 3, 2001.

Interview with Mr. Steven Donahue on May 8, 2001.

Interview with Mr. Norman Pricer on May 10, 2001.

New Mexico Environment Department, 1999. *New Mexico Voluntary Remediation Regulations (20 NMAC 6.3).* Santa Fe, New Mexico, July 15, 1999.

New Mexico Environment Department; 2000; *Technical Background Document for Development of Soil Screening Levels*; completed by NMED personnel staff November 6, 2000.

Thorn, C. R., D. P. McAda, and J. M. Kernodle, 1993. *Geohydrologic Framework and Hydrologic Conditions in the Albuquerque Basin, Central NM*, U.S. Geological Survey, Water-Resources Investigation Report 93-4149.

United States Environmental Protection Agency, Effluent Guidelines Division, 1981. *"Guidance Document for the Control of Water Pollution in the Photographic Processing Industry"* dated April 1981.

FIGURES

APPENDIX A

HEALTH AND SAFETY PLAN

Health and Safety Plan for Phase II Investigation Activities at the Bell Trading Post Property, Albuquerque, New Mexico

Prepared for:

New Mexico Environment Department

Voluntary Remediation Program

1190 St. Francis Drive, Santa Fe, NM 87502-1190

Prepared by:

Duke Engineering & ServicesSM

A Duke Energy Company

One Park Square

6501 Americas Parkway NE

Suite 810

Albuquerque, New Mexico 87110

October 2001

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 POLICY 1

3.0 KEY PERSONNEL 1

4.0 SITE ACTIVITIES 3

5.0 HAZARD ASSESSMENT 4
- 5.1 Physical Hazards 5
- 5.2 Biological Hazards 5
- 5.3 Chemical Hazards 6

6.0 GENERAL HEALTH AND SAFETY REQUIREMENTS 8
- 6.1 Safety Equipment 8
  - 6.2 Head Protection 8
  - 6.2.1 Eye Protection 8
  - 6.2.2 Skin Protection 8
  - 6.2.3 Footwear 9
  - 6.2.4 Respiratory Protection 9
- 6.3 Work Zones 9
- 6.4 Medical Examination/OSHA Training 11
- 6.5 Site Manager Notification 11
- 6.6 Project Safety Meetings/Compliance Agreement 11
- 6.7 Prohibitions 12
- 6.8 Site Visitors 12

7.0 AIR QUALITY MONITORING 12

8.0 LABORATORY CONSIDERATIONS 13

9.0 CONFINED SPACE ENTRY 14

10.0 SHIPPING OF SAMPLES 14

11.0 EMERGENCIES/ACCIDENTS 14
- 11.1 On-Site Personnel and Visitors 14
- 11.2 Surrounding Community 15

12.0 REFERENCES 15

Management of Investigation Derived Waste Plan 1

LIST OF TABLES

Table 1 Site Health and Safety Equipment Inventory Checklist

Table 2 Emergency Phone Numbers

LIST OF APPENDICES

Appendix A Heat Stress Casualty Prevention Plan

Appendix B Respirator Protection Program

Appendix C Health and Safety Field Forms

Appendix D Route to Hospital Map

1.0 INTRODUCTION

This Health and Safety Plan (HSP) establishes guidelines and requirements for the safety of personnel during the performance of the field activities associated with this project. The specific activities addressed by this plan are defined in Section 4.0. All employees of Duke Engineering & Services (DE&S) and its subcontractors involved in this project are required to abide by the provisions of this plan.

The health and safety guidelines and requirements presented are based on a review of available information and an evaluation of potential hazards. This HSP outlines the health and safety procedures and equipment required for activities at this site. This is a dynamic document. In the event that the contents of this HSP need to be changed, site personnel shall be informed of the change or changes and shall then be responsible for abiding by the protocol of those revisions. The Project Manager, the Project Health and Safety Officer, or the Site Safety Officer (SSO) may modify this plan in response to additional information obtained regarding the potential hazards to personnel and conditions at the site. Consultation between the Project Manager and a Health and Safety Officer is recommended before establishing HSP modifications.

2.0 POLICY

DE&S considers the prevention of illness, injury, and accidents in the workplace to have greater importance than any other facet of the work. Safety shall always take precedence over expediency or shortcuts, and every attempt shall be made to reduce the possibility of injury, illness, or accident occurrence. All site activities assigned under a subcontract or purchase order issued shall be conducted in accordance with the established safety regulations of the Occupational Safety and Health Administration (OSHA), and other applicable Federal, State, County, and City regulations. All personnel, including DE&S subcontractors, lower tier subcontractors, consultants, and service personnel, who perform any task in relation to site activities or are visitors to the drilling site(s) shall adhere to the provisions of these requirements.

3.0 KEY PERSONNEL

Program Manager: Cindy Ardito, (505) 246-1600 ext. 206

For this project, the Program Manager has the following responsibilities:

- supervise the preparation and implementation of an approved HSP for this program;
- ensure that the project is performed in a manner consistent with the HSP; and
- ensure compliance with the HSP by DE&S and subcontractor personnel.

Project Manager: Joseph Tracy, (505) 246-1600 ext. 219

The Project Manager has the authority to take the following actions:

- suspend field activities if the health and safety of personnel are endangered, pending further consideration by the Project Health and Safety Officer or the SSO; and
- suspend an individual from field activities for infractions of the HSP, pending further consideration by the Project Health and Safety Officer or the SSO.

Project Health and Safety Officer: Patricia Johnson (505) 246-1600 ext. 220

The Project Health and Safety Officer has the following responsibilities:

- interface with the Project Manager as required in matters of health and safety;
- develop an HSP for the project and to submit it to the Project Manager for approval;
- appoint or approve a SSO to assist in implementing the HSP;
- monitor compliance with the approved HSP;
- assist the Project Manager in seeing that proper health and safety equipment is available for the project; and
- approve personnel to work on this site according to appropriate medical monitoring and health and safety training.

The Project Health and Safety Officer has the authority to take the following actions:

- suspend work or otherwise limit exposure to personnel if the HSP appears to be unsuitable or inadequate;
- direct personnel to change work practices if they are deemed to be hazardous to health and safety of personnel; and
- remove personnel from the project if their actions or condition endangers their health and safety or the health and safety of co-workers.

Site Safety Officer: Joseph Tracy (505) 246-1600 ext. 219

The SSO has the following responsibilities:

- direct health and safety activities on site;

- report safety-related incidents or accidents to the Project Manager and the Project Health and Safety Officer;
- assist the Project Manager in all aspects of implementing the HSP; and
- maintain health and safety equipment on site, as specified in the HSP.

The SSO has the authority to take the following actions:

- suspend field activities if the health and safety of personnel are endangered, pending further consideration by the Project Manager and the Project Health and Safety Officer; and
- suspend an individual from field activities for infractions of the HSP, pending further consideration by the Project Manager and the Project Health and Safety Officer.

4.0 SITE ACTIVITIES

DE&S has been contracted by the New Mexico Environment Department (NMED), Voluntary Remediation Program (VRP) to complete a Phase II environmental site investigation at the Bell Trading Post Property in Albuquerque, New Mexico. The Site consists of approximately 2.5 acres near Old Town Albuquerque and is bounded to the south by Central Avenue, on the north and northeast by Roma Avenue, on the northwest by Fifteenth Street, to the east by an apartment complex and a vacant business, and to the west by Laguna Boulevard. This Health and Safety Plan relates to using direct push technologies (Geoprobe®, etc.), to advancing 19 soil borings, to continuously collecting soil samples, and to collecting ground water samples. The project has the following objectives:

- Vertically delineate of site soils by collection of soil samples continuously at each soil boring location;
- Characterize site ground water quality;
- Continuously sample all soil borings for lithologic characterization; and
- Identify possible contaminant sources previously not known.

Potential activities that are likely to involve direct contact with wastes or potentially contaminated materials include:

- field screening of soil samples;
- handling of cuttings from soil borings;

- transporting contaminated soil;
- decontaminating equipment;
- collecting soil samples;
- collecting ground water samples through tubing; and
- preparing soil and ground water samples for shipment.

5.0 HAZARD ASSESSMENT

An assessment of the hazards has been made for each of the activities specified in Section 4.0.

The following hazards have been identified:

- physical hazards associated with equipment used by the drilling contractor(s) including augers, drill rig, steam cleaner, shovels, and hand tools;
- physical hazard associated with heat stress;
- physical hazards associated with lifting heavy items;
- physical hazards associated with electrical connections;
- physical hazards associated with above or below ground utility lines;
- biological hazards related to insect and reptile bites;
- biological hazards related to Hantavirus from contact with rodent excrement;
- chemical hazard associated with inhalation of organic vapors and/or inorganic contaminants and dust during drilling, well installation, and soil and ground water sampling activities;
- chemical hazard associated with skin and eye contact with organic and/or inorganic contaminants; and
- chemical hazard associated with ingestion of organic and/or inorganic contaminants.

All on-site personnel and site visitors shall be made aware of and protected against the potential hazards listed above.

5.1 Physical Hazards

There is a potential on site of physical injury resulting from contact with direct push technology soil boring advancement equipment including operating push rods, tools, winches, and mechanical equipment operating at eye level. Field personnel shall be aware of these hazards and take steps to avoid them. Use of steel-toed boots and safety glasses shall be required when on the site. Hard hats shall be worn at all times when on site. Personnel shall be cognizant of the fact that when protective equipment such as respirators, gloves, and protective clothing are worn, visibility, hearing, and manual dexterity are impaired.

In addition to the physical hazards listed above, the protective equipment required for some activities (respirators) places a physical strain on the wearer. Heat exhaustion and/or stroke are possible, especially during warm weather. The Heat Stress Casualty Prevention Plan specified in Appendix A shall be implemented to deal with this serious health hazard. The plan outlines heat stress identification, treatment, prevention, and monitoring. Fluids shall be provided on site to maintain the body fluid levels of field personnel.

Many activities associated with direct push soil boring advancement involve lifting or moving of heavy equipment or items including steel drill rods, soil, drums, etc. Site personnel should employ safe lifting practices and should avoid moving heavy items without assistance of mechanical equipment and/or fellow teammates.

Use of electronic equipment and rechargeable meters present exposure to potential electrical shock. Electrical shock may be avoided by maintaining safe work practices around electrical equipment and connections.

During fieldwork activities underground utilities may be encountered. Local utility companies shall be notified prior to fieldwork and shall be requested to mark any line locations on the ground.

The drilling contractor shall perform drilling activities tasks in accordance with the established safety regulations of the Occupational Safety and Health Administration (OSHA) and all other Federal, State, County, and City regulations. Contractors shall follow their own written health and safety plan for drilling activities, specific to the site or general. The DE&S SSO or Project Safety Officer shall approve the contractor's HSP prior to the initiation of excavation activities.

5.2 Biological Hazards

Numerous types of pest organisms may be present at the site. Bees, spiders, wasps, rodents and/or poisonous reptiles may be present at the site. Field personnel are encouraged to avoid exposing hands or other body parts to cool dark areas where these pests are known to dwell. Additionally, exposure to the Hantavirus from contact with rodents and rodent excrement should be avoided at all times. Areas where visible

evidence of rodent activity exist are to be strictly avoided. Agitating dried rodent urine or droppings greatly increases the potential for exposure to the Hantavirus.

5.3 Chemical Hazards

Personnel and site visitors may be exposed to chemical hazards through four routes of exposure: inhalation, ingestion, skin contact, and eye contact.

There may be several potential chemical hazards at this site, primarily hydrocarbons, chlorinated solvents, and related waste products. Exposure to significant concentrations of contaminants could occur during field activities at this site. The inhalation pathway shall be monitored, as necessary, using a photoionization detector (PID) or flame ionization detector (FID). Air monitoring shall provide the information necessary to determine the appropriate level of PPE and appropriate times for establishing or maintaining exclusion zones and contaminant reduction zones. Refer to Section 7.0 for additional details on the air monitoring protocol.

Ingestion of chemical hazards shall be controlled on this site by prohibiting eating, smoking, and drinking in the Exclusion Zone (refer to Section 6.2 for definitions of work zones), and by requiring all field personnel to decontaminate themselves upon leaving the Exclusion Zone.

Skin and eye contact with chemical hazards can cause serious burns, rashes, or irritations. All field personnel shall report any skin or eye contact symptoms to the SSO so a physician can treat personnel and steps can be taken to eliminate similar exposures.

The best assurance of protection against hazardous chemicals is avoidance. Whenever possible, site personnel shall avoid contact with contaminated (or potentially contaminated) surfaces and walk around suspect liquids and discolored soils or substances. Workers shall not kneel or place equipment on potentially contaminated ground, and shall stay away from known waste whenever possible.

If contact is unavoidable in order to perform a required task, potential hazards are minimized by using appropriate PPE to protect against exposure to toxic materials. PPE to protect the body against contact with known or anticipated chemical hazards has been divided into four levels by the EPA (Levels A, B, C, and D) according to the degree of protection afforded.

At this site, the levels of protection selected for activities specified in Section 4.0 are:

Level D – for site workers not expected to come in direct contact with contaminated soil (screening soil, operating drilling equipment, logging of soil borings, preparing samples for shipment, etc.) or

Modified Level D – for site workers who shall come in direct contact with contaminated soil (handling of soil cuttings or well development fluids, equipment decontamination, and sample collection).

These levels of protection were selected because respiratory hazards are not expected. Air monitoring shall be conducted during the drilling activities, and the level of PPE shall be upgraded to Level C if levels of organic vapors exceed the action levels established (Section 7.0). Requirements for Level D, Modified Level D, and Level C are provided below.

The following PPE is required for Level D Protection:

- coveralls or appropriate work clothes;
- steel-toe boots;
- safety glasses or chemical splash goggles;
- hard hat.

Workers who come in direct contact with contaminated soil and/or ground water shall use Modified Level D PPE. Modified Level D PPE shall be used if there is a danger of chemical hazard from skin contact but no respiratory hazard (as determined by air monitoring). The following PPE is required for Modified Level D Protection:

- Nitrile gloves (outer);
- steel-toe boots;
- safety glasses or chemical splash goggles to be worn at all times at this site;
- hard hat.

It is anticipated that all tasks shall be conducted using level D PPE. The following description is provided in the event that the site conditions require that the PPE be upgraded to Level C. Respirators are required when air monitoring indicates a total organic vapor concentration in excess of 10 ppm (see Section 7.0 for discussion of air monitoring). The following PPE is required for Level C protection:

- MSHA/NIOSH approved full-face air-purifying respirator with organic vapor/particulate cartridges;
- Nitrile outer gloves;
- steel-toe boots;
- hard hat.

6.0 GENERAL HEALTH AND SAFETY REQUIREMENTS

Safety equipment and PPE are discussed in this section so protection of the head, eyes, skin, feet, and respiratory system can be better understood. The SSO has the authority to make PPE exceptions for site personnel if he/she deems it in the best interest of the field personnel's well being. Such a PPE exception (i.e., modification to the HSP) shall be based on site specific information such as air monitoring data, visual observation, and weather data/observation. One example of such a modification to the HSP would be to decrease the use of respirators, hard hats, or inadequately ventilated clothing if heat stress is a primary concern during site activities and the use of the PPE was intended for a low-risk precaution. Under no circumstances shall the SSO make a PPE exception/modification if personnel shall be without the protection needed to be safe or to properly protect their health. If it appears that proposed PPE is inadequate site work shall be suspended until new PPE or planning allow personnel to work safely.

6.1 Safety Equipment

In addition to the PPE listed below, the following general safety equipment shall be available: OSHA-approved first-aid kit, fire extinguishers, eye wash, insect repellent/treatment, rinse water, and decontamination water. Table 1 provides a checklist for the health and safety equipment.

6.2 Head Protection

Hard hats shall be worn whenever overhead objects are present or if otherwise required.

6.2.1 Eye Protection

All personnel working on site shall wear safety glasses. Additionally, when personnel are performing activities where the potential exists for increased exposure due to splash, dust, or vapor, etc., safety goggles, face shields, or full-face masks shall be worn.

6.2.2 Skin Protection

Site personnel shall be required to wear disposable, chemically resistant clothing if highly contaminated soil (as defined by the New Mexico Environment Department – Underground Storage Tank Bureau) or phase-separated petroleum hydrocarbons are encountered during soil boring activities and/or soil and ground water sampling. This PPE shall be disposed of at the decontamination station after each use or when they become worn or punctured. The suit materials selected shall be resistant to all known or anticipated chemicals at the site. If the disposable protective suits appear to be

deteriorating under chemical action, the SSO shall be notified. The seams between the sleeves and gloves and the pant legs and boots shall be taped to prevent exposure in these areas.

6.2.3 Footwear

Personnel engaged in field activities at the site shall wear steel-toed boots at all times. The site-specific HSP or the SSO may also require footwear to be chemical resistant.

6.2.4 Respiratory Protection

Inhalation hazards may be present due to excessive organic vapor concentrations or dust generated, during fieldwork tasks. Inhalation hazards may occur during activities associated with handling contaminated soil, and drilling. To protect against known or possible inhalation hazards field personnel shall use respiratory protection when deemed necessary by the SSO or when air monitoring indicates vapor concentrations exceed action levels set forth in Section 7. The Respiratory Protection Program is included in Appendix B.

Many inhalation hazards can be overcome by the use of an appropriate respirator. A full-face respirator with organic/inorganic vapor and particulate air-purifying cartridges is usually sufficient to protect against inhalation hazards associated with site investigations or remedial activities. Personnel shall have current medical clearance, fit testing specific to their respirator, and respiratory training to qualify for respirator use at the site. The SSO shall have proof of a successful fit test for each anticipated respirator user. To ensure a proper fit, no facial hair shall be allowed that interferes with mask operation. The SSO shall determine whether facial hair represents such interference. Respirators shall be inspected and positive and negative pressure fit checks shall be made before use to verify fit and proper operation. Proper cleaning, inspection, and storage are very important to proper respirator use.

6.3 Work Zones

To minimize the movement of contaminants from the site to uncontaminated areas, three work zone areas are established as needed at sites where investigation and/or remediation activities are performed. The work zone areas may be revised as contaminant data is collected at the site. The three work zones include the following:

Zone 1: Exclusion Zone

Zone 2: Contamination Reduction Zone

Zone 3: Clean Zone

Exclusion Zone – The Exclusion Zone is the zone where contamination does or could occur. All persons entering this zone shall wear the level of protection set forth in Section 5.0, *Hazard Assessment.* These level-of-protection guidelines are based on the different types of field activities.

Contamination Reduction Zone – Between the Exclusion Zone and the Clean Zone is the personal Contamination Reduction Zone, which provides a transition zone between the contaminated and clean areas of the site. This zone shall be located directly outside the Exclusion Zone. All personnel shall decontaminate in the Reduction Zone when leaving the Exclusion Zone. The following steps, some of which are not applicable to Level D PPE, shall be taken for personnel decontamination:

- deposit equipment that needs to be decontaminated on plastic drop cloths;
- wash boots and outer gloves with long-handled brushes in a plastic wash tub containing detergent water;
- rinse boots and outer gloves with long-handled brushes in a plastic wash tub containing clear water, or use a sprayer to rinse off boots and gloves if one is available;
- remove tape and place in drum for disposal;
- remove disposable outer gloves and place in drum for proper disposal;
- remove suit and, if disposable, place in drum for disposal;
- remove respirator and place in plastic for subsequent decontamination;
- remove inner gloves and place in drum for disposal; and
- wash hands and face.

Contaminated liquids and clothing from the decontamination area shall be contained in drums and stored at the drum storage area at the site.

Cleaning equipment and supplies shall be provided and used to decontaminate reusable equipment. Equipment decontamination procedures are addressed in the Work Plan.

Clean Zone – The Clean Zone shall be an uncontaminated area from which operations shall be directed. It is essential that contamination from the site be kept out of this area.

6.4 Medical Examination/OSHA Training

Before commencing any of the field activities defined in Section 4.0, all DE&S personnel shall have proof of their current participation in the DE&S monitoring program. Subcontractors involved in hazardous field activities shall provide for medical examinations for their employees. Records of proof of medical examination shall be provided to DE&S by subcontractors and maintained in the project files.

All personnel on site shall be 40-hour OSHA HAZWOPER trained. Proof of certification shall be available on site. A copy of employees' certificates shall be kept in a file on site during work activities and in the project file in the office after the field activities are completed.

6.5 Site Manager Notification

All field personnel shall inform the Site Manager or his/her designated representative before entering the site. If any previously unidentified potential hazards are discovered during any fieldwork, personnel shall notify the Site Manager and SSO for further instructions.

6.6 Project Safety Meetings/Compliance Agreement

A safety meeting shall be conducted by the SSO at the start of each field effort, and thereafter, at the beginning of each day, as appropriate, due to changing field conditions or the start of new tasks. Safety concerns associated with that day's activities shall be discussed. An attendance record (refer to Appendix C for health and safety forms) shall be kept for all safety meetings.

During the first safety meeting or prior to commencement of fieldwork, all personnel shall be provided with a copy of this HSP. Personnel shall be given the opportunity to review the plan and ask any questions. All personnel working on site shall sign a Compliance Agreement stating that they have read and understood the HSP requirements. Signed Compliance Agreement Forms (Appendix C) shall be collected by the SSO and placed in the project file. Individuals refusing to sign the form shall not be allowed to work on the site.

Project safety information shall be recorded in a field logbook. As appropriate, safety information shall include the following:

- names of all DE&S, subcontractor, and visitor personnel;
- dates and times for entry and exit of all personnel at the site;
- lists of all accidents, injuries, illnesses, and incidences of safety infractions;

- air quality and personal exposure monitoring data; and
- other information related to safety matters.

All accidents, illnesses, and/or other incidents shall be reported immediately to the Site Manager, the SSO, and/or the Project Health and Safety Officer.

6.7 Prohibitions

The following activities are prohibited at the site:

- smoking, eating, drinking, chewing gum or tobacco, and storing food or food containers in the Exclusion or Contamination Reduction Zones;
- approach or entry into areas or spaces where toxic or explosive concentrations of gases or dust may exist without proper equipment available to enable safe entry; and
- unauthorized entry into confined spaces.

Field personnel shall practice good personal hygiene to avoid ingesting contaminants or spreading contaminated materials.

6.8 Site Visitors

Visits involving entry to the site by persons not directly involved in tasks identified in the Work Plan are discouraged. Persons designated as Site Visitors shall be briefed by the DE&S SSO as to on-site procedures, conditions, and hazards and shall be required to sign the project safety log before entering the site. Site Visitors shall be accompanied by authorized DE&S personnel at all times while on site and shall be expected to follow all directives from the SSO. Site Visitors shall provide their own PPE required for the area that they are visiting and shall be expected to follow all applicable procedures and protocols.

7.0 AIR QUALITY MONITORING

Due to the potential presence of volatile organic compounds at the site, air monitoring shall be conducted for organic vapors during the field investigations. Monitoring with a PID shall be conducted, as needed, during soil and ground-water sampling. The PID shall be used to establish background levels at the site prior to initiation of waste handling activities. The PID readings shall be used in conjunction with information about known or suspected contaminants at the site to determine what level of protection is required. All PID readings shall be recorded on an Air Monitoring Log form located in Appendix C or in the field logbook.

A PID shall be used to detect trace concentrations of volatile organic vapors in the breathing zone. PIDs are most sensitive to aromatic hydrocarbons, aliphatic amines, and chlorinated hydrocarbons. Carbonyl and unsaturated hydrocarbons, ammonia, and the heavier parrafins (C_5-C_7) can also be detected, but with a lesser degree of sensitivity.

An action level of 10 ppm shall be used to determine when Level C protection shall be employed. The time-weighted average for petroleum (crude oil) is 500 ppm. Ten (10) ppm shall be employed as a conservative action level to prevent unnecessary inhalation of potentially harmful vapors. The following guidelines shall be used:

PID breathing zone readings for Total Organic Vapors:

8-hour TWA* (time-weighted average)..... 10 ppm
Maximum Acceptable Ceiling..... 50ppm

*Do not exceed the 8-hour TWA limit without notifying Program Manager.

PID Reading	Action
0 to 10 ppm	remain in Level D or Modified Level D as appropriate
> 10 ppm	stand down and prepare to go to Level C
> 25 ppm	discontinue work; notify Project Manager and Health & Safety Officer

When organic vapors are being released at a site, personnel shall position themselves upwind, whenever practical. If any personnel experience difficulty in breathing (a possible signal of high vapor concentrations or an oxygen deficient atmosphere), the area shall be immediately evacuated and the SSO shall be notified.

8.0 LABORATORY CONSIDERATIONS

The laboratory directors or contacts shall be informed of any contaminant levels in the samples that would require special handling procedures to prevent risks to the health and safety of laboratory personnel.

9.0 CONFINED SPACE ENTRY

A confined space is a space that by design has limited openings for entry and exit, unfavorable natural ventilation that could contain or produce dangerous air contaminants, and is not intended for employee occupancy without the proper training and procedures. If any confined spaces are encountered, they are not to be entered and shall be reported to the SSO.

10.0 SHIPPING OF SAMPLES

Any shipping of samples from the site shall be done in accordance with the DE&S Standard Operating Procedures (SOP) for the Shipment of Hazardous Materials. A member of the DE&S Shipping Steering Committee shall be contacted if questions arise concerning the specific shipping procedure applicable.

11.0 EMERGENCIES/ACCIDENTS

11.1 On-Site Personnel and Visitors

Illnesses, injuries, and accidents occurring on site shall be attended to immediately in the following manner:

- check the accident scene to determine if you or anyone else is in danger;
- call the emergency phone number (911) if the emergency or accident appears serious). Emergency numbers are listed in Table 2;
- begin care for the injured or exposed person(s) by removing them from immediate danger if a neck or back injury is not suspected;
- render minor first aid as necessary; decontaminate affected personnel as necessary;
- evacuate other personnel on site to a safe place until the SSO determines that it is safe for work to resume;
- report the accident to the Site Manager, the Project Health and Safety Officer, and the SSO immediately;
- complete an Incident Investigation Report for all near misses and all injuries requiring medical attention;
- collaborate with the Project Health and Safety Officer, the SSO, and the Project Manager to develop procedures to prevent a recurrence.

Should an emergency site evacuation become necessary for any reason, the SSO shall alert all personnel to leave the site. The offsite assembly point shall be designated as the eastern gate to the Patrol Yard. Personnel shall not return to the site until an all-clear notification has been received from the SSO.

11.2 Surrounding Community

In the highly unlikely event that a site emergency has the potential to affect the community surrounding the site, the SSO shall be responsible for notifying the police and the fire departments using the telephone numbers listed in Table 2. The SSO shall provide whatever technical assistance is needed by these agencies.

12.0 REFERENCES

U.S. Code of Federal Regulations, 1995, Title 29, as cited.

TABLES

Table 1
Site Health and Safety Equipment Inventory Checklist

EMERGENCY RESPONSE
☐ OSHA-APPROVED INDUSTRIAL FIRST AID KIT ☐ FIRE EXTINGUISHER (1 per field vehicle) ☐ EYE WASH
PERSONNEL PROTECTION
☐ INSECT REPELLENT ☐ SAFETY GLASSES ☐ NITRILE GLOVES (Outer) ☐ LATEX DISPOSABLE GLOVES (Inner) ☐ CHEMICAL-RESISTANT COVERALLS (TYVEK™)/POLYCOATED TYVEK™ (SYRANAX™) ☐ IGLOO™ WATER COOLER/CUPS ☐ GATORADE™ ☐ RESPIRATORS (half-face and/or full face) ☐ DUCT TAPE ☐ STEEL-TOED RUBBER BOOTS ☐ HARD HAT
PERSONNEL DECONTAMINATION
☐ 4-MIL PLASTIC DROP CLOTHS ☐ PLASTIC WASHTUBS ☐ SPRAYER ☐ BRUSHES ☐ TRASH BAGS ☐ DETERGENT ☐ POTABLE OR DISTILLED WATER

Table 2
Emergency Phone Numbers

EMERGENCY SERVICE	LOCATION OR NOTE	TELEPHONE NO.
Fire Department	Call Emergency No.	911
Sheriff Department	Call Emergency No.	911 or (505) 242-COPS
Ambulance	Call Emergency No.	911
Hospital	Call Emergency No.	911
Poison Control Center	Call Emergency No.	911 or (505) 272-2222

ROUTE TO HOSPITAL:

HOSPITAL: Name: St. Joseph Medical Center (24-hour emergency available)

Address: 601 Dr. Martin Luther King Jr. Ave NE

Hospital Phone Number: (505) 727-8000 (non-emergency)

Emergency Room Phone Number: (505) 727-8142

ROUTE: East on Central Avenue to Broadway Boulevard.

North (left) on Broadway to Dr. Martin Luther King Jr. Avenue NE.

East (right) on Dr. Martin Luther King Jr. Avenue NE to St. Joseph's Hospital (601 Dr. Martin Luther King Jr. Avenue NE). Entrance is on north (left) side of street.

Total distance to hospital: 2.0 miles

Total driving time: 5 minutes

ROUTE MAP: Included as Health and Safety Plan Appendix D.

Health and Safetey Plan

Appendix A

Heat Stress Casualty Prevention Plan

Duke Engineering & Services
A Duke Energy Company

HEALTH AND SAFETEY PLAN

APPENDIX A

HEAT STRESS CASUALTY PREVENTION PLAN

The increase in ambient air temperature and decreased body ventilation caused by protective outerwear creates an increased potential for injury, specifically, heat casualties. Site personnel shall be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim, and the prevention of heat stress casualties.

A. IDENTIFICATION AND TREATMENT

1. Heat Exhaustion

a. Symptoms: Usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Vomiting is frequent. The bowels may move involuntarily. The victim is very pale, has clammy skin, and may perspire profusely. The pulse is weak and fast, and breathing is shallow. Victim may faint unless lies down. This may pass, but sometimes it remains and death could occur.

b. First Aid: Immediately remove the victim to Zone 2, Contamination Reduction Zone, in a shady or cool area with good air circulation. Remove all protective outerwear. Call the facility emergency number. Treat the victim for shock (lie victim down, raise victim's feet 6-12 inches and keep victim warm, but loosen all clothing). If the victim is conscious, it may be helpful to give sips of a salt-water solution (one teaspoon of salt to one glass of water). Transport victim to a medical facility as soon as possible.

2. Heat Stroke

a. Symptoms: This is the most serious of heat casualties due to the fact that the body overheats excessively. Body temperatures often are between 107 and 110° F. First, there is often pain in the head, dizziness, nausea, and the skin is dry, red, and hot. Unconsciousness follows quickly and death is imminent if exposure continues. The attack shall usually occur suddenly.

b. First Aid: Immediately evacuate the victim to a cool and shady area in the Contamination Reduction Zone. Lay the victim on back with the head and shoulders slightly elevated. It is imperative that the body temperature be lowered immediately. This can be done by applying cold wet towels or ice bags to the head. Sponge off the bare skin with cool water or rubbing

alcohol, if available, or even place victim in a tub of cool water. The main objective is to cool the victim without chilling. Give no stimulants. Transport the victim to a medical facility as soon as possible.

B. PREVENTION OF HEAT STRESS

1. One of the major causes of heat casualties is the depletion of body fluids. Personnel shall replace water and salt loss from sweating. Salts can be replaced by either a 0.1% salt solution, more heavily salted foods, or commercial mixes such as Gatorade. The commercial mixes are advised for personnel on low sodium diets.

2. A work schedule shall be established so that the majority of the work shall be performed during the hours of the day when ambient air temperature levels are not at their highest levels.

3. A work/rest guideline shall be implemented for personnel required to wear Level C protection. The maximum wearing time guidelines are as follows:

Ambient Temperatures	Maximum Wearing Time
Above 90° F	½ hour
80 - 90° F	1 hour
70 - 80° F	2 hours
60 - 70° F	3 hours
50 - 60° F	4 hours
40 - 50° F	5 hours
30 - 40° F	6 hours
Below 30° F	8 hours

A sufficient period shall be allowed for personnel to "cool down." This may require shifts of workers during operations.

C. HEAT STRESS MONITORING

For monitoring the body's recuperative ability under excess heat, one or more of the following techniques shall be used as a screening mechanism.

Heart rate (HR) shall be measured by monitoring the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period shall be shortened by 10 minutes (or 33%), while the length of the

rest period stays the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle shall be shortened by 33%.

Body temperature shall be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99° F. If it does, the next work period shall be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. However, if the OT exceeds 99.7° F at the beginning of the next period, the following work cycle shall be further shortened by 33%. OT shall be measured again at the end of the rest period to make sure it has dropped below 99° F.

Monitoring of personnel wearing protective clothing shall commence when the ambient temperature is 70° F or above. Frequency of monitoring shall increase as the ambient temperature increases or if slow recovery rates are indicated. When temperatures exceed 80° F, workers shall be monitored for heat stress after every work period.

Ideally, body fluids shall be maintained at a constant level during the workday. This requires replacement of salt lost in sweat as well.

Good hygienic standards shall be maintained by frequent changes of clothing and daily showering. Clothing shall be permitted to dry during rest periods. Persons who notice skin problems shall immediately consult medical personnel.

Health and Safety Plan

Appendix B

Respiratory Protection Plan

Duke Engineering & Services℠
A Duke Energy Company

HEALTH AND SAFETY PLAN

APPENDIX B

RESPIRATORY PROTECTION PLAN

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Purpose 1
1.2 Scope 1
1.3 Duties And Responsibilities 1

2.0 SELECTING RESPIRATORS 3
2.1 Approval 3
2.2 Respirator Types and Classes 3
2.3 Defining Hazards 4
2.4 Minimum Respiratory Protection for IDLH Atmospheres 5
2.5 Selecting Respirator for Toxic Contaminants 6
2.6 Assigned Protection Factors 8
2.7 Selection Process 8

3.0 APPROVING, ISSUING, AND RETURNING RESPIRATORS 9

4.0 INSPECTING RESPIRATORS 10

5.0 MAINTAINING RESPIRATORS 12

6.0 CLEANING AND DISINFECTING RESPIRATORS 13

7.0 STORING RESPIRATORS 15

8.0 MEDICAL EVALUATIONS 16

9.0 TRAINING 18
9.1 Requirements 18
9.2 Instructor 19

10.0 FIT-TESTING 20
10.1 General Requirements 20
10.2 Testing procedure 20

11.0 BREATHING-AIR SYSTEMS 22

12.0 DISPOSABLE RESPIRATORS 23

HEALTH AND SAFETY PLAN

APPENDIX B

RESPIRATORY PROTECTION PLAN

TABLE OF CONTENTS (Concluded)

13.0 SITE-SPECIFIC INFORMATION 24

14.0 EVALUATING THE PROGRAM 25
14.1 Ongoing Evaluation 25
14.2 Periodic Evaluation 25

APPENDICES

APPENDIX A. SITE-SPECIFIC INFORMATION

APPENDIX B. SELECTING TASK-SPECIFIC RESPIRATORS

APPENDIX C. DETAILED INSPECTION CHECKLIST

APPENDIX D. RESPIRATORY FIT-TEST EXERCISES

1.0 INTRODUCTION

1.1 Purpose

The purpose of these guidelines is to establish the basic requirements for a Duke Engineering & Services Respiratory Protection Program. This program will serve to protect employees from respiratory hazards, and comply with regulatory requirements.

1.2 Scope

To minimize/eliminate occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished, when feasible, by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used according to this program.

This program applies to all workers who use respirators.

1.3 Duties And Responsibilities

The Program **Manager** has the following duties and responsibilities:

- Manage the process.
- Designate a program administrator.
- Communicate expectations.
- Support implementation of the program.
- Correct any program deficiencies identified.

The Program Administrator has the following duties and responsibilities:

- Integrate program components.
- Ensure ongoing program review.
- Evaluate overall program effectiveness.
- Keep abreast of current issues.
- Keep management informed of program status.

The **Respirator User** has the following duties and responsibilities:

- Properly use respirators.
- Prevent damage to respirators.
- Maintain training, medical, and fit-test requirements.
- Notify supervision of medical conditions or physical changes that affect medical clearance or respirator fit.
- Exit the contaminated work area and remove respirator if breathing difficulty or respirator malfunction occurs.
- Perform positive and negative pressure fit-check each time the respirator is donned.

2.0 SELECTING RESPIRATORS

2.1 Approval

The National Institute for Occupational Safety and Health (NIOSH) Department of Health and Human Services (DHHS) administers a testing, approval, and certification program for respirators. The program's purpose is to ensure the availability of safe, effective respiratory protection. When selecting respirators:

- Use only NIOSH/DHHS-approved respirators. Approved respirators can be recognized by the NIOSH/DHHS approval label and identification number (TC-XXX-XXX).
- Verify approval by using the NIOSH Certified Equipment List and the approval label.

Note: Any unauthorized modifications to the respirator or use of unapproved parts voids the existing respirator approval.

2.2 Respirator Types and Classes

Respirators can be divided into 2 broad categories.

- **Air Purifying Respirators**

  These respirators use filters or cartridges to remove the contaminant(s) from the surrounding air.

  The filters and cartridges have limited capabilities to remove contaminants and must be replaced periodically. Air-purifying respirators should not be used for protection against vapors or gases with poor warning properties, and cannot be used in oxygen-deficient atmospheres.

- **Atmosphere-Supplying Respirators**

  These respirators provide breathing air from a source independent of the surrounding atmosphere. The air may be supplied from a compressor and an air line or from a compressed-air cylinder. Atmosphere-supplying respirators typically provide a higher protection factor for personnel, but are bulkier and limit activities.

NIOSH certifies a range of classes and types of respirators. The selection of the appropriate respirator for a specific activity is based on:

- Type and properties of respiratory hazard
- Worker activities

- Location and nature of the hazardous area/process
- Respirator use conditions
- Physical characteristics and limitations of respirators
- Assigned protection factors

2.3 Defining Hazards

1. Identify potential contaminant(s).
2. Assess existing or anticipated exposure level and properties of the contaminants(s).

   Acceptable methods include:

   - exposure monitoring
   - direct reading instruments
   - calculations
3. Determine whether the contaminant(s):
   - Can be absorbed through the skin
   - Is an eye or skin irritant
   - Has adequate warning properties (gases and vapors)
4. Determine whether an oxygen deficiency exists.

2.4 Minimum Respiratory Protection for IDLH Atmospheres

An atmosphere is **immediately dangerous to life and health** (IDLH) when it poses an immediate threat to life, causes irreversible health effects, or impairs an individual's ability to escape. The table below lists minimum respiratory protection for situations classified as IDLH.

Hazard	Respirator
IDLH	Self-contained breathing apparatus (SCBA) or combination supplied air with auxiliary SCBA **Note:** When employees enter an IDLH atmosphere, a standby person (s) with pressure-demand SCBA and other needed rescue and communication equipment must be available.
Oxygen deficiency	SCBA or combination supplied air with auxiliary SCBA
Emergency Situations	SCBA or combination supplied air with auxiliary SCBA
Fire-fighting	▪ Interior fires—SCBA ▪ Exterior fires—Determined by fire brigade captain **Note:** For interior firefighting, at least two employees in constant visual or voice contact and at least two employees located outside the IDLH area are required.

2.5 Selecting Respirator for Toxic Contaminants

Note: For a further definition of the selection process, see "Minimum Respirator Protection IDLH Atmospheres" in Section 2.4.

1. After identifying the toxic contaminant(s) in the area, determine whether exposure limits have been published by OSHA, ACGIH, or NIOSH.

2. Is the contaminant concentration less than the applicable exposure limits?

   a. If **no**, proceed to step 3.

   b. If **yes**, respiratory protection is not required.

3. Divide the measured or estimated concentrated by the exposure limit to obtain a hazard ratio: if multiple contaminants are present, determine whether:

   a. Contaminants' effects are additive.

   b. Concentrations should be combined for determining the hazard ratio.

4. Select a respirator with an assigned protection factor greater than the hazard ratio.

   Notes:

   See "Assigned Protection Factors" in Section 2.6.

   For OSHA substance-specific standards, use the regulation-defined protection factor.

5. Use an air-supplied respirator for protection from gases or vapors with inadequate warning properties.

6. When an air-purifying respirator is used for protection from gases and vapors, use a cartridge/canister end-of-service-life indicator (ESLI) or filter change-out schedule.

   Useful information in determining change-out schedules:

   - Physical state of the contaminant(s)
   - Airborne concentration of contaminant(s)

- Manufacturer's data on absorption of the specific contaminant or mixture of contaminants
- Length of time the work task is expected to last

Note: The concentration must be below the canister/cartridge's maximum-use concentration. If the contaminant concentration is above the IDLH level, follow the table in " Minimum Respiratory Protection for IDLH Atmospheres" in section 2.4 of this respiratory protection plan.

7. Select filters/cartridges as follows:

Contaminants	Filter
Fumes, asbestos, lead, inorganic arsenic, etc	High-efficiency particulate filters/P-100 filters
Dusts	▪ P-95/99/100 ▪ N-95/99/100 ▪ R-95-99/100
Paints	Combination organic vapor and P-100 filters
Pesticides	Combination organic vapor and P-100 filters
Organic vapor, ammonia, and acid gases	Organic vapor or chemical filters
Radionuclides	▪ High efficiency filers/P-100 filters ▪ Radionuclies canister

While the chart above focuses on the use of high-efficiency particulate P-100 filters, this does not prevent the use of other NIOSH-approved filters where they have been determined to provide adequate protection from the contaminant

2.6 Assigned Protection Factors

Caution: Use regulator-based protection factors for substance-specific standards such as arsenic, asbestos, cadmium, and lead.

Type of Respirator	Half Mask	Full Face	Helmet Hood	Loose Fitting
Air purifying	10	100		
Powered air purifying	50	1,000	1,000	25
Air line continuous flow	50	1,000	1,000	25
Air line pressure demand	50	1,000		
SCBA		10,000		

2.7 Selection Process

The table below lists respiratory selection criteria for IDLH atmospheres.

Situation	Respirator
Firefighting (interior)	SCBA
Oxygen deficiency, emergencies, IDLH	SCBA or combination or supplied air with auxiliary SCBA

3.0 APPROVING, ISSUING, AND RETURNING RESPIRATORS

1. Issue respirators only to workers with current medical clearance, fit testing, and respiratory training.

2. Issue only the respirator with which a worker has been successfully fit-tested.

3. Do not approve or issue respirators with face pieces to individuals with facial hair that may interfere with the face-to-facepiece seal or valve function.

4. Respirators should be inspected before use.

5. Positive and negative pressure fit-checks should be made before use to verify fit and proper operation.

6. Do not leave respirators unprotected in contaminated work areas during breaks or intermittent use.

7. Return issued respirators to the designated collection point after each use for proper cleaning, inspection, and storage.

4.0 INSPECTING RESPIRATORS

1. Before and after each use, inspect routinely used respirators to detect physical damage and functional problems.

2. For respirators **not** routinely used (emergency escape and rescue devices), inspect before putting into service, after each use, at least monthly.

3. For emergency-use respirators, document the inspection with a recording including.

   - Date
   - Inspector's name
   - Findings
   - Remedial action
   - Means of identifying the respirator (e.g., serial number)

4. Include the following checks in the respirator inspection:

Component	Inspection Required
Respirator connections	Check tightness of the connections
▪ Facepiece ▪ Valves ▪ Head straps ▪ Filter, cartridge, or canisters ▪ Connecting tubes ▪ Harness assemblies ▪ Electrical components ▪ Air line and fittings	Examine to detect: ▪ Dirt ▪ Cracks ▪ Tears ▪ Loss of elasticity ▪ Missing clamps and gaskets ▪ Incorrect assembly

5. For SCBAs, inspect the components listed in the table above and ensure:

   a. Regulator and warning devices function properly.

   b. Cylinder is fully charged.

6. Follow any additional inspections required by the manufacturer.

Note: For more information on inspections, see "Appendix C. Detailed Inspection Checklist" of this respiratory protection plan.

5.0 MAINTAINING RESPIRATORS

1. Ensure only trained and experienced personnel maintain and repair respirators.
2. Ensure all replacement parts are supplied by the manufacturer or designed specifically for the respirator being repaired.
3. Ensure only the manufacturer or manufacturer-trained technicians adjust and repair reducing or admission valves, regulators, and alarms.
4. If minor defects are identified, repair the respirator on the spot, and return it to service.
5. Remove from service any equipment with major defects, and replace it until repairs can be made.
6. **Never use defective equipment under ANY circumstances.**

6.0 CLEANING AND DISINFECTING RESPIRATORS

1. To protect respirator users, **clean and disinfect respirators after each use** (including unassigned respirators and respirators used for fit-testing).

   Exception: For respirators assigned exclusively to one person, clean and disinfect as often as necessary to maintain in a sanitary condition. The respirator must be clearly identified for that individual's exclusive use.

2. To clean the respirator:

   a. Remove these components:

      1) Filters, cartridges, canisters

      2) Motors and valve assemblies

      3) Components recommended by the manufacturer

   b. Disassemble the facepiece according to manufacturer's instructions.

   c. Use a commercial washer, or manually clean respirators with detergent.

   d. To prevent damage to the respirators, keep the water temperature for cleaning and rinsing at or below 110°F.

   e. Disinfect the respirator in a commercial disinfectant approved by the respirator manufacturer, following manufacturer's instructions, or by immersing for 2 minutes in a 50 ppm bleach solution (1 milliliter bleach per liter water) or a 50 ppm iodine solution (.8 milliliter tincture of iodine per liter water).

      Notes:

      If tuberculocidal-level (TB-level) disinfection is desired, use 500 ppm bleach solution or commercially available TB-level disinfectant.

      Wet-wiping the respirator surface is not disinfection; respirators must be immersed in the disinfection solution or commercial washers must be used to apply the disinfection solution.

   f. Thoroughly rinse the respirator.

g. To prevent damage, carefully air-dry or use a commercial unit to dry the parts

h. If commercial dryers are used, keep the air temperature below 110°F.

i. Inspect parts and re-assemble respirator.

j. Test the respirator.

7.0 STORING RESPIRATORS

1. Store cleaned and sanitized respirators in sealed plastic bags.
2. Store respirators where they will not be subject to damage from:
   a. Dust
   b. Heat
   c. Cold
   d. Sunlight
   e. Excessive moisture
   f. Chemicals
3. Do not store respirators on their facial-sealing surfaces.
4. Store full-face respirators with straps either inside the face pieces or so that the facial-sealing surface is not distorted.
5. Periodically rotate respirator stock to ensure all respirators are being used.
6. Ensure the canister shelf life has not expired.
7. Store emergency-use respirators in compartments or covers clearly marked for emergency use.

8.0 MEDICAL EVALUATIONS

1. Before employees use respirators, ensure that they are medically cleared by a physician or licensed health-care professional (PLHCP), such as a nurse under a physician's direction.

2. For employees using respiratory protective equipment, perform repeat medical evaluations at 1-, 2-, or 3-year intervals as determined by a physician.

3. Perform **additional** medical evaluations if:

   - An employee reports a sign or symptom related to ability to use a respirator.
   - The PLHCP, supervisor, or respirator program administrator determines an employee needs reevaluation.
   - It is a programmatic requirement, or as a result of an observation during fit-testing, or identified program deficiency.
   - A change in workplace conditions results in a substantial increase in the physiological burden on an employee.

4. Include any of the following in a medical determination:

   - Any limitations, including whether or not an employee is medically able to wear a respirator
   - The need, if any, for follow-up evaluations
   - A statement that the PLHCP has provided the employee with the PHLCP's written recommendation
   - When a Powered Air Purifying Respirator (PAPR) is medically acceptable in lieu of a negative-pressure respirator

5. Ensure the medical examination includes physiological and psychological factors that could impact the respirator user.

6. Ensure the physical evaluation considers:

   - Facial deformities
   - Hearing impairment
   - Pulmonary function

- Evidence of uncontrolled neurological or cardiovascular disease

7. Before respirator clearance is granted, ensure a PLHCP has reviewed and certified all respiratory medical evaluations.

8. Before respiratory clearance is granted, ensure a PLHCP has:

   - Type and weight of respirators to be used
   - Duration and frequency of respirator use (including rescue and escape)
   - Expected physical work effort
   - Additional protective clothing and equipment to be worn
   - Temperature and humidity extremes that may be encountered
   - Copy of the Respiratory Protection Program and OSHA Respiratory Protection Standard

9.0 TRAINING

9.1 Requirements

9.1.1 Respirator Users

1. Annual training shall ensure an employee can demonstrate understanding of the following:

   a. Why respirator protection is required

   b. Nature, extent, and effects of the hazards

   c. Respirator operation, capabilities, and limitations

   d. Donning/doffing techniques

   e. Hazard-specific respirators

   f. Inspection, general maintenance, and storage of respirators

   g. Respirator-user responsibilities

   h. Effect of poor engineering controls

   i. Regulations on respirator use

   j. Emergency situations

   k. Who to contact for questions

   Note: If using SCBAs, train users on the above plus basic operating principles and pre-operated checks.

2. During training, ensure users:

   a. Handle the respirator.

   b. Have the respirator properly fitted.

   c. Ensure a proper face-to-face piece seal by performing a positive and negative pressure fit- check.

d. Wear respirators in normal air for a suitable familiarity period (5 minutes).

e. Wear respirators in a test atmosphere.

Note: Respirators used during fit testing must be disinfected according to the guidelines in "Cleaning and Disinfecting Respirators" in Section 6.0.

9.1.2 Instructor

1. Instructor qualifications shall be evaluated, usually through the training quality control process for instructors.

2. An instructor must understand every facet of the Respiratory Protection Program.

3. An instructor must have both theoretical knowledge and hands-on experience with respirators.

Note: Technical knowledge/experience can be obtained via a NIOSH-equivalent respiratory protection class or on-the-job experience with the respirator program.

10.0 FIT-TESTING

10.1 General Requirements

1. To ensure respirators adequately fit their users, test all users of tight-fitting respirators, using qualitative or quantitative fit-tests as follows:

   Qualitative Fit tests. Use and agent (banana oil, saccharin, irritant smoke, Bitrex) detected by odor or taste. The results of a qualitative fit-testing are pass or fail.

   Quantitative Fit tests. Measure the concentration of the challenge agent both inside and outside the respiratory. To determine a fit factor, use the ratio of the concentration outside to inside mask.

2. Perform fit testing before initial use and at least annually.

3. If the respirator user, supervisor, medical, or program administrator notices any of the following before the next scheduled fit-test, immediately inform supervision and repeat the fit-testing:

   a. Obvious weight change

   b. Significant facial scarring in the area of the face piece seal

   c. Significant dental changes

   d. Reconstructive or cosmetic surgery

   e. Any condition interfering with a face piece sealing

10.2 Testing procedure

The basic steps for fit-testing are similar for qualitative and quantitative fit-tests. For detailed fit-Protocol. See the OSHA Respiratory Protection Standard.

1. Use sufficient number of models and sizes to ensure proper fit. (One model or size of respirator may not accommodate all facial structures.)

2. If facial hair interferes with the face-to-face respirator seal, do not fit-test.

3. If contact lenses or spectacle inserts are to be used with full-face respirators, the user shall wear the lenses or inserts with the respirator during fit-testing.

4. Select a comfortable respirator; respirator comfort is critical to user acceptance.

5. Perform positive and negative pressure fit-checks.

6. If the respirator fails, re-adjust fit; if it still does not pass, select another respirator.

7. Perform the test exercises (see "Appendix D. Respiratory Fit-Test Exercises" of this respiratory protection plan.

8. If respirator fails:

   a. Terminate the test.

   b. Repeat steps 4-7 with a different model or size of the respirator.

9. Maintain records of the test including:

   a. Names of test subject and test conductor

   b. Testing date

   c. Specific respirator selected (model, manufacturer, and size)

   d. Test method

   e. Test results

11.0 BREATHING-AIR SYSTEMS

1. Ensure breathing air meets the grade D requirements of Compressed Gas Association's Commodity specifications G-7.1-1989.

2. Periodically (e.g. quarterly) sample breathing-air systems using direct reading instruments, calorimetric tubes, or laboratory analysis to verify at least Grade D air quality.

Note: See the ANSI/CGA commodity specification for air

3. Supply breathing air from cylinders or air compressors.

4. Test and maintain cylinders according to 49 CFR 173&178.

5. Situate compressor intakes so as to prevent entrance of contaminated air.

6. Provide suitable in-line sorbent beds and filters, and tag the compressor with most recent change date and signature.

7. Equip breathing-air systems with alarms that indicate low pressure, overheating, and elevated carbon-monoxide levels.

8. Monitor carbon-monoxide concentrations.

9. Ensure breathing-air couplings are incompatible with other gas systems.

10. If breathing-air cylinders are purchased from vendors:

    a. Evaluate the vendor quality-control program.

    b. Obtain a certificate of analysis verifying air of every cylinder has been tested.

12.0 DISPOSABLE RESPIRATORS

1. Where respiratory protection is required, disposable respirators (e.g., dust masks) are subject to all of the requirements of the Respiratory Protection Program.

2. Where respirator use is not required, disposable may be used voluntarily by an employee. For the voluntary use of dust masks, the following conditions must be met:

   - An exposure evaluation determines that no respiratory hazard exists and therefore no respiratory protection is needed.

   - Use of the dust mask will not in itself create a hazard.

   - The information package titled "Information for Employees Using Respirators" (OSHA standard 29CFR 1910.134, Appendix D) is read.

13.0 SITE-SPECIFIC INFORMATION

1. With the program, include site-specific information and procedures that include detailed information on selecting, issuing, using (including activity/area), returning, and caring for respirators.

2. Ensure specific location contacts are identified.

3. Ensure exposure evaluation data is complete and current.

14.0 EVALUATING THE PROGRAM

14.1 Ongoing Evaluation

The program administrator monitors the effectiveness of the Respiratory Protection Program on an ongoing basis to ensure that the program components are properly integrated and implemented.

14.2 Periodic Evaluation

1. Periodically (e.g., annually) perform a detailed evaluation of the overall respirator program effectiveness.

2. Ensure the evaluation:

   a. Focuses on regulatory requirements (e.g., training), consultation with employees, process design, and component implementation

   b. Ensures the program is up to date and responsive to current risks

   c. Determines whether significant facility condition changes affect respirator usage

RESPIRATORY PROTECTION PLAN

APPENDIX A. SITE-SPECIFIC INFORMATION

Program Administrator/Site Contact:

_____

Procedure for selecting and issuing respirators:

_____
_____
_____
_____
_____
_____
_____

Caring for respirators:

_____
_____
_____
_____
_____
_____
_____
_____

Work tasks requiring respiratory protection:

Task/Area	Respirator Type/Cartridge (if applicable)

Exposure Assessment Information:

_____
_____
_____
_____
_____
_____
_____
_____

RESPIRATORY PROTECTION PLAN

APPENDIX B. SELECTING TASK-SPECIFIC RESPIRATORS

The types of respirators indicated below must be worn for each of the identified contaminants unless a safety and health evaluation has determined that other personal protective equipment or respiratory protection is acceptable. Although selected based on experience, respirators must be periodically evaluated to ensure that conditions have not changed and that the respirator selected is still appropriate.

Contaminant/Task	Respirator
▪ Diatomaceous earth ▪ Caustic Soda	Full-face air purifying with type P-100 filters
Brush painting with paints *Exception: Isocynates, methylene chloride, glycol ethers*	Air purifying with organic vapor filters
Chlorine cylinder changeout	SCBA
Concrete grinding	Air purifying with type P-100 filters
Dusty coal handling operations	Air purifying with type P-100 filters
Formaldehyde	Air purifying with formaldehyde filters
▪ Grass cutting/mowing ▪ Sweeping inert dusts	Voluntary use of disposable dust mask is acceptable
Insulation work/asbestos	Air purifying with type P-100 filters task-dependent, ; contact Safety/IH
Insulation work/nonasbestos	Air purifying with type P-100 filters
Lead processes generating dust and fumes	Air purifying with type P-100
Mercury	Half-face air purifying with mersorb filters, belt-mounted

Contaminant/Task	Respirator
Organic solvents *Exceptions: methylene chloride and glycol ethers (Except spraying penolene)*	Air purifying with organic vapor filters
Oxygen-deficient atmospheres (<19.5%)	SCBA air line with auxiliary SCBA
Radiological hazards	Contact Radiation Safety Officer
Sandblasting	Type C supplied air with blasting helmet
Spray painting with pigments	Air purifying with combination organic vapor and type P-100 filters
Spray painting with pigments	Air purifying with organic vapor with type N/R95 prefilter and cover to prevent rapid clogging of paint aerosols
Welding or grinding galvanized metal	Air purifying with type P-100 filters
Welding, grinding, or plasma and air arcing in unventilated area	Air purifying with type P-100 filters *Note: Select spark-resistant filters.*

Note: While the chart above focuses on the use of high-efficiency particulate P-100 filters, this does not prevent the use of other NISOH-approved filters where they have been determined to provide adequate protection from the contaminant.

RESPIRATORY PROTECTION PLAN

APPENDIX C. DETAILED INSPECTION CHECKLIST

Air-Purifying Respirators

Examine the following:

Facepiece:

- Excessive dirt
- Cracks, tears, holes, or distortion from improper storage
- Inflexibility
- Cracked or badly scratched lenses in full-facepieces
- Incorrectly mounted facepiece lens
- Broken or missing mounting clips
- Cracked or broken air-purifying element holder, worn threads or missing gaskets

Head straps or head harness:

- Breaks
- Loss of elasticity
- Broken or malfunctioning buckles and attachments
- Excessively worn serration on the head harness which might permit slippage

Exhalation valve:

- Foreign material (e.g., detergent residue, dust particles, hair under the valve seat)
- Cracks, tears, or distortion in the valve material
- Improper insertion of the valve body in the facepiece

- Cracks, breaks or chips in the valve body particularly in the sealing surface
- Missing or defective valve cover
- Improper installation of the valve in the valve body

Air-purifying elements:

- Incorrect cartridge, canister, or filter for the hazard
- Incorrect installation, loose connections, missing or worn gaskets, or cross threading in the holder
- Expired shelf-life date on cartridges or canister
- Cracks or dents in outside case of filter, cartridge, or canister
- Evidence of prior use of sorbent cartridge or canister, indicated by absence of sealing material, tape, foil over inlet

Corrugated breathing tube (if applicable):

- Broken or missing end connectors, gaskets, or o-rings
- Missing or loose hose clamps
- Deterioration, determined by stretching the tube and looking for cracks

Harness/gas mask (if applicable):

- Damage to the canister holder which may prevent its being held securely in place
- Broken harness straps or fastening

Atmosphere-Supplying Respirators

Tight-Fitting Face pieces

Examine the following:

Face piece:

- Excessive dirt
- Cracks, tears, holes, or distortion from improper storage
- Inflexibility
- Cracked or badly scratched lenses in full-facepieces
- Incorrectly mounted facepiece lens
- Broken or missing mounting clips
- Cracked or broken air-purifying element holder, worn threads or missing gaskets

Headstraps or head harness:

- Breaks
- Loss of elasticity
- Broken or malfunctioning buckles and attachments
- Excessively worn serration on the head harness which might permit slippage

Exhalation valve:

- Foreign material (e.g., detergent residue, dust particles, hair under the valve seat)
- Cracks, tears, or distortion in the valve material
- Improper insertion of the valve body in the facepiece
- Cracks, breaks or chips in the valve body particularly in the sealing surface
- Missing or defective valve cover
- Improper installation of the valve in the valve body

Corrugated breathing tube (if applicable):

- Broken or missing end connectors, gaskets, or o-rings
- Missing or loose hose clamps
- Deterioration, determined by stretching the tube and looking for cracks

Harness/gas mask (if applicable):

- Damage to the canister holder which may prevent its being held securely in place
- Broken harness straps or fastening

Hood, Blouse, or Full Suit

Examine the following:

- Hood, blouse, or full suit for rips, tears, and seam integrity
- Protective headgear for general condition
- Protective face shield for cracks, breaks, or impaired vision
- Abrasive blasting hoods to ensure the protective screen is intact and secured correctly

Air Supply System

Examine the following:

- Integrity and good conditions of air-supply lines and hoses
- Correct hose, hose length, and fittings
- Correct operating pressure for respirator
- In-line couplings incompatible with outlets for other gases
- Correct operation and condition of all regulators, valves, and flow regulators
- Air quality that meets Grade D designation
- Compressor intake location
- Compressor alarms indicating compressor failure

SCBAs

Examine the following:

- Fully charged cylinder (90%)
- Properly functioning regulator and warning devices
- High pressure hose connection tight at bottle
- Bottle condition (cuts, dents, scorch marks)
- O-ring condition
- Hydrostatic test in date
- Air quality that meets Grade D designation

RESPIRATORY PROTECTION PLAN

APPENDIX D. RESPIRATORY FIT-TEST EXERCISES

Upon completion of the protocol, the test conductor should question each test subject regarding the comfort of the respirator. If it has become unacceptable, try another model of a respirator. Do not adjust the respirator once the fit exercises begin. Any adjustment voids the test, and the fit-test must be repeated.

At a minimum, the following exercises are required:

1. Normal breathing. In a normal standing position, without talking, the subject should breathe normally for one minute.

2. Deep breathing. In a normal standing position, the subject should breathe slowly and deeply taking caution so as not to hyperventilate, for one minute.

3. Turning head side to side. Standing in place, the subject should slowly turn his/her head from side to side between the extreme positions on each side. The head should be held at each extreme momentarily so the subject can inhale at each side. Test exercise should be performed for one minute.
4. Moving head up and down. Standing in place, the subject should slowly move his/her head up and down for one minute. The subject should be instructed to inhale in the up position (when looking toward the ceiling).
5. Talking. For one minute, the subject should talk out loud slowly and loudly enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.
6. Grimace. This test subject should grimace by smiling or frowning for **15 seconds**.(This applies only

   to Quantitative Fit-Test (QNFT) testing; it is not performed for Qualitative Fit-Test (QLFT).)
7. Bending over. The test subject should bend at the waist as if he/she were to touch his/her toes. Jogging in place should be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist. Test exercises should be performed for one minute.

Health and Safety Plan

Appendix C

Health and Safety Field Forms

HEALTH AND SAFETY PLAN
COMPLIANCE AGREEMENT FORM

I have read the _____ Health and Safety Plan and agree to comply with the guidelines and requirements for the safety of personnel.

_____

Name

_____

Company

_____

Signature

_____

Date

SAFETY MEETING ATTENDANCE FORM

Page _____ of _____

DATE:_____ PROJECT NO.:_____

PROJECT TITLE:_____

PROJECT TASK:_____

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment	_____	Emergency Procedures	_____
Chemical Hazards	_____	Hospital	_____
Physical Hazards	_____	Special Equipment	_____
Mobile Phone	_____	Other_____	

ATTENDEES

NAME (PRINTED)	SIGNATURE
_____	_____
_____	_____
_____	_____

Meeting Conducted by:

Name Printed	Signature

SITE PERSONNEL ACKNOWLEDGMENT

By signing the following I acknowledge that I have read, understood, and agree to comply with the provided site specific Health and Safety Plan.

Printed Name/Affiliation	Signature	Date

SITE VISITOR LOG

Date	Time In/Out	Name	Organization	Purpose of Visit

AIR MONITORING LOG

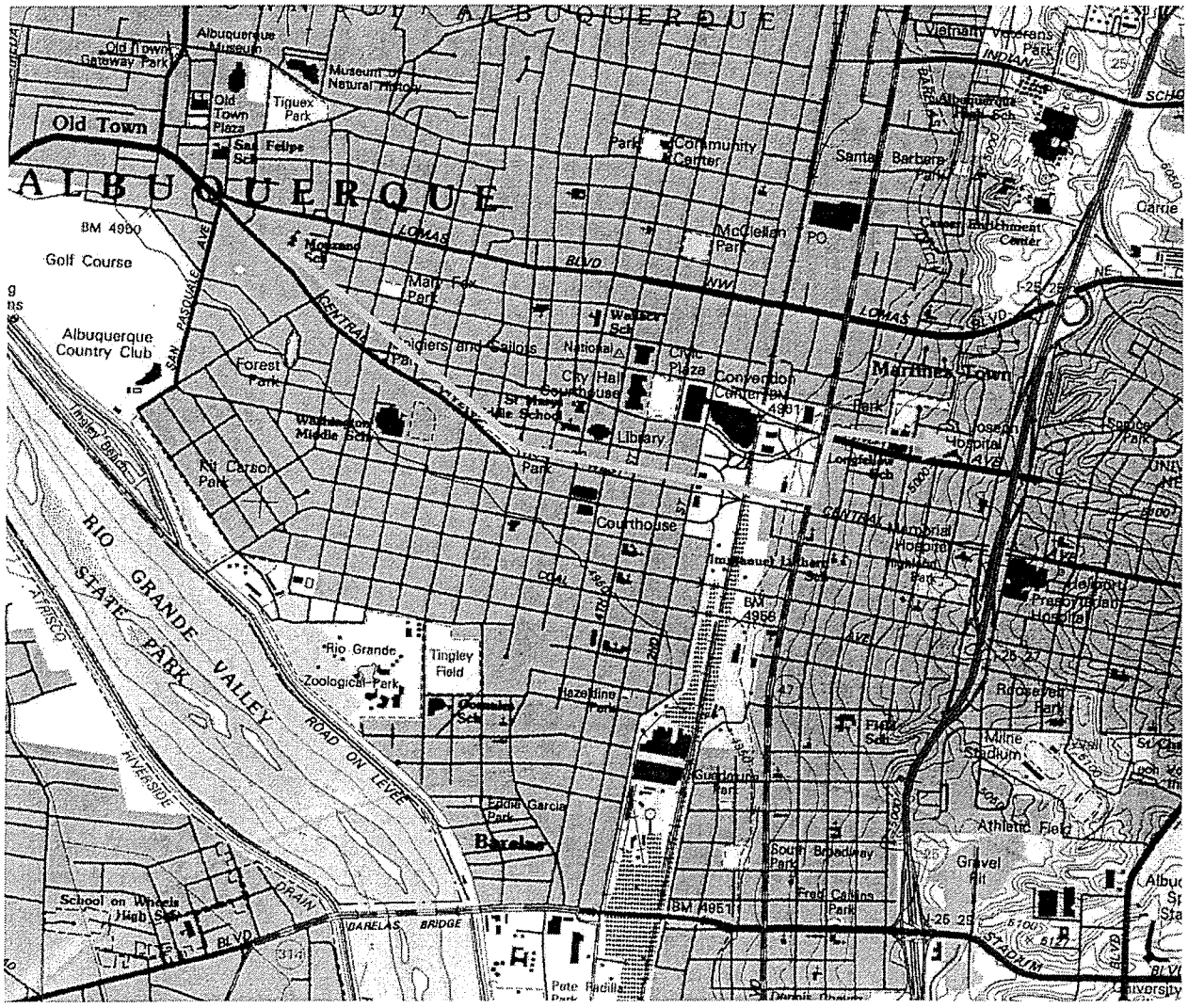
Date	Time	Reading (ppm)	Location and Comments	Calibration Date and Time	Initials

Health and Safetey Plan

Appendix D

Route to Hospital Map

HEALTH AND SAFETY PLAN
FOR THE BELL TRADING
POST PROPERTY



DIRECTIONS:

East on Central Avenue to Broadway Boulevard.

North (left) on Broadway to Dr. Martin Luther King Jr. Avenue NE.

East (right) on Dr. Martin Luther King Jr. Avenue NE to St. Joseph's Hospital (601 Dr. Martin Luther King Jr. Avenue NE). Entrance is on north (left) side of street.

Total distance to hospital: 2.0 miles

Total driving time: 5 minutes

APPENDIX B

DIRECT PUSH TECHNIQUES STANDARD OPERATING PROCEDURES

Direct Push Techniques

Direct-push drilling is often selected as the drilling method of choice for easy to penetrate unconsolidated materials where wells two inches in diameter or larger will not be installed. Most direct-push drilling systems allow for both continuous sampling and discrete-interval sampling. Direct-push borings can easily be converted to monitor wells typically 1/2- to 1-inch in diameter. Some direct-push drilling systems allow for the installation of 2-inch monitor wells yet may consequently leave insufficient annular space for the placement of sand pack and grout. Prepacked screens should be considered as a means of insuring an adequate filter pack in small diameter borings.

Objectives

Direct-push borings may be drilled in uncontaminated areas for background information, or in areas of known contamination. The objectives of the direct-push borings are:

- determination of the character of the soil and geologic media to a specified total depth;
- collection of soil samples for chemical analyses;
- determination of the vertical extent of contamination where encountered; and
- investigation of locations previously not drilled.

Drilling Equipment

Drilling equipment, such as direct-push probes, tubes, drive shoes, displacement points, shovels, sampling tools, and other necessary equipment, is generally supplied by the driller. Direct-push borings are typically 2 to 4 inches in diameter depending on the equipment used, the type of subsurface encountered, and whether or not small-diameter wells will be installed. Further information on equipment and procedures for monitor-well installation can be found under *Standard Operating Procedures, Monitor-Well Installation.*

Sampling Equipment

Before beginning each soil boring, the following equipment will be assembled:

- sample shuttles;
- chemical sample containers with laboratory-supplied preservatives, if required;
- geotechnical sample containers, if applicable;
- sample labels;
- sampling tools (i.e., sample liners and caps and split-barrel samplers);
- personal protective equipment;
- decontamination equipment;
- waterproof pens;
- stainless steel pocket knife or spatula;
- clean cutting surface;

- custody seals;
- boring logs;
- sample control logs;
- chain-of-custody forms; and
- field logbook.

Sample-Collection Procedures — Chemical Analyses

Soil borings will be sampled continuously to the specified total depth, unless otherwise instructed. Samples will be collected using stainless-steel tubes, transparent plastic tubes, or a split-barrel sampler. Typically the drive casing and/or sample barrel are 2-feet, 3-feet, 5-feet, or 10-feet in length.

A synthetic sample catcher is affixed to the bottom of the sample barrel when loose sediment may otherwise fall out of the sample barrel.

If refusal of the sampling device is encountered, attempts to advance the boring without the encumbrance of the sampling device can be attempted so as to advance to a depth that permits sampling. Otherwise, it may be advisable to begin a new boring adjacent to the boring of refusal in an attempt to avoid the earlier impediment.

During direct-push drilling, several types of information should be recorded, either on the boring log or in the field logbook. Information that will be recorded includes the following:

- name and/or job number and location of job,
- names of crew,
- type and make of drilling machine,
- weather conditions,
- surface conditions,
- date and time of start and finish of boring,
- boring number and location (station and coordinates, if available and applicable),
- surface elevation (if available),
- method of advancing and cleaning the boring,
- method of keeping the boring open (if any),
- depth to top of ground water and drilling depth at the time of a noted loss of drilling fluid,
- sample depth and percent recovery,
- size of casing, and depth of cased portion of boring,
- equipment and method of driving sampler,
- sampler type and dimensions (note use of liners), and
- remarks (if any).

Once the sample has been collected and brought to the surface, the following procedures should be followed for collection of samples for chemical analyses.

- Samples collected with stainless steel or transparent plastic tubes or with stainless steel split barrel samplers will be field extruded onto a split stainless-steel tube or a split PVC tube for

screening (if necessary) and description. Depending on the scope of the sampling effort, the sample may receive pass-over field screening or headspace analysis field screening with a PID or FID. Pass-over field screening is performed fairly quickly by making an incision down the length of the sample, passing the PID or FID probe along the incision while partially covering the incision with a hand, and noting the readings. The typical protocol for conducting heated headspace analysis is as follows:

1. Fill a 0.5 liter/16 ounce or larger clean glass jar half full of soil sample. Plastic bags or other non-glass containers are not acceptable.

2. Seal top of jar with clean aluminum foil and lid ring or equivalent.

3. Ensure sample is at 15° to 25°C or approximately 60°F to 80°F. A warm water bath should be used if necessary to raise sample temperature to acceptable range. Samples are to be protected from direct sunlight in order to prevent photodestruction of the volatiles.

4. Aromatic hydrocarbon vapor concentrations should be allowed to develop in the headspace of the sample jar for 5 to 10 minutes. During the initial stages of headspace development, the sample is to be shaken vigorously for one minute.

5. Immediately pierce the foil seal with the probe of either a Photoionization Detector (PID), a Flame Ionization Detector (FID), or colorimetric tube, and record the highest (peak) measurement. The instrument should be able to accurately detect total aromatic hydrocarbons (TAH) between 0 and 1000 parts per million (ppm).

- Soil samples will be split open and the sample will undergo screening and description.

- Soil type will be described according to the Unified Soils Classification System (ASTM D-2488). Appropriate information will be recorded on the boring log.

- Visual inspection, pass-over field screening, and/or PID headspace analysis of samples will serve as the criteria used in the field to screen samples for volatile organic contamination.

- Upon completion of field screening and soil description, part or all of each sample will be placed in a clean, labeled sample container, and capped securely.

- Samples to be analyzed for volatile organics should be disturbed as little as possible, and the interval to be sampled should be containerized first, even before the soil has been described, to prevent loss of volatile components.

If methanol extraction is required for samples to be analyzed for volatile organics, the analytical laboratory should be instructed to supply appropriate sample bottles ready and pre-weighed, containing purge-and-trap grade methanol. Disposable syringes to be used for collecting the soil samples should also be supplied by the laboratory. The following procedure should then be used to collect the soil samples:

1. Fill the syringe with 10 - 15 cm^2 of soil, avoiding pebbles or other large particles.

2. Unscrew the cap on the sample bottle and quickly push the sample into the bottle with the syringe plunger, being careful not to get soil particles on the rim of the bottle. If the methanol is supplied in a separate vial, pour it into the sample bottle at this point, being careful not to spill any of the methanol. Quickly replace the cap and tighten securely.

3. Gently agitate the sample so the soil is immersed in the methanol. Excessive agitation may cause undo volatilization.

- Field replicates are obtained by splitting the sample interval into two separate samples, which are then containerized and analyzed. Field duplicates are obtained by homogenizing the sample in a stainless-steel or glass container before splitting it into two samples for containerization and analysis.

- Sample labels will include the following information:

  — project name and/or number;
  — field sample number;
  — depth interval, if applicable;
  — initials of collector;
  — date and time of collection; and
  — sample type and preservative (if any).

  — Label information for replicate and duplicate samples requires only project name and/or number, field sample number, and sample type and preservatives (if any).

- Samples are then placed in the sample shuttle and, if required, stored and transported at <4 C (39 F), using frozen ice packs or double-bagged ice.

- Sample information will be recorded in the field logbook and on the sample control log as soon as possible after sample collection, in accordance with procedures set forth in the Quality Assurance Project Plan.

- A chain-of-custody form will be completed and placed in the sample shuttle for shipment to the laboratory.

- A custody seal will be placed across the sample shuttle lid so that the sample shuttle cannot be opened without breaking the custody seal. Custody seals will contain the following information:

  — collector's signature or initials; and
  — date of shipment.

- Samples will be shipped to the laboratory for analysis in a timely manner that facilitates the ability of the laboratory to meet all minimum holding-time requirements for degradable constituents.

- A decontamination station will be set up near the borehole location, where sampling equipment will be decontaminated between collection of each sample, as described in *Standard Operating Procedure, Decontamination.*

Boring Grouting

Grout is used to backfill the boring at the completion of drilling. Retraction grouting (i.e. grouting as the drive casing is retracted) is preferred in contaminated subsurface conditions since. For grouting shallow borings, cement-bentonite slurry or bentonite pellets are poured into the drive casing as the casing is retracted or directly into the open boring if it is able to stay open and not undergo cave in. In deep borings, retraction grouting is accomplished by pumping grout to the bottom of the boring through tubing placed inside the drive casing.

The grout used should approximate a mixture of Type I Portland cement (95-97%) and powdered bentonite (3-5%). Typically each sack of grout is mixed with 7 gallons of potable water. Grout is used to seal the formation and reduce the potential for vertical migration of surface or subsurface water.

When possible, the grouted borings will be inspected at least 24 hours after the grout has been allowed to shrink and settle. If settling has occurred, additional bentonite-cement grout will be added to bring the grout level to ground surface. All cuttings, fluids, and other unused material generated from the drilling and monitor-well development process will be segregated and placed immediately in 55-gallon drums or other appropriate containers, labeled with boring number, date, and project number, and stored on site pending analysis. Equipment used for grouting purposes (tremie pipe, pumps, grout-mixing containers, etc.) will require cleaning with potable water.

APPENDIX C

NEW MEXICO ENVIRONMENT DEPARTMENT UNDERGROUND STORAGE TANK BUREAU HEATED HEADSPACE STANDARD OPERATING PROCEDURE

Headspace Analysis

The NMED UST Bureau has issued the following guidance on Headspace analysis.

Equipment needed for soil screening includes clean 0.5 to 1 liter or 16-ounce jars, aluminum foil, and a FID, PID, detector tubes, or other acceptable field instrument. If the temperature is below 60° Fahrenheit or 15° Celsius, a thermometer and water bath will also be needed. The container for the water bath must be large enough to hold the sample jar, heat source, and deionized water. It is also acceptable to warm up the sample using heated air from the interior of a vehicle. The use of a portable gas chromatograph is optional. Use best judgement in choosing a field instrument. Factors to consider include, but are not limited to, age of the UST system, soil characteristics, and extent of contaminant degradation. Instruments for field screening should be calibrated in the field and in good working order. Follow the manufacturer's instructions for calibrating the field instrument.

The steps for the heated headspace method are:

(1) Fill a 0.5 liter/16 ounce or larger clean glass jar half full of soil sample. Plastic bags or other non-glass containers are not acceptable.

(2) Seal top of jar with clean aluminum foil and lid ring or equivalent.

(3) Ensure sample is at 15°C to 25°C or approximately 60°F to 80°F. A warm water bath or heated air from the interior of a vehicle should be used if necessary to raise sample temperature to the acceptable range. Samples are to be protected from direct sunlight in order to prevent photo-destruction of the volatiles.

(4) Aromatic hydrocarbon vapor concentrations should be allowed to develop in the headspace of the sample jar for 5 to 10 minutes. During the initial stages of headspace development, the sample is to be shaken vigorously for one minute.

(5) Immediately pierce the foil seal with the probe of either a Flame Ionization Detector (FID), a Photoionization Detector (PID) or colorimetric tubes, and record the highest (peak) measurement. The instrument should be able to accurately detect total aromatic hydrocarbons (TAH) between 0 and 1000 parts per million (ppm).

APPENDIX D

EQUIPMENT DECONTAMINATION METHODS STANDARD OPERATING PROCEDURE

Equipment Decontamination

Specific equipment decontamination procedures are described in the following paragraphs. Types of equipment decontamination that may occur at a given site include the following:

- sampling-equipment decontamination between individual sampling locations to ensure that representative samples are collected;
- drilling–equipment decontamination at the completion of each boring to ensure that boreholes are not cross contaminated; and
- tractor, forklift, backhoe and/or other heavy equipment decontamination to ensure that contamination is contained during site activities.

Sampling equipment will be decontaminated before leaving the Contamination Reduction Zone. Some or all of the following steps will be used to decontaminate this equipment:

- hand–held equipment showing surficial–solid contamination will be placed in a wash tub (or other applicable container) and the contaminated material will be physically removed using scrapers, brushes, or etc. Equipment will then be transferred to the designated container for the detergent wash. Contaminated solids will be drummed or otherwise containerized for disposal when necessary;
- the wash procedure will be followed by a double rinse. Equipment will typically be rinsed first in a wash tub with potable water followed by a spray rinse of distilled water;
- all wash and rinse solutions will be drummed for disposal when necessary;
- equipment that may be damaged by water, such as instruments, will be carefully cleaned with a sponge and detergent water when necessary. Care will be taken to prevent equipment damage;
- solvents such as methanol may be used on an as–needed basis to remove tar or other organics from equipment;
- clean equipment will be air dried if possible or wiped dry with a clean material if needed for immediate reuse; and
- clean equipment will be stored and transported such that it is protected until used again for sampling. Plastic bags are commonly used to help protect many clean equipment items.

When practical, a sufficient quantity of clean, decontaminated sampling equipment will typically be available so that each sample can be taken with a separate sampling tool, and decontamination will be performed on all equipment at the end of the sampling effort, rather than between each sample.

Drilling-equipment decontamination will be conducted in the Contamination Reduction Zone. Drilling auger flights or direct–push probes will be dismantled and transported to the decontamination area between each boring. The following steps will be used to decontaminate the auger flights or direct–push probes:

- gross soil, dirt, or waste contamination on the drilling augers will be removed at the drilling site. Contamination will be removed using blade scrapers or by other physical methods. Material removed from the augers or probes will be placed in drums or other dedicated containers;

- augers or probes will be carried to the decontamination pad. Augers or probes will typically be placed on a rack in the decontamination area to ensure that water from the decontamination process does not reintroduce contamination to the cleaned equipment; and

- a heated, high-pressure wash operating at a temperature of approximately 212° F and discharging 5 gallons per minute will typically be used to remove the contamination from the outside of each flight. Strongly adhered waste may require additional scrubbing using a wire or bristle brush. The inside of each auger or probe will also be cleaned with a pressure washer or steam cleaner and, if needed, scrubbed with a wire or bristle brush.

Any vehicle used to carry the auger flights or push probes will also receive a heated, high–pressure wash in all areas where the auger flights or push probes come into contact with the vehicle. Once the cleaned augers or push probes are placed into the transport vehicle, additional care will be given to ensure that the augers or probes remain clean by wrapping them in plastic when necessary.

All waste generated during decontamination activities will be contained using drums or other appropriate containers. Waste containers will be labeled properly and stored at the site temporarily pending proper disposal.

APPENDIX E

INVESTIGATIVE DERIVED WASTE PLAN

Management of Investigation Derived Waste Plan

The primary types of wastes that will be produced during the execution of the Work Plan include:

- Potentially contaminated soil (drill cuttings)
- Purge and decontamination wastewater
- Personal protective equipment (PPE) and other wastes

The procedures for handling and disposal of these wastes are detailed below:

Potentially Contaminated Soil

Excess soil will be generated during drilling activities. Soil cuttings generated during the drilling of the soil boring prior to monitoring well installation will be used as back fill around the monitoring well after the gravel pack has been constructed. The remainder of the soil generated during the monitoring well installations will be containerized in 55-gallon drums. The soil will be then dumped in areas designated appropriate by the City of Albuquerque. If PID readings indicate that the soil cuttings are potentially contaminated, then the soil will be adequately characterized. The soil will then be disposed of according to all Federal, State, and Local regulations.

Purge and Decontamination Wastewater

The wastewater derived from decontamination of the sampling and drilling equipment during the soil sampling activities (surface and subsurface), the drilling activities, and personnel decontamination water will be placed in 55-gallon drums. The purge and development water will then be transported to the City of Albuquerque wastewater treatment plant for treatment and then discharge.

PPE and Other Wastes

Used disposable PPE will be placed in double, 10-mil thick plastic bags and sealed with duct tape. The PPE that is classified as hazardous will be properly disposed of at a suitable and permitted off-site nonhazardous disposal facility. Likewise, spent PPE, equipment, and materials that have not been substantially contaminated by contact with water or soils, or that have been tested and determined to be non-hazardous, will be secured in the same fashion as the hazardous materials and properly disposed of at a suitable and NMED-permitted off-site non-hazardous disposal facility. Other wastes generated as part of investigation activities such as miscellaneous metal and plastic debris will be decontaminated and removed from the site. All decontaminated materials will be visually inspected for the presence of soil or dust particulate on the decontaminated objects. Objects which have been decontaminated and visually inspected to document satisfactory decontamination will be removed from the site and disposed of at a suitable and NMED-permitted off-site non-hazardous disposal facility.

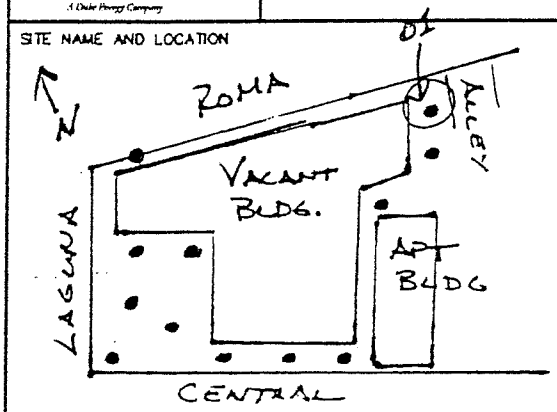
APPENDIX B

Soil Boring Logs

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM

ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED					BORING NO. SB-01	
					SHEET 1 OF 1	
SAMPLING METHOD: 4' MACRO SAMPLER EXPENDABLE DRIVE POINT					DRILLING	
					START	FINISH
WATER LEVEL (BLS)	20.0'				TIME 0800	TIME 0830
TIME	0825					
DATE	10/10/01				DATE 10/10/01	DATE 10/10/01
CASING DEPTH (BLS)	N/A					

DRILLER: GEORECOVERY

DRILL RIG GEOPROBE

ANGLE BEARING

SAMPLE HAMMER TORQUE FT.-LBS.

SURFACE CONDITIONS: DIRT / GRAVEL SURFACE LAYER

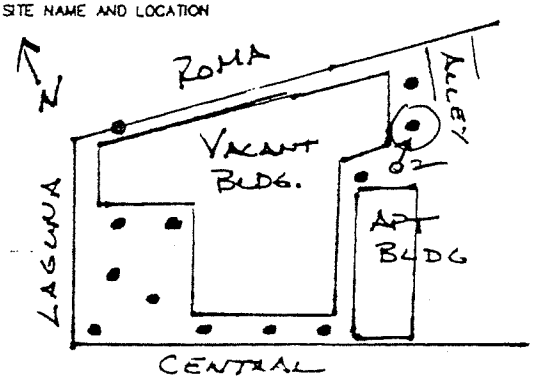
DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	N/A	100	SM		SAND, LT. BRN TO TAN IN COLOR, MOD. MOIST, UNIFORM SIZE CALICHE & SILT. TOTAL	0-2	(1)	1.7	0	2	0806
2					DEPTH = 4.0 BGS. COLLECT	2-4	(2)	1.2	2	4	0808
3			SM		SOIL GAS @ 12' BGS @ 0810 (0.1 ppm)						
4		-			COLLECT GROUNDWATER SAMPLE HERE @ 0825						
5											
6											
7											
8											
9											
10											

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM

ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED

SAMPLING METHOD: 4' MACRO SAMPLER EXPENDABLE DRIVE POINT

BORING NO. SB-02

SHEET 1 OF 1

DRILLING

					START	FINISH
WATER LEVEL (BLS)	N/A				TIME	TIME
TIME	↓				1415	1435
DATE					DATE 10/9/01	DATE 10/9/01
CASING DEPTH (BLS)	↓					

DRILL RIG GEOPROBE

ANGLE BEARING

SAMPLE HAMMER TORQUE FT.-LBS.

SURFACE CONDITIONS: GRAVEL / DIRT SURFACE LAYER

DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	N/A ↓	100	SM		SAND, SILTY, BECOMES MORE CLAYEY W/ DEPTH, BWN TO LT. BWN IN COLOR, MOD. MOIST, RELATIVELY UNIFORM, GRAY STAINED ARCL @ 3.5' BGS. TOTAL DEPTH = 4.0' BGS. COLLECT SOIL GAS SAMPLE @ 12.0' BGS (@1425). ONLY 1.7 PPM	0-2	1	1.7	0	2	1422
2						2-4	2	1.2	2	4	1422
3			SM								
4											
5											
6											
7											
8											
9											
10											

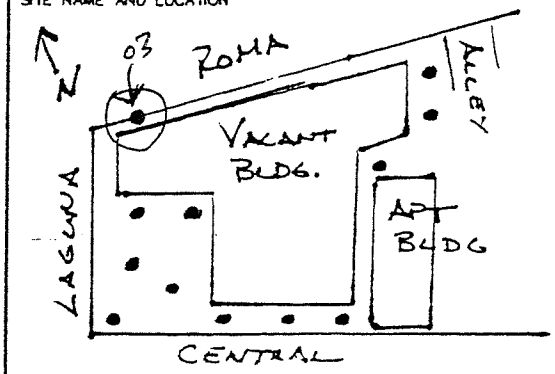
DRILLER: GEORECOVERY

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED

BORING NO. SB-03

SHEET 1 OF 1

SAMPLING METHOD: 4' MACRO SAMPLER EXPENDABLE DRIVE POINT FOR GAS

DRILLING

					START	FINISH
WATER LEVEL (BLS)	≈20.0'				TIME 0914	TIME 1006
TIME	0950					
DATE	10/10/01				DATE 10/10/01	DATE 10/10/01
CASING DEPTH (BLS)	N/A					

DRILL RIG GEOPROBE

SURFACE CONDITIONS CONCRETE SURFACE LAYER (SIDEWALK)

ANGLE BEARING

SAMPLE HAMMER TORQUE FT.-LBS.

DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	N/A 1	100	SM		SAND, LT. BWN TO BWN IN COLOR, SLIGHTLY SILTY, SOME CALICHE, MOD. MOIST. TOTAL DEPTH = 4.0' BGS. COLLECT SOIL GAS SAMPLE @ 12.0' BGS @0928 (30.3 ppm). COLLECT GWATER SAMPLE @ 23.5' BGS @0945	0-2	(1)	4.8	0	2	0920
2			SM			2-4	(2)	4.8	2	4	0922
3											
4											
5											
6											
7											
8											
9											
10											

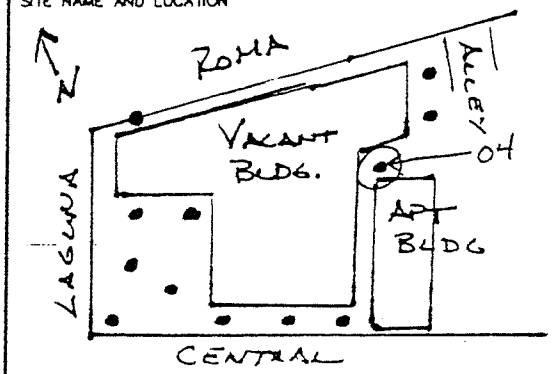
DRILLER: GEORECOVERY

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED					BORING NO. SB-04	
					SHEET 1 OF 1	
SAMPLING METHOD: 4' MACRO SAMPLER EXPENDABLE DRIVE POINT FOR GAS					DRILLING	
					START	FINISH
WATER LEVEL (BLS)	20.0'				TIME 1440	TIME 1506
TIME	1455					
DATE	10/9/01				DATE 10/9/01	DATE 10/9/01
CASING DEPTH (BLS)	N/A					

DRILL RIG GEOPROBE

SURFACE CONDITIONS CONCRETE SIDEWALK

ANGLE BEARING

SAMPLE HAMMER TORQUE FT.-LBS.

DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
	NA	100	SM		CONCRETE SURFACE LAYER	0-2	1	4.0	0	2	1455
1					SAND, VERY FINE-GRAINED, SLIGHTLY SILTY, LT. BWN TO REDDISH BWN IN COLOR, MOIST, RELATIVELY UNIFORM, NO ODOR DETECTED.						
2						2-4	2	1.7	2	4	1500
3			SM		TOTAL DEPTH = 4.0' BGS						
4					COLLECT SOIL GAS @ 12.0' BGS (1506) 271 ppm						
5					COLLECT WATER SAMPLE @ 23.0' BGS						
6											
7											
8											
9											
10											

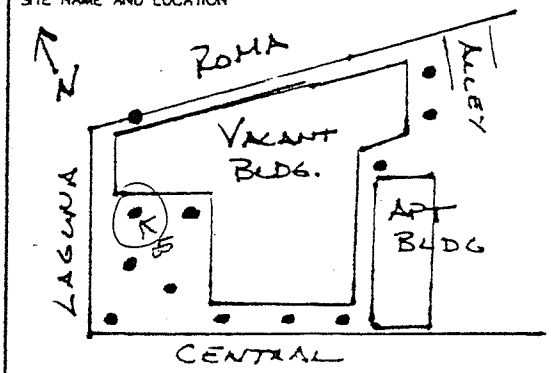
DRILLER: GEOLECOVERY

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM

ELEVATION

DRILLING METHOD:	GEOPROBE SOIL BORING UNIT - VAN MOUNTED
SAMPLING METHOD:	4' MACRO SAMPLER EXPENDABLE DRIVE POINT FOR GAS
BORING NO.	SB-05
SHEET	1 OF 1

					DRILLING START	DRILLING FINISH
WATER LEVEL (BLS)	N/A					
TIME					TIME 0902	TIME 0930
DATE					DATE 10/9/01	DATE 10/9/01
CASING DEPTH (BLS)						

DRILL RIG GEOPROBE

SURFACE CONDITIONS BARE GROUND SURFACE

ANGLE

BEARING

SAMPLE HAMMER TORQUE

FT.-LBS.

DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	NA	100 %	SM		SAND, LT. BWN TO TAN W CALICHE VEINS, SLIGHTLY SILTY, DRY, UNIFORM.	0-2	1	2.4	0	2	0908
2			SM		TOTAL DEPTH = 4.0' BGS, SOIL GAS @ 12.0' BGS, 9999 PPM	2-4	2	3.2	2	4	0910
3											
4											
5											
6											
7											
8											
9											
10											

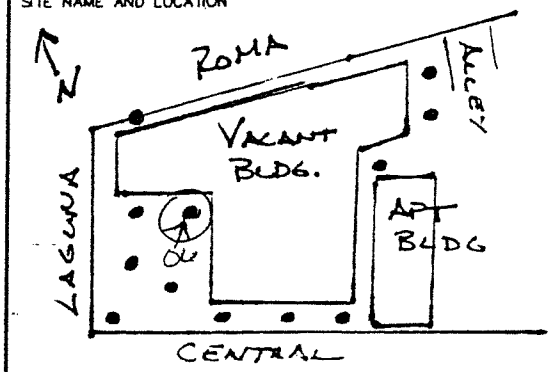
DRILLER: GEORECOVERY

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM

ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED

SAMPLING METHOD: 4' MACRO SAMPLER EXPENDABLE DRIVE POINT FOR GAS

BORING NO. SB-06

SHEET 1 OF 1

DRILLING

					START	FINISH
WATER LEVEL (BLS)	N/A				TIME	TIME
TIME	↓				0823	0900
DATE	↓				DATE 10/9/01	DATE 10/9/01
CASING DEPTH (BLS)	↓					

DRILL RIG GEOPROBE

SURFACE CONDITIONS BARE GROUND (SAND & GRAVEL)

ANGLE

BEARING

SAMPLE HAMMER TORQUE

FT.-LBS.

DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	NA	100	SM		SAND, LT. BROWN TO TAN IN COLOR, VERY FINE, UNIFORM, LT, W SOME SILT. NO STAINING OR ODOR OBSERVED. TOTAL DEPTH = 4.0' BGS. TAKE SOIL VAPOR SAMPLE @ 12.0' BGS. SOIL GAS = 3275 PPM	0-2	1	2.4	0	2	SAMPLE @ 0832
2											SAMPLE @ 0834
3			SM			2-4	2	6.6	2	4	
4											
5											
6											
7											
8											
9											
10											

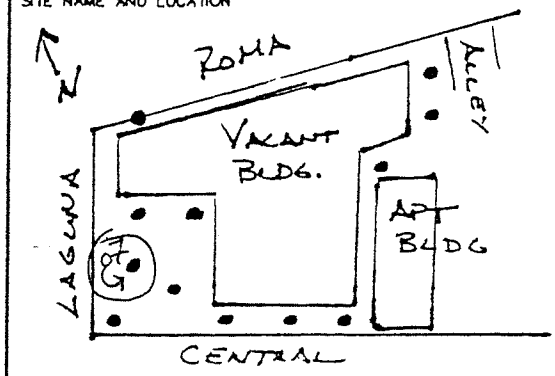
DRILLER: GEORECOVERY, INC.

LOGGED BY: J. TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED

SAMPLING METHOD: 4' MACRO SAMPLER EXPENDABLE DRIVE POINT

BORING NO. SB-7

SHEET 1 OF 1

DRILLING

					START	FINISH
WATER LEVEL (BLS)	N/A				TIME	TIME
TIME	↓				0931	0947
DATE	↓				DATE 10/9/01	DATE 10/9/01
CASING DEPTH (BLS)	↓					

DRILLER: GEO RECOVERY

DRILL RIG GEOPROBE

ANGLE BEARING

SAMPLE HAMMER TORQUE FT.-LBS.

SURFACE CONDITIONS: BARE GROUND SURFACE

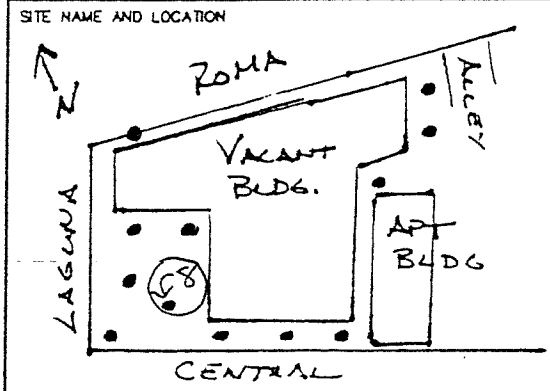
DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	N/A		SM		SAND, LT. BROWN TO TAN IN COLOR, DRY, UNIFORM, SOME CALICHE, SLIGHTLY SILTY, DRY, WELL PACKED. TOTAL DEPTH = 4.0' BGS. COLLECT SOIL SAMPLES & SOIL GAS SAMPLE. SOIL GAS = 9,999 PPM	0-2	1	4.2	0	2	0937
2						2-4	2	3.8	2	4	0939
3			SM								
4											
5											
6											
7											
8											
9											
10											

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED					BORING NO. SB-8	
					SHEET 1 OF 1	
SAMPLING METHOD: 4' MACRO SAMPLER EXPENDABLE DRIVE POINT					DRILLING	
					START	FINISH
WATER LEVEL (BLS)	N/A				TIME 0957	TIME 1016
TIME	↓					
DATE					DATE 10/9/01	DATE 10/9/01
CASING DEPTH (BLS)	↓					

DRILLER: GEO RECOVERY

DRILL RIG GEOPROBE

ANGLE BEARING

SAMPLE HAMMER TORQUE FT.-LBS.

SURFACE CONDITIONS: GRASS-COVERED SURFACE LAYER

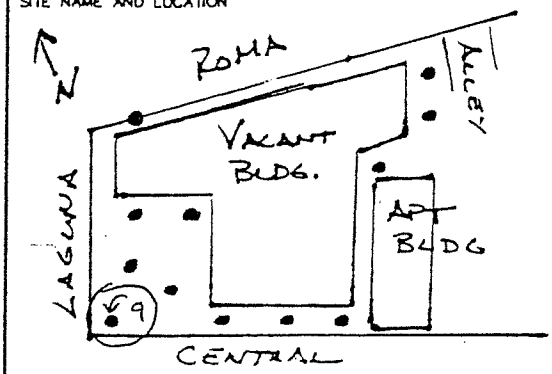
DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	N/A ↓	100	SM		SAND, FINE GRAINED, SLIGHTLY CLAYEY, LT. BWN TO BWN IN COLOR, SLIGHTLY MOIST.	0-2	1	4.0	0	2	1002
2					TOTAL DEPTH = 4.0' BGS						
3			SM		COLLECT SOIL GAS SAMPLE @ 12.0' BGS (1007) PID = 711	2-4	2	5.7	2	4	1004
4											
5											
6											
7											
8											
9											
10											

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM

ELEVATION

DRILLING METHOD:	GEOPROBE SOIL BORING UNIT - VAN MOUNTED
SAMPLING METHOD:	4' MACRO SAMPLER EXPENDABLE DRIVE POINT
BORING NO.	SB-9
SHEET	1 OF 1
DRILLING START	TIME 1030
DRILLING FINISH	TIME
DATE START	10/9/01
DATE FINISH	10/ /01

WATER LEVEL (BLS)	N/A			
TIME	↓			
DATE	↓			
CASING DEPTH (BLS)	↓			

DRILLER: GEORECOVERY

DRILL RIG: GEOPROBE

ANGLE

BEARING

SAMPLE HAMMER TORQUE

FT.-LBS.

SURFACE CONDITIONS: GRASS - COVERED GROUND SURFACE

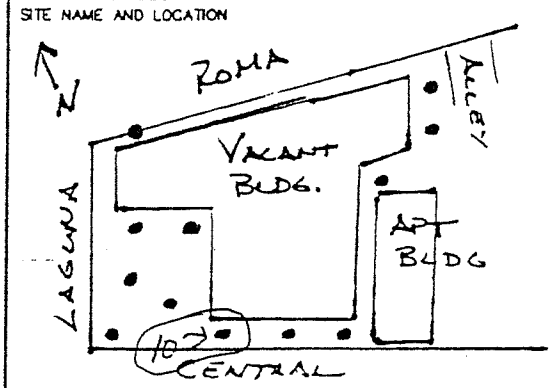
DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	NA	100	SC		SAND, CLAYEY, BECOMES SILTY W/ DEPTH, BWN TO LT BWN TO TAN IN COLOR, SLIGHTLY MOIST, SOME CALICHE VEINS. TOTAL DEPTH = 4.0' BGS. TAKE A SOIL GAS SAMPLE @ 12.0' BGS @ 1041 (770 PPM)	0-2	1	3.9	0	2	1036
2						2-4	2	4.4	2	4	1038
3			SM								
4											
5											
6											
7											
8											
9											
10											

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM ELEVATION

DRILLING METHOD:	GEOPROBE SOIL BORING UNIT - VAN MOUNTED
SAMPLING METHOD:	4' MACRO SAMPLER EXPENDABLE DRIVE POINT
BORING NO.	SB-10
SHEET	1 OF 1
DRILLING START	TIME 1101 DATE 10/9/01
DRILLING FINISH	TIME 1122 DATE 10/9/01
WATER LEVEL (BLS)	N/A
TIME	↓
DATE	↓
CASING DEPTH (BLS)	↓

DRILL RIG GEOPROBE

SURFACE CONDITIONS SAND/GRAVEL SURFACE LAYER

ANGLE BEARING

SAMPLE HAMMER TORQUE FT.-LBS.

DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	N/A	100%	SM		SAND, SLIGHTLY CLAYEY, BECOMES SILTY W/ DEPTH & VERY FINE GRAINED, LT. BROWN TO BROWN IN COLOR, MOIST. TD=4.0'	0-2	1	2.6	0	2	1108
2	↓					2-4	2	3.0	2	4	1110
3			SM		COLLECT SOIL GAS @12.0' BGS @1112 PID = 572 PPM SOIL GAS						
4											
5											
6											
7											
8											
9											
10											

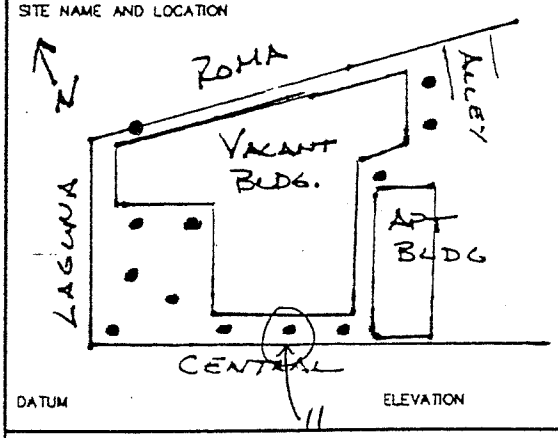
DRILLER: GEORECOVERY

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM

ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED

BORING NO. SB-11

SHEET 1 OF 1

SAMPLING METHOD: 4' MACRO SAMPLER, EXPENDABLE DRIVE POINT FOR GAS

DRILLING

					START	FINISH
WATER LEVEL (BLS)	N/A				TIME	TIME
TIME					1130	1151
DATE					DATE 10/9/01	DATE 10/9/01
CASING DEPTH (BLS)						

DRILLER: GEORECOVERY

DRILL RIG GEOPROBE

SURFACE CONDITIONS DIRT / GRAVEL GROUND

ANGLE BEARING

SURFACE

SAMPLE HAMMER TORQUE FT.-LBS.

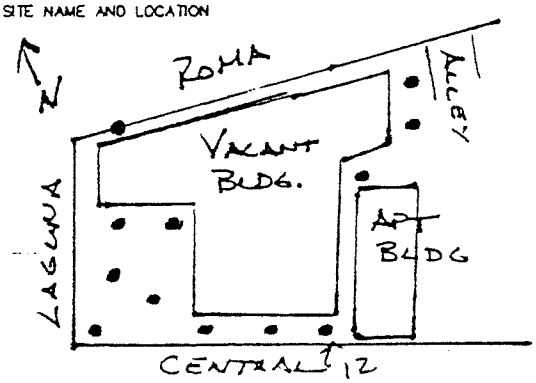
DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	N/A	100%	SM		SAND, LT. BWN TO BWN, SLIGHTLY SILTY, MODERATELY MOIST, UNIFORM, NO ODOR OBSERVED.	0-2	1	4.3	0	2	1138
2					TOTAL DEPTH = 4.0'. COLLECT SOIL GAS SAMPLE @ 12.0' BGS @ 1143 (16.2 ppm)	2-4	2	4.5	2	4	1140
3			SM								
4											
5											
6											
7											
8											
9											
10											

LOGGED BY: JOSEPH TRACY

Duke Engineering & Services
A Duke Energy Company

SOIL BORING LOG

SITE NAME AND LOCATION



DATUM ELEVATION

DRILLING METHOD: GEOPROBE SOIL BORING UNIT - VAN MOUNTED					BORING NO. SB-12	
					SHEET 1 OF 1	
SAMPLING METHOD: 4' MACRO SAMPLER EXPENDABLE DRIVE POINT					DRILLING	
					START	FINISH
WATER LEVEL (BLS)	∇ 21.0'				TIME 1202	TIME 1240
TIME	1240					
DATE	10/9/01				DATE 10/9/01	DATE 10/9/01
CASING DEPTH (BLS)	N/A					

DRILL RIG GEOPROBE

SURFACE CONDITIONS SAND / GRAVEL SURFACE LAYER

ANGLE BEARING

SAMPLE HAMMER TORQUE FT.-LBS.

DEPTH IN FEET (BLS)	BLOWS / 6 IN. ON SAMPLER	% RECOVERY	SOIL GRAPH	MATERIAL CHANGE DEPTH (BLS)(FT)	DESCRIPTION OF MATERIAL	SAMPLED INTERVAL	SAMPLE No.	FIELD SCREENING OR HEAD SPACE ANALYSIS OVM/HNU (ppm)	DEPTH IN FEET FROM	DEPTH IN FEET TO	DESCRIPTION OF OPERATION AND REMARKS
1	N/A	75	SM		SAND, SLIGHTLY SILTY, VERY FINE-GRAINED, UNIFORM, DRY, SOME ZONES (1") OF CLAY @ 3.0' & 3.5' BGS. TOTAL DEPTH = 4.0' BGS. COLLECT SOIL GAS @ 12.0' BGS (59.3 ppm) @1217 WILL ATTEMPT TO COLLECT GROUND WATER SAMPLE HERE	0-2	1	3.8	0	2	1210
2						2-4	2	1.7	2	4	1212
3			SM								
4											
5											
6											
7											
8											
9											
10											

DRILLER: GEOPROBE

LOGGED BY: JOSEPH TRALY

APPENDIX C

Field Forms and Field Notes

10/9/01

0740 – Arrive onsite & Bag ice Check Soil Boring Locations & Make Sure Utilities Are Marked

0810 – Geolecovery onsite. Kevin Taylor & Jim Grimand

– Conduct Health & Safety Meeting

0825 – Begin Soil Boring SB-06

0837 – Meg Randall w/ COA onsite, 0910 Meg Randall offsite

0841 – Take Soil Gas Sample @ SB-06

Soil Gas = 3275 ppm. Collect w/ Hand Pump

0912 – Take Soil Gas Sample @ SB-05

Soil Gas = 9999 ppm (OVER)

0941 – Collect Soil Gas Sample @ SB-07

Soil Gas = 9999 ppm (OVER)

0957 – Move to & Begin SB-08

1007 – Collect Soil Gas Sample @ SB-08 Soil Gas = 711 ppm

– Collect Soil Duplicate-1 of SB-08/0'-2' & SB-08/2'-4

1016 – Complete SB-08

1030 – Move To & Begin SB-09

1041 – Collect Soil Gas Sample SB-09 (770 ppm)

1049 – Andy From Hall Env. onsite To Drop off Bottles For Equipment Rinsates

1101 – Move To & Begin SB-10

1107 – Meg Randall w/ COA Back Onsite

10/9/01 (CON'T)

1110 – BART FERRIS & MIKE MORENO W/ NMED ONSITE TO OBSERVE

1112 – COLLECT SOIL GAS SAMPLE

1130 – MOBE TO & BEGIN SB-11

MEG W/ MIKE & BART WALKING AROUND SITE

1143 – COLLECT SOIL GAS @ SB-11 – (16.2 PPM)

1202 – MOBE TO & BEGIN SB-12

1217 – COLLECT SOIL GAS SAMPLE @ SB-12

COLLECT DUPLICATE HERE TOO.

1240 – BEGIN TO TRY TO COLLECT WATER SAMPLE @ SB-12.

COLLECT SAMPLE & DUPLICATE HERE. BART FERRIS & MIKE MORENO OF NMED ALSO COLLECT SPLIT SAMPLE (2 VOA VIALS) FOR VOC ANALYSIS

1360 – BART & MIKE OF NMED OFFSITE. MEG REMAINS OF CDA OFFSITE. BEGIN TO DECON, I COLLECT SOIL SAMPLES FROM SB-11 & SB-12

1330 – 1400 – LUNCH

1415 – MOBE TO & BEGIN SB-02

1428 – COLLECT SOIL GAS SAMPLE FROM SB-02 (1.7 PPM)

1435 – COMPLETE SOIL BORING SB-02

10/9/01 (CON'T)

1440 - MOVE TO & BEGIN SB-04. THIS IS A SOIL BORING BELOW CONCRETE SO WE HAVE TO FIRST CORE THE CONCRETE

1453 - CONTINUE TO CORE CONCRETE

1458 - BREAK THROUGH CONCRETE - COLLECT SOIL SAMPLE @ SB-04

1506 - COLLECT SOIL GAS SAMPLE @ SB-04 (271 PPM) @ 12.0' BGS

1520 - MEG RANDALL W/ COA RETURNS ONSITE

- BART & MIKE W/ NMED RETURN TO SITE

1525 - COLLECT GROUND WATER SAMPLE SB-04 WATER. NMED (BART) COLLECTS 2 ~~SAMPLES~~ VOA VOLES (SPLIT SAMPLES)

1600 - MEG RANDALL OFFSITE

BART & MIKE OFFSITE

1600 - COLLECT EQ. RINSE 1 (RINSATE OF SHOE)

1620 - KT & GEO RECOVERY OFFSITE

1630 - LEAVE SITE & GO TO LABORATORY (HALL). DROP OFF ALL SAMPLES (SOIL GAS, SOILS, GW).

10/10/01

0800 - Arrive onsite (After getting ice)

- Georecovery (Kevin Taylor & Jim Grimand onsite)

- Begin SB-01

0810 - Collect Soil Gas Sample @ SB-01. PID = 0.1 ppm

- Continue to depth to collect groundwater

0825 - Collect GW Sample SB-01/water

- Abandone Soil Boring SB-01

0835 - Meg Randall onsite. Asks that a sample of soil for PCBs be taken from under & around transformer

I will take sample & submit for PCBs

0900 - Meg Randall offsite

0914 - Move to & Begin SB-03

0928 - Collect Soil Gas Sample @ SB-03 (30.3 ppm)

- Continue to depth to attempt to collect GW sample

0945 - Collect SB-03/water

1008 - Complete & Abandone Soil Boring SB-03

0950 - Collect Field Blank

1000 - Chris Bynum w/ NMED onsite

- Walk site w/ Chris. Will discuss later transformer issue. She says to review Keeas report

1025 - Chris Bynum w/ NMED offsite

1030 - Collect Equipment Rinsate

1038 - Georecovery offsite

10/10/01 (CON'T)

1046 - PACK GEOTECHNICAL SAMPLES

GEOTECH DUP - 1 = SB-10/0-2' (10/9/01 @ 1108)

1130 - LEAVE SITE AFTER TAKING PHOTOS OF SOIL BORING LOCATIONS

1200 - DROP OFF SAMPLES @ HALL ENVIRONMENTAL

1230 - RETURN TO OFFICE

- UNLOAD EQUIPMENT

1300 - RETURN TO OFFICE.

APPENDIX D

Analytical Results

Hall Environmental Analysis Laboratory

COVER LETTER

November 06, 2001

Joe Tracy
Duke Engineering & Services
One Park Center
6501 Americas Pkwy., NE Ste. 810
Albuquerque, NM 87110
TEL: (505) 246-1600
FAX (505) 246-2600

RE: Bell Trading Post Order No.: 0110066

Dear Joe Tracy:

Hall Environmental Analysis Laboratory received 15 samples on 10/10/01 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-01/Soil Gas
Lab Order:	0110066	**Collection Date:**	10/10/01 8:10:00 AM
Project:	Bell Trading Post		
Lab ID:	0110066-01	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/11/01
Trichloroethene	ND	0.10		µg/L	1	10/11/01
Benzene	ND	0.10		µg/L	1	10/11/01
Toluene	ND	0.10		µg/L	1	10/11/01
Ethylbenzene	ND	0.10		µg/L	1	10/11/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/11/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/11/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/11/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/11/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/11/01
Naphthalene	ND	0.20		µg/L	1	10/11/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/11/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/11/01
Bromobenzene	ND	0.10		µg/L	1	10/11/01
Bromochloromethane	ND	0.10		µg/L	1	10/11/01
Bromodichloromethane	ND	0.10		µg/L	1	10/11/01
Bromoform	ND	0.10		µg/L	1	10/11/01
Bromomethane	ND	0.10		µg/L	1	10/11/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/11/01
Chlorobenzene	ND	0.10		µg/L	1	10/11/01
Chloroethane	ND	0.20		µg/L	1	10/11/01
Chloroform	ND	0.10		µg/L	1	10/11/01
Chloromethane	ND	0.10		µg/L	1	10/11/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/11/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/11/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/11/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Dibromochloromethane	ND	0.10		µg/L	1	10/11/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/11/01
Dibromomethane	ND	0.20		µg/L	1	10/11/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/11/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/11/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/11/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/11/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/11/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/11/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/11/01

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110066
Project: Bell Trading Post
Lab ID: 0110066-01

Client Sample ID: SB-01/Soil Gas
Collection Date: 10/10/01 8:10:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/11/01
Methylene chloride	ND	0.30		µg/L	1	10/11/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/11/01
n-Butylbenzene	ND	0.10		µg/L	1	10/11/01
n-Propylbenzene	ND	0.10		µg/L	1	10/11/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/11/01
Styrene	ND	0.10		µg/L	1	10/11/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/11/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/11/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/11/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/11/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/11/01
Vinyl chloride	ND	0.20		µg/L	1	10/11/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/11/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/11/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/11/01
Xylenes, Total	ND	0.10		µg/L	1	10/11/01
Surr: 4-Bromofluorobenzene	106	87.2-119		%REC	1	10/11/01
Surr: Dibromofluoromethane	93.9	75.7-113		%REC	1	10/11/01
Surr: Toluene-d8	102	88.8-113		%REC	1	10/11/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110066
Project: Bell Trading Post
Lab ID: 0110066-02

Client Sample ID: SB-03/Soil Gas
Collection Date: 10/10/01 9:28:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/11/01
Trichloroethene	3.4	0.10		µg/L	1	10/11/01
Benzene	ND	0.10		µg/L	1	10/11/01
Toluene	ND	0.10		µg/L	1	10/11/01
Ethylbenzene	ND	0.10		µg/L	1	10/11/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/11/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/11/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/11/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/11/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/11/01
Naphthalene	ND	0.20		µg/L	1	10/11/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/11/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/11/01
Bromobenzene	ND	0.10		µg/L	1	10/11/01
Bromochloromethane	ND	0.10		µg/L	1	10/11/01
Bromodichloromethane	ND	0.10		µg/L	1	10/11/01
Bromoform	ND	0.10		µg/L	1	10/11/01
Bromomethane	ND	0.10		µg/L	1	10/11/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/11/01
Chlorobenzene	ND	0.10		µg/L	1	10/11/01
Chloroethane	ND	0.20		µg/L	1	10/11/01
Chloroform	ND	0.10		µg/L	1	10/11/01
Chloromethane	ND	0.10		µg/L	1	10/11/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/11/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/11/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/11/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Dibromochloromethane	ND	0.10		µg/L	1	10/11/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/11/01
Dibromomethane	ND	0.20		µg/L	1	10/11/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/11/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/11/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/11/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/11/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/11/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/11/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/11/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110066
Project: Bell Trading Post
Lab ID: 0110066-02

Client Sample ID: SB-03/Soil Gas
Collection Date: 10/10/01 9:28:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/11/01
Methylene chloride	ND	0.30		µg/L	1	10/11/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/11/01
n-Butylbenzene	ND	0.10		µg/L	1	10/11/01
n-Propylbenzene	ND	0.10		µg/L	1	10/11/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/11/01
Styrene	ND	0.10		µg/L	1	10/11/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/11/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/11/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/11/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/11/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/11/01
Vinyl chloride	ND	0.20		µg/L	1	10/11/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/11/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/11/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/11/01
Xylenes, Total	ND	0.10		µg/L	1	10/11/01
Surr: 4-Bromofluorobenzene	103	87.2-119		%REC	1	10/11/01
Surr: Dibromofluoromethane	95.4	75.7-113		%REC	1	10/11/01
Surr: Toluene-d8	101	88.8-113		%REC	1	10/11/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-01/Water
Lab Order:	0110066	**Collection Date:**	10/10/01 8:25:00 AM
Project:	Bell Trading Post		
Lab ID:	0110066-07	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ANIONS BY 300.0		**E300**				Analyst: **DJB**
Fluoride	0.67	0.10		mg/L	1	10/10/01
Chloride	32	0.10		mg/L	1	10/10/01
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	10/10/01
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	10/10/01
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	10/10/01
Sulfate	110	2.5		mg/L	5	10/26/01
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	10/12/01
Toluene	ND	1.0		µg/L	1	10/12/01
Ethylbenzene	ND	1.0		µg/L	1	10/12/01
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/12/01
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/12/01
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/12/01
Naphthalene	ND	2.0		µg/L	1	10/12/01
1-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
2-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
Bromobenzene	ND	1.0		µg/L	1	10/12/01
Bromochloromethane	ND	1.0		µg/L	1	10/12/01
Bromodichloromethane	ND	1.0		µg/L	1	10/12/01
Bromoform	ND	1.0		µg/L	1	10/12/01
Bromomethane	ND	1.0		µg/L	1	10/12/01
Carbon Tetrachloride	ND	1.0		µg/L	1	10/12/01
Chlorobenzene	ND	1.0		µg/L	1	10/12/01
Chloroethane	ND	2.0		µg/L	1	10/12/01
Chloroform	ND	1.0		µg/L	1	10/12/01
Chloromethane	ND	1.0		µg/L	1	10/12/01
2-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
4-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
cis-1,2-DCE	ND	1.0		µg/L	1	10/12/01
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/12/01
Dibromochloromethane	ND	1.0		µg/L	1	10/12/01
Dibromomethane	ND	2.0		µg/L	1	10/12/01
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloroethane	ND	1.0		µg/L	1	10/12/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-01/Water
Lab Order:	0110066	**Collection Date:**	10/10/01 8:25:00 AM
Project:	Bell Trading Post		
Lab ID:	0110066-07	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1,1-Dichloroethene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,3-Dichloropropane	ND	1.0		µg/L	1	10/12/01
2,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Hexachlorobutadiene	ND	1.0		µg/L	1	10/12/01
Isopropylbenzene	ND	1.0		µg/L	1	10/12/01
4-Isopropyltoluene	ND	1.0		µg/L	1	10/12/01
Methylene Chloride	ND	3.0		µg/L	1	10/12/01
n-Butylbenzene	ND	1.0		µg/L	1	10/12/01
n-Propylbenzene	ND	1.0		µg/L	1	10/12/01
sec-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Styrene	ND	1.0		µg/L	1	10/12/01
tert-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/12/01
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
trans-1,2-DCE	ND	1.0		µg/L	1	10/12/01
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/12/01
Trichlorofluoromethane	ND	1.0		µg/L	1	10/12/01
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/12/01
Vinyl chloride	ND	2.0		µg/L	1	10/12/01
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/12/01
Xylenes, Total	ND	1.0		µg/L	1	10/12/01
Surr: 1,2-Dichloroethane-d4	95.5	74.6-123		%REC	1	10/12/01
Surr: 4-Bromofluorobenzene	98.3	85.6-117		%REC	1	10/12/01
Surr: Dibromofluoromethane	95.3	78.6-115		%REC	1	10/12/01
Surr: Toluene-d8	101	84.2-115		%REC	1	10/12/01
AMMONIA AS N		**E350.2**				Analyst: **HVA**
Nitrogen, Ammonia	0.70	0.050		mg/L	1	10/30/01
PH BY 150.1		**E150.1**				Analyst: **HVA**
pH	7.30	0.010		pH units	1	10/30/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-03/Water
Lab Order:	0110066	**Collection Date:**	10/10/01 9:45:00 AM
Project:	Bell Trading Post		
Lab ID:	0110066-10	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ANIONS BY 300.0		**E300**				Analyst: **DJB**
Fluoride	0.70	0.10		mg/L	1	10/10/01
Chloride	41	0.50		mg/L	5	10/26/01
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	10/10/01
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	10/10/01
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	10/10/01
Sulfate	280	2.5		mg/L	5	10/26/01
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	10/12/01
Toluene	ND	1.0		µg/L	1	10/12/01
Ethylbenzene	ND	1.0		µg/L	1	10/12/01
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/12/01
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/12/01
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/12/01
Naphthalene	ND	2.0		µg/L	1	10/12/01
1-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
2-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
Bromobenzene	ND	1.0		µg/L	1	10/12/01
Bromochloromethane	ND	1.0		µg/L	1	10/12/01
Bromodichloromethane	ND	1.0		µg/L	1	10/12/01
Bromoform	ND	1.0		µg/L	1	10/12/01
Bromomethane	ND	1.0		µg/L	1	10/12/01
Carbon Tetrachloride	ND	1.0		µg/L	1	10/12/01
Chlorobenzene	ND	1.0		µg/L	1	10/12/01
Chloroethane	ND	2.0		µg/L	1	10/12/01
Chloroform	ND	1.0		µg/L	1	10/12/01
Chloromethane	ND	1.0		µg/L	1	10/12/01
2-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
4-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
cis-1,2-DCE	ND	1.0		µg/L	1	10/12/01
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/12/01
Dibromochloromethane	ND	1.0		µg/L	1	10/12/01
Dibromomethane	ND	2.0		µg/L	1	10/12/01
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloroethane	ND	1.0		µg/L	1	10/12/01

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-03/Water
Lab Order:	0110066	**Collection Date:**	10/10/01 9:45:00 AM
Project:	Bell Trading Post		
Lab ID:	0110066-10	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1,1-Dichloroethene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,3-Dichloropropane	ND	1.0		µg/L	1	10/12/01
2,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Hexachlorobutadiene	ND	1.0		µg/L	1	10/12/01
Isopropylbenzene	ND	1.0		µg/L	1	10/12/01
4-Isopropyltoluene	ND	1.0		µg/L	1	10/12/01
Methylene Chloride	ND	3.0		µg/L	1	10/12/01
n-Butylbenzene	ND	1.0		µg/L	1	10/12/01
n-Propylbenzene	ND	1.0		µg/L	1	10/12/01
sec-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Styrene	ND	1.0		µg/L	1	10/12/01
tert-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/12/01
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
trans-1,2-DCE	ND	1.0		µg/L	1	10/12/01
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/12/01
Trichlorofluoromethane	ND	1.0		µg/L	1	10/12/01
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/12/01
Vinyl chloride	ND	2.0		µg/L	1	10/12/01
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/12/01
Xylenes, Total	ND	1.0		µg/L	1	10/12/01
Surr: 1,2-Dichloroethane-d4	87.2	74.6-123		%REC	1	10/12/01
Surr: 4-Bromofluorobenzene	98.6	85.6-117		%REC	1	10/12/01
Surr: Dibromofluoromethane	94.5	78.6-115		%REC	1	10/12/01
Surr: Toluene-d8	97.2	84.2-115		%REC	1	10/12/01
AMMONIA AS N		**E350.2**				Analyst: **HVA**
Nitrogen, Ammonia	ND	0.050		mg/L	1	10/30/01
PH BY 150.1		**E150.1**				Analyst: **HVA**
pH	7.50	0.010		pH units	1	10/30/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	Field Blank
Lab Order:	0110066	**Collection Date:**	10/10/01 9:50:00 AM
Project:	Bell Trading Post		
Lab ID:	0110066-11	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	10/15/01
Toluene	1.2	1.0		µg/L	1	10/15/01
Ethylbenzene	ND	1.0		µg/L	1	10/15/01
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/15/01
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/15/01
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/15/01
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/15/01
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/15/01
Naphthalene	ND	2.0		µg/L	1	10/15/01
1-Methylnaphthalene	ND	4.0		µg/L	1	10/15/01
2-Methylnaphthalene	ND	4.0		µg/L	1	10/15/01
Bromobenzene	ND	1.0		µg/L	1	10/15/01
Bromochloromethane	ND	1.0		µg/L	1	10/15/01
Bromodichloromethane	ND	1.0		µg/L	1	10/15/01
Bromoform	ND	1.0		µg/L	1	10/15/01
Bromomethane	ND	1.0		µg/L	1	10/15/01
Carbon Tetrachloride	ND	1.0		µg/L	1	10/15/01
Chlorobenzene	ND	1.0		µg/L	1	10/15/01
Chloroethane	ND	2.0		µg/L	1	10/15/01
Chloroform	ND	1.0		µg/L	1	10/15/01
Chloromethane	ND	1.0		µg/L	1	10/15/01
2-Chlorotoluene	ND	1.0		µg/L	1	10/15/01
4-Chlorotoluene	ND	1.0		µg/L	1	10/15/01
cis-1,2-DCE	ND	1.0		µg/L	1	10/15/01
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/15/01
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/15/01
Dibromochloromethane	ND	1.0		µg/L	1	10/15/01
Dibromomethane	ND	2.0		µg/L	1	10/15/01
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/15/01
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/15/01
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/15/01
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/15/01
1,1-Dichloroethane	ND	1.0		µg/L	1	10/15/01
1,1-Dichloroethene	ND	1.0		µg/L	1	10/15/01
1,2-Dichloropropane	ND	1.0		µg/L	1	10/15/01
1,3-Dichloropropane	ND	1.0		µg/L	1	10/15/01
2,2-Dichloropropane	ND	1.0		µg/L	1	10/15/01
1,1-Dichloropropene	ND	1.0		µg/L	1	10/15/01
Hexachlorobutadiene	ND	1.0		µg/L	1	10/15/01
Isopropylbenzene	ND	1.0		µg/L	1	10/15/01
4-Isopropyltoluene	ND	1.0		µg/L	1	10/15/01

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110066
Project: Bell Trading Post
Lab ID: 0110066-11

Client Sample ID: Field Blank
Collection Date: 10/10/01 9:50:00 AM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Methylene Chloride	ND	3.0		µg/L	1	10/15/01
n-Butylbenzene	ND	1.0		µg/L	1	10/15/01
n-Propylbenzene	ND	1.0		µg/L	1	10/15/01
sec-Butylbenzene	ND	1.0		µg/L	1	10/15/01
Styrene	ND	1.0		µg/L	1	10/15/01
tert-Butylbenzene	ND	1.0		µg/L	1	10/15/01
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/15/01
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/15/01
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	10/15/01
trans-1,2-DCE	ND	1.0		µg/L	1	10/15/01
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/15/01
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/15/01
Trichlorofluoromethane	ND	1.0		µg/L	1	10/15/01
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/15/01
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/15/01
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/15/01
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/15/01
Vinyl chloride	ND	2.0		µg/L	1	10/15/01
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/15/01
Xylenes, Total	ND	1.0		µg/L	1	10/15/01
Surr: 1,2-Dichloroethane-d4	91.6	74.6-123		%REC	1	10/15/01
Surr: 4-Bromofluorobenzene	101	85.6-117		%REC	1	10/15/01
Surr: Dibromofluoromethane	93.2	78.6-115		%REC	1	10/15/01
Surr: Toluene-d8	101	84.2-115		%REC	1	10/15/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SS-01/Surface
Lab Order:	0110066	**Collection Date:**	10/10/01 8:45:00 AM
Project:	Bell Trading Post		
Lab ID:	0110066-15	**Matrix:**	SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCBS BY 8082		**SW8080A**				Analyst: **IC**
Aroclor 1016	ND	0.50		mg/Kg	5	11/2/01
Aroclor 1221	ND	2.5		mg/Kg	5	11/2/01
Aroclor 1232	ND	0.50		mg/Kg	5	11/2/01
Aroclor 1242	ND	0.50		mg/Kg	5	11/2/01
Aroclor 1248	ND	0.50		mg/Kg	5	11/2/01
Aroclor 1254	ND	0.50		mg/Kg	5	11/2/01
Aroclor 1260	ND	0.50		mg/Kg	5	11/2/01
Surr: Decachlorobiphenyl	150	70-130	S	%REC	5	11/2/01
Surr: Tetrachloro-m-xylene	150	70-130	S	%REC	5	11/2/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

SVL ANALYTICAL, INC.
he Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: SB-01/WATER
Sample Collected: 10/10/01 8:25
Sample Receipt : 10/11/01
Date of Report : 10/24/01

SVL JOB: 99597
SAMPLE: 279933

Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Calcium	104	mg/L		200.7	10/17/01
Cyanide-TOT	<0.01	mg/L		335.4	10/19/01
Potassium	22.5	mg/L		200.7	10/17/01
Magnesium	18.2	mg/L		200.7	10/17/01
Sodium	67.3	mg/L		200.7	10/17/01
Silver	<0.005	mg/L		200.7	10/17/01
Arsenic	0.02	mg/L		200.7	10/17/01
Barium	0.523	mg/L		200.7	10/17/01
Cadmium	<0.002	mg/L		200.7	10/17/01
Chromium	0.027	mg/L		200.7	10/17/01
Copper	0.016	mg/L		200.7	10/17/01
Iron	25.1	mg/L		200.7	10/17/01
Mercury	<0.0002	mg/L		245.1	10/23/01
Manganese	1.30	mg/L		200.7	10/17/01
Lead	0.014	mg/L		200.7	10/17/01
Selenium	<0.01	mg/L		200.7	10/17/01
Zinc	0.059	mg/L		200.7	10/17/01

Reviewed By: Blake Johnson Date 10/24/01
10/24/01 12:35

VL ANALYTICAL, INC.
ne Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: SB-03/WATER
Sample Collected: 10/10/01 9:45
Sample Receipt : 10/11/01
Date of Report : 10/24/01

SVL JOB: 99597
SAMPLE: 279934

Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Calcium	160	mg/L		200.7	10/17/01
Cyanide-TOT	<0.01	mg/L		335.4	10/19/01
Potassium	22.5	mg/L		200.7	10/17/01
Magnesium	24.6	mg/L		200.7	10/17/01
Sodium	117	mg/L		200.7	10/17/01
Silver	<0.005	mg/L		200.7	10/17/01
Arsenic	<0.01	mg/L		200.7	10/17/01
Barium	0.583	mg/L		200.7	10/17/01
Cadmium	<0.002	mg/L		200.7	10/17/01
Chromium	0.057	mg/L		200.7	10/17/01
Copper	0.013	mg/L		200.7	10/17/01
Iron	27.3	mg/L		200.7	10/17/01
Mercury	<0.0002	mg/L		245.1	10/23/01
Manganese	2.42	mg/L		200.7	10/17/01
Lead	0.012	mg/L		200.7	10/17/01
Selenium	<0.01	mg/L		200.7	10/17/01
Zinc	0.054	mg/L		200.7	10/17/01

Reviewed By: Blake Johnson Date 10/24/01
10/24/01 12:35

VL ANALYTICAL, INC.
ne Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: EQUIPMENT RINSE-2
Sample Collected: 10/10/01 10:30
Sample Receipt : 10/11/01
Date of Report : 10/24/01

SVL JOB: 99597
SAMPLE: 279935

Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Calcium	0.05	mg/L		200.7	10/17/01
Cyanide-TOT	<0.01	mg/L		335.4	10/19/01
Potassium	<1.0	mg/L		200.7	10/17/01
Magnesium	<0.04	mg/L		200.7	10/17/01
Sodium	0.1	mg/L		200.7	10/17/01
Silver	<0.005	mg/L		200.7	10/17/01
Arsenic	<0.01	mg/L		200.7	10/17/01
Barium	<0.002	mg/L		200.7	10/17/01
Cadmium	<0.002	mg/L		200.7	10/17/01
Chromium	<0.006	mg/L		200.7	10/17/01
Copper	<0.003	mg/L		200.7	10/17/01
Iron	0.03	mg/L		200.7	10/17/01
Mercury	<0.0002	mg/L		245.1	10/23/01
Manganese	<0.002	mg/L		200.7	10/17/01
Lead	<0.005	mg/L		200.7	10/17/01
Selenium	<0.01	mg/L		200.7	10/17/01
Zinc	<0.005	mg/L		200.7	10/17/01

Reviewed By: Beabe Johnson Date 10/24/01
10/24/01 12:35

SVL ANALYTICAL, INC.
ne Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: SB-01/0'-2'
Sample Collected: 10/10/01 8:06
Sample Receipt : 10/11/01
Date of Report : 10/25/01 As Received Basis

SVL JOB: 99596
SAMPLE: 279929
% Solids: 93.2%
Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
Cyanide	<0.5	mg/kg		9012A	10/19/01
Silver	2.7	mg/kg		6010B	10/25/01
Arsenic	3.3	mg/kg		6010B	10/25/01
Barium	234	mg/kg		6010B	10/25/01
Cadmium	0.3	mg/kg		6010B	10/25/01
Chromium	7.0	mg/kg		6010B	10/25/01
Copper	10.5	mg/kg		6010B	10/25/01
Iron	8240	mg/kg		6010B	10/25/01
Mercury	<0.033	mg/kg		7471	10/22/01
Manganese	709	mg/kg		6010B	10/25/01
Lead	5.2	mg/kg		6010B	10/25/01
Selenium	<1.0	mg/kg		6010B	10/25/01
Zinc	25.5	mg/kg		6010B	10/25/01

Reviewed By: Blake Johnson Date 10/25/01
10/25/01 14:30

SVL ANALYTICAL, INC.
ne Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: SB-03/0'-2'
Sample Collected: 10/10/01 9:20
Sample Receipt : 10/11/01
Date of Report : 10/25/01 As Received Basis

SVL JOB: 99596
SAMPLE: 279930
% Solids: 92.8%
Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
Cyanide	2.05	mg/kg		9012A	10/19/01
Silver	0.7	mg/kg		6010B	10/25/01
Arsenic	2.0	mg/kg		6010B	10/25/01
Barium	133	mg/kg		6010B	10/25/01
Cadmium	0.3	mg/kg		6010B	10/25/01
Chromium	8.3	mg/kg		6010B	10/25/01
Copper	8.5	mg/kg		6010B	10/25/01
Iron	9570	mg/kg		6010B	10/25/01
Mercury	<0.033	mg/kg		7471	10/22/01
Manganese	427	mg/kg		6010B	10/25/01
Lead	7.7	mg/kg		6010B	10/25/01
Selenium	<1.0	mg/kg		6010B	10/25/01
Zinc	31.0	mg/kg		6010B	10/25/01

Reviewed By: Blake Johnson Date 10/25/01
10/25/01 14:30

'L ANALYTICAL, INC. Quality Control Report

Part I Prep Blank and Laboratory Control Sample

Client :Hall Environmental SVL JOB No. :99597

Analyte	Method	Matrix	Units	Prep Blank	True——LCS	——Found	LCS %R	Analysis Date
Silver	200.7	WATER	mg/L	<0.005	1.00	1.03	103.0	10/17/01
Arsenic	200.7	WATER	mg/L	<0.01	1.00	1.03	103.0	10/17/01
Barium	200.7	WATER	mg/L	<0.002	1.00	1.02	102.0	10/17/01
Calcium	200.7	WATER	mg/L	<0.04	20.0	20.6	103.0	10/17/01
Cadmium	200.7	WATER	mg/L	<0.002	1.00	1.00	100.0	10/17/01
Chromium	200.7	WATER	mg/L	<0.006	1.00	1.03	103.0	10/17/01
Copper	200.7	WATER	mg/L	<0.003	1.00	1.01	101.0	10/17/01
Iron	200.7	WATER	mg/L	<0.02	10.0	10.2	102.0	10/17/01
Potassium	200.7	WATER	mg/L	<1.0	30.0	30.5	101.7	10/17/01
Magnesium	200.7	WATER	mg/L	<0.04	20.0	20.7	103.5	10/17/01
Manganese	200.7	WATER	mg/L	<0.002	1.00	1.01	101.0	10/17/01
Sodium	200.7	WATER	mg/L	<0.1	20.0	20.2	101.0	10/17/01
Lead	200.7	WATER	mg/L	<0.005	1.00	1.00	100.0	10/17/01
Selenium	200.7	WATER	mg/L	<0.01	1.00	1.01	101.0	10/17/01
Zinc	200.7	WATER	mg/L	<0.005	1.00	1.00	100.0	10/17/01
Mercury	245.1	WATER	mg/L	<0.0002	0.0050	0.0049	98.0	10/23/01
Cyanide-TOT	335.4	WATER	mg/L	<0.01	0.15	0.15	100.0	10/19/01

EGEND:

LCS = Laboratory Control Sample LCS %R = LCS Percent Recovery N/A = Not Applicable

VL ANALYTICAL, INC.

Quality Control Report

Part I Prep Blank and Laboratory Control Sample

Client :Hall Environmental

SVL JOB No. :99596

Analyte	Method	Matrix	Units	Prep Blank	True—LCS—Found		LCS %R	Analysis Date
Silver	6010B	SOIL	mg/kg	<0.5	184	195	106.0	10/25/01
Arsenic	6010B	SOIL	mg/kg	<1.0	170	169	99.4	10/25/01
Barium	6010B	SOIL	mg/kg	<0.2	151	159	105.3	10/25/01
Cadmium	6010B	SOIL	mg/kg	<0.2	184	187	101.6	10/25/01
Chromium	6010B	SOIL	mg/kg	<0.6	111	114	102.7	10/25/01
Copper	6010B	SOIL	mg/kg	<0.3	86.0	86.0	100.0	10/25/01
Iron	6010B	SOIL	mg/kg	<2.0	11100	12200	109.9	10/25/01
Manganese	6010B	SOIL	mg/kg	<0.2	359	359	100.0	10/25/01
Lead	6010B	SOIL	mg/kg	<0.5	106	103	97.2	10/25/01
Selenium	6010B	SOIL	mg/kg	<1.0	85.7	78.1	91.1	10/25/01
Zinc	6010B	SOIL	mg/kg	<0.5	371	388	104.6	10/25/01
Mercury	7471	SOIL	mg/kg	<0.033	29.6	37.6	127.0	10/22/01
Cyanide	9012A	SOIL	mg/kg	<0.5	5.60	6.10	108.9	10/19/01

EGEND:

LCS = Laboratory Control Sample LCS %R = LCS Percent Recovery N/A = Not Applicable

'L ANALYTICAL, INC. Quality Control Report

Part II Duplicate and Spike Analysis

lient :Hall Environmental SVL JOB No :99597

est	Method	Matrix	QC SAMPLE ID Units	Result	Duplicate or MSD Found	RPD%	Matrix Spike Result	SPK ADD	%R	Analysis Date
	200.7	WATER	1 mg/L	<0.005	<0.005	UDL	1.04	1.00	104.0	10/17/01
	200.7	WATER	1 mg/L	0.02	0.02	0.0	1.08	1.00	106.0	10/17/01
	200.7	WATER	1 mg/L	0.523	0.526	0.6	1.56	1.00	103.7	10/17/01
	200.7	WATER	1 mg/L	104	105	1.0	128	20.0	120.0	10/17/01
	200.7	WATER	1 mg/L	<0.002	<0.002	UDL	1.02	1.00	102.0	10/17/01
	200.7	WATER	1 mg/L	0.027	0.027	0.0	1.05	1.00	102.3	10/17/01
	200.7	WATER	1 mg/L	0.016	0.016	0.0	1.04	1.00	102.4	10/17/01
	200.7	WATER	1 mg/L	25.1	24.3	3.2	34.5	10.0	94.0	10/17/01
	200.7	WATER	1 mg/L	22.5	22.7	0.9	55.4	30.0	109.7	10/17/01
	200.7	WATER	1 mg/L	18.2	18.2	0.0	39.7	20.0	107.5	10/17/01
	200.7	WATER	1 mg/L	1.30	1.31	0.8	2.36	1.00	106.0	10/17/01
	200.7	WATER	1 mg/L	67.3	67.8	0.7	89.5	20.0	111.0	10/17/01
	200.7	WATER	1 mg/L	0.014	0.013	7.4	0.998	1.00	98.4	10/17/01
	200.7	WATER	1 mg/L	<0.01	<0.01	UDL	1.03	1.00	103.0	10/17/01
	200.7	WATER	1 mg/L	0.059	0.058	1.7	1.09	1.00	103.1	10/17/01
	245.1	WATER	1 mg/L	<0.0002	<0.0002	UDL	0.0012	0.0010	120.0	10/23/01
	335.4	WATER	1 mg/L	<0.01	<0.01	UDL	0.11	0.104	105.8	10/19/01

EGEND:

D% = (¦SAM - DUP¦/((SAM + DUP)/2) * 100) UDL = Both SAM & DUP not detected. *Result or *Found: Interference reqired dilution.

D% = (¦SPK - MSD¦/((SPK + MSD)/2) * 100) M in Duplicate/MSD column indicates MSD.

IKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added

C Sample 1: SVL SAM No.: 279933 Client Sample ID: SB-01/WATER

/L ANALYTICAL, INC. Quality Control Report

Part II Duplicate and Spike Analysis

lient :Hall Environmental SVL JOB No :99596

est	Method	Matrix	QC SAMPLE ID Units	Result	Duplicate or MSD Found		RPD%	Matrix Spike Result	SPK ADD		%R	Analysis Date
	6010B	SOIL	1 mg/kg	2.7	114	M	0.9	115	100		112.3	10/25/01
	6010B	SOIL	1 mg/kg	3.3	99.0	M	2.5	96.6	100		93.3	10/25/01
	6010B	SOIL	1 mg/kg	234	312	M	2.3	305	100		71.0	10/25/01
	6010B	SOIL	1 mg/kg	234	N/A		N/A	325	100	A	91.0	10/25/01
	6010B	SOIL	1 mg/kg	0.3	92.0	M	2.4	89.8	100		89.5	10/25/01
	6010B	SOIL	1 mg/kg	7.0	106	M	2.9	103	100		96.0	10/25/01
	6010B	SOIL	1 mg/kg	10.5	108	M	1.9	106	100		95.5	10/25/01
	6010B	SOIL	1 mg/kg	8240	10100	M	5.0	9610	1000		R >4S	10/25/01
	6010B	SOIL	1 mg/kg	709	540	M	6.7	505	100		R >4S	10/25/01
	6010B	SOIL	1 mg/kg	5.2	94.7	M	1.7	93.1	100		87.9	10/25/01
	6010B	SOIL	1 mg/kg	<1.0	93.9	M	1.9	92.1	100		92.1	10/25/01
	6010B	SOIL	1 mg/kg	25.5	120	M	3.4	116	100		90.5	10/25/01
	7471	SOIL	1 mg/kg	<0.033	<0.033		UDL	0.179	0.167		107.2	10/22/01
	9012A	SOIL	1 mg/kg	<0.5	<0.5		UDL	5.00	5.00		100.0	10/19/01
Sol.	999	SOIL	1 %	93.2	93.1		0.1	N/A	N/A		N/A	10/23/01

EGEND:

D% = (|SAM - DUP|/((SAM + DUP)/2) * 100) UDL = Both SAM & DUP not detected. *Result or *Found: Interference reqired dilution.

D% = (|SPK - MSD|/((SPK + MSD)/2) * 100) M in Duplicate/MSD column indicates MSD.

PIKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added

C Sample 1: SVL SAM No.: 279929 Client Sample ID: SB-01/0'-2'

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Sample ID: **MBLK** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:

Client ID: Run ID: **WC_011010D** SeqNo: **50776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									
Chloride	ND	0.10									
Nitrogen, Nitrite (As N)	ND	0.10									
Nitrogen, Nitrate (As N)	ND	0.10									
Phosphorus, Orthophosphate (As P)	ND	0.50									
Sulfate	ND	0.50									

Sample ID: **MBLK** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:

Client ID: Run ID: **WC_011026C** SeqNo: **53647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									
Chloride	ND	0.10									
Nitrogen, Nitrite (As N)	ND	0.10									
Nitrogen, Nitrate (As N)	ND	0.10									
Phosphorus, Orthophosphate (As P)	ND	0.50									
Sulfate	ND	0.50									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Sample ID: **MB-1090** Batch ID: **1090** Test Code: **SW8080A** Units: **mg/Kg** Analysis Date: **11/3/01** Prep Date: **10/22/01**

Client ID: Run ID: **ECD(17A)_011102A** SeqNo: **55092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.010									
Aroclor 1221	ND	0.050									
Aroclor 1232	ND	0.010									
Aroclor 1242	ND	0.010									
Aroclor 1248	ND	0.010									
Aroclor 1254	ND	0.010									
Aroclor 1260	ND	0.010									
Surr: Decachlorobiphenyl	90.44	0	100	0	90.4	70	130	0			
Surr: Tetrachloro-m-xylene	83.23	0	100	0	83.2	70	130	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Sample ID: **5ml rb-b** Batch ID: **R2391** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/11/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011010B** SeqNo: **50979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	ND	1.0									
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	ND	4.0									
2-Methylnaphthalene	ND	4.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	2.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

1,2-Dichlorobenzene	ND	1.0	
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
Dichlorodifluoromethane	ND	1.0	
1,1-Dichloroethane	ND	1.0	
1,1-Dichloroethene	ND	1.0	
1,2-Dichloropropane	ND	1.0	
1,3-Dichloropropane	ND	1.0	
2,2-Dichloropropane	ND	1.0	
1,1-Dichloropropene	ND	1.0	
Hexachlorobutadiene	ND	1.0	
Isopropylbenzene	ND	1.0	
4-Isopropyltoluene	ND	1.0	
Methylene Chloride	0.278	3.0	J
n-Butylbenzene	ND	1.0	
n-Propylbenzene	ND	1.0	
sec-Butylbenzene	ND	1.0	
Styrene	ND	1.0	
tert-Butylbenzene	ND	1.0	
Tetrachloroethene (PCE)	ND	1.0	
1,1,1,2-Tetrachloroethane	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
trans-1,2-DCE	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
Trichloroethene (TCE)	ND	1.0	
Trichlorofluoromethane	ND	1.0	
1,2,3-Trichlorobenzene	ND	1.0	
1,2,4-Trichlorobenzene	ND	1.0	
1,1,1-Trichloroethane	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Vinyl chloride	ND	2.0	
1,2,3-Trichloropropane	ND	2.0	
Xylenes, Total	ND	1.0	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Surr: 1,2-Dichloroethane-d4	9.078	0	10	0	90.8	74.6	123	0
Surr: 4-Bromofluorobenzene	10.19	0	10	0	102	85.6	117	0
Surr: Dibromofluoromethane	9.606	0	10	0	96.1	78.6	115	0
Surr: Toluene-d8	10.36	0	10	0	104	84.2	115	0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT
Method Blank

Sample ID: **5ml rb-a** Batch ID: **R2406** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/12/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011012A** SeqNo: **51255**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	ND	1.0									
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	ND	4.0									
2-Methylnaphthalene	ND	4.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	2.0									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

1,2-Dichlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
Dichlorodifluoromethane	ND	1.0
1,1-Dichloroethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
1,3-Dichloropropane	ND	1.0
2,2-Dichloropropane	ND	1.0
1,1-Dichloropropene	ND	1.0
Hexachlorobutadiene	ND	1.0
Isopropylbenzene	ND	1.0
4-Isopropyltoluene	ND	1.0
Methylene Chloride	ND	3.0
n-Butylbenzene	ND	1.0
n-Propylbenzene	ND	1.0
sec-Butylbenzene	ND	1.0
Styrene	ND	1.0
tert-Butylbenzene	ND	1.0
Tetrachloroethene (PCE)	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
trans-1,2-DCE	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Trichloroethene (TCE)	ND	1.0
Trichlorofluoromethane	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0
1,1,1-Trichloroethane	ND	1.0
1,1,2-Trichloroethane	ND	1.0
Vinyl chloride	ND	2.0
1,2,3-Trichloropropane	ND	2.0
Xylenes, Total	ND	1.0

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Surr: 1,2-Dichloroethane-d4	8.902	0	10	0	89.0	74.6	123	0
Surr: 4-Bromofluorobenzene	10.11	0	10	0	101	85.6	117	0
Surr: Dibromofluoromethane	9.236	0	10	0	92.4	78.6	115	0
Surr: Toluene-d8	9.884	0	10	0	98.8	84.2	115	0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Sample ID: **5ml rb** Batch ID: **R2412** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/15/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011015A** SeqNo: **51474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	ND	1.0									
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	ND	4.0									
2-Methylnaphthalene	ND	4.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	2.0									

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

1,2-Dichlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
Dichlorodifluoromethane	ND	1.0
1,1-Dichloroethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
1,3-Dichloropropane	ND	1.0
2,2-Dichloropropane	ND	1.0
1,1-Dichloropropene	ND	1.0
Hexachlorobutadiene	ND	1.0
Isopropylbenzene	ND	1.0
4-Isopropyltoluene	ND	1.0
Methylene Chloride	ND	3.0
n-Butylbenzene	ND	1.0
n-Propylbenzene	ND	1.0
sec-Butylbenzene	ND	1.0
Styrene	ND	1.0
tert-Butylbenzene	ND	1.0
Tetrachloroethene (PCE)	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
trans-1,2-DCE	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Trichloroethene (TCE)	ND	1.0
Trichlorofluoromethane	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0
1,1,1-Trichloroethane	ND	1.0
1,1,2-Trichloroethane	ND	1.0
Vinyl chloride	ND	2.0
1,2,3-Trichloropropane	ND	2.0
Xylenes, Total	ND	1.0

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Surr: 1,2-Dichloroethane-d4	9.328	0	10	0	93.3	74.6	123	0
Surr: 4-Bromofluorobenzene	10.48	0	10	0	105	85.6	117	0
Surr: Dibromofluoromethane	9.742	0	10	0	97.4	78.6	115	0
Surr: Toluene-d8	10.49	0	10	0	105	84.2	115	0

Sample ID: **MBLK** Batch ID: **R2528** Test Code: **E350.2** Units: **mg/L** Analysis Date: **10/30/01** Prep Date:

Client ID: Run ID: **WC_011030E** SeqNo: **54082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	ND	0.050									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0110064-15B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.868	0.10	0	0	0	0	0	0.886	2.05	15	
Nitrogen, Nitrite (As N)	ND	0.10	0	0	0	0	0	0	0	15	
Nitrogen, Nitrate (As N)	ND	0.10	0	0	0	0	0	0	0	15	
Phosphorus, Orthophosphate (As P)	ND	0.50	0	0	0	0	0	0	0	15	

Sample ID: **0109136-01B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	128.4	5.0	0	0	0	0	0	128	0.349	15	

Sample ID: **0109136-11B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	72.44	2.5	0	0	0	0	0	72.85	0.564	15	

Sample ID: **0109136-21B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50807**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	315.6	10	0	0	0	0	0	314.4	0.363	15	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0110066-07B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: **SB-01/Water** Run ID: **WC_011010D** SeqNo: **51122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.641	0.10	0	0	0	0	0	0.665	3.68	15	
Chloride	31.93	0.10	0	0	0	0	0	31.75	0.540	15	
Nitrogen, Nitrite (As N)	ND	0.10	0	0	0	0	0	0	0	15	
Nitrogen, Nitrate (As N)	ND	0.10	0	0	0	0	0	0	0	15	
Phosphorus, Orthophosphate (As P)	ND	0.50	0	0	0	0	0	0	0	15	

Sample ID: **0110116-01A** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.176	0.10	0	0	0	0	0	0.178	1.13	15	
Chloride	1.234	0.10	0	0	0	0	0	1.246	0.968	15	
Sulfate	23.76	0.50	0	0	0	0	0	23.42	1.44	15	

Sample ID: **0110117-01B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.261	0.10	0	0	0	0	0	0.268	2.65	15	
Chloride	3.697	0.10	0	0	0	0	0	3.724	0.728	15	
Sulfate	19.73	0.50	0	0	0	0	0	19.66	0.381	15	

Sample ID: **0110042-01C** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.674	1.0	0	0	0	0	0	1.737	3.69	15	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0110108-04B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	939.8	25	0	0	0	0	0	942.4	0.280	15	

Sample ID: **0110086-10B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53969**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	175.1	5.0	0	0	0	0	0	175.7	0.380	15	

Sample ID: **0110151-01B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53990**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	959.6	25	0	0	0	0	0	953.8	0.604	15	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0110066-02a dup** Batch ID: **R2391** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/11/01** Prep Date:
Client ID: **SB-03/Soil Gas** Run ID: **NEPTUNE_011010B** SeqNo: **51018**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene	ND	0.10	0	0	0	0	0	0	0	20	
Trichloroethene	3.283	0.10	0	0	0	0	0	3.378	2.85	20	E
Benzene	ND	0.10	0	0	0	0	0	0	0	20	
Toluene	0.0254	0.10	0	0	0	0	0	0.0262	0	20	J
Ethylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
Methyl tert-butyl ether (MTBE)	ND	0.10	0	0	0	0	0	0	0	20	
1,2,4-Trimethylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,3,5-Trimethylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,2-Dichloroethane (EDC)	ND	0.10	0	0	0	0	0	0	0	20	
1,2-Dibromoethane (EDB)	ND	0.10	0	0	0	0	0	0	0	20	
Naphthalene	ND	0.20	0	0	0	0	0	0	0	20	
1-Methylnaphthalene	ND	0.40	0	0	0	0	0	0	0	20	
2-Methylnaphthalene	ND	0.40	0	0	0	0	0	0	0	20	
Bromobenzene	ND	0.10	0	0	0	0	0	0	0	20	
Bromochloromethane	ND	0.10	0	0	0	0	0	0	0	20	
Bromodichloromethane	ND	0.10	0	0	0	0	0	0	0	20	
Bromoform	ND	0.10	0	0	0	0	0	0	0	20	
Bromomethane	ND	0.10	0	0	0	0	0	0	0	20	
Carbon tetrachloride	ND	0.10	0	0	0	0	0	0	0	20	
Chlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
Chloroethane	ND	0.20	0	0	0	0	0	0	0	20	
Chloroform	ND	0.10	0	0	0	0	0	0	0	20	
Chloromethane	ND	0.10	0	0	0	0	0	0	0	20	
cis-1,2-Dichloroethene	ND	0.10	0	0	0	0	0	0	0	20	
2-Chlorotoluene	ND	0.10	0	0	0	0	0	0	0	20	
4-Chlorotoluene	ND	0.10	0	0	0	0	0	0	0	20	
cis-1,3-Dichloropropene	ND	0.10	0	0	0	0	0	0	0	20	
Dibromochloromethane	ND	0.10	0	0	0	0	0	0	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank
J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

1,2-Dibromo-3-chloropropane	ND	0.20	0	0	0	0	0	0	0	20	
Dibromomethane	ND	0.20	0	0	0	0	0	0	0	20	
Dichlorodifluoromethane	ND	0.10	0	0	0	0	0	0	0	20	
1,2-Dichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,3-Dichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,4-Dichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,1-Dichloroethane	ND	0.10	0	0	0	0	0	0	0	20	
1,1-Dichloroethene	ND	0.10	0	0	0	0	0	0	0	20	
1,2-Dichloropropane	ND	0.10	0	0	0	0	0	0	0	20	
1,3-Dichloropropane	ND	0.10	0	0	0	0	0	0	0	20	
2,2-Dichloropropane	ND	0.10	0	0	0	0	0	0	0	20	
1,1-Dichloropropene	ND	0.10	0	0	0	0	0	0	0	20	
Hexachlorobutadiene	ND	0.10	0	0	0	0	0	0	0	20	
Isopropylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
Methylene chloride	0.0518	0.30	0	0	0	0	0	0.0392	0	20	J
4-Isopropyltoluene	ND	0.10	0	0	0	0	0	0	0	20	
n-Butylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
n-Propylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
sec-Butylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
Styrene	ND	0.10	0	0	0	0	0	0	0	20	
tert-Butylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,1,1,2-Tetrachloroethane	ND	0.10	0	0	0	0	0	0	0	20	
trans-1,2-Dichloroethene	ND	0.10	0	0	0	0	0	0	0	20	
1,1,2,2-Tetrachloroethane	ND	0.10	0	0	0	0	0	0	0	20	
trans-1,3-Dichloropropene	ND	0.10	0	0	0	0	0	0	0	20	
Trichlorofluoromethane	ND	0.10	0	0	0	0	0	0	0	20	
Vinyl chloride	ND	0.20	0	0	0	0	0	0	0	20	
1,2,3-Trichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,2,4-Trichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,1,1-Trichloroethane	ND	0.10	0	0	0	0	0	0	0	20	
1,1,2-Trichloroethane	ND	0.10	0	0	0	0	0	0	0	20	
1,2,3-Trichloropropane	ND	0.20	0	0	0	0	0	0	0	20	
Xylenes, Total	ND	0.10	0	0	0	0	0	0	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

Surr: 4-Bromofluorobenzene	1.028	0	1	0	103	87.2	119	1.027	0.0973	20
Surr: Dibromofluoromethane	0.9372	0	1	0	93.7	75.7	113	0.954	1.78	20
Surr: Toluene-d8	1.006	0	1	0	101	88.8	113	1.01	0.476	20

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *06-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0109136-01B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50783**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	137.3	5.0	10	128	92.9	30	150	0			

Sample ID: **0109136-11B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	82.76	2.5	10	72.85	99.1	30	150	0			

Sample ID: **0110066-07B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: **SB-01/Water** Run ID: **WC_011010D** SeqNo: **51123**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.078	0.10	2	0.665	70.7	30	150	0			
Chloride	35.66	0.10	4	31.75	97.7	30	150	0			
Nitrogen, Nitrite (As N)	1.755	0.10	2	0	87.8	30	150	0			
Nitrogen, Nitrate (As N)	5.676	0.10	6	0	94.6	30	150	0			
Phosphorus, Orthophosphate (As P)	3.807	0.50	4	0	95.2	30	150	0			

Sample ID: **0110116-01A** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.627	0.10	1.5	0.178	96.6	30	150	0			
Chloride	5.801	0.10	6	1.246	75.9	30	150	0			
Sulfate	32.82	0.50	10	23.42	94.1	30	150	0			

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0110117-01B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.771	0.10	1.5	0.268	100	30	150	0			
Chloride	7.95	0.10	6	3.724	70.4	30	150	0			
Sulfate	29.67	0.50	10	19.66	100	30	150	0			

Sample ID: **0110042-01C** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	3.071	1.0	1.5	1.737	88.9	30	150	0			

Sample ID: **0110108-04B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	952.7	25	10	942.4	103	30	150	0			

Sample ID: **0110066-07B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: **SB-01/Water** Run ID: **WC_011026C** SeqNo: **53700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	121.7	2.5	10	0	1220	30	150	0			S

Sample ID: **0110086-10B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53970**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	186.8	5.0	10	175.7	111	30	150	0			

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0110151-01B** Batch ID: **R2503** Test Code: **E300** Units: **mg/L** Analysis Date: **10/26/01** Prep Date:
Client ID: Run ID: **WC_011026C** SeqNo: **53991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	965.1	25	10	953.8	113	30	150	0			

Sample ID: **0110073-01a ms** Batch ID: **R2391** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/11/01** Prep Date:
Client ID: Run ID: **NEPTUNE_011010B** SeqNo: **50981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	22.09	1.0	20	1.164	105	85.3	120	0			
Toluene	21.55	1.0	20	0	108	73	123	0			
Chlorobenzene	21.42	1.0	20	0	107	84.7	119	0			
1,1-Dichloroethene	18.84	1.0	20	0	94.2	83.4	122	0			
Trichloroethene (TCE)	21.59	1.0	20	0.8	104	76.1	126	0			
Surr: 1,2-Dichloroethane-d4	32.3	0	30	0	108	81.5	125	0			
Surr: 4-Bromofluorobenzene	34.55	0	30	0	115	85.6	117	0			
Surr: Dibromofluoromethane	31.9	0	30	0	106	84.2	117	0			
Surr: Toluene-d8	33.34	0	30	0	111	89.4	116	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110066
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0110069-01a ms** Batch ID: **R2406** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/13/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011012A** SeqNo: **51257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.4	1.0	20	0	107	85.3	120	0			
Toluene	20.45	1.0	20	0	102	73	123	0			
Chlorobenzene	20.28	1.0	20	0	101	84.7	119	0			
1,1-Dichloroethene	19.57	1.0	20	0	97.9	83.4	122	0			
Trichloroethene (TCE)	20.69	1.0	20	0	103	76.1	126	0			
Surr: 1,2-Dichloroethane-d4	28.75	0	30	0	95.8	81.5	125	0			
Surr: 4-Bromofluorobenzene	31.68	0	30	0	106	85.6	117	0			
Surr: Dibromofluoromethane	29.61	0	30	0	98.7	84.2	117	0			
Surr: Toluene-d8	30.25	0	30	0	101	89.4	116	0			

Sample ID: **0110066-10B** Batch ID: **R2528** Test Code: **E350.2** Units: **mg/L** Analysis Date: **10/30/01** Prep Date:

Client ID: **SB-03/Water** Run ID: **WC_011030E** SeqNo: **54085**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	10.92	0.050	10	0	109	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: DUKE ENGINEERING & SERVICES

Address: 6501 AMERICA'S PARKWAY NE #810
ALBUQUERQUE, NM 87110

Phone #: (505) 246-1600 EXT. 219
Fax #: (505) 246-2600

Project Name: BELL TRADING POST

Project #: 00736.00.0004.02.00011

Project Manager: JOE TRACY

Sampler: JOE TRACY

Samples Cold?: ☐ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative HgCl2	Preservative HCl	Preservative V/A	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)			Air Bubbles or Headspace (Y or N)
10/10/01	0810	Soil Gas	SB-01/Soil Gas	1			X	01100066-1													X				
	0928	Soil Gas	SB-03/Soil Gas	1			X	-2													X				

ANALYSIS REQUEST

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
10/10/01	1207	[signature]	[signature] 10-10-01
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature) 1200

Remarks:

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: DUKE ENG. & SERVICES

Address: 6501 AMERICAS PARKWAY NE #810
ALBUQUERQUE NM 87110

Phone #: (505) 246-1600 EXT. 219
Fax #: (505) 246-2600

Project Name: BELL TRADING POST
Project #: 00736.00.0004.02.00011
Project Manager: JOE TRACY
Sampler: JOE TRACY
Samples Cold?: ☐ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative HgCl2	Preservative HCl	Preservative N/A	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)	GEOTECHNICAL PROP. BULK DENSITY, POROSITY	VOL. WATER CONTENT/MOISTURE CONTENT, FRACTIONAL ORGANIC	Air Bubbles or Headspace (Y or N)
10/9/01	0939	SOIL	SB-07/2'-4'	3/4 oz			X	0100066-3															X		
	1500		SB-04/2'-4'				X	-4															X		
	1108		SB-10/0-2'				X	-5															X		
	✓		GEOTECH DUP-1				X	-6															X		

HOLD

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
10/10/01	1208	[signature]	[signature] 10-10-01 1202
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks: HOLD ALL SAMPLES

BOND SIEVE ANALYSIS

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Duke Eng & Services

Address: 6501 Americas Parkway NE #810, Albuquerque, NM 87110

Phone #: (505) 246-1600 Ext. 219

Fax #: (505) 246-2600

Project Name: Bell Trading Post

Project #: 00736.00.0004.02.00011

Project Manager: Joe Tracy

Sampler: Joe Tracy

Samples Cold?: ☐ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative N/A	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg) + pH, NH_3	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)	Cyanide 335.4	*NMWQCC Metals 6010/7471	Air Bubbles or Headspace (Y or N)
10/10/01	0825	Water	SB-01/Water	7	3	0	1	0110066-7										X	X		X		X	X	
	0806	Soil	SB-01/0-2'	2			2	-8															X	X	
	0808	Soil	SB-01/2'-4'	2			2	-9															X	X	
	0945	Water	SB-03/Water	7	3	0	1	-10										X	X		X		X	X	
	0950	Water	Field Blank	3	3			-11													X				
	1030	Water	Eq. Rinse-2	2			#	-12															X	X	
	0920	Soil	SB-03/0-2'	2			2	-13															X	X	
	0922	Soil	SB-03/2'-4'	2			2	-14															X	X	
10/10/01	0845	Soil	SS-01/Surface	2			2	-15												X					

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
10/10/01	1206	[signature]	[signature] 10-10-01
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature) 1200

Remarks: *NMWQCC Metals – As, Ba, Hg, Se, Ag, Cd, Cr, Pb, Cu, Fe, Mn, Zn

Please Hold Samples SB-01/2'-4' & SB-03/2'-4' & SS-01

Hall Environmental Analysis Laboratory

COVER LETTER

November 02, 2001

Joe Tracy
Duke Engineering & Services
One Park Center
6501 Americas Pkwy., NE Ste. 810
Albuquerque, NM 87110
TEL: (505) 246-1600
FAX (505) 246-2600

RE: Bell Trading Post Order No.: 0110064

Dear Joe Tracy:

Hall Environmental Analysis Laboratory received 38 samples on 10/9/01 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-15

Client Sample ID: SB-12 Water
Collection Date: 10/9/01 12:40:00 PM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ANIONS BY 300.0		**E300**				Analyst: **DJB**
Fluoride	0.89	0.10		mg/L	1	10/10/01
Chloride	57	1.0		mg/L	10	10/11/01
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	10/10/01
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	10/10/01
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	10/10/01
Sulfate	180	5.0		mg/L	10	10/11/01
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	10/12/01
Toluene	ND	1.0		µg/L	1	10/12/01
Ethylbenzene	ND	1.0		µg/L	1	10/12/01
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/12/01
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/12/01
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/12/01
Naphthalene	ND	2.0		µg/L	1	10/12/01
1-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
2-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
Bromobenzene	ND	1.0		µg/L	1	10/12/01
Bromochloromethane	ND	1.0		µg/L	1	10/12/01
Bromodichloromethane	ND	1.0		µg/L	1	10/12/01
Bromoform	ND	1.0		µg/L	1	10/12/01
Bromomethane	ND	1.0		µg/L	1	10/12/01
Carbon Tetrachloride	ND	1.0		µg/L	1	10/12/01
Chlorobenzene	ND	1.0		µg/L	1	10/12/01
Chloroethane	ND	2.0		µg/L	1	10/12/01
Chloroform	ND	1.0		µg/L	1	10/12/01
Chloromethane	ND	1.0		µg/L	1	10/12/01
2-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
4-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
cis-1,2-DCE	ND	1.0		µg/L	1	10/12/01
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/12/01
Dibromochloromethane	ND	1.0		µg/L	1	10/12/01
Dibromomethane	ND	2.0		µg/L	1	10/12/01
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloroethane	ND	1.0		µg/L	1	10/12/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-15

Client Sample ID: SB-12 Water
Collection Date: 10/9/01 12:40:00 PM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1,1-Dichloroethene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,3-Dichloropropane	ND	1.0		µg/L	1	10/12/01
2,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Hexachlorobutadiene	ND	1.0		µg/L	1	10/12/01
Isopropylbenzene	ND	1.0		µg/L	1	10/12/01
4-Isopropyltoluene	ND	1.0		µg/L	1	10/12/01
Methylene Chloride	ND	3.0		µg/L	1	10/12/01
n-Butylbenzene	ND	1.0		µg/L	1	10/12/01
n-Propylbenzene	ND	1.0		µg/L	1	10/12/01
sec-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Styrene	ND	1.0		µg/L	1	10/12/01
tert-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/12/01
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
trans-1,2-DCE	ND	1.0		µg/L	1	10/12/01
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Trichloroethene (TCE)	1.5	1.0		µg/L	1	10/12/01
Trichlorofluoromethane	ND	1.0		µg/L	1	10/12/01
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/12/01
Vinyl chloride	ND	2.0		µg/L	1	10/12/01
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/12/01
Xylenes, Total	ND	1.0		µg/L	1	10/12/01
Surr: 1,2-Dichloroethane-d4	86.9	74.6-123		%REC	1	10/12/01
Surr: 4-Bromofluorobenzene	103	85.6-117		%REC	1	10/12/01
Surr: Dibromofluoromethane	96.5	78.6-115		%REC	1	10/12/01
Surr: Toluene-d8	101	84.2-115		%REC	1	10/12/01
AMMONIA AS N		**E350.2**				Analyst: **HVA**
Nitrogen, Ammonia	0.84	0.050		mg/L	1	10/18/01
PH BY 150.1		**E150.1**				Analyst: **HVA**
pH	7.20	0.010		pH units	1	10/16/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	Water Dup 1
Lab Order:	0110064	**Collection Date:**	10/9/01
Project:	Bell Trading Post		
Lab ID:	0110064-16	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ANIONS BY 300.0		**E300**				Analyst: **DJB**
Fluoride	0.80	0.10		mg/L	1	10/10/01
Chloride	54	1.0		mg/L	10	10/11/01
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	10/10/01
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	10/10/01
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	10/10/01
Sulfate	170	5.0		mg/L	10	10/11/01
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	10/12/01
Toluene	ND	1.0		µg/L	1	10/12/01
Ethylbenzene	ND	1.0		µg/L	1	10/12/01
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/12/01
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/12/01
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/12/01
Naphthalene	ND	2.0		µg/L	1	10/12/01
1-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
2-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
Bromobenzene	ND	1.0		µg/L	1	10/12/01
Bromochloromethane	ND	1.0		µg/L	1	10/12/01
Bromodichloromethane	ND	1.0		µg/L	1	10/12/01
Bromoform	ND	1.0		µg/L	1	10/12/01
Bromomethane	ND	1.0		µg/L	1	10/12/01
Carbon Tetrachloride	ND	1.0		µg/L	1	10/12/01
Chlorobenzene	ND	1.0		µg/L	1	10/12/01
Chloroethane	ND	2.0		µg/L	1	10/12/01
Chloroform	ND	1.0		µg/L	1	10/12/01
Chloromethane	ND	1.0		µg/L	1	10/12/01
2-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
4-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
cis-1,2-DCE	ND	1.0		µg/L	1	10/12/01
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/12/01
Dibromochloromethane	ND	1.0		µg/L	1	10/12/01
Dibromomethane	ND	2.0		µg/L	1	10/12/01
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloroethane	ND	1.0		µg/L	1	10/12/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Client Sample ID: Water Dup 1
Lab Order: 0110064
Collection Date: 10/9/01
Project: Bell Trading Post
Lab ID: 0110064-16
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1,1-Dichloroethene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,3-Dichloropropane	ND	1.0		µg/L	1	10/12/01
2,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Hexachlorobutadiene	ND	1.0		µg/L	1	10/12/01
Isopropylbenzene	ND	1.0		µg/L	1	10/12/01
4-Isopropyltoluene	ND	1.0		µg/L	1	10/12/01
Methylene Chloride	ND	3.0		µg/L	1	10/12/01
n-Butylbenzene	ND	1.0		µg/L	1	10/12/01
n-Propylbenzene	ND	1.0		µg/L	1	10/12/01
sec-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Styrene	ND	1.0		µg/L	1	10/12/01
tert-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/12/01
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
trans-1,2-DCE	ND	1.0		µg/L	1	10/12/01
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Trichloroethene (TCE)	1.5	1.0		µg/L	1	10/12/01
Trichlorofluoromethane	ND	1.0		µg/L	1	10/12/01
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/12/01
Vinyl chloride	ND	2.0		µg/L	1	10/12/01
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/12/01
Xylenes, Total	ND	1.0		µg/L	1	10/12/01
Surr: 1,2-Dichloroethane-d4	90.6	74.6-123		%REC	1	10/12/01
Surr: 4-Bromofluorobenzene	104	85.6-117		%REC	1	10/12/01
Surr: Dibromofluoromethane	97.2	78.6-115		%REC	1	10/12/01
Surr: Toluene-d8	101	84.2-115		%REC	1	10/12/01
AMMONIA AS N		**E350.2**				Analyst: **HVA**
Nitrogen, Ammonia	0.80	0.050		mg/L	1	10/18/01
PH BY 150.1		**E150.1**				Analyst: **HVA**
pH	7.13	0.010		pH units	1	10/16/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-04/Water
Lab Order:	0110064	**Collection Date:**	10/9/01 3:25:00 PM
Project:	Bell Trading Post		
Lab ID:	0110064-25	**Matrix:**	AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
ANIONS BY 300.0		**E300**				Analyst: **DJB**
Fluoride	0.80	0.10		mg/L	1	10/10/01
Chloride	36	0.10		mg/L	1	10/10/01
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	10/10/01
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	10/10/01
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	10/10/01
Sulfate	100	2.5		mg/L	5	10/11/01
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	10/12/01
Toluene	ND	1.0		µg/L	1	10/12/01
Ethylbenzene	ND	1.0		µg/L	1	10/12/01
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/12/01
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/12/01
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/12/01
Naphthalene	ND	2.0		µg/L	1	10/12/01
1-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
2-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
Bromobenzene	ND	1.0		µg/L	1	10/12/01
Bromochloromethane	ND	1.0		µg/L	1	10/12/01
Bromodichloromethane	ND	1.0		µg/L	1	10/12/01
Bromoform	ND	1.0		µg/L	1	10/12/01
Bromomethane	ND	1.0		µg/L	1	10/12/01
Carbon Tetrachloride	ND	1.0		µg/L	1	10/12/01
Chlorobenzene	ND	1.0		µg/L	1	10/12/01
Chloroethane	ND	2.0		µg/L	1	10/12/01
Chloroform	ND	1.0		µg/L	1	10/12/01
Chloromethane	ND	1.0		µg/L	1	10/12/01
2-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
4-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
cis-1,2-DCE	ND	1.0		µg/L	1	10/12/01
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/12/01
Dibromochloromethane	ND	1.0		µg/L	1	10/12/01
Dibromomethane	ND	2.0		µg/L	1	10/12/01
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloroethane	ND	1.0		µg/L	1	10/12/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-25

Client Sample ID: SB-04/Water
Collection Date: 10/9/01 3:25:00 PM
Matrix: AQUEOUS

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
1,1-Dichloroethene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,3-Dichloropropane	ND	1.0		µg/L	1	10/12/01
2,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Hexachlorobutadiene	ND	1.0		µg/L	1	10/12/01
Isopropylbenzene	ND	1.0		µg/L	1	10/12/01
4-Isopropyltoluene	ND	1.0		µg/L	1	10/12/01
Methylene Chloride	ND	3.0		µg/L	1	10/12/01
n-Butylbenzene	ND	1.0		µg/L	1	10/12/01
n-Propylbenzene	ND	1.0		µg/L	1	10/12/01
sec-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Styrene	ND	1.0		µg/L	1	10/12/01
tert-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/12/01
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
trans-1,2-DCE	ND	1.0		µg/L	1	10/12/01
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/12/01
Trichlorofluoromethane	ND	1.0		µg/L	1	10/12/01
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/12/01
Vinyl chloride	ND	2.0		µg/L	1	10/12/01
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/12/01
Xylenes, Total	ND	1.0		µg/L	1	10/12/01
Surr: 1,2-Dichloroethane-d4	83.6	74.6-123		%REC	1	10/12/01
Surr: 4-Bromofluorobenzene	102	85.6-117		%REC	1	10/12/01
Surr: Dibromofluoromethane	95.7	78.6-115		%REC	1	10/12/01
Surr: Toluene-d8	102	84.2-115		%REC	1	10/12/01
AMMONIA AS N		**E350.2**				Analyst: **HVA**
Nitrogen, Ammonia	0.70	0.050		mg/L	1	10/18/01
PH BY 150.1		**E150.1**				Analyst: **HVA**
pH	7.70	0.010		pH units	1	10/16/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-06/Soil Gas
Lab Order:	0110064	**Collection Date:**	10/9/01 8:41:00 AM
Project:	Bell Trading Post		
Lab ID:	0110064-27	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	0.20	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-27

Client Sample ID: SB-06/Soil Gas
Collection Date: 10/9/01 8:41:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	105	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	98.2	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	104	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-28

Client Sample ID: SB-05/Soil Gas
Collection Date: 10/9/01 9:12:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	0.65	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-28

Client Sample ID: SB-05/Soil Gas
Collection Date: 10/9/01 9:12:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	102	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	94.8	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	101	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-29

Client Sample ID: SB-07/Soil Gas
Collection Date: 10/9/01 9:41:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	1.7	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-29

Client Sample ID: SB-07/Soil Gas
Collection Date: 10/9/01 9:41:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	101	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	93.0	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	99.3	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Client Sample ID: SB-08/Soil Gas
Lab Order: 0110064
Collection Date: 10/9/01 10:07:00 AM
Project: Bell Trading Post
Lab ID: 0110064-30
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	ND	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Client Sample ID: SB-08/Soil Gas
Lab Order: 0110064
Collection Date: 10/9/01 10:07:00 AM
Project: Bell Trading Post
Lab ID: 0110064-30
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	100	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	92.2	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	98.8	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-31

Client Sample ID: SB-09/Soil Gas
Collection Date: 10/9/01 10:41:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	ND	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Client Sample ID: SB-09/Soil Gas
Lab Order: 0110064
Collection Date: 10/9/01 10:41:00 AM
Project: Bell Trading Post
Lab ID: 0110064-31
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	102	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	93.1	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	99.7	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-10/Soil Gas
Lab Order:	0110064	**Collection Date:**	10/9/01 11:12:00 AM
Project:	Bell Trading Post		
Lab ID:	0110064-32	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	ND	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-32

Client Sample ID: SB-10/Soil Gas
Collection Date: 10/9/01 11:12:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	101	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	95.3	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	99.6	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-33

Client Sample ID: SB-11/Soil Gas
Collection Date: 10/9/01 11:43:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	ND	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-33

Client Sample ID: SB-11/Soil Gas
Collection Date: 10/9/01 11:43:00 AM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	103	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	98.9	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	102	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-12/Soil Gas
Lab Order:	0110064	**Collection Date:**	10/9/01 12:17:00 PM
Project:	Bell Trading Post		
Lab ID:	0110064-34	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	ND	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Client Sample ID: SB-12/Soil Gas
Lab Order: 0110064
Collection Date: 10/9/01 12:17:00 PM
Project: Bell Trading Post
Lab ID: 0110064-34
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	102	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	90.4	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	98.3	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Client Sample ID: Soil Gas Dup-1
Lab Order: 0110064
Collection Date: 10/9/01
Project: Bell Trading Post
Lab ID: 0110064-35
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/10/01
Trichloroethene	ND	0.10		µg/L	1	10/10/01
Benzene	ND	0.10		µg/L	1	10/10/01
Toluene	ND	0.10		µg/L	1	10/10/01
Ethylbenzene	ND	0.10		µg/L	1	10/10/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/10/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/10/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/10/01
Naphthalene	ND	0.20		µg/L	1	10/10/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/10/01
Bromobenzene	ND	0.10		µg/L	1	10/10/01
Bromochloromethane	ND	0.10		µg/L	1	10/10/01
Bromodichloromethane	ND	0.10		µg/L	1	10/10/01
Bromoform	ND	0.10		µg/L	1	10/10/01
Bromomethane	ND	0.10		µg/L	1	10/10/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/10/01
Chlorobenzene	ND	0.10		µg/L	1	10/10/01
Chloroethane	ND	0.20		µg/L	1	10/10/01
Chloroform	ND	0.10		µg/L	1	10/10/01
Chloromethane	ND	0.10		µg/L	1	10/10/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/10/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Dibromochloromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/10/01
Dibromomethane	ND	0.20		µg/L	1	10/10/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/10/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/10/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/10/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-35

Client Sample ID: Soil Gas Dup-1
Collection Date: 10/9/01
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/10/01
Methylene chloride	ND	0.30		µg/L	1	10/10/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/10/01
n-Butylbenzene	ND	0.10		µg/L	1	10/10/01
n-Propylbenzene	ND	0.10		µg/L	1	10/10/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/10/01
Styrene	ND	0.10		µg/L	1	10/10/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/10/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/10/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/10/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/10/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/10/01
Vinyl chloride	ND	0.20		µg/L	1	10/10/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/10/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/10/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/10/01
Xylenes, Total	ND	0.10		µg/L	1	10/10/01
Surr: 4-Bromofluorobenzene	100	87.2-119		%REC	1	10/10/01
Surr: Dibromofluoromethane	93.5	75.7-113		%REC	1	10/10/01
Surr: Toluene-d8	98.4	88.8-113		%REC	1	10/10/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-36

Client Sample ID: SB-02/Soil Gas
Collection Date: 10/9/01 2:28:00 PM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/11/01
Trichloroethene	0.45	0.10		µg/L	1	10/11/01
Benzene	ND	0.10		µg/L	1	10/11/01
Toluene	ND	0.10		µg/L	1	10/11/01
Ethylbenzene	ND	0.10		µg/L	1	10/11/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/11/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/11/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/11/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/11/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/11/01
Naphthalene	ND	0.20		µg/L	1	10/11/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/11/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/11/01
Bromobenzene	ND	0.10		µg/L	1	10/11/01
Bromochloromethane	ND	0.10		µg/L	1	10/11/01
Bromodichloromethane	ND	0.10		µg/L	1	10/11/01
Bromoform	ND	0.10		µg/L	1	10/11/01
Bromomethane	ND	0.10		µg/L	1	10/11/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/11/01
Chlorobenzene	ND	0.10		µg/L	1	10/11/01
Chloroethane	ND	0.20		µg/L	1	10/11/01
Chloroform	ND	0.10		µg/L	1	10/11/01
Chloromethane	ND	0.10		µg/L	1	10/11/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/11/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/11/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/11/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Dibromochloromethane	ND	0.10		µg/L	1	10/11/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/11/01
Dibromomethane	ND	0.20		µg/L	1	10/11/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/11/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/11/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/11/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/11/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/11/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/11/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/11/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-36

Client Sample ID: SB-02/Soil Gas
Collection Date: 10/9/01 2:28:00 PM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/11/01
Methylene chloride	ND	0.30		µg/L	1	10/11/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/11/01
n-Butylbenzene	ND	0.10		µg/L	1	10/11/01
n-Propylbenzene	ND	0.10		µg/L	1	10/11/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/11/01
Styrene	ND	0.10		µg/L	1	10/11/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/11/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/11/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/11/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/11/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/11/01
Vinyl chloride	ND	0.20		µg/L	1	10/11/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/11/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/11/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/11/01
Xylenes, Total	ND	0.10		µg/L	1	10/11/01
Surr: 4-Bromofluorobenzene	104	87.2-119		%REC	1	10/11/01
Surr: Dibromofluoromethane	93.5	75.7-113		%REC	1	10/11/01
Surr: Toluene-d8	102	88.8-113		%REC	1	10/11/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT:	Duke Engineering & Services	**Client Sample ID:**	SB-04/Soil Gas
Lab Order:	0110064	**Collection Date:**	10/9/01 3:06:00 PM
Project:	Bell Trading Post		
Lab ID:	0110064-37	**Matrix:**	AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Tetrachloroethene	ND	0.10		µg/L	1	10/11/01
Trichloroethene	0.68	0.10		µg/L	1	10/11/01
Benzene	ND	0.10		µg/L	1	10/11/01
Toluene	ND	0.10		µg/L	1	10/11/01
Ethylbenzene	ND	0.10		µg/L	1	10/11/01
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	10/11/01
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	10/11/01
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	10/11/01
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	10/11/01
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	10/11/01
Naphthalene	ND	0.20		µg/L	1	10/11/01
1-Methylnaphthalene	ND	0.40		µg/L	1	10/11/01
2-Methylnaphthalene	ND	0.40		µg/L	1	10/11/01
Bromobenzene	ND	0.10		µg/L	1	10/11/01
Bromochloromethane	ND	0.10		µg/L	1	10/11/01
Bromodichloromethane	ND	0.10		µg/L	1	10/11/01
Bromoform	ND	0.10		µg/L	1	10/11/01
Bromomethane	ND	0.10		µg/L	1	10/11/01
Carbon tetrachloride	ND	0.10		µg/L	1	10/11/01
Chlorobenzene	ND	0.10		µg/L	1	10/11/01
Chloroethane	ND	0.20		µg/L	1	10/11/01
Chloroform	ND	0.10		µg/L	1	10/11/01
Chloromethane	ND	0.10		µg/L	1	10/11/01
cis-1,2-Dichloroethene	ND	0.10		µg/L	1	10/11/01
2-Chlorotoluene	ND	0.10		µg/L	1	10/11/01
4-Chlorotoluene	ND	0.10		µg/L	1	10/11/01
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Dibromochloromethane	ND	0.10		µg/L	1	10/11/01
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	10/11/01
Dibromomethane	ND	0.20		µg/L	1	10/11/01
Dichlorodifluoromethane	ND	0.10		µg/L	1	10/11/01
1,2-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,3-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,4-Dichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,1-Dichloroethane	ND	0.10		µg/L	1	10/11/01
1,1-Dichloroethene	ND	0.10		µg/L	1	10/11/01
1,2-Dichloropropane	ND	0.10		µg/L	1	10/11/01
1,3-Dichloropropane	ND	0.10		µg/L	1	10/11/01
2,2-Dichloropropane	ND	0.10		µg/L	1	10/11/01
1,1-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Hexachlorobutadiene	ND	0.10		µg/L	1	10/11/01

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quanititation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Lab Order: 0110064
Project: Bell Trading Post
Lab ID: 0110064-37

Client Sample ID: SB-04/Soil Gas
Collection Date: 10/9/01 3:06:00 PM
Matrix: AIR

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Isopropylbenzene	ND	0.10		µg/L	1	10/11/01
Methylene chloride	ND	0.30		µg/L	1	10/11/01
4-Isopropyltoluene	ND	0.10		µg/L	1	10/11/01
n-Butylbenzene	ND	0.10		µg/L	1	10/11/01
n-Propylbenzene	ND	0.10		µg/L	1	10/11/01
sec-Butylbenzene	ND	0.10		µg/L	1	10/11/01
Styrene	ND	0.10		µg/L	1	10/11/01
tert-Butylbenzene	ND	0.10		µg/L	1	10/11/01
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	10/11/01
trans-1,2-Dichloroethene	ND	0.10		µg/L	1	10/11/01
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	10/11/01
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	10/11/01
Trichlorofluoromethane	ND	0.10		µg/L	1	10/11/01
Vinyl chloride	ND	0.20		µg/L	1	10/11/01
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	10/11/01
1,1,1-Trichloroethane	ND	0.10		µg/L	1	10/11/01
1,1,2-Trichloroethane	ND	0.10		µg/L	1	10/11/01
1,2,3-Trichloropropane	ND	0.20		µg/L	1	10/11/01
Xylenes, Total	ND	0.10		µg/L	1	10/11/01
Surr: 4-Bromofluorobenzene	107	87.2-119		%REC	1	10/11/01
Surr: Dibromofluoromethane	92.5	75.7-113		%REC	1	10/11/01
Surr: Toluene-d8	98.1	88.8-113		%REC	1	10/11/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Client Sample ID: Trip Blank
Lab Order: 0110064
Collection Date:
Project: Bell Trading Post
Lab ID: 0110064-38
Matrix: TRIP BLANK

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILES BY 8260B		**SW8260B**				Analyst: **JDC**
Benzene	ND	1.0		µg/L	1	10/12/01
Toluene	ND	1.0		µg/L	1	10/12/01
Ethylbenzene	ND	1.0		µg/L	1	10/12/01
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/12/01
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/12/01
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/12/01
Naphthalene	ND	2.0		µg/L	1	10/12/01
1-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
2-Methylnaphthalene	ND	4.0		µg/L	1	10/12/01
Bromobenzene	ND	1.0		µg/L	1	10/12/01
Bromochloromethane	ND	1.0		µg/L	1	10/12/01
Bromodichloromethane	ND	1.0		µg/L	1	10/12/01
Bromoform	ND	1.0		µg/L	1	10/12/01
Bromomethane	ND	1.0		µg/L	1	10/12/01
Carbon Tetrachloride	ND	1.0		µg/L	1	10/12/01
Chlorobenzene	ND	1.0		µg/L	1	10/12/01
Chloroethane	ND	2.0		µg/L	1	10/12/01
Chloroform	ND	1.0		µg/L	1	10/12/01
Chloromethane	ND	1.0		µg/L	1	10/12/01
2-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
4-Chlorotoluene	ND	1.0		µg/L	1	10/12/01
cis-1,2-DCE	ND	1.0		µg/L	1	10/12/01
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/12/01
Dibromochloromethane	ND	1.0		µg/L	1	10/12/01
Dibromomethane	ND	2.0		µg/L	1	10/12/01
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/12/01
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloroethane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloroethene	ND	1.0		µg/L	1	10/12/01
1,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,3-Dichloropropane	ND	1.0		µg/L	1	10/12/01
2,2-Dichloropropane	ND	1.0		µg/L	1	10/12/01
1,1-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Hexachlorobutadiene	ND	1.0		µg/L	1	10/12/01
Isopropylbenzene	ND	1.0		µg/L	1	10/12/01
4-Isopropyltoluene	ND	1.0		µg/L	1	10/12/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Client Sample ID: Trip Blank
Lab Order: 0110064
Collection Date:
Project: Bell Trading Post
Lab ID: 0110064-38
Matrix: TRIP BLANK

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
Methylene Chloride	ND	3.0		µg/L	1	10/12/01
n-Butylbenzene	ND	1.0		µg/L	1	10/12/01
n-Propylbenzene	ND	1.0		µg/L	1	10/12/01
sec-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Styrene	ND	1.0		µg/L	1	10/12/01
tert-Butylbenzene	ND	1.0		µg/L	1	10/12/01
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/12/01
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	1	10/12/01
trans-1,2-DCE	ND	1.0		µg/L	1	10/12/01
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/12/01
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/12/01
Trichlorofluoromethane	ND	1.0		µg/L	1	10/12/01
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/12/01
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/12/01
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/12/01
Vinyl chloride	ND	2.0		µg/L	1	10/12/01
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/12/01
Xylenes, Total	ND	1.0		µg/L	1	10/12/01
Surr: 1,2-Dichloroethane-d4	89.6	74.6-123		%REC	1	10/12/01
Surr: 4-Bromofluorobenzene	102	85.6-117		%REC	1	10/12/01
Surr: Dibromofluoromethane	85.8	78.6-115		%REC	1	10/12/01
Surr: Toluene-d8	100	84.2-115		%REC	1	10/12/01

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quanititation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

SVL ANALYTICAL, INC.
One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

REPORT OF ANALYTICAL RESULTS

CLIENT : Hall Environmental
PROJECT: BELL TRADING

Sample Receipt: 10/11/01
Report Date: 10/25/01

SVL JOB: 99594

SVL ID	CLIENT SAMPLE ID		Ag 6010B	As 6010B	Ba 6010B	Cd 6010B	Cr 6010B	Cu 6010B	Fe 6010B	Mn 6010B
S279910	SB-06/0'-2'	10/09/01	0.6mg/kg	2.3mg/kg	128mg/kg	<0.2mg/kg	5.3mg/kg	3.8mg/kg	8860mg/kg	480mg/kg
S279911	SB-05/0'-2'	10/09/01	0.9mg/kg	3.7mg/kg	130mg/kg	0.3mg/kg	7.6mg/kg	9.0mg/kg	8420mg/kg	284mg/kg
S279912	SB-07/0'-2'	10/09/01	1.8mg/kg	5.7mg/kg	186mg/kg	0.6mg/kg	10.8mg/kg	27.1mg/kg	20500mg/kg	319mg/kg
S279913	SB-08/0'-2'	10/09/01	0.8mg/kg	2.3mg/kg	115mg/kg	<0.2mg/kg	7.2mg/kg	8.1mg/kg	8180mg/kg	258mg/kg
S279914	SOIL DUP 1/0'-2'	10/09/01	0.7mg/kg	2.9mg/kg	116mg/kg	<0.2mg/kg	7.0mg/kg	7.4mg/kg	8270mg/kg	276mg/kg
S279915	SB-09/0'-2'	10/09/01	1.0mg/kg	3.8mg/kg	144mg/kg	0.3mg/kg	8.0mg/kg	13.7mg/kg	12700mg/kg	311mg/kg
S279916	SB-10/0'-2'	10/09/01	4.3mg/kg	5.2mg/kg	103mg/kg	0.6mg/kg	10.2mg/kg	48.1mg/kg	34900mg/kg	296mg/kg
S279917	SB-11/0'-2'	10/09/01	2.3mg/kg	2.0mg/kg	93.7mg/kg	<0.2mg/kg	6.0mg/kg	6.5mg/kg	7350mg/kg	184mg/kg
S279918	SB-12/0'-2'	10/09/01	9.3mg/kg	2.2mg/kg	124mg/kg	0.5mg/kg	11.1mg/kg	13.5mg/kg	9920mg/kg	245mg/kg
S279919	SB-02/0'-2'	10/09/01	4.4mg/kg	2.8mg/kg	115mg/kg	0.5mg/kg	7.7mg/kg	19.1mg/kg	9600mg/kg	281mg/kg
S279920	SB-04/0'-2'	10/09/01	1.2mg/kg	4.5mg/kg	314mg/kg	0.4mg/kg	13.6mg/kg	15.5mg/kg	12300mg/kg	259mg/kg

Soil Samples: As Received Basis

Reviewed By: Blake Johnson Date: 10/25/01

SVL ANALYTICAL, INC.
One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

REPORT OF ANALYTICAL RESULTS

CLIENT : Hall Environmental
PROJECT: BELL TRADING

Sample Receipt: 10/11/01
Report Date: 10/25/01

SVL JOB: 99594

SVL ID	CLIENT SAMPLE ID		Pb 6010B	Se 6010B	Zn 6010B	Hg 7471	CN 9012A	% Sol. 999
S279910	SB-06/0'-2'	10/09/01	3.9mg/kg	<1.0mg/kg	14.9mg/kg	<0.033mg/kg	<0.5mg/kg	96.8%
S279911	SB-05/0'-2'	10/09/01	34.0mg/kg	<1.0mg/kg	61.3mg/kg	0.096mg/kg	<0.5mg/kg	96.0%
S279912	SB-07/0'-2'	10/09/01	100mg/kg	<1.0mg/kg	119mg/kg	0.555mg/kg	<0.5mg/kg	95.5%
S279913	SB-08/0'-2'	10/09/01	62.7mg/kg	<1.0mg/kg	38.5mg/kg	0.100mg/kg	<0.5mg/kg	94.4%
S279914	SOIL DUP 1/0'-2'	10/09/01	52.2mg/kg	<1.0mg/kg	32.4mg/kg	0.112mg/kg	<0.5mg/kg	94.8%
S279915	SB-09/0'-2'	10/09/01	35.6mg/kg	<1.0mg/kg	51.5mg/kg	0.128mg/kg	<0.5mg/kg	91.1%
S279916	SB-10/0'-2'	10/09/01	38.3mg/kg	<1.0mg/kg	49.6mg/kg	0.055mg/kg	<0.5mg/kg	97.0%
S279917	SB-11/0'-2'	10/09/01	16.3mg/kg	<1.0mg/kg	24.9mg/kg	<0.033mg/kg	<0.5mg/kg	97.8%
S279918	SB-12/0'-2'	10/09/01	144mg/kg	<1.0mg/kg	89.4mg/kg	0.120mg/kg	<0.5mg/kg	97.3%
S279919	SB-02/0'-2'	10/09/01	7.3mg/kg	<1.0mg/kg	30.6mg/kg	<0.033mg/kg	<0.5mg/kg	91.7%
S279920	SB-04/0'-2'	10/09/01	17.8mg/kg	<1.0mg/kg	91.6mg/kg	<0.033mg/kg	<0.5mg/kg	91.6%

Soil Samples: As Received Basis

Reviewed By: Blake Johnson Date: 10/25/01

SVL ANALYTICAL, INC.
The Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: SB-12 WATER
Sample Collected: 10/09/01 12:40
Sample Receipt : 10/11/01
Date of Report : 10/24/01

SVL JOB: 99595
SAMPLE: 279923

Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Calcium	159	mg/L		200.7	10/17/01
Cyanide-TOT	<0.01	mg/L		335.4	10/17/01
Potassium	23.9	mg/L		200.7	10/17/01
Magnesium	25.6	mg/L		200.7	10/17/01
Sodium	137	mg/L		200.7	10/17/01
Silver	<0.005	mg/L		200.7	10/17/01
Arsenic	<0.01	mg/L		200.7	10/17/01
Barium	0.795	mg/L		200.7	10/17/01
Cadmium	<0.002	mg/L		200.7	10/17/01
Chromium	0.072	mg/L		200.7	10/17/01
Copper	0.031	mg/L		200.7	10/17/01
Iron	51.3	mg/L		200.7	10/17/01
Mercury	<0.0002	mg/L		245.1	10/23/01
Manganese	2.31	mg/L		200.7	10/17/01
Lead	0.027	mg/L		200.7	10/17/01
Selenium	<0.01	mg/L		200.7	10/17/01
Zinc	0.122	mg/L		200.7	10/17/01

Reviewed By: Blake Johnson Date 10/24/01
10/24/01 12:32

VL ANALYTICAL, INC.
ne Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: WATER DUP 1
Sample Collected: 10/09/01 12:40
Sample Receipt : 10/11/01
Date of Report : 10/24/01

SVL JOB: 99595
SAMPLE: 279924

Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Calcium	126	mg/L		200.7	10/17/01
Cyanide-TOT	<0.01	mg/L		335.4	10/17/01
Potassium	17.9	mg/L		200.7	10/17/01
Magnesium	19.8	mg/L		200.7	10/17/01
Sodium	135	mg/L		200.7	10/17/01
Silver	<0.005	mg/L		200.7	10/17/01
Arsenic	<0.01	mg/L		200.7	10/17/01
Barium	0.222	mg/L		200.7	10/17/01
Cadmium	<0.002	mg/L		200.7	10/17/01
Chromium	0.009	mg/L		200.7	10/17/01
Copper	0.005	mg/L		200.7	10/17/01
Iron	8.93	mg/L		200.7	10/17/01
Mercury	<0.0002	mg/L		245.1	10/23/01
Manganese	1.71	mg/L		200.7	10/17/01
Lead	<0.005	mg/L		200.7	10/17/01
Selenium	<0.01	mg/L		200.7	10/17/01
Zinc	0.019	mg/L		200.7	10/17/01

Reviewed By: Blake Johnson Date 10/24/01
10/24/01 12:32

VL ANALYTICAL, INC.
ne Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: SB-04/WATER
Sample Collected: 10/09/01 15:25
Sample Receipt : 10/11/01
Date of Report : 10/24/01

SVL JOB: 99595
SAMPLE: 279925
Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Calcium	97.9	mg/L		200.7	10/17/01
Cyanide-TOT	<0.01	mg/L		335.4	10/17/01
Potassium	17.6	mg/L		200.7	10/17/01
Magnesium	14.9	mg/L		200.7	10/17/01
Sodium	75.0	mg/L		200.7	10/17/01
Silver	<0.005	mg/L		200.7	10/17/01
Arsenic	<0.01	mg/L		200.7	10/17/01
Barium	0.363	mg/L		200.7	10/17/01
Cadmium	<0.002	mg/L		200.7	10/17/01
Chromium	0.019	mg/L		200.7	10/17/01
Copper	0.008	mg/L		200.7	10/17/01
Iron	12.8	mg/L		200.7	10/17/01
Mercury	<0.0002	mg/L		245.1	10/23/01
Manganese	1.14	mg/L		200.7	10/17/01
Lead	0.006	mg/L		200.7	10/17/01
Selenium	<0.01	mg/L		200.7	10/17/01
Zinc	0.043	mg/L		200.7	10/17/01

Reviewed By: Blake Johnson Date 10/24/01
10/24/01 12:32

VL ANALYTICAL, INC.
ıe Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

CLIENT : Hall Environmental
PROJECT: BELL TRADING
CLIENT SAMPLE ID: EQUIPMENT RINSE
Sample Collected: 10/09/01 16:00
Sample Receipt : 10/11/01
Date of Report : 10/24/01

SVL JOB: 99595
SAMPLE: 279926

Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
Calcium	0.05	mg/L		200.7	10/17/01
Cyanide-TOT	<0.01	mg/L		335.4	10/17/01
Potassium	<1.0	mg/L		200.7	10/17/01
Magnesium	<0.04	mg/L		200.7	10/17/01
Sodium	<0.1	mg/L		200.7	10/17/01
Silver	<0.005	mg/L		200.7	10/17/01
Arsenic	<0.01	mg/L		200.7	10/17/01
Barium	<0.002	mg/L		200.7	10/17/01
Cadmium	<0.002	mg/L		200.7	10/17/01
Chromium	<0.006	mg/L		200.7	10/17/01
Copper	<0.003	mg/L		200.7	10/17/01
Iron	0.02	mg/L		200.7	10/17/01
Mercury	<0.0002	mg/L		245.1	10/23/01
Manganese	<0.002	mg/L		200.7	10/17/01
Lead	<0.005	mg/L		200.7	10/17/01
Selenium	<0.01	mg/L		200.7	10/17/01
Zinc	<0.005	mg/L		200.7	10/17/01

Reviewed By: Blake Johnson Date 10/24/01
10/24/01 12:32

/L ANALYTICAL, INC.

Quality Control Report

Part I Prep Blank and Laboratory Control Sample

Client :Hall Environmental

SVL JOB No. :99594

Analyte	Method	Matrix	Units	Prep Blank	True—LCS—Found		LCS %R	Analysis Date
Silver	6010B	SOIL	mg/kg	<0.5	184	195	106.0	10/25/01
Arsenic	6010B	SOIL	mg/kg	<1.0	170	169	99.4	10/25/01
Barium	6010B	SOIL	mg/kg	<0.2	151	158	104.6	10/25/01
Cadmium	6010B	SOIL	mg/kg	<0.2	184	187	101.6	10/25/01
Chromium	6010B	SOIL	mg/kg	<0.6	111	114	102.7	10/25/01
Copper	6010B	SOIL	mg/kg	<0.3	86.0	85.5	99.4	10/25/01
Iron	6010B	SOIL	mg/kg	<2.0	11100	12200	109.9	10/25/01
Manganese	6010B	SOIL	mg/kg	<0.2	359	359	100.0	10/25/01
Lead	6010B	SOIL	mg/kg	<0.5	106	103	97.2	10/25/01
Selenium	6010B	SOIL	mg/kg	<1.0	85.7	79.7	93.0	10/25/01
Zinc	6010B	SOIL	mg/kg	<0.5	371	389	104.9	10/25/01
Mercury	7471	SOIL	mg/kg	<0.033	29.6	37.6	127.0	10/22/01
Cyanide	9012A	SOIL	mg/kg	<0.5	5.60	6.10	108.9	10/17/01

EGEND:

LCS = Laboratory Control Sample LCS %R = LCS Percent Recovery N/A = Not Applicable

'L ANALYTICAL, INC.

Quality Control Report

Part II Duplicate and Spike Analysis

lient :Hall Environmental

SVL JOB No :99594

est Method	Matrix	QC SAMPLE ID Units	Result	Duplicate or MSD Found		RPD%	Matrix Spike Result	SPK ADD		%R	Analysis Date
6010B	SOIL	1 mg/kg	0.6	111	M	0.0	111	100		110.4	10/25/01
6010B	SOIL	2 mg/kg	1.2	N/A		N/A	110	100		108.8	10/25/01
6010B	SOIL	1 mg/kg	2.3	96.4	M	0.2	96.2	100		93.9	10/25/01
6010B	SOIL	2 mg/kg	4.5	N/A		N/A	93.9	100		89.4	10/25/01
6010B	SOIL	1 mg/kg	128	220	M	2.3	215	100		87.0	10/25/01
6010B	SOIL	2 mg/kg	314	N/A		N/A	358	100		44.0	10/25/01
6010B	SOIL	2 mg/kg	314	N/A		N/A	395	100	A	81.0	10/25/01
6010B	SOIL	1 mg/kg	<0.2	95.3	M	0.2	95.5	100		95.5	10/25/01
6010B	SOIL	2 mg/kg	0.4	N/A		N/A	88.3	100		87.9	10/25/01
6010B	SOIL	1 mg/kg	5.3	107	M	0.0	107	100		101.7	10/25/01
6010B	SOIL	2 mg/kg	13.6	N/A		N/A	112	100		98.4	10/25/01
6010B	SOIL	1 mg/kg	3.8	101	M	0.0	101	100		97.2	10/25/01
6010B	SOIL	2 mg/kg	15.5	N/A		N/A	103	100		87.5	10/25/01
6010B	SOIL	1 mg/kg	8860	11000	M	0.9	11100	1000		R >4S	10/25/01
6010B	SOIL	2 mg/kg	12300	N/A		N/A	13100	1000		80.0	10/25/01
6010B	SOIL	1 mg/kg	480	484	M	4.4	463	100		R >4S	10/25/01
6010B	SOIL	2 mg/kg	259	N/A		N/A	315	100		56.0	10/25/01
6010B	SOIL	2 mg/kg	259	N/A		N/A	342	100	A	83.0	10/25/01
6010B	SOIL	1 mg/kg	3.9	96.4	M	0.7	95.7	100		91.8	10/25/01
6010B	SOIL	2 mg/kg	17.8	N/A		N/A	99.5	100		81.7	10/25/01
6010B	SOIL	1 mg/kg	<1.0	91.8	M	0.7	91.2	100		91.2	10/25/01
6010B	SOIL	2 mg/kg	<1.0	N/A		N/A	88.9	100		88.9	10/25/01
6010B	SOIL	1 mg/kg	14.9	115	M	3.4	119	100		104.1	10/25/01
6010B	SOIL	2 mg/kg	91.6	N/A		N/A	154	100		62.4	10/25/01
6010B	SOIL	2 mg/kg	91.6	N/A		N/A	183	100	A	91.4	10/25/01
7471	SOIL	1 mg/kg	<0.033	<0.033		UDL	0.170	0.167		101.8	10/22/01
9012A	SOIL	1 mg/kg	<0.5	<0.5		UDL	4.85	5.00		97.0	10/17/01
Sol. 999	SOIL	1 %	96.8	96.7		0.1	N/A	N/A		N/A	10/23/01

EGEND:

'D% = (¦SAM - DUP¦/((SAM + DUP)/2) * 100) UDL = Both SAM & DUP not detected. *Result or *Found: Interference reqired dilution.

D% = (¦SPK - MSD¦/((SPK + MSD)/2) * 100) M in Duplicate/MSD column indicates MSD.

'IKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added

C Sample 1: SVL SAM No.: 279910 Client Sample ID: SB-06/0'-2'

C Sample 2: SVL SAM No.: 279920 Client Sample ID: SB-04/0'-2'

TL ANALYTICAL, INC. Quality Control Report

Part I Prep Blank and Laboratory Control Sample

Client :Hall Environmental SVL JOB No. :99595

Analyte	Method	Matrix	Units	Prep Blank	True——LCS——Found		LCS %R	Analysis Date
Silver	200.7	WATER	mg/L	<0.005	1.00	1.03	103.0	10/17/01
Arsenic	200.7	WATER	mg/L	<0.01	1.00	1.03	103.0	10/17/01
Barium	200.7	WATER	mg/L	<0.002	1.00	1.02	102.0	10/17/01
Calcium	200.7	WATER	mg/L	<0.04	20.0	20.6	103.0	10/17/01
Cadmium	200.7	WATER	mg/L	<0.002	1.00	1.00	100.0	10/17/01
Chromium	200.7	WATER	mg/L	<0.006	1.00	1.03	103.0	10/17/01
Copper	200.7	WATER	mg/L	<0.003	1.00	1.01	101.0	10/17/01
Iron	200.7	WATER	mg/L	<0.02	10.0	10.2	102.0	10/17/01
Potassium	200.7	WATER	mg/L	<1.0	30.0	30.5	101.7	10/17/01
Magnesium	200.7	WATER	mg/L	<0.04	20.0	20.7	103.5	10/17/01
Manganese	200.7	WATER	mg/L	<0.002	1.00	1.01	101.0	10/17/01
Sodium	200.7	WATER	mg/L	<0.1	20.0	20.2	101.0	10/17/01
Lead	200.7	WATER	mg/L	<0.005	1.00	1.00	100.0	10/17/01
Selenium	200.7	WATER	mg/L	<0.01	1.00	1.01	101.0	10/17/01
Zinc	200.7	WATER	mg/L	<0.005	1.00	1.00	100.0	10/17/01
Mercury	245.1	WATER	mg/L	<0.0002	0.0050	0.0049	98.0	10/23/01
Cyanide-TOT	335.4	WATER	mg/L	<0.01	0.15	0.16	106.7	10/17/01

LEGEND:

LCS = Laboratory Control Sample LCS %R = LCS Percent Recovery N/A = Not Applicable

Part II Duplicate and Spike Analysis

lient :Hall Environmental SVL JOB No :99595

est Method	Matrix	QC SAMPLE ID Units	Result	Duplicate or MSD Found	RPD%	Matrix Spike Result	SPK ADD	%R	Analysis Date
200.7	WATER	1 mg/L	<0.005	<0.005	UDL	1.08	1.00	108.0	10/17/01
200.7	WATER	1 mg/L	<0.01	<0.01	UDL	1.13	1.00	113.0	10/17/01
200.7	WATER	1 mg/L	0.795	0.751	5.7	1.85	1.00	105.5	10/17/01
200.7	WATER	1 mg/L	159	177	10.7	194	20.0	R >4S	10/17/01
200.7	WATER	1 mg/L	<0.002	<0.002	UDL	1.04	1.00	104.0	10/17/01
200.7	WATER	1 mg/L	0.072	0.070	2.8	1.12	1.00	104.8	10/17/01
200.7	WATER	1 mg/L	0.031	0.027	13.8	1.08	1.00	104.9	10/17/01
200.7	WATER	1 mg/L	51.3	50.6	1.4	61.6	10.0	103.0	10/17/01
200.7	WATER	1 mg/L	23.9	23.3	2.5	58.0	30.0	113.7	10/17/01
200.7	WATER	1 mg/L	25.6	28.4	10.4	50.1	20.0	122.5	10/17/01
200.7	WATER	1 mg/L	2.31	2.45	5.9	3.50	1.00	119.0	10/17/01
200.7	WATER	1 mg/L	137	137	0.0	160	20.0	115.0	10/17/01
200.7	WATER	1 mg/L	0.027	0.030	10.5	1.03	1.00	100.3	10/17/01
200.7	WATER	1 mg/L	<0.01	<0.01	UDL	1.06	1.00	106.0	10/17/01
200.7	WATER	1 mg/L	0.122	0.137	11.6	1.19	1.00	106.8	10/17/01
245.1	WATER	1 mg/L	<0.0002	<0.0002	UDL	0.0012	0.0010	120.0	10/23/01
335.4	WATER	1 mg/L	<0.01	<0.01	UDL	0.11	0.100	110.0	10/17/01

EGEND:

D% = (¦SAM - DUP¦/((SAM + DUP)/2) * 100) UDL = Both SAM & DUP not detected. *Result or *Found: Interference reqired dilution.

D% = (¦SPK - MSD¦/((SPK + MSD)/2) * 100) M in Duplicate/MSD column indicates MSD.

IKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added

C Sample 1: SVL SAM No.: 279923 Client Sample ID: SB-12 WATER

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Sample ID: **MBLK** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:

Client ID: Run ID: **WC_011010D** SeqNo: **50776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									
Chloride	ND	0.10									
Nitrogen, Nitrite (As N)	ND	0.10									
Nitrogen, Nitrate (As N)	ND	0.10									
Phosphorus, Orthophosphate (As P)	ND	0.50									
Sulfate	ND	0.50									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT
Method Blank

Sample ID: **5ml rb** Batch ID: **R2380** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/10/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011010A** SeqNo: **50693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	ND	1.0									
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	ND	4.0									
2-Methylnaphthalene	ND	4.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	2.0									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT
Method Blank

1,2-Dichlorobenzene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
Dichlorodifluoromethane	ND	1.0
1,1-Dichloroethane	ND	1.0
1,1-Dichloroethene	ND	1.0
1,2-Dichloropropane	ND	1.0
1,3-Dichloropropane	ND	1.0
2,2-Dichloropropane	ND	1.0
1,1-Dichloropropene	ND	1.0
Hexachlorobutadiene	ND	1.0
Isopropylbenzene	ND	1.0
4-Isopropyltoluene	ND	1.0
Methylene Chloride	ND	3.0
n-Butylbenzene	ND	1.0
n-Propylbenzene	ND	1.0
sec-Butylbenzene	ND	1.0
Styrene	ND	1.0
tert-Butylbenzene	ND	1.0
Tetrachloroethene (PCE)	ND	1.0
1,1,1,2-Tetrachloroethane	ND	1.0
1,1,2,2-Tetrachloroethane	ND	1.0
trans-1,2-DCE	ND	1.0
trans-1,3-Dichloropropene	ND	1.0
Trichloroethene (TCE)	ND	1.0
Trichlorofluoromethane	ND	1.0
1,2,3-Trichlorobenzene	ND	1.0
1,2,4-Trichlorobenzene	ND	1.0
1,1,1-Trichloroethane	ND	1.0
1,1,2-Trichloroethane	ND	1.0
Vinyl chloride	ND	2.0
1,2,3-Trichloropropane	ND	2.0
Xylenes, Total	ND	1.0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Surr: 1,2-Dichloroethane-d4	8.91	0	10	0	89.1	74.6	123	0
Surr: 4-Bromofluorobenzene	10.27	0	10	0	103	85.6	117	0
Surr: Dibromofluoromethane	9.668	0	10	0	96.7	78.6	115	0
Surr: Toluene-d8	9.998	0	10	0	100	84.2	115	0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT
Method Blank

Sample ID: **5ml rb-b** Batch ID: **R2391** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/11/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011010B** SeqNo: **50979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
1,2,4-Trimethylbenzene	ND	1.0									
1,3,5-Trimethylbenzene	ND	1.0									
1,2-Dichloroethane (EDC)	ND	1.0									
1,2-Dibromoethane (EDB)	ND	1.0									
Naphthalene	ND	2.0									
1-Methylnaphthalene	ND	4.0									
2-Methylnaphthalene	ND	4.0									
Bromobenzene	ND	1.0									
Bromochloromethane	ND	1.0									
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0									
Bromomethane	ND	1.0									
Carbon Tetrachloride	ND	1.0									
Chlorobenzene	ND	1.0									
Chloroethane	ND	2.0									
Chloroform	ND	1.0									
Chloromethane	ND	1.0									
2-Chlorotoluene	ND	1.0									
4-Chlorotoluene	ND	1.0									
cis-1,2-DCE	ND	1.0									
cis-1,3-Dichloropropene	ND	1.0									
1,2-Dibromo-3-chloropropane	ND	2.0									
Dibromochloromethane	ND	1.0									
Dibromomethane	ND	2.0									

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

1,2-Dichlorobenzene	ND	1.0	
1,3-Dichlorobenzene	ND	1.0	
1,4-Dichlorobenzene	ND	1.0	
Dichlorodifluoromethane	ND	1.0	
1,1-Dichloroethane	ND	1.0	
1,1-Dichloroethene	ND	1.0	
1,2-Dichloropropane	ND	1.0	
1,3-Dichloropropane	ND	1.0	
2,2-Dichloropropane	ND	1.0	
1,1-Dichloropropene	ND	1.0	
Hexachlorobutadiene	ND	1.0	
Isopropylbenzene	ND	1.0	
4-Isopropyltoluene	ND	1.0	
Methylene Chloride	0.278	3.0	J
n-Butylbenzene	ND	1.0	
n-Propylbenzene	ND	1.0	
sec-Butylbenzene	ND	1.0	
Styrene	ND	1.0	
tert-Butylbenzene	ND	1.0	
Tetrachloroethene (PCE)	ND	1.0	
1,1,1,2-Tetrachloroethane	ND	1.0	
1,1,2,2-Tetrachloroethane	ND	1.0	
trans-1,2-DCE	ND	1.0	
trans-1,3-Dichloropropene	ND	1.0	
Trichloroethene (TCE)	ND	1.0	
Trichlorofluoromethane	ND	1.0	
1,2,3-Trichlorobenzene	ND	1.0	
1,2,4-Trichlorobenzene	ND	1.0	
1,1,1-Trichloroethane	ND	1.0	
1,1,2-Trichloroethane	ND	1.0	
Vinyl chloride	ND	2.0	
1,2,3-Trichloropropane	ND	2.0	
Xylenes, Total	ND	1.0	

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Method Blank

Surr: 1,2-Dichloroethane-d4	9.078	0	10	0	90.8	74.6	123	0
Surr: 4-Bromofluorobenzene	10.19	0	10	0	102	85.6	117	0
Surr: Dibromofluoromethane	9.606	0	10	0	96.1	78.6	115	0
Surr: Toluene-d8	10.36	0	10	0	104	84.2	115	0

Sample ID: **MBLK** Batch ID: **R2462** Test Code: **E350.2** Units: **mg/L** Analysis Date: **10/18/01** Prep Date:

Client ID: Run ID: **WC_011018D** SeqNo: **52673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	ND	0.050									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0110064-15B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: **SB-12 Water** Run ID: **WC_011010D** SeqNo: **50778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.868	0.10	0	0	0	0	0	0.886	2.05	15	
Nitrogen, Nitrite (As N)	ND	0.10	0	0	0	0	0	0	0	15	
Nitrogen, Nitrate (As N)	ND	0.10	0	0	0	0	0	0	0	15	
Phosphorus, Orthophosphate (As P)	ND	0.50	0	0	0	0	0	0	0	15	

Sample ID: **0109136-01B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	128.4	5.0	0	0	0	0	0	128	0.349	15	

Sample ID: **0109136-11B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	72.44	2.5	0	0	0	0	0	72.85	0.564	15	

Sample ID: **0109136-21B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50807**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	315.6	10	0	0	0	0	0	314.4	0.363	15	

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; B - Analyte detected in the associated Method Blank; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0110064-28a dup** Batch ID: **R2380** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/10/01** Prep Date:

Client ID: **SB-05/Soil Gas** Run ID: **NEPTUNE_011010A** SeqNo: **50722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tetrachloroethene	ND	0.10	0	0	0	0	0	0	0	20	
Trichloroethene	0.6457	0.10	0	0	0	0	0	0.6538	1.25	20	
Benzene	ND	0.10	0	0	0	0	0	0	0	20	
Toluene	0.0328	0.10	0	0	0	0	0	0.0322	0	20	J
Ethylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
Methyl tert-butyl ether (MTBE)	ND	0.10	0	0	0	0	0	0	0	20	
1,2,4-Trimethylbenzene	0.025	0.10	0	0	0	0	0	0.0276	0	20	J
1,3,5-Trimethylbenzene	0.02	0.10	0	0	0	0	0	0.0216	0	20	J
1,2-Dichloroethane (EDC)	ND	0.10	0	0	0	0	0	0	0	20	
1,2-Dibromoethane (EDB)	ND	0.10	0	0	0	0	0	0	0	20	
Naphthalene	ND	0.20	0	0	0	0	0	0	0	20	
1-Methylnaphthalene	ND	0.40	0	0	0	0	0	0	0	20	
2-Methylnaphthalene	ND	0.40	0	0	0	0	0	0	0	20	
Bromobenzene	ND	0.10	0	0	0	0	0	0	0	20	
Bromochloromethane	ND	0.10	0	0	0	0	0	0	0	20	
Bromodichloromethane	ND	0.10	0	0	0	0	0	0	0	20	
Bromoform	ND	0.10	0	0	0	0	0	0	0	20	
Bromomethane	0.06	0.10	0	0	0	0	0	0	0	20	J
Carbon tetrachloride	ND	0.10	0	0	0	0	0	0	0	20	
Chlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
Chloroethane	ND	0.20	0	0	0	0	0	0	0	20	
Chloroform	ND	0.10	0	0	0	0	0	0	0	20	
Chloromethane	ND	0.10	0	0	0	0	0	0.0704	0	20	
cis-1,2-Dichloroethene	ND	0.10	0	0	0	0	0	0	0	20	
2-Chlorotoluene	ND	0.10	0	0	0	0	0	0	0	20	
4-Chlorotoluene	ND	0.10	0	0	0	0	0	0	0	20	
cis-1,3-Dichloropropene	ND	0.10	0	0	0	0	0	0	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

Dibromochloromethane	ND	0.10	0	0	0	0	0	0	0	20	
1,2-Dibromo-3-chloropropane	ND	0.20	0	0	0	0	0	0	0	20	
Dibromomethane	ND	0.20	0	0	0	0	0	0	0	20	
Dichlorodifluoromethane	ND	0.10	0	0	0	0	0	0	0	20	
1,2-Dichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,3-Dichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,4-Dichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,1-Dichloroethane	ND	0.10	0	0	0	0	0	0	0	20	
1,1-Dichloroethene	ND	0.10	0	0	0	0	0	0	0	20	
1,2-Dichloropropane	ND	0.10	0	0	0	0	0	0	0	20	
1,3-Dichloropropane	ND	0.10	0	0	0	0	0	0	0	20	
2,2-Dichloropropane	ND	0.10	0	0	0	0	0	0	0	20	
1,1-Dichloropropene	ND	0.10	0	0	0	0	0	0	0	20	
Hexachlorobutadiene	ND	0.10	0	0	0	0	0	0	0	20	
Isopropylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
Methylene chloride	0.0318	0.30	0	0	0	0	0	0.0256	0	20	J
4-Isopropyltoluene	ND	0.10	0	0	0	0	0	0	0	20	
n-Butylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
n-Propylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
sec-Butylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
Styrene	ND	0.10	0	0	0	0	0	0	0	20	
tert-Butylbenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,1,1,2-Tetrachloroethane	ND	0.10	0	0	0	0	0	0	0	20	
trans-1,2-Dichloroethene	ND	0.10	0	0	0	0	0	0	0	20	
1,1,2,2-Tetrachloroethane	ND	0.10	0	0	0	0	0	0	0	20	
trans-1,3-Dichloropropene	ND	0.10	0	0	0	0	0	0	0	20	
Trichlorofluoromethane	ND	0.10	0	0	0	0	0	0	0	20	
Vinyl chloride	ND	0.20	0	0	0	0	0	0	0	20	
1,2,3-Trichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,2,4-Trichlorobenzene	ND	0.10	0	0	0	0	0	0	0	20	
1,1,1-Trichloroethane	ND	0.10	0	0	0	0	0	0	0	20	
1,1,2-Trichloroethane	ND	0.10	0	0	0	0	0	0	0	20	
1,2,3-Trichloropropane	ND	0.20	0	0	0	0	0	0	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

Xylenes, Total	ND	0.10	0	0	0	0	0	0	0	20
Surr: 4-Bromofluorobenzene	1.02	0	1	0	102	87.2	119	1.022	0.196	20
Surr: Dibromofluoromethane	0.9382	0	1	0	93.8	75.7	113	0.9482	1.06	20
Surr: Toluene-d8	1.002	0	1	0	100	88.8	113	1.01	0.795	20

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0110055-03a dup** Batch ID: **R2380** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/10/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011010A** SeqNo: **50696**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	1.0	0	0	0	0	0	0	0	20	
Toluene	ND	1.0	0	0	0	0	0	0	0	20	
Ethylbenzene	ND	1.0	0	0	0	0	0	0	0	20	
Methyl tert-butyl ether (MTBE)	ND	1.0	0	0	0	0	0	0	0	20	
1,2,4-Trimethylbenzene	0.26	1.0	0	0	0	0	0	0	0	20	J
1,3,5-Trimethylbenzene	0.206	1.0	0	0	0	0	0	0	0	20	J
1,2-Dichloroethane (EDC)	ND	1.0	0	0	0	0	0	0	0	20	
1,2-Dibromoethane (EDB)	ND	1.0	0	0	0	0	0	0	0	20	
Naphthalene	ND	2.0	0	0	0	0	0	0	0	20	
1-Methylnaphthalene	ND	4.0	0	0	0	0	0	0	0	20	
2-Methylnaphthalene	ND	4.0	0	0	0	0	0	0	0	20	
Bromobenzene	ND	1.0	0	0	0	0	0	0	0	20	
Bromochloromethane	ND	1.0	0	0	0	0	0	0	0	20	
Bromodichloromethane	ND	1.0	0	0	0	0	0	0	0	20	
Bromoform	ND	1.0	0	0	0	0	0	0	0	20	
Bromomethane	ND	1.0	0	0	0	0	0	0	0	20	
Carbon Tetrachloride	ND	1.0	0	0	0	0	0	0	0	20	
Chlorobenzene	ND	1.0	0	0	0	0	0	0	0	20	
Chloroethane	ND	2.0	0	0	0	0	0	0	0	20	
Chloroform	ND	1.0	0	0	0	0	0	0	0	20	
Chloromethane	ND	1.0	0	0	0	0	0	0	0	20	
2-Chlorotoluene	ND	1.0	0	0	0	0	0	0	0	20	
4-Chlorotoluene	ND	1.0	0	0	0	0	0	0	0	20	
cis-1,2-DCE	ND	1.0	0	0	0	0	0	0	0	20	
cis-1,3-Dichloropropene	ND	1.0	0	0	0	0	0	0	0	20	
1,2-Dibromo-3-chloropropane	ND	2.0	0	0	0	0	0	0	0	20	
Dibromochloromethane	ND	1.0	0	0	0	0	0	0	0	20	
Dibromomethane	ND	2.0	0	0	0	0	0	0	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit; J - Analyte detected below quantitation limits; S - Spike Recovery outside accepted recovery limits; R - RPD outside accepted recovery limits; B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

1,2-Dichlorobenzene	ND	1.0	0	0	0	0	0	0	0	20	
1,3-Dichlorobenzene	ND	1.0	0	0	0	0	0	0	0	20	
1,4-Dichlorobenzene	ND	1.0	0	0	0	0	0	0	0	20	
Dichlorodifluoromethane	ND	1.0	0	0	0	0	0	0	0	20	
1,1-Dichloroethane	ND	1.0	0	0	0	0	0	0	0	20	
1,1-Dichloroethene	ND	1.0	0	0	0	0	0	0	0	20	
1,2-Dichloropropane	ND	1.0	0	0	0	0	0	0	0	20	
1,3-Dichloropropane	ND	1.0	0	0	0	0	0	0	0	20	
2,2-Dichloropropane	ND	1.0	0	0	0	0	0	0	0	20	
1,1-Dichloropropene	ND	1.0	0	0	0	0	0	0	0	20	
Hexachlorobutadiene	ND	1.0	0	0	0	0	0	0	0	20	
Isopropylbenzene	ND	1.0	0	0	0	0	0	0	0	20	
4-Isopropyltoluene	ND	1.0	0	0	0	0	0	0	0	20	
Methylene Chloride	ND	3.0	0	0	0	0	0	0	0	20	
n-Butylbenzene	0.188	1.0	0	0	0	0	0	0	0	20	J
n-Propylbenzene	ND	1.0	0	0	0	0	0	0	0	20	
sec-Butylbenzene	ND	1.0	0	0	0	0	0	0	0	20	
Styrene	ND	1.0	0	0	0	0	0	0	0	20	
tert-Butylbenzene	ND	1.0	0	0	0	0	0	0	0	20	
Tetrachloroethene (PCE)	ND	1.0	0	0	0	0	0	0	0	20	
1,1,1,2-Tetrachloroethane	ND	1.0	0	0	0	0	0	0	0	20	
1,1,2,2-Tetrachloroethane	ND	1.0	0	0	0	0	0	0	0	20	
trans-1,2-DCE	ND	1.0	0	0	0	0	0	0	0	20	
trans-1,3-Dichloropropene	ND	1.0	0	0	0	0	0	0	0	20	
Trichloroethene (TCE)	ND	1.0	0	0	0	0	0	0	0	20	
Trichlorofluoromethane	ND	1.0	0	0	0	0	0	0	0	20	
1,2,3-Trichlorobenzene	ND	1.0	0	0	0	0	0	0	0	20	
1,2,4-Trichlorobenzene	ND	1.0	0	0	0	0	0	0	0	20	
1,1,1-Trichloroethane	ND	1.0	0	0	0	0	0	0	0	20	
1,1,2-Trichloroethane	ND	1.0	0	0	0	0	0	0	0	20	
Vinyl chloride	ND	2.0	0	0	0	0	0	0	0	20	
1,2,3-Trichloropropane	ND	2.0	0	0	0	0	0	0	0	20	
Xylenes, Total	ND	1.0	0	0	0	0	0	0	0	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Duplicate

Surr: 1,2-Dichloroethane-d4	8.792	0	0	0	0	74.6	123	9.456	7.28	0
Surr: 4-Bromofluorobenzene	9.994	0	0	0	0	85.6	117	10.24	2.43	0
Surr: Dibromofluoromethane	9.486	0	0	0	0	78.6	115	9.476	0.105	0
Surr: Toluene-d8	10.22	0	0	0	0	84.2	115	10.31	0.857	0

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0109136-01B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50783**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	137.3	5.0	10	128	92.9	30	150	0			

Sample ID: **0109136-11B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **50795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	82.76	2.5	10	72.85	99.1	30	150	0			

Sample ID: **0110066-07B** Batch ID: **R2385** Test Code: **E300** Units: **mg/L** Analysis Date: **10/10/01** Prep Date:
Client ID: Run ID: **WC_011010D** SeqNo: **51123**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.078	0.10	2	0.665	70.7	30	150	0			
Chloride	35.66	0.10	4	31.75	97.7	30	150	0			
Nitrogen, Nitrite (As N)	1.755	0.10	2	0	87.8	30	150	0			
Nitrogen, Nitrate (As N)	5.676	0.10	6	0	94.6	30	150	0			
Phosphorus, Orthophosphate (As P)	3.807	0.50	4	0	95.2	30	150	0			

Sample ID: **0110082-01B** Batch ID: **R2420** Test Code: **E300** Units: **mg/L** Analysis Date: **10/11/01** Prep Date:
Client ID: Run ID: **WC_011011D** SeqNo: **51561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	5.986	0.10	6	0	99.8	30	150	0			
Sulfate	14.18	0.50	10	4.116	101	30	150	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0110055-02a ms** Batch ID: **R2380** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/10/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011010A** SeqNo: **50695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.3	1.0	20	0	107	85.3	120	0			
Toluene	19.63	1.0	20	0	98.1	73	123	0			
Chlorobenzene	20.6	1.0	20	0	103	84.7	119	0			
1,1-Dichloroethene	19.34	1.0	20	0	96.7	83.4	122	0			
Trichloroethene (TCE)	21.27	1.0	20	0	106	76.1	126	0			
Surr: 1,2-Dichloroethane-d4	29.82	0	30	0	99.4	81.5	125	0			
Surr: 4-Bromofluorobenzene	31.96	0	30	0	107	85.6	117	0			
Surr: Dibromofluoromethane	30.2	0	30	0	101	84.2	117	0			
Surr: Toluene-d8	30.75	0	30	0	103	89.4	116	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0110055-02a ms** Batch ID: **R2380** Test Code: **SW8260B** Units: **µg/L** Analysis Date: **10/10/01** Prep Date:

Client ID: Run ID: **NEPTUNE_011010A** SeqNo: **50695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	21.3	1.0	20	0	107	85.3	120	0			
Toluene	19.63	1.0	20	0	98.1	73	123	0			
Chlorobenzene	20.6	1.0	20	0	103	84.7	119	0			
1,1-Dichloroethene	19.34	1.0	20	0	96.7	83.4	122	0			
Trichloroethene (TCE)	21.27	1.0	20	0	106	76.1	126	0			
Surr: 1,2-Dichloroethane-d4	29.82	0	30	0	99.4	81.5	125	0			
Surr: 4-Bromofluorobenzene	31.96	0	30	0	107	85.6	117	0			
Surr: Dibromofluoromethane	30.2	0	30	0	101	84.2	117	0			
Surr: Toluene-d8	30.75	0	30	0	103	89.4	116	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

Hall Environmental Analysis Laboratory

Date: *02-Nov-01*

CLIENT: Duke Engineering & Services
Work Order: 0110064
Project: Bell Trading Post

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **0110042-01C** Batch ID: **R2462** Test Code: **E350.2** Units: **mg/L** Analysis Date: **10/18/01** Prep Date:
Client ID: Run ID: **WC_011018D** SeqNo: **52676**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	11.13	0.10	10	0.98	102	80	120	0			

Sample ID: **0110064-15B** Batch ID: **R2462** Test Code: **E350.2** Units: **mg/L** Analysis Date: **10/18/01** Prep Date:
Client ID: **SB-12 Water** Run ID: **WC_011018D** SeqNo: **52679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	11.06	0.050	10	0.84	102	80	120	0			

Sample ID: **0109165-18B** Batch ID: **R2462** Test Code: **E350.2** Units: **mg/L** Analysis Date: **10/18/01** Prep Date:
Client ID: Run ID: **WC_011018D** SeqNo: **52684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	10.92	0.050	10	0.7	102	80	120	0			

Sample ID: **0110099-01B** Batch ID: **R2462** Test Code: **E350.2** Units: **mg/L** Analysis Date: **10/18/01** Prep Date:
Client ID: Run ID: **WC_011018D** SeqNo: **52688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia	10.5	0.050	10	0.56	99.4	80	120	0			

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: Duke & Eng. & Services, Inc.

Address: 6501 Americas Parkway NE #510
Albuquerque NM 87110

Phone #: (505) 246-1600 Ext. 219
Fax #: (505) 246-2600

Project Name: Bell Trading Post
Project #: 00736.00.0004.02.00011
Project Manager: Joe Tracy
Sampler: Joe Tracy
Samples Cold?: ☐ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HCl	Preservative: N/A	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)	Cyanide 335.4	NMWQCC Metals* 6010/7470/7471	Air Bubbles or Headspace (Y or N)
9/01	0832	Soil	SB-06/0'-2'	2			X	010064-1															X	X	
	0834		SB-06/2'-4'					-2																	
	0908		SB-05/0-2'					-3																	
	0910		SB-05/2'-4'					-4																	
	0937		SB-07/0-2'					-5																	
	0939		SB-07/2'-4'					-6																	
	1002		SB-08/0-2'					-7																	
	1004		SB-08/2'-4'					-8																	
	—		Soil Dup. 1/0-2'					-9																	
	—		Soil Dup 1/2'-4'					-10																	
	1036		SB-09/0-2'					-11																	
	1038		SB-09/2'-4'					-12																	

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
10/9/01	1652	[signature]	[signature] 10/9/01 1650
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:
* NMWQCC Metals = Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver, Copper, Iron, Manganese, Zinc
* — Please Hold 2'-4' Interval Samples

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: DUKE ENG & SERVICES (DEGS)

Address: 6501 AMERICAS PARKWAY NE #810
ALBUQUERQUE, NM 87110

Phone #: (505) 246-1600 EXT. 219

Fax #: (505) 246-2600

Project Name: BELL TRADING POST

Project #: 00736.00.0004.02-00011

Project Manager: JOE TRACY

Sampler: JOE TRACY

Samples Cold?: ☐ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HCl	Preservative: H/A	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg) PH/NHB	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)	CYANIDE 335.4	NMWQCC METALS* 6010/7470/7471	Air Bubbles or Headspace (Y or N)
10/9/01	1108	SOIL	SB-10/0'-2'	2			X	0110064-13															X	X	
	1110	SOIL	SB-10/2'-4'	2				-14																	
	1240	WATER	SB-12/WATER	7				-15										X	X		X		X	X	
	—	WATER	WATER DUPLICATE 1	7				-16										X	X		X		X	X	
	1138	SOIL	SB-11/0-2'	2			X	-17															X	X	
	1140	SOIL	SB-11/2'-4'	2			X	-18															X	X	
	1210	SOIL	SB-12/0-2'	2			X	-19															X	X	
	1212	SOIL	SB-12/2'-4	2			X	-20															X	X	
	1420	SOIL	SB-02/0-2'	2			X	-21															X	X	
	1422	SOIL	SB-02/2'-4'	2			X	-22															X	X	
	1458	SOIL	SB-04/0-2'	2			X	-23															X	X	
	1500	SOIL	SB-04/2'-4'	2			X	-24															X	X	

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Date:
10/9/01	1656	[signature]	[signature]	10/9/01 1656
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks: * NMWQCC METALS = ARSENIC, BARIUM, CADMIUM, CHROMIUM, LEAD, MERCURY, SELENIUM, SILVER, COPPER, IRON, MANGANESE, ZINC

* HOLD 2'-4' INTERVAL SOIL SAMPLES RUN WATER AMMONIA & DR

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: DUKE ENG. & SERVICES

Address: 6501 AMERICAS PARKWAY NE #810
ALBUQUERQUE, NM 87110

Phone #: (505) 246-1600 EXT. 219

Fax #: (505) 246-2600

Project Name: BELL TRADING POST

Project #: 00736.00.0004.02.00011

Project Manager: JOE TRACY

Sampler: JOE TRACY

Samples Cold?: ☐ Yes ☐ No

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: ~~HCl~~ H_2S	Preservative: H_2 N/A	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg) pH/NH_3	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)	CYANIDE 335.4	NMWQCC* METALS 6010/7470/7	Air Bubbles or Headspace (Y or N)
10/9/01	1525	H_2O	SB-04/WATER	7	X	X	X	0110064-25										X	X		X	X	X	X	
	160	H_2O	EQUIPMENT RINSE-1	2				-26															X	X	

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
10/9/01	1656	[signature]	[signature] 10/9/01 1656
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks: * NMWQCC – AL, BA, Hg, SE, AG, CD, CL, Pb, Cu, Fe, MN, ZN

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: DUKE ENG. & SERVICES (DE&S)

Address: 6501 AMERICAS PARKWAY NE #810
ALBUQUERQUE, NM 87110

Phone #: (505) 246-1600 EXT. 219

Fax #: (505) 246-2600

Project Name: BELL TRADING POST

Project #: 00736.00.0004.02.00011

Project Manager: JOE TRACY

Sampler: JOE TRACY

Samples Cold?: ☐ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HCl	Preservative: H/A	HEAL No.
		AIR						
6/9/01	0841	~~SOIL~~ GAS	SB-06 / SOIL GAS	1			X	0110163-27
	0912		SB-05 / SOIL GAS	1			X	-28
	0941		SB-07 / SOIL GAS	1			X	-29
	1007		SB-08 / SOIL GAS	1			X	-30
	1041		SB-09 / SOIL GAS	1			X	-31
	1112		SB-10 / SOIL GAS	1			X	-32
	1143		SB-11 / SOIL GAS	1			X	-33
	1217		SB-12 / SOIL GAS	1			X	-34
	~		SOIL GAS DUPLICATE - 1	1			X	-35
	1428		SB-02 / SOIL GAS	1			X	-36
	1506		SB-04 / SOIL GAS	1			X	-37
			TRIP BLANK					-38

ANALYSIS REQUEST

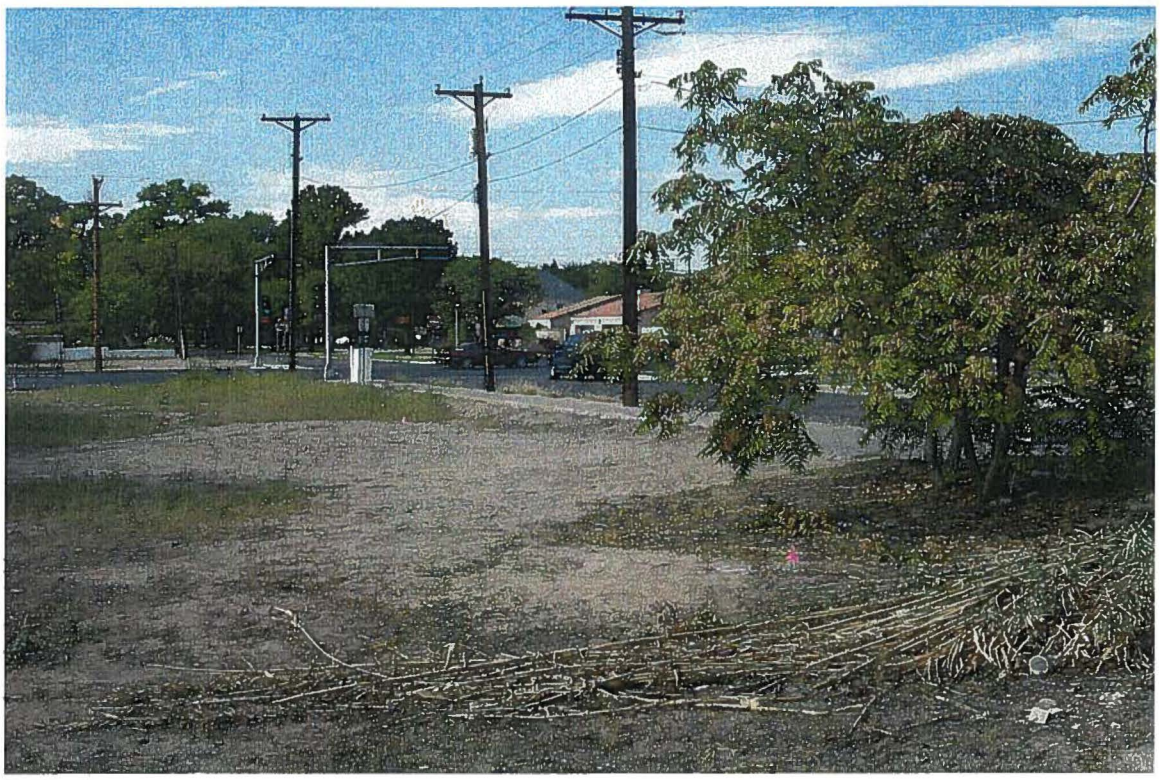
Date	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	Volatiles Full List (8021)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)			Air Bubbles or Headspace (Y or N)
6/9/01													X				
													X				
													X				
													X				
													X				
													X				
													X				
													X				
													X				
													X				
													X				

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
10/9/01	1654	[signature]	[signature] 10/9/01 1656
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks: HALL PROVIDED ONLY 2 TEDLAR BAGS, DE&S PROVIDED THE REMAINING TEDLAR BAGS. PLEASE CHARGE FOR ONLY 2. THANKS [signature]

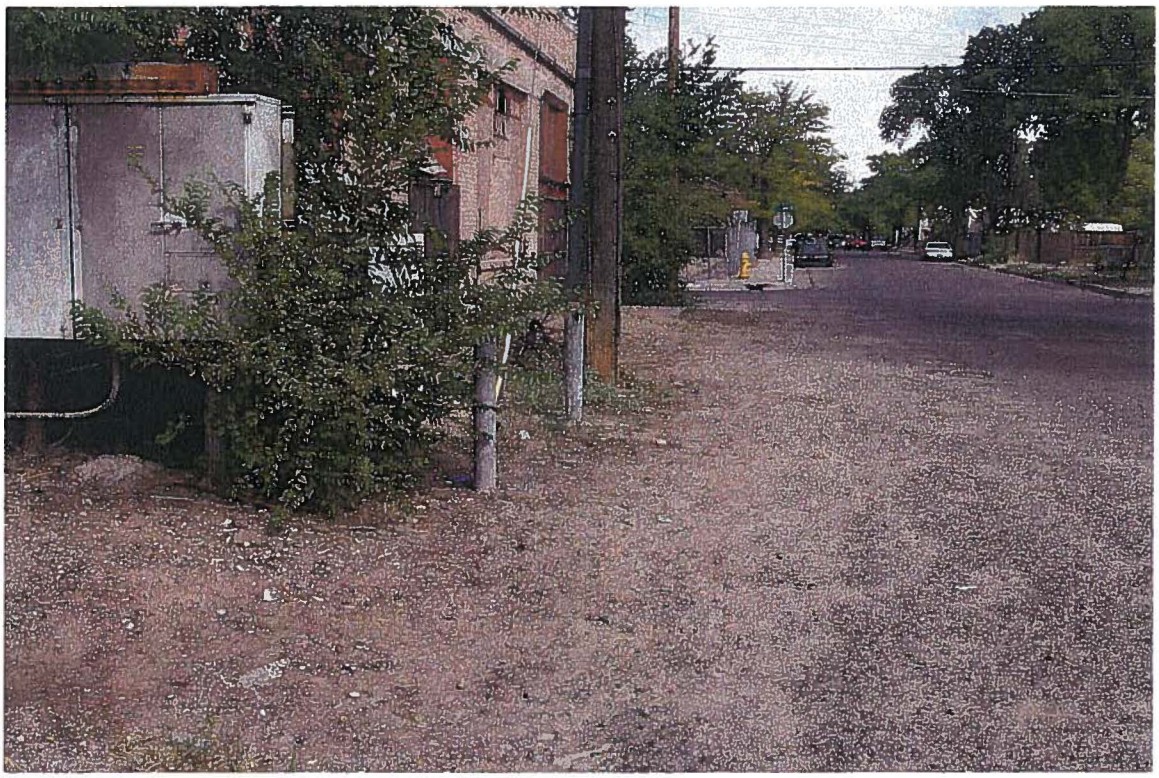
APPENDIX E

Photographic Log

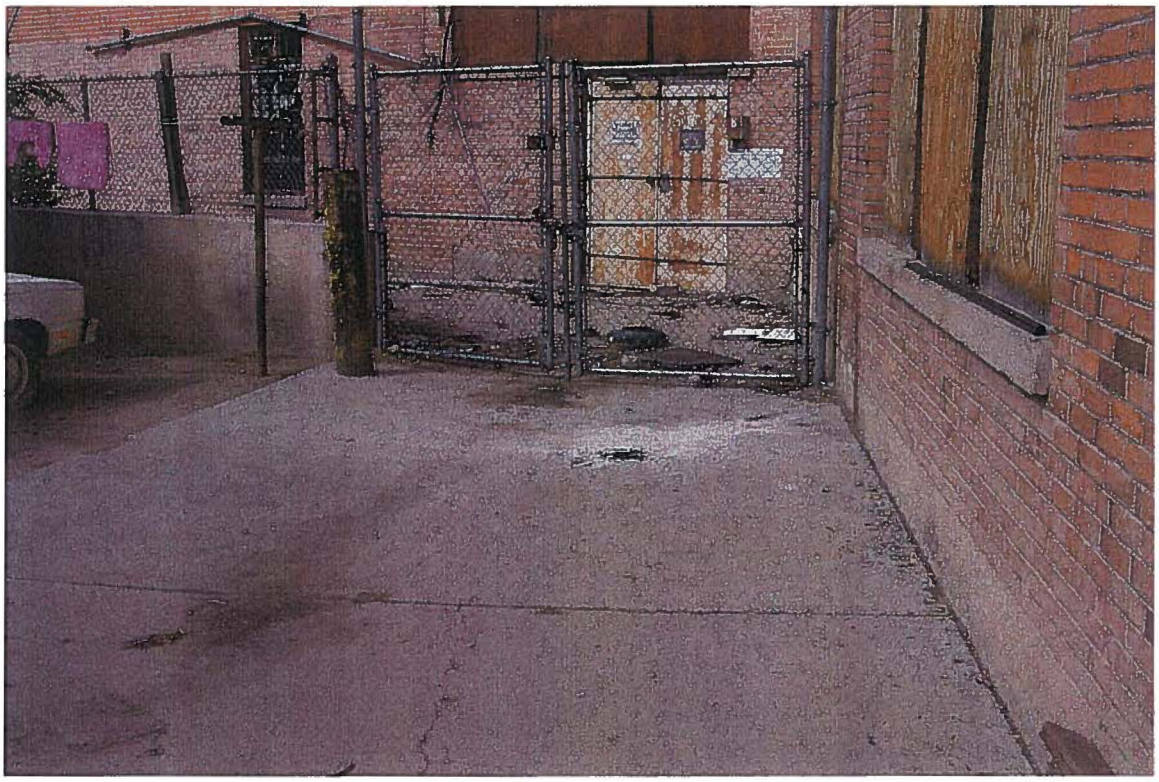


No. 1 – View of the west end of the former Bell Trading Post Property looking south toward Central Avenue (location of soil borings SB-05, SB-06, SB-07, and SB-08).

No. 2 – View of the west end of the former Bell Trading Post Property looking north toward the Bell Trading Post Property building (location of soil borings SB-05, SB-06, SB-07, and SB-08).



No. 5 – View of the former Bell Trading Post property looking north (location of soil borings SB-01 and SB-02).



No. 6 – View of the former Bell Trading Post property looking west into a concrete alley (location of soil boring SB-04).

No. 7 – View of the Geoprobe® subcontractor (GeoRecovery Systems, Inc.) as they advance soil boring SB-03, located at the northwest corner of the former Bell Trading Post property.

No. 8 – View of the pad-mounted transformer located near the northeast corner of the former Bell Trading Post property.