

Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas

September 25, 2007

Prepared for



U.S. Army Corps of Engineers

Kansas City District

Prepared by

MALCOLM PIRNIE



Contract Number: W912DQ-06-D-0006 Project Number: 43243



Table of Contents

1.0	INTRODUCTION	
	1.1 Purpose of Expanded Site Investigation (ESI) Report	1-1
	1.2 Site Description	1-3
	1.3 Regulatory History	1-3
	1.4 Rationale and Technical Approach	1-5
	1.5 Risk-Based Screening Criteria	
	1.6 ESI Report Organization	1-6
2.0	ABANDONED VOC TANKS – IACH (FTRI-013)	2 1
2.0	2.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	
	2.1 Site Education, Land Ose, Potential Migration Faulways, and Receptors	2-1 2-1
	2.2 She Background and Frevious Sampling Results	2-1 2-2
	2.4 Discussion and Recommendations	
3.0	WASTE OIL AST, 3 RD BATTERY (FTRI-016)	
	3.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	
	3.2 Site Background and Previous Sampling Results	
	3.3 ESI Field Activities and Analytical Results	
	3.4 Discussion and Recommendations	3-2
4.0	WASTE OIL AST, 4 TH BATTERY (FTRI-017)	4-1
7.0	4.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	
	4.2 Site Background and Previous Sampling Results	
•	4.3 ESI Field Activities and Analytical Results	
	4.4 Discussion and Recommendations	
5.0	,	
	5.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	
	5.2 Site Background and Previous Sampling Results	
	5.3 ESI Field Activities and Analytical Results	
	5.4 Discussion and Recommendations	5-4
6.0	FIRE TRAINING AREA, CAMP FUNSTON (FTRI-028)	6-1
	6.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	
	6.2 Site Background and Previous Sampling Results	
*	6.3 ESI Field Activities and Analytical Results	
	6.4 Discussion and Recommendations	
7.0	CONICOLIDATED MAINTENIANCE EACH ITY DITH DING 0100 (EPDI 020)	7.1
7.0	CONSOLIDATED MAINTENANCE FACILITY BUILDING 8100 (FTRI-039)	7-1
	 7.1 Site Location, Land Use, Potential Migration Pathways, and Receptors 7.2 Site Background and Previous Sampling Results 	
	7.2 Site Background and Previous Sampling Results7.3 ESI Field Activities and Analytical Results	7-1
	7.4 Discussion and Recommendations	
		7-4
8.0	FORMER OIL TESTING LABORATORY BUILDING 1022 (FTRI-040)	8-1
	8.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	8-1
	8.2 Site Background and Previous Sampling Results	8-1
	8.3 ESI Field Activities and Analytical Results	8-2
	8.4 Discussion and Recommendations	8-3
9.0	FURNITURE REPAIR SHOPS (FTRI-041)	Ω 1
7.∪	9.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	9-1
	7.1 Site Location, Land Ose, I otential infigration rathways, and Receptors	9-1

Table of Contents

ç	9.2 Site Background and Previous Sampling Results	9-3
	9.3 ESI Field Activities and Analytical Results	9-4
	9.4 Discussion and Recommendations	9-6
10.0 I	PRINT AND PUBLICATIONS SHOP BUILDING 263 (FTRI-045)	10-1
1	10.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	10-1
	10.2 Site Background and Previous Sampling Results	10-1
	10.3 ESI Field Activities and Analytical Results	10-2
1	10.4 Discussion and Recommendations	10-2
11.0 I	BUILDING 727 WASTE PIT (FTRI-051)	11-1
1	11.1 Site Location, Land Use, Potential Migration Pathways, and Receptors	11-1
1	11.2 Site Background and Previous Sampling Results	11-1
	11.3 ESI Field Activities and Analytical Results	11-2
1	11.4 Discussion and Recommendations	11-3
12.0 I	REFERENCES	12-1
APPE	ENDIX A – SURVEY DATA	
APPE	ENDIX B – BORING LOGS	

List of Tables

Table No.	Title	
-		
1-1	ESI Site Summary	
6-1	Groundwater Detections 2004 – 2006, Fire Training Area, Camp Funston (FTRI-028)	
7-1	Soil Detections, Consolidated Maintenance Facility Building 8100 (FTRI-039)	
8-1	Soil Detections, Former Oil Testing Laboratory Building 1022 (FTRI-040)	
8-2	Groundwater Detections, Former Oil Testing Laboratory Building 1022 (FTRI-040)	
9-1	Soil Detections, Furniture Repair Shops (FTRI-041)	
9-2	Groundwater Detections, Furniture Repair Shops (FTRI-041)	
11-1	Soil Detections, Building 727 Waste Pit (FTRI-051)	
11-2	Groundwater Detections, Building 727 Waste 1 (17 KI-051)	

List of Figures

Figure No.	Title
1-1	Site Location Map
1-1	Site Location Wap
2-1	FTRI-013 Abandoned VOC Tanks
3-1	FTRI-016/017 Waste Oil AST 3 rd /4 th Batteries
5-1	FTRI-018 Fire Training Area Facility 892
5-2	FTRI-018 Groundwater Screening Results (BMcD, 1999)
5-3	FTRI-018 Subsurface Soil Results (BMcD, 1999)
6-1	FTRI-028 Fire Training Area, Camp Funston
7-1	FTRI-039 Consolidated Maintenance Facility Building 8100
. 7-2	FTRI-039 ESI Soil Detections
8-1	FTRI-040 Former Oil Testing Laboratory Building 1022
8-2	FTRI-040 ESI Soil Detections
8-3	FTRI-040 ESI Groundwater Detections
9-1	FTRI-041 Furniture Repair Shop Building 319
9-2	FTRI-041 Furniture Repair Shop Buildings 1301 and 1605
9-3	FTRI-041 Building 319 Soil Gas Results (LBA, 1995)
9-4	FTRI-041 Building 1301 Soil Gas Results (LBA, 1994)
9-5	FTRI-041 Building 1605 Soil Gas Results (LBA, 1994)
9-6	FTRI-041 ESI Soil Detections Building 319
9-7	FTRI-041 ESI Groundwater Detections Building 319
9-8	FTRI-041 ESI Soil Detections Buildings 1301 and 1605
9-9	FTRI-041 ESI Groundwater Detections Buildings 1301 and 1605
10-1	FTRI-045 Print and Publications Shop Building 263
10-2	FTRI-045 Soil Gas Locations & Detections (LBA, 1995)
10-3	FTRI-045 Soil Boring Locations & Detections (LBA, 1995)
11-1	FTRI-051 Building 727 Waste Pit
11-2	FTRI-051 Sampling Locations & Detections (LBA, 1995)
11-3	FTRI-051 ESI Soil Detections
11-4	FTRI-051 ESI Groundwater Detections

List of Acronyms and Abbreviations

AEHA Army Environmental Hygiene Agency

AST aboveground storage tank

BMcD Burns & McDonnell Engineering Company, Inc.

BTEX benzene, toluene, ethylbenzene, and xylene

bgs below ground surface

CCC Civilian Conservation Corps

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

DA United States Department of the Army

DAF Dilution Attenuation Factor

1,2-DCA 1,2-dichloroethane

4,4'-DDE 4,4'-dichlorodiphenyldichloroethylene

DRO diesel range organics
EDB 1,2-dibromoethane

ESI Expanded Site Investigation
FFA Federal Facility Agreement
flame ionization detector

FS feasibility study

ft feet

GRO gasoline range organics
HRS Hazard Ranking System

IACH Irwin Army Community Hospital IRP Installation Restoration Program

IWSA Installation-Wide Site Assessment for Fort Riley, Kansas

J estimated

KDHE Kansas Department of Health and the Environment KPSRL Kansas Petroleum Site Remediation Level (s)

LBA Louis Berger and Associates

MAAF Marshall Army Airfield
Mayimum Contominant Lo

MCL Maximum Contaminant Level

MOGASmotor gasolineMPMalcolm Pirnie, Inc.μg/kgmicrograms per kilogramsμg/Lmicrograms per litermg/kgmilligram per kilogrammg/Lmilligram per liter

NCP National Contingency Plan NPL National Priorities List

PA Preliminary Assessments
PAOC Potential Area of Concern
PCB polychlorinated biphenyl

PCE Tetrachloroethene

List of Acronyms and Abbreviations

PID photoionization detector

ppm parts per million

POL Petroleum, Oil, and Lubricant PRG Preliminary Remediation Goal

PWE Directorate of Public Works – Environmental Division

QA quality assurance

QCSR Quality Control Summary Report

RCRA Resource Conservation and Recovery Act

RI remedial investigation

RSK Risk-Based Standards for Kansas

SI Site Investigation

SVOC Semivolatile Organic Compound

TCE Trichloroethene

TEPH total extractable petroleum hydrocarbon

TPH total petroleum hydrocarbon

TVPH total purgeable petroleum hydrocarbon

USACE United States Army Corps of Engineers

USEPA United States Environmental Protection Agency

UST Underground Storage Tank

VOC Volatile Organic Compound

1.0 INTRODUCTION

1.1 PURPOSE OF EXPANDED SITE INVESTIGATION (ESI) REPORT

The Fort Riley Directorate of Public Works – Environmental Division (PWE) is performing the Installation Restoration Program (IRP) at Fort Riley, Kansas. This program, designed to identify and address potential threats to human health and the environment, has been underway for several years at the post. Numerous investigations, pilot studies, and environmental sampling events have been conducted by the United States Army Corps of Engineers (USACE) at several sites on the post to support the IRP effort.

Upon review of the public record, Fort Riley has determined that multiple potentially contaminated sites identified during previous investigations have not had a formal decision on their regulatory status signed by the parties to the Federal Facility Agreement (FFA). These multiple sites have been organized into five groups based on similar site characteristics or contaminants as indicated below:

- Pesticide / Polychlorinated Biphenyl (PCB) Sites
- Wastewater Sites
- Petroleum / Volatile Organic Compound (VOC) Sites
- Former Landfill / Incinerator Sites
- Former Vehicle Maintenance Shops / Gas Stations / Petroleum Dispensing Stations (collectively referred to as the Former Petroleum, Oil, and Lubricant [POL] Sites)

Table 1-1 presents a summary of the regulatory history for all of the sites investigated by group and includes the recommendation made for closed status. Any proposal for additional sampling is also presented, if applicable.

This ESI Report presents the field results and recommendations for the following Petroleum / VOC Sites (Figure 1-1):

- Abandoned VOC Tanks Irwin Army Community Hospital (IACH) (FTRI-013)
- Waste Oil' Aboveground Storage Tank (AST), 3rd Battery (FTRI-016)
- Waste Oil AST, 4th Battery (FTRI-017)
- Fire Training Area Facility 892 (FTRI-018)
- Fire Training Area, Camp Funston (FTRI-028)
- Consolidated Maintenance Facility Building 8100 (FTRI-039)

- Former Oil Testing Laboratory Building 1022 (FTRI-040)
- Furniture Repair Shops (FTRI-041)
- Print and Publications Shop Building 263 (FTRI-045)
- Building 727 Waste Pit (FTRI-051)

This report includes a complete summary of all previous investigative work conducted at each of the Petroleum / VOC Sites, as well as the results of field work completed as part of the ESI. The evaluation includes a critical analysis of the new data with respect to the historical data. The analysis considers whether or not the new data are consistent with the historical data and includes possible explanations for any variance observed. A recommendation on the determination of the future status of each of the Petroleum / VOC Sites is made.

Malcolm Pirnie, Inc. (MP) has a contract with the USACE to conduct this investigation. MP has subcontracted Burns & McDonnell Engineering Company, Inc. (BMcD) to prepare work plan documents, execute the field work, and prepare the ESI Reports.

The following installation-wide documents provided general guidance for conducting ESI field activities during the summer of 2006:

- Installation-Wide Sampling and Analysis Plan for Environmental Investigations at Fort Riley, Kansas (MP-BMcD, 2004a), which consists of the following two volumes:
 - Volume I, Installation-Wide Field Sampling Plan
 - Volume II, Installation-Wide Quality Assurance Project Plan
- Installation-Wide Site Safety and Health Plan for Environmental Investigations at Fort Riley, Kansas (MP-BMcD, 2004b)
- Installation-Wide Investigative-Derived Waste Management Plan for Environmental Investigations, Fort Riley, Kansas (BMcD, 2003)

The following project specific plan addenda were prepared specifically to support ESI field activities and data validation:

• Sampling and Analysis Plan Addendum, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas (MP-BMcD, 2006a), which consists of the following two volumes:

- Volume I, Field Sampling Plan Addendum
- Volume II, Quality Assurance Project Plan
- Site-Specific Safety and Health Plan, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas (MP-BMcD, 2006b)
- Investigative-Derived Waste Management Plan Addendum, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas (MP-BMcD, 2006c)

1.2 SITE DESCRIPTION

General site conditions, including the physical setting, surface features, ecology, geology and hydrogeology, and climate have been summarized in the Installation-Wide Field Sampling Plan. Conditions specific to each ESI site are addressed in the individual site discussions.

1.3 REGULATORY HISTORY

Fort Riley was established in 1853 and has been owned and operated by the United States Department of the Army (DA) since that time. Environmental investigations and sampling events were performed at Fort Riley during the 1970s and 1980s. These investigations identified activities and facilities where hazardous substances had been released or had the potential to be released to the environment. Potential sources of contamination include a variety of landfills; printing, dry cleaning, and furniture shops; POL sites; and pesticide storage facilities. On July 14, 1989, the United States Environmental Protection Agency (USEPA) proposed inclusion of Fort Riley on the National Priorities List (NPL), and listed the installation on the USEPA NPL in August 1990, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The DA – Fort Riley, the Kansas Department of Health and the Environment (KDHE) and the USEPA entered into a FFA, to address environmental releases subject to Resource Compensation and Recovery Act (RCRA) and CERCLA or CERCLA alone.

The FFA, which became effective in June 1991, required Fort Riley to conduct a systematic site assessment to identify all potential areas of concern (PAOCs) at Fort Riley. The systematic site assessment was performed in 1992, with the results presented in the *Installation-Wide Site Assessment for Fort Riley, Kansas* (IWSA) dated 07 December 1992 and revised on 16 February 1993 (Louis Berger and Associates [LBA], 1993). The IWSA summarized existing data and identified 25 groups of PAOCs, with 23 sites being identified for further site investigation. Contaminants associated with these sites vary greatly from potential lead-contaminated soils at old firing ranges to potential releases of solvents due to practices at furniture repair shops. The IWSA was conducted consistent with the USEPA requirements

for Preliminary Assessments (PA) under CERCLA. Based on USEPA's PA method, potential risk posed by PAOCs was estimated using the Hazard Ranking System (HRS). The IWSA identified PAOCs subject to RCRA corrective actions and/or CERCLA where a release of hazardous substances to the environment has occurred or is considered likely, migration pathways from the site exist, and potential receptors are known to exist. Specifically, 23 PAOCs were identified and evaluated using the HRS PA score methodology. As outlined in the National Contingency Plan (NCP), the results of the PA were used to identify sites requiring further investigation.

These PAOCs were addressed under a Multiple Site Investigations project which was further broken down into these groupings: the Sensitive Receptor Lead Sites; "High Priority" Sites; and "Other Sites". The Sensitive Receptor Lead Sites investigation was expedited due to the accessibility of the areas to the general public (especially children). Only one area near the Coyler Manor Family Housing Area was identified as having elevated levels of lead in the soils, and a removal action involving excavation and off-site disposal of soil was performed. The High Priority Sites field investigations were completed in November 1993. The "Other Sites" grouping consisted of 14 sites which had very low PA HRS scores and had a low potential for release of contaminants to the environment. Field work for these "Other" sites was performed in the spring and summer of 1994. Site investigations for seven POL / underground storage tank (UST) sites were conducted from 1992 to 1995.

Fort Riley has a RCRA Part B permit that became effective October 1, 1998 and expires October 1, 2008. Part I of the permit allows Fort Riley to operate as a storage facility for hazardous waste. Part II of the permit defers corrective action requirements to those conditions specified in the Fort Riley FFA.

The permit states that the Installation-Wide Site Assessment and subsequent modifications thereto, shall constitute the identification of all known past and present sites/solid waste management units (SWMUs), effective with the issuance of Part II of the permit. Table 2.2 of the permit lists sites/SWMUs covered under the FFA and their current status (revised October 2000). The current status of the ESI sites/groupings listed in the permit are determined to not have the potential to pose a risk to human health or the environment. Although the RCRA permit states these sites pose no potential risk, the regulatory status under CERCLA is currently open; i.e., the sites have not received regulatory concurrence to terminate further response activities or to initiate a removal or to proceed to the next phase under CERCLA for a remedial investigation, if warranted.

1.4 RATIONALE AND TECHNICAL APPROACH

The objective of this ESI was to provide a defensible rationale for ending environmental investigations at the identified ESI sites, if that decision was supported by data. In the event that closed status was not supported by the data, then future work required for closed status was proposed. This was accomplished using a three step process:

- Documents were reviewed in late 2005 to determine if existing data were sufficient to support
 a recommendation for the future status of a site. If not sufficient, then data gaps were
 identified and additional fieldwork was planned. ESI sampling parameters were selected by
 Fort Riley.
- The project workplan was prepared (MP-BMcD, 2006d). This document presented the rationale for the collection of samples at each location and was approved by the regulatory agencies.
- Additional field sampling was conducted during the summer of 2006. Samples collected
 included surface and subsurface soil samples, groundwater samples, debris samples, and
 wipe samples. All results were validated and a Quality Control Summary Report (QCSR)
 was issued (MP-BMcD, 2006e).
- The data were evaluated and an ESI Report was prepared. Data collected as part of the ESI
 were compared to existing risk-based screening criteria. This process is described in the
 following section. See Section 1.6 for a description of the ESI Report organization.

1.5 RISK-BASED SCREENING CRITERIA

Field data were screened against existing risk-based screening criteria in order to determine if contaminants detected in soil or groundwater present a hazard to potential receptors. No effort was made to perform a formal risk assessment for any of the ESI sites. The screening process was developed in collaboration with Fort Riley and is described in the following bullets:

• Data were screened initially against USEPA Region 9 Preliminary Remediation Goals (PRGs) (USEPA, 2004a). These are risk-based standards and are more stringent than other regulatory standards available. For soil, the residential PRGs were used initially. For groundwater, the tap water PRGs were applied. If leaching to groundwater appeared to be a potential issue, then the soil data were screened against the dilution attenuation factor (DAF) 20 standards for "migration to groundwater."

- If soil at a site failed screening against the Region 9 residential PRGs, then the industrial PRGs were applied, assuming their use was justified based on current and/or future use of the site.
- If groundwater at a site failed screening against the tap water PRGs, then the USEPA Maximum Contaminant Levels (MCLs) (USEPA, 2004b) were applied.
- If soil failed screening against both residential and industrial PRGs, then the KDHE Risk-Based Standards for Kansas (RSK) screening standards (KDHE, 2003) were applied.
- If soil and/or groundwater failed screening against all regulatory standards, then an effort was made to justify closed status based on the lack of completed pathways to potential receptors. This was a qualitative assessment; no formal risk assessment was performed.

In the event that a recommendation for closed status could not be made, then recommendations were made for additional work at that location.

1.6 ESI REPORT ORGANIZATION

Each section of this ESI Report (Sections 2 through 11) consists of individual, stand alone descriptions of each site. Each discussion includes the following elements:

- Location and Setting a brief description of the physical location of the site, including the
 nature of the surrounding area. A description of geology and hydrogeology is included. Any
 protected or special ecological and cultural features observed or known to occur at or near the
 site are described. Any significant receptors, especially water supply wells, are also
 described.
- Site Background and Previous Sampling Results This section includes a brief history of the site. Also discussed are any previous site investigation activities and a discussion of analytical results from those activities.
- ESI Field Activities and Analytical Results Significant observations which drove the sampling rationale are listed. The field activities are described in detail. A figure and table are provided showing the locations where samples were collected and listing the sampling media and analytes.

Discussion and Recommendations – This section provides a discussion of both previous and
ESI sampling results. Any anomalies in the data sets are described and explained, if possible.
Based on a comparison of analytical data to screening criteria, a recommendation for closed
status was made. If closed status is not indicated, then a recommendation for additional work
was made.

This ESI Report, which addresses only the Petroleum / VOC Sites (Group Three), is organized as follows:

•	Section 1.0	Introduction
•	Section 2.0	Abandoned VOC Tanks – IACH (FTRI-013)
•	Section 3.0	Waste Oil AST, 3 rd Battery (FTRI-016)
•	Section 4.0	Waste Oil AST, 4 th Battery (FTRI-017)
•	Section 5.0	Fire Training Area Facility 892 (FTRI-018)
•	Section 6.0	Fire Training Area, Camp Funston (FTRI-028)
•	Section 7.0	Consolidated Maintenance Facility Building 8100 (FTRI-039)
•	Section 8.0	Former Oil Testing Laboratory Building 1022 (FTRI-040)
•	Section 9.0	Furniture Repair Shops (FTRI-041)
•	Section 10.0	Print and Publications Shop Building 263 (FTRI-045)
•	Section 11.0	Building 727 Waste Pit (FTRI-051)
•	Section 12.0	References

Additional reports will address the other four groups of ESI sites. Figure 1-1 shows the location of the Petroleum / VOC Sites.

2.0 ABANDONED VOC TANKS - IACH (FTRI-013)

2.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The abandoned VOC tanks (FTRI-013) were located approximately one-half mile north of the IACH in Camp Whitside (Figures 1-1 and 2-1). The Site consisted of two 650-gallon World War I-era tanks. Each tank was riveted steel, 3 feet (ft) in diameter, and 11 ft long. A short 2-inch stand pipe with a gate valve was on top of each tank. The tanks were covered with approximately five inches of soil; however, the tanks were exposed at the middle sections and east ends (Army Environmental Hygiene Agency [AEHA], 1988). The tanks were removed in September 1990.

The Site is located at the southern margin of the upland area of Fort Riley. The Site is underlain by bedrock (interbedded limestone and shale) which is covered by shallow unconsolidated material that consists of residual soil. The depth to bedrock as determined in the field investigation ranged from 1 to 2 ½ ft below ground surface (bgs). Groundwater was not encountered during the field investigation; however, groundwater in this area could occur at the interface between bedrock and the unconsolidated material, and within voids and fractures in the bedrock. Groundwater would be expected to flow to the southeast, towards the Kansas River flood plain. The Kansas River is located approximately 4,000 ft to the east of the Site.

There are no water supply wells in the immediate vicinity of the Site. The Fort Riley well field is located approximately 2 miles west-southwest of the Site, in the floodplain of the Republican River. The well field for the community of Ogden is located approximately 4 miles east-northeast of the Site, in the floodplain of the Kansas River. There are privately owned supply wells approximately 1½ miles to the southeast of the Site; however, they are on the opposite side of the Kansas River, which is a hydrologic boundary of the Kansas River alluvial aquifer.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at this location, based on the post environmental overlay, is anticipated to be open space.

2.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

The tanks were put into use in the 1920s for fuel storage to support a gravity flow fuel operation for quarrying. The tanks were used to store solvent during World War II. The solvent storage operating practices at this time are not known. As of 1988, the tanks were in a deteriorated state, with open stand

pipes. A strong odor was present and each tank contained about 100 gallons of material. The tanks contained primarily tetrahydrothiophene, and benzene, toluene, ethylbenzene, and xylene (BTEX) at concentrations greater than 10,000 parts per million (ppm) (AEHA, 1988). As previously stated, the tanks were removed subsequent to the late 1980s.

According to information provided by Fort Riley, a Draegar tube field test showed 110 ppm total petroleum hydrocarbon (TPH) during the 1990 KDHE "Buried Tank Leak Assessment." No other previous sampling data were available for this Site.

2.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

An attempt was made to advance four direct-push borings in the vicinity of the former tank locations (Figure 2-1). However, due to shallow refusal (limestone bedrock at 1 to 2 ½ ft bgs) and the nature of the material present, the collection of continuous samples using a 2-inch MacrocoreTM sampler was not possible. One soil sample was collected from each direct-push boring at the depth interval of 0 - 0.5 ft bgs. The soil sample planned for collection from 4 - 5 ft bgs was not collected due to shallow bedrock. Soil samples were screened using a photoionization detector (PID), with all readings at background. The soil samples were analyzed at an off-site laboratory for VOCs (USEPA Method 8260) and TPH – gasoline range organics (GRO) (USEPA Method 8015). No VOCs or TPH-GRO were detected in any of the soil samples.

Following the completion of field activities at the Site, all direct-push boring locations were surveyed. The survey data are included in Appendix A.

2.4 DISCUSSION AND RECOMMENDATIONS

As neither VOCs nor TPH-GRO were detected in the soil samples collected, the abandoned VOC Tanks Site (FTRI-013) is recommended for closed status.

3.0 WASTE OIL AST, 3RD BATTERY (FTRI-016)

3.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The Waste Oil AST for the 3rd Battery (FTRI-016) was located to the northwest of the Tactical Equipment Shop Building 7740 between Apennines Drive and Kitty Drive in the Custer Hill Troop Area (Figures 1-1 and 3-1). The 400-gallon used oil storage tank was placed in a truck bed, and surrounded by gravel and dry clean sweep material. The truck bed was on a paved surface. It has been decommissioned and removed. Two 1,000-gallon above ground tanks with built-in secondary containment were installed in June 1996.

The Site is located on the upland area of Fort Riley and is underlain by bedrock (interbedded limestone and shale) covered by shallow unconsolidated material. The unconsolidated soil consists of residual material and possibly loess. Depth to bedrock in the Custer Hill Troop Area typically ranges from 5 to 15 ft bgs. Groundwater is not typically found in the unconsolidated soils. Groundwater can occur in this area at the interface between bedrock and the unconsolidated material and within voids and fractures in the bedrock. Based on local topography, groundwater would be expected to flow west toward Dixon Creek.

The Fort Riley well field is located approximately 3 miles south-southwest of the Site, in the floodplain of the Republican River. The well field for the community of Ogden is located approximately 5 miles east of the Site, in the floodplain of the Kansas River. Aquifers in the upland area of Fort Riley do not have sufficient yield to support large capacity supply wells. There are no water supply wells located in the vicinity of Building 7740.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at this location, based on the post environmental overlay, is anticipated to be maintenance.

3.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

The 400-gallon AST was used for the storage of used motor oil. The tank was filled by the contents of 15-gallon cans dumped into the top hole. The tank was emptied when full by a used oil recycler. In the AEHA report, it was noted that it was unlikely that the operations of the used oil tank would cause material migration to the environment and that the integrity of the containment structures was well designed. The report also noted that at the time of the visit the tank was well maintained with no visual

signs of leaks, the used oil was well-contained, and was located on an impermeable surfaced lot (AEHA, 1988). The date the tank was placed into service is unknown, and sometime after 1988 the AST was decommissioned and removed. During a Site visit in 2006, the paved area where the AST had been located was free of noticeable stains.

No previous sampling data are available.

3.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

No ESI field activities were conducted at Waste Oil AST, 3rd Battery Area.

3.4 DISCUSSION AND RECOMMENDATIONS

As no known environmental impacts are associated with this Site, this Site is recommended for closed status.

4.0 WASTE OIL AST, 4TH BATTERY (FTRI-017)

4.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The Waste Oil AST for the 4th Battery (FTRI-017) was located to the northwest of the Tactical Equipment Shop Building 7720 between Apennines Drive and Kitty Drive in the Custer Hill Troop Area (Figures 1-1 and 3-1). The 400-gallon used oil storage tank was on pallets over a concrete surface. It has been decommissioned and removed. Two 1,000-gallon above ground tanks with built-in secondary containment were installed in April and June 1996.

The Site is located on the upland area of Fort Riley and is underlain by bedrock (interbedded limestone and shale) covered by shallow unconsolidated material. The unconsolidated soil consists of residual material and possibly loess. Depth to bedrock in the Custer Hill Troop Area typically ranges from 5 to 15 ft bgs. Groundwater is not typically found in the unconsolidated soils. Groundwater can occur in this area at the interface between bedrock and the unconsolidated material and within voids and fractures in the bedrock. Based on local topography, groundwater would be expected to flow west toward Dixon Creek.

The Fort Riley well field is located approximately 3 miles south-southwest of the Site, in the floodplain of the Republican River. The well field for the community of Ogden is located approximately 5 miles east of the Site, in the floodplain of the Kansas River. Aquifers in the upland area of Fort Riley do not have sufficient yield to support large capacity supply wells. There are no water supply wells located in the vicinity of Building 7720.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at this site, based on the post environmental overlay, is anticipated to be maintenance.

4.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

The 400-gallon converted water tank was used for the storage of used motor and gear oil. The AEHA report indicates that the approximate date of use were from 1987 to 1988. The AEHA report also noted that the operation was not well maintained, and the survey team observed spilled oil in the vicinity of the AST (AEHA, 1988). The tank was located on a concrete pad and dry sweep was available for potential spills. There was the potential for surface water exposure through the nearby storm drain. Sometime

after 1988 the AST was decommissioned and removed. During a Site visit in 2006, the paved area where the AST had been located was free of noticeable stains.

No previous sampling data are available.

4.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

No ESI field activities were conducted at Waste Oil AST, 4th Battery Area.

4.4 DISCUSSION AND RECOMMENDATIONS

As no known environmental impacts are associated with this Site, this Site is recommended for closed status.

5.0 FIRE TRAINING AREA FACILITY 892 (FTRI-018)

5.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The former Fire Training Area Facility 892 is located off Marshall Drive, along the southeastern boundary of Marshall Army Airfield (MAAF) (see Figures 1-1 and 5-1). The facility was constructed in 1987 to provide a training area for the crash rescue unit of the Fort Riley Fire Department after the former fire training area at the north end of the airfield was closed. The burn pit consisted of a 75-ft by 75-ft concrete pad surrounded by a six-inch concrete curb. The area immediately surrounding the concrete pad consisted of crushed aggregate paving. The concrete pad, upon which the fire training exercises were conducted, was designed to drain (via an underground drainage line) through an oil/water separator to the sanitary sewer. Product removed from the oil/water separator was stored in a 550-gallon UST. Fuel was stored on the Site in a 4,000-gallon UST (BMcD, 1998). The USTs, underground piping, concrete pad, oil/water separator, and associated piping have been removed, and the area is overgrown with native grasses (BMcD, 1998). The Site is flat and a ditch parallels Marshall Drive on the southeastern perimeter of the Site.

The Site is located approximately 3,500 ft east of the Kansas River. The Site lies within the southeast margin of the Kansas River alluvial floodplain, and is underlain by clay, silt, and sand of the Kansas River alluvial aquifer. Groundwater flows generally toward the north-northeast at MAAF and the water table is typically between 20 and 25 ft bgs (BMcD, 1998). Alluvial deposits can reach a thickness of up to 70 ft near the river and decrease in thickness toward the valley margin. The alluvium tends to coarsen with depth and lies on bedrock composed of limestone and shale (BMcD, 1998). The Kansas River alluvial aquifer is a source of drinking water at Fort Riley and surrounding communities.

Although the Site is located within the 500-year floodplain, it is considered unlikely that such a flood event would coincide with a burn event at the Site. There are no direct drainages from the Site to the river (LBA, 1993).

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at this site, based on the post environmental overlay, is anticipated to be as an airfield.

5.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

This Site was first used for training beginning in 1988 and ending in 1991. The exercises were conducted by releasing fuel onto the concrete pad, followed by ignition of the fuel and extinguishing the resultant fire. The type of fuel used was reportedly JP-4, composed of approximately 65% gasoline and 35% kerosene; however, it is unknown whether the fuel was pure or a mixture of other petroleum POL products. The fuel was released onto the concrete pad from a 4,000-gallon UST through underground lines connected to the pad. At the conclusion of the training session, the pad was washed down with water which drained into the oil/water separator prior to discharge to the sanitary sewer (BMcD, 1998).

The two USTs at the Site (Tank 892A – water/used fuel storage and Tank 892B – fuel storage) were removed in March 1996, and the Site received a "closed" status from the KDHE. The underground piping, concrete pad, and oil/water separator were removed concurrently with the USTs. Soil samples collected from around the USTs and associated piping showed no measurable contamination present. BMcD inferred from the Permanent Tank Abandonment Report that the samples were screened on the Site visually and with a PID. However, the report did not specify how the samples were screened. In addition, the report stated that no groundwater was encountered during the UST removal, thus BMcD assumed that no groundwater samples were collected (BMcD, 1998).

As previously stated, the Kansas River alluvial aquifer is a source of drinking water. All of Fort Riley's supply wells are located upgradient of the 892 Site. The one supply well located at MAAF (a back-up supply) is located approximately one mile upgradient of the Site. The nearest public supply wells are those for the community of Ogden, which are located approximately 4 miles to the northeast of the Site. These supply wells are on the other side of the Kansas River, which is a hydrologic boundary for the alluvial aquifer system. There are no other public supply wells within 4 miles of the Site. There are no identifiable overland migration pathways from the Site to the river.

In 1998, BMcD conducted a field investigation, which included a soil-gas survey for VOCs; groundwater screening sampling for BTEX, trichloroethene (TCE), tetrachloroethene (PCE), and cis-1,2-dichloroethene; groundwater confirmation sampling for VOCs; and subsurface soil sampling for VOCs. Results are presented in the following bullets:

 Only BTEX compounds were detected in the soil-gas samples, with the highest concentrations located in a boring in the former crushed aggregate paving south of the former concrete pad. Concentrations of benzene, toluene, ethylbenzene, and xylenes in soil-gas samples from this location were 8,000, 4,000, 200, and 500 micrograms per liter (µg/L), respectively. (BMcD, 1998).

- BTEX were the only compounds detected in the groundwater screening samples, with the highest concentrations located inside the former fenced UST area located just outside the former crushed aggregate paving area on the southeastern portion of the Site. These detections were below the USEPA MCLs, with the exceptions of two sample locations that had benzene detections above the MCL (7,000 and 6 μg/L). These locations were near the former USTs which appeared to be the source of the groundwater contamination. The extent of groundwater contamination was not defined (BMcD, 1998).
- The groundwater confirmation samples compared reasonably well with the screening samples, but only benzene, toluene, and xylenes were detected. No confirmation samples were collected in the vicinity of the former USTs (BMcD, 1998).
- There were no detections in the subsurface soil samples (BMcD, 1998).

In 1999, BMcD conducted additional field sampling which included groundwater screening sampling for BTEX and subsurface soil sampling for benzene, 1,2-dichloroethane (1,2-DCA), 1,2-dibromoethane (EDB), total extractable petroleum hydrocarbons (TEPH), and total purgeable petroleum hydrocarbons (TVPH) in the vicinity of the UST basin. Additionally, three monitoring wells (892-99-01, 892-99-02, and 892-99-03) were installed based on the results of the groundwater field screening and were sampled for VOCs, naphthalene, and EDB. Results are presented in the following bullets:

- BTEX compounds were detected in at least 2 of the 15 groundwater screening samples, with the highest concentrations located inside the former fenced UST area located just outside the former crushed aggregate paving area on the southeastern portion of the Site (Figure 5-2). Detections were below the USEPA MCLs, with the exceptions of two sample locations that had benzene detections above the MCL (8,000 and 6 μg/L). These locations were near the former USTs which appeared to be the source of the groundwater contamination (BMcD, 1999).
- Benzene, TVPH, and TEPH as kerosene were detected in soil samples collected from one
 of the two borings, but only TVPH was detected in the second boring (Figure 5-3).
 Levels of both TEPH and TVPH detected from one of the borings exceeded the Kansas
 Petroleum Site Remediation Level (KPSRLs). TVPH was also detected in the other

boring; however, due to the discrepancy between the reported concentration and the concentration reported by the Quality Assurance (QA) laboratory, it can not be determined if the concentration exceeds the KPSRL (BMcD, 1999).

- BTEX and 1,2-DCA were detected in only one of the three groundwater samples collected from the monitoring wells. This detection occurred in the sample collected from Monitoring Well 892-99-02, which is located in the immediate vicinity of the UST basin. Detections of 1,2-DCA, benzene, and toluene at concentrations of 550, 22,000, and 10,700 μg/L, respectively, were in excess of the USEPA MCLs. This indicates that contamination did migrate from the former UST basin into the underlying aquifer (BMcD, 1999).
- Data from the three monitoring wells, along with the groundwater screening, delineate the extent of groundwater contamination at the Site (BMcD, 1999).

Burning of fuels during the training exercises were conducted under a written exemption to Fort Riley's air permit with the State of Kansas. Because of the flammable liquids placed in the burn pit for ignition, it was considered a PAOC (LBA, 1993).

5.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Groundwater samples were collected from Monitoring Wells 892-99-01 and 892-99-03 (Figure 5-1). Groundwater was not collected from Monitoring Well 892-99-02 as there was an insufficient amount of water present for sampling. The field crew noted that a hydrocarbon odor was present at Monitoring Well 892-99-02 and that an oily residue was present on the water level indicator probe. The two groundwater samples collected were sent to an off-site laboratory for analysis of VOCs (USEPA Method 8260). No VOCs were detected in either groundwater sample.

5.4 DISCUSSION AND RECOMMENDATIONS

Historical and ESI sampling results can be summarized as follows:

 Investigations conducted in 1999 resulted in the detection of BTEX compounds in both soil-gas and groundwater screening samples. Benzene was detected in groundwater in excess of the USEPA MCL.

- Groundwater samples collected from monitoring wells installed in 1999 resulted in detections of 1,2-DCA, benzene, and toluene in samples from one well (892-99-02) in excess of USEPA MCLs.
- There were no detections of VOCs in groundwater samples collected from Monitoring Wells 892-99-01 and 892-99-03 for the ESI. No samples were collected from Monitoring Well 892-99-02 due to a lack of water.

Since no groundwater sample was collected from Monitoring Well 892-99-02, it is not possible to compare results with historical data or assess current conditions at this location. Fort Riley proposes to advance a direct-push boring adjacent to Monitoring Well 892-99-02 to collect surface and subsurface soil samples, and a groundwater sample for VOC analysis. This additional data will be used to support a recommendation for no additional investigation and site closure for the Fire Training Area Facility 892.

6.0 FIRE TRAINING AREA, CAMP FUNSTON (FTRI-028)

6.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The Fire Training Area, Camp Funston (FTRI-028) is located at the end of Well House Road to the west of Camp Funston (Figures 1-1 and 6-1). The Site is located to the east of the Southwest Funston Landfill. The Site is approximately 150 ft by 250 ft and vegetated with grass and is within 100 ft of Threemile Creek.

The Site lies within the Kansas River alluvial floodplain, and is underlain by clay, silt, and sand of the Kansas River alluvial aquifer. Groundwater flow direction is variable across the Site, but has historically been toward the east or southeast (USGS, 2000). The water table at the Site is approximately 15 ft bgs (ECC, 2006a, 2006b, and 2006c). Alluvial deposits can reach a thickness of up to 70 ft near the river and decrease in thickness toward the valley margin. The alluvium tends to coarsen with depth and lies on bedrock composed of limestone and shale. The Kansas River alluvial aquifer is a source of drinking water at Fort Riley and surrounding communities.

No special cultural features were observed or are known to occur at or near this Site. Wooded areas along the Kansas River are used during the winter months by bald eagles, a threatened species. There is a waterfowl management area approximately one mile up stream from the Site. Current and future land use at this site, based on the post environmental overlay, is anticipated to be open space.

There are no water supply wells in the immediate vicinity of the Fire Training Area. The well field for the community of Ogden is located approximately two miles northeast of the Site.

6.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

The former Fire Training Area at Camp Funston was operated from approximately 1950 to 1982 (AEHA, 1988). The Fire Training Area was described as being an elevated, large-diameter "drum" into which flammable liquid was poured and ignited (LBA, 1992). The flammable liquid was reported by AEHA as being JP-4, diesel, oil, and motor gasoline (MOGAS). The site was decommissioned and in 1982 the top six inches of soil were removed from the area and disposed. Debris from the Site was removed and disposed in the Construction Debris Landfill.

The Site is within the area investigated as part of the remedial investigation (RI) / feasibility study (FS) for the Southwest Funston Landfill (Law Environmental, 1992). Numerous monitoring wells were installed in the area adjacent to and downgradient of the former Fire Training Area (Figure 6-1).

Monitoring wells which have been sampled recently in this area include Monitoring Wells SFL92-401, SFL92-403, SFL92-601, SFL92-603, SFL97-903, SFL94-02A, SFL94-03A, and SFL94-04B. Groundwater analytical results (VOCs and lead only) for these monitoring wells are presented in Table 6-1 (ECC, 2005, 2006a, 2006b, and 2006c). Monitoring Wells SFL97-903 and SFL94-02A had no detections of either VOCs or lead, so are not presented in Table 6-1.

Groundwater samples collected since early 2004 have had detections of vinyl chloride in excess of USEPA MCLs. In groundwater samples collected from Monitoring Wells SFL92-401, SFL92-403, and SFL92-601 during 2004 and/or 2005, vinyl chloride concentrations exceeded the USEPA MCL of 2 μ g/L. Maximum concentrations detected during this period were 3.57 μ g/L (SFL92-401), 4.48 μ g/L (SFL92-403), and 2.57 μ g/L (SFL92-601) (Table 6-1). Vinyl chloride did not exceed the USEPA MCL in samples collected from these wells during 2006.

6.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

No ESI field activities were conducted at the former Fire Training Area at Camp Funston.

6.4 DISCUSSION AND RECOMMENDATIONS

Groundwater sampling data collected as part of the long-term monitoring effort at Southwest Funston Landfill were evaluated. VOCs were not detected in excess of USEPA MCLs in groundwater samples collected during 2006 from monitoring wells in the vicinity of the Site. The Fire Training Area at Camp Funston is recommended for closed status.

7.0 CONSOLIDATED MAINTENANCE FACILITY BUILDING 8100 (FTRI-039)

7.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The Consolidated Maintenance Facility Building 8100 is located on Custer Hill to the east of the intersection of First Division Road and Apennines Drive (Figures 1-1 and 7-1) (LBA, 1993). This facility, which covers approximately 18 acres, includes Building 8100 and an extensive paved area surrounded by a perimeter fence.

The site is located in the upland area of Fort Riley and is underlain by bedrock (interbedded limestone and shale), covered by shallow unconsolidated material. This unconsolidated soil consists of residual soil and possibly loess. The depth to bedrock in the vicinity of Building 8100, as determined during the ESI field investigation, ranged from 3.5 to 16.8 ft bgs. No groundwater was encountered in the unconsolidated soil during the field investigation. A temporary piezometer was installed in Boring DP05. After six days the boring was still dry and the piezometer was removed and the boring backfilled. Groundwater in this area could occur at the interface between bedrock and the unconsolidated material, and within voids and fractures in the bedrock. Based on the local topography, groundwater would be expected to flow to the east, towards the Forsyth Creek drainage. The Site is located adjacent to Forsyth Creek, which is a perennial stream. Overland flow from the Site would also enter this tributary. Forsyth Creek is a tributary to Threemile Creek, which discharges to the Kansas River approximately five miles downstream of the plant (LBA, 1993).

The Fort Riley well field is located approximately 2½ miles south-southwest of the Site, in the floodplain of the Republican River. The well field for the community of Ogden is located approximately 4½ miles east of the Site, in the floodplain of the Kansas River. Aquifers in the upland area of Fort Riley do not have sufficient yield to support large capacity supply wells. There are no water supply wells located in the vicinity of Building 8100.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at this site, base on the post environmental overlay, is anticipated to be maintenance.

7.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

A variety of activities are conducted at the Consolidated Maintenance Facility in repair shops, a machine/weld shop, a mechanical/electrical shop, paint booths, an oil testing laboratory, and a furniture

stripping and repair shop. Activities conducted at the Site generate hazardous waste streams, including TCE from the oil laboratory, paint wastes and filters, lead solder in air filters, lead acid battery waste, cutting oils, and radiator cleaning solution (LBA, 1993). In 2005, the oil laboratory ceased operations.

Building 8100 has a number of fuel storage tanks, used oil tanks, and waste cleaner solvent tanks. There are two 12,000-gallon heating oil tanks on the north end of the building. There are three 6,000-gallon tanks east of the building to service the dynamometer area; these contain diesel, gasoline, and heating oil. There are four tanks at the south end of the building that supply various grades of engine oil to the shop area; these include two 4,000-gallon and two 3,000-gallon ASTs. There is a cleaning fluid waste tank at the northeast corner of the building. This is a 2,000-gallon fiberglass tank that receives liquids from the northeast corner of the building via two cleaning fluid receptacles. There are also a 2,000-gallon cleaning fluid tank and a 4,000-gallon used oil tank at the south end of the building that receive used fluids from the south wing of the building (LBA, 1993).

The building has a network of floor drains and sub-floor industrial sewer drains that collect interior runoff from the building and route it to the four industrial sewer sumps. The industrial waste from the floor drains is pumped into the industrial sewer that leaves the northwest corner of the building and goes to the east water retention pond (LBA, 1993).

A large volume of the materials used at Building 8100 is petroleum hydrocarbons; however, there are a variety of activities that also use CERCLA and RCRA hazardous substances. The oil testing laboratory, in particular, has been identified as a source of such waste. The oil testing process has used PCE as part of the analytical procedures, and used PCE is generated. Other activities in the building that use hazardous materials include the paint shop, battery shop, photographic laboratory, and furniture repair. Petroleum-based solvents have been used for degreasing. More recently, the use of caustic-based solvent has become more common. Sediment and sludge from the floor sumps is handled as hazardous waste, indicating that used fluids at the facility contain hazardous components. The primary areas of concern at this building are the three USTs used to store spent and used cleaning solutions. These solutions have the potential to contain hazardous substances. Releases to the industrial sumps were evaluated as part of the Custer Hill industrial wastewater system (LBA, 1993).

The three USTs of concern were used to collect either used oil or used cleaning solutions. As of November 1992, all three tanks were used to collect used oil. The tanks are made of fiberglass with copper piping and were installed in 1983. Leaks from the tanks are not anticipated at this time due to the relative young age of the tanks. Tightness testing of the USTs is conducted on a regular basis to assess

system integrity. However, facility personnel indicate that on several occasions since the building was put into use (the mid 1970s), the tanks became overfilled with used oils and some oil flowed across the parking area towards the east and south to adjacent soils. The amounts released from the tanks was described as "minor" (LBA, 1993). All ASTs and USTs at Building 8100 were removed between 1994 and 1998. They were replaced by 7 new ASTs in 1998 for the storage of new and used oil. This facility received clean closure status from KDHE following removal of all the USTs. KDHE stated that there was no staining/odor and no measurable contamination, and that no further action was required at this site.

The ESI activities in 2006 were conducted to sample the facility perimeter to cover the down-gradient direction towards which contaminants might have migrated.

7.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Eight direct-push borings were advanced around the northern, eastern, and southern boundaries of the site (Figure 7-1). These direct-push borings were continuously sampled, using a 2-inch MacrocoreTM sampler, from the ground surface to refusal. Twenty-one soil samples were collected. Soil samples were collected from each direct-push boring within the depth intervals of 0 to 2 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs. The field geologist prepared a lithologic log of each direct-push boring (Boring logs are included in Appendix B). Soil sample intervals were picked based upon PID readings and judgment of the field geologist. Soil samples were analyzed at an off-site laboratory for VOCs (USEPA Method 8260), TPH-GRO (USEPA Method 8015), and RCRA metals (USEPA Methods 6010/7000). Groundwater was not encountered in any boring. A temporary piezometer was installed in Boring DP05. The piezometer was left in place for six days with no groundwater accumulation. Following the completion of field activities at these sites, all direct-push boring locations were surveyed. The survey data is included in Appendix A.

Surface and subsurface soil analytical results (positive hits only) for the Consolidated Maintenance Facility Building 8100 are presented in Table 7-1. VOCs were only detected in three (including one duplicate) of the 23 (including two duplicates) soil samples analyzed for VOCs. Acetone was detected in Soil Sample 039-DP01/SB03 at 230 micrograms per kilograms (μg/kg) but was not detected in its duplicate (SB33). The detection was well below the USEPA Region 9 industrial screening level of 54,000 μg/kg. PCE was detected in Soil Sample SB02 (and its duplicate, SB22) from Boring 039-DP04 at 7.8 and 8.7 μg/kg, respectively. The detections were well below the USEPA Region 9 industrial screening level of 1,300 μg/kg. TPH was detected in 10 (including one duplicate) soil samples at levels ranging from 13 J (estimated) to 47 J milligrams per kilogram (mg/kg), well below the KDHE industrial RSK value of 20,000 mg/kg. Arsenic, barium, cadmium, chromium, and lead were detected in the soil samples with only arsenic detected at levels greater than the USEPA Region 9 industrial screening levels.

Arsenic was detected in all 23 (including two duplicates) samples at levels ranging from 4.8 to 15 mg/kg, above the USEPA Region 9 industrial screening level of 1.6 mg/kg but below the KDHE industrial RSK value of 38 mg/kg. These exceedences are a result of naturally occurring concentrations of arsenic, which are ubiquitous throughout Fort Riley soils at levels in excess of regulatory screening criteria. Direct-push locations and analytical results for soil samples are presented on Figure 7-2.

7.4 DISCUSSION AND RECOMMENDATIONS

Only two VOCs, one TPH, and five metals were detected in soil samples from the Consolidated Maintenance Facility Building 8100 site. Of these, only arsenic was detected at levels greater than the USEPA Region 9 industrial screening level, but less than the KDHE industrial RSK values. These exceedences are a result of naturally occurring concentrations of arsenic, which are ubiquitous throughout Fort Riley soils at levels in excess of regulatory screening criteria.

No groundwater was encountered at the Site. The Site is recommended for closed status.

8.0 FORMER OIL TESTING LABORATORY BUILDING 1022 (FTRI-040)

8.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The Former Oil Testing Laboratory Building 1022 (FTRI-040) is located at Camp Funston, just west of the intersection of Huebner and Campbell Hill Roads (Figures 1-1 and 8-1). This location is at the extreme north margin of the Kansas River floodplain. With the exception of Building 1020, located approximately 100 ft south of Building 1022, there are no other structures in the area; although, a new building is under construction immediately to the east. The area around Building 1022 is trimmed grass, with numerous trees. A narrow asphalt road also runs around the building. Threemile Creek is located to the northwest of Building 1022 (Figure 8-1) and discharges to the Kansas River approximately 1½ miles to the south of the Site. A drainage ditch present between Building 1022 and Building 1020 leads to Threemile Creek.

Building 1022 is underlain by either alluvial deposits and/or older terrace deposits of the Kansas River. During the field investigation, four direct-push boreholes were advanced to 40 ft bgs with no refusal met (Figure 8-1). The unconsolidated deposits were logged as a soft, brown clay, increasing in plasticity with depth. A sandy silt was logged in Boring DP03 at 37 ft bgs. Depth to groundwater varied from 36.3 to 37. 5 ft bgs with the direction of groundwater flow unknown. As the elevation of Threemile Creek is approximately 10 to 15 ft below the elevation of the ground surface, it is highly unlikely that groundwater within the Building 1022 area is discharging to Threemile Creek.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at this site, based on the post environmental overlay, is anticipated to be open space.

There are no water supply wells in the immediate vicinity of Building 1022. The well field for the community of Ogden is located approximately two miles northeast of the Site.

8.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

Building 1022 was originally built as a blacksmith shop at the Pack Train Station (or Packer's Camp). From the period 1975 to 1980, Building 1022 was used as the post oil testing laboratory. The procedures used are similar to those practiced at the current oil testing laboratory at Building 8100. Small quantities of waste are generated as part of the oil testing process. PCE was used to prepare slides for testing, and to clean slides and equipment. It probably took about three months to collect one quart of waste solvent for

disposal. A former supervisor of the oil testing laboratory stated that during the time period that the facility operated, solvents were used in small quantities, approximately one quart per day for testing and cleaning, and were mixed with used oil. The used oil was collected in containers for pickup and off-post disposal by a contractor. The general practice was to wipe equipment with industrial shop rags; small amounts of solvents were used with the rags. Following their use, the rags were placed in sealed containers and sent to the dry cleaning facility. There was no on-site disposal or dumping of waste solvents or other hazardous chemicals (LBA, 1993).

There is a wire storage bin outside Building 1022 (on the east wall), which stored paint, oil, herbicides, and compressed gas (as of late 1992).

There is no known history of environmental investigation around Building 1022. Assuming worst case practices (that all waste was disposed directly on the ground outside the building), only small quantities of waste would have been discharged to the soil.

8.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Four direct-push borings were advanced, one on each of the four sides of Building 1022 (Figure 8-1). These direct-push borings were continuously sampled, using a 2-inch Macrocore™ sampler, from the ground surface to 40 ft bgs. Groundwater was encountered at depths ranging from 36.3 to 37.5 ft bgs. Three soil samples were collected from each direct-push boring from depth intervals of 0 to 2 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs. The field geologist prepared a lithologic log of each direct-push boring (Boring logs are included in Appendix B). Soil samples were analyzed at an off-site laboratory for VOCs (USEPA Method 8260), TPH-diesel range organics (DRO) (USEPA Method 8015), pesticides (USEPA Method 8081A), and RCRA metals (USEPA Method 6010/7000). TPH-DRO analysis includes the hydrocarbons in the oil range. The probes were then advanced to the water table, and a temporary piezometer was set within each borehole. Groundwater samples were collected from the piezometers and analyzed for VOCs (USEPA Method 8260), TPH-DRO (USEPA Method 8015), pesticides (USEPA Method 8081A), and RCRA metals (USEPA Method 6010/7000; both filtered and unfiltered) with the exception of Piezometer DP01 from which metals (filtered and unfiltered) were not collected due to the limited amount of groundwater available. Following the completion of field activities at these sites, all direct-push boring locations were surveyed. The survey data are included in Appendix A.

Surface and subsurface soil analytical results (positive hits only) for the Former Oil Testing Laboratory Building 1022 are presented in Table 8-1. VOCs were not detected within any of the 12 soil samples. For pesticides, only 4,4'-dichlorodiphenyldichloroethylene (4,4'-DDE) was detected in Soil Samples

SB01 and SB02 (and its duplicate, SB22) from Boring 040-DP01 at 0.03 mg/kg, well below the USEPA Region 9 industrial PRG of 7.0 mg/kg. TPH as motor oil was detected in seven (including one duplicate) of the 14 (including two duplicates) soil samples at levels ranging from 13 J mg/kg to 72 mg/kg, which were also well below the KDHE industrial RSK of 20,000 mg/kg. Arsenic, barium, cadmium, chromium, lead, mercury, and selenium were detected in the soil samples with only arsenic detected at levels greater than the USEPA Region 9 industrial screening level. Arsenic was detected in all 14 (including two duplicates) samples with levels ranging from 3.1 to 4.8 mg/kg, which is above the USEPA Region 9 industrial screening level of 1.6 mg/kg, but below the KDHE industrial RSK value of 38 mg/kg. These exceedences are a result of naturally occurring concentrations of arsenic, which are ubiquitous throughout Fort Riley soils at levels in excess of regulatory screening criteria. The direct-push boring locations and analytical soil data are presented in Figure 8-2.

Groundwater analytical results (positive hits only) for the Former Oil Testing Laboratory Building 1022 are presented in Table 8-2. VOCs, TPH, and pesticides were not detected in any of the four groundwater samples. Total metals, including arsenic, barium, cadmium, chromium, lead, mercury, and selenium, were detected in three of the groundwater samples collected. As the total metals groundwater samples were collected from undeveloped piezometers, the groundwater samples were turbid and, therefore, were not screened against drinking water standards. Dissolved metals, including arsenic, barium, and lead, were detected in the four (including one duplicate) groundwater samples. Dissolved arsenic levels ranged from 0.018 to 0.026 milligram per liter (mg/L), above the MCL of 0.01 mg/L. Dissolved lead ranged from 0.009 to 0.016 mg/L with one sample at a level above the action level of 0.015 mg/L (Figure 8-3).

Due to the depth to groundwater at the Former Oil Testing Laboratory Building 1022 (36 to 38 ft bgs), the lack of water supply wells within the area, and the presence of the Fort Riley potable water system, groundwater at this site does not now and is unlikely to in the future to reach potential receptors.

8.4 DISCUSSION AND RECOMMENDATIONS

One pesticide, one TPH, and seven metals were detected in 14 (including two duplicates) soil samples from the Former Oil Testing Laboratory Building 1022 area. Of these, only arsenic was detected at levels greater than the USEPA Region 9 industrial screening level, but less than the KDHE industrial RSK values. Only metals were detected in the four (including one duplicate) groundwater samples with only dissolved arsenic and lead present at levels greater than MCLs or action levels. As no potential receptors of groundwater are present at the Site now or are anticipated in the future, the Site is recommended for closed status.

9.0 FURNITURE REPAIR SHOPS (FTRI-041)

9.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

Three former furniture repair shops comprise FTRI-041. These include Building 319 at Main Post and former Buildings 1301 and 1605 at Camp Funston (Figures 1-1, 9-1, and 9-2). Activities related to the cleaning, repair, and finishing of furniture were conducted at these buildings. Chemicals used have included chlorinated solvents (e.g., methylene chloride), lacquers, thinners, paints, and cleaners.

During the preparation of this draft final document, it was discovered that the location of the former Building 1605, as noted in the work plan, was not correct. Rather than being located on the northeast corner of G Street and Seventh Street, former Building 1605 was in fact located on the southeast corner of that intersection (Figure 9-2). As a result of this error, subsurface soil and groundwater sampling were performed at the wrong location. It is Fort Riley's intention to conduct sampling at the former Building 1605 location in conjunction with other additional field activities proposed in the ESI Reports. In the interim, all discussion of soil and groundwater data collected from Direct-Push Borings DP07, DP08, and DP09 will be deleted from this section and supporting tables.

Building 319

Building 319 is located in the southern area of the Main Post, just south of the Union Pacific Railroad grade off Marshall Avenue (Figures 1-1 and 9-1). This area is on the northern margin of the Kansas River floodplain. The building is constructed of blond brick on a concrete slab. Two floor drains are located in the slab (on the building centerline near either end). These drains appear to have been part of the original structure. Based on interviews with tenants, the drains lead to the sanitary sewer. The immediate area around Building 319 is asphalt pavement, with some surrounding open grassy areas. There are only a few trees in the immediate area of the Site. Structures are present immediately to the west of Building 319.

Building 319 is at an approximate elevation of 1,060 ft, 15 to 25 ft above the Kansas River. The area is generally flat, with a drainage ditch east and north of the pavement around Building 319 collecting runoff. There are no wetlands on or adjacent to the Site. Building 319 overlies unconsolidated alluvial sediments of the Kansas River. These sediments are composed of clay, silt, sand, and gravel typical of floodplain deposits. The unconsolidated sediments as logged during this field investigation consist of clay and silt overlying sand. Depth to groundwater as measured during the ESI field investigation ranged from 21.5 to 22.8 ft bgs. The direction of flow is assumed to be to the southeast. Changes in groundwater flow directions in the alluvial materials may occur during flood stages of the Kansas River.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at these locations, based on the post environmental overlay, is anticipated to be industrial or training/education.

The nearest supply well is located at the west side of MAAF, approximately 1 ½ miles south of the Site. In addition, there are several private supply wells located on the opposite side of the Kansas River, approximately 1 mile east of Building 319. The Kansas River acts as a hydrologic boundary for the alluvial aquifer system.

Former Buildings 1301 and 1605

Former Building 1301 was located on the north side of Fifth Street, between G and H Streets, and Former Building 1605 was located on the southeast corner of G Street and Seventh Street, in Camp Funston (Figures 1-1 and 9-2). Former Building 1605 was located approximately 700 ft southeast of former Building 1301. Both buildings were demolished. The Former Building 1301 area is currently used for the storage of surplus material and the Former Building 1605 area is currently occupied by Building 1580, which is used as a Kansas Army National Guard vehicle maintenance facility. Other structures are present in the area, which is flat and covered with gravel. A room in the northwest corner of former Building 1301 was used for paint stripping. Five, one-inch diameter holes had been drilled through the floor of the room. Beneath the floor was approximately two ft of crawl space over the bare soil. Paint stripping chemicals may have been disposed through these holes.

The former Buildings 1301 and 1605 Sites lay on the floodplain of the Kansas River, which is located approximately 3,000 ft to the south-southeast. The Sites are underlain by unconsolidated alluvial deposits, which, as logged during the field investigation, consist of clay overlying silt overlying sand. Six inches of gravel fill were present at the ground surface at the borehole locations. Depth to groundwater as measured during the ESI field investigation ranged from 23 to 24 ft bgs. Groundwater movement is generally eastward toward the Kansas River (USGS, 2000).

No protected or special ecological or cultural features were observed and are known to occur at or near the Sites.

Fort Riley has no water supply wells located at Camp Funston. The nearest supply wells are those for the community of Ogden, which are located approximately 1 ½ miles northeast of the Sites. There are no other public supply wells within 4 miles of the Sites.

9.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

Building 319

Building 319 was originally built as a Civilian Conservation Corps (CCC) Motor Transport Garage during the 1930s. It was subsequently used as a small arms shop and then a furniture repair shop. It is currently a training and educational facility. These industrial activities generated hazardous waste streams, which included VOCs and semivolatile organic compounds (SVOCs) associated with cleaners, solvents, paints, etc. as well as lead and copper residues in the waste cleaners.

A site investigation (SI) was conducted in 1994 around Building 319. A total of 40 soil gas and three groundwater screening samples were collected as part of this SI (Figure 9-3). The only positive detections of compounds of interest were at one soil-gas sampling location, which was located approximately 12 ft northwest of Building 319. Toluene was detected at a concentration of 2.7 μg/L in soil gas and total hydrocarbons were detected at a concentration of 17 μg/L in soil gas. These levels were below the threshold required to initial a Phase 2 investigation (LBA, 1995). These results suggested that soils around Building 319 were not contaminated by activities conducted at this Site.

Former Building 1301

Former Building 1301 was used as a furniture repair shop as part of the Military Correctional Facility at Camp Funston, which operated at this location from 1988 to 1992. When observed in October 1992, this building was empty and not in use. It was observed that the drilled holes were still in the floor and an inspection revealed numerous spills of paint sludge. It is possible that sludge and stripper seeped through the floor and onto the ground under the building.

A soil gas survey was conducted within and around the northwest corner of Building 1301 as part of the investigation of high priority sites at Fort Riley (Figure 9-4). There were no detections of VOCs in any of the soil gas samples collected (LBA, 1994).

Former Building 1605

Former Building 1605 was used for similar activities as Building 1301 between about 1984 and 1988 when it was destroyed by fire. It is possible that sludge and stripper may have seeped through the floor and onto the ground surface under the building.

A soil gas survey was conducted on the footprint of the former Building 1605 location as part of the investigation of high priority sites at Fort Riley. One of ten locations evaluated had FID concentrations of 660 µg/L (Figure 9-5). A Phase 2 survey was conducted, which included the collection of groundwater

and additional soil gas samples. There were no detections of VOCs in any of these additional samples (LBA, 1994).

9.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Three direct-push borings were advanced at each of the three existing/former building locations. At Building 319, Direct-Push Borings DP01, DP02, and DP03 were located to the northeast, east, and south of the building, respectively (Figure 9-1). At Former Building 1301, Direct-Push Borings DP04, DP05, and DP06 were evenly distributed around the buildings' footprints (Figure 9-2). The actual location of the Former Building 1301 footprint was difficult to determine in the field. Also, obstructions within this area made it difficult to locate there three borings. As noted in Section 9.1, Direct-Push Boring DP07, DP08, and DP09 were not spotted in the correct location; therefore, they will not be addressed in this discussion. The direct-push borings were continuously sampled, using a 2-inch Macrocore™ sampler, from the ground surface to a depth where groundwater was encountered. Three soil samples were collected from each direct-push boring from the depth intervals of 0 to 2 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs. The field geologist prepared a lithologic log of each direct-push boring (Boring logs are included in Appendix B). Soil samples were analyzed at an off-site laboratory for VOCs (USEPA Method 8260) and RCRA metals (USEPA Method 6010/7000). The probe was advanced to water, and groundwater samples were collected and analyzed for VOCs (USEPA Method 8260) and RCRA metals (USEPA Method 6010/7000; both filtered and unfiltered). Following the completion of field activities at these Sites, all direct-push boring locations were surveyed. The survey data are included in Appendix A.

Building 319

Subsurface soil analytical results (positive hits only) for Building 319 are presented in Table 9-1. No VOCs were detected at Building 319. Arsenic, barium, cadmium, chromium, lead, and selenium were detected in the soil samples, with only arsenic detected at levels greater than the USEPA Region 9 industrial screening level. Arsenic was detected in 8 of 9 samples at levels ranging from 1.7 to 4.8 mg/kg, above the USEPA Region 9 industrial screening level of 1.6 mg/kg but below the KDHE industrial RSK value of 38 mg/kg. The arsenic levels reported in these soil samples are typical for soil samples from Fort Riley. Direct-push boring locations and analytical results for soil samples are presented on Figure 9-6.

Groundwater analytical results (positive hits only) for Building 319 are presented in Table 9-2. Trichloromethane (chloroform) was the only VOC detected in DP01, DP02, and DP03. Trichloromethane was detected in all three borings at levels ranging from 2.6 to 3.5 µg/L, above the USEPA Region 9 PRGs for tap water of 0.17 µg/L but below the USEPA's MCL of 80 µg/L. Total metals including arsenic, barium, cadmium, chromium, lead, mercury, and selenium were detected in the groundwater samples. As

the total metals groundwater samples were collected from undeveloped piezometers, the groundwater samples were turbid and, therefore, were not screened against drinking water standards. Dissolved metals, including arsenic, barium, chromium, and lead were detected in the groundwater samples. Dissolved arsenic and lead were detected in Groundwater Sample 041-DP01 at levels greater than MCLs or action levels. Dissolved arsenic and lead were not detected in the other two groundwater samples. Direct-push boring locations and analytical results for groundwater are presented on Figure 9-7.

Due to the depth to groundwater at Building 319 (21 to 23 ft bgs), the lack of water supply wells within the area, and the presence of the Fort Riley potable water system, groundwater at this Site does not now and is unlikely in the future to reach potential receptors.

Former Building 1301

Subsurface soil analytical results (positive hits only) for the Former Building 1301 are presented in Table 9-1. Acetone was the only VOC detected at Former Building 1301. Acetone was detected at 200 µg/kg in Soil Sample 041-DP04/SB02 (7 to 8 ft bgs), below the USEPA Region 9 industrial PRG of 54,000,000 µg/kg. Arsenic, barium, cadmium, chromium, lead, and sodium were detected in the soil samples, with only arsenic detected at levels greater than the USEPA Region 9 industrial screening level. Arsenic was detected in all nine samples at levels ranging from 3 to 4.5 mg/kg, above the USEPA Region 9 industrial screening level of 1.6 mg/kg but below the KDHE industrial RSK value of 38 mg/kg. These exceedences are a result of naturally occurring concentrations of arsenic, which are ubiquitous throughout Fort Riley soils at levels in excess of regulatory screening criteria. Direct-push boring locations and analytical results for groundwater are presented on Figure 9-8.

Groundwater analytical results (positive hits only) for Former Building 1301are presented in Table 9-2. VOCs were not detected. Total metals including arsenic, barium, cadmium, chromium, lead, mercury, and selenium were detected in the groundwater samples. As the total metals groundwater samples were collected from undeveloped piezometers, the groundwater samples were turbid and, therefore, were not screened against drinking water standards. Dissolved metals, including arsenic, barium, and selenium were detected in the groundwater samples with only arsenic detected at levels greater than the USEPA MCLs. Arsenic was detected in Groundwater Sample 041-DP06 at levels greater than the USEPA MCL. Arsenic was not detected in the other two groundwater samples. Direct-push boring locations and analytical results for groundwater are presented on Figure 9-9.

Due to the depth to groundwater at Former Building 1301 (23 to 24 ft bgs), the lack of water supply wells within the area, and the presence of the Fort Riley potable water system, groundwater at this Site does not now and is unlikely in the future to reach potential receptors.

Former Building 1605

As noted in Section 9.1, Direct-Push Boring DP07, DP08, and DP09 were not spotted in the correct location for the former Building 1605. Analytical results from these boring are not valid and will not be discussed.

9.4 DISCUSSION AND RECOMMENDATIONS

Building 319

Six metals were detected in the nine soil samples from the Building 319 Site. Of these, only arsenic was detected at levels greater than the USEPA Region 9 industrial screening level but less than the KDHE industrial RSK values. One VOC and seven metals were detected in the three groundwater samples, with only dissolved arsenic and lead present at levels greater than MCLs or action levels. As no potential receptors of groundwater are present at the Site now or are anticipated in the future, the Site is recommended for closed status.

Former Building 1301

One VOC and six metals were detected in the nine soil samples from the Former Building 1301 Site. Of these, only arsenic was detected at levels greater than the USEPA Region 9 industrial screening level but less than the KDHE industrial RSK value. No VOCs and seven metals were detected in the three groundwater samples with only dissolved arsenic present at a level greater than the MCL. As no potential receptors of groundwater are present at the Site now or in the future, the Site is recommended for closed status.

Former Building 1605

As noted in Section 9.1, Direct-Push Borings DP07, DP08, and DP09 were not spotted in the correct location for the former Building 1605. As a result of this error, subsurface soil and groundwater sample collection were performed at the wrong location. It is Fort Riley's intention to conduct sampling at the correct former Building 1605 location in conjunction with other additional field activities proposed in the ESI Reports. Three direct-push borings will be advanced and sampled as described above in the first paragraph of Section 9.3. A decision on closed status for former Building 1605 will be made upon receipt and evaluation of this data.

10.0 PRINT AND PUBLICATIONS SHOP BUILDING 263 (FTRI-045)

10.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

The Print and Publications Shop Building 263 (FTRI-045) is located at Main Post between Stuart and Cameron Avenues (Figures 1-1 and 10-1). The area around Building 263 is built up and is entirely surrounded by asphalt pavement. Areas of grass are present to the south of the building.

Building 263 is located on alluvial terrace deposits, just north of the bluff which delineates the northern boundary of the Kansas River floodplain. The alluvial terrace deposits consist of clay, silt, and sand, and lie on limestone or shale bedrock. In the vicinity of Building 263, these unconsolidated deposits range from 18 to 22 ft thick, based on soil borings previously advanced at the Site (LBA, 1995) and during this field investigation. Groundwater might be present at the interface between the bedrock and unconsolidated deposits during periods of high rainfall; however, it is more likely that groundwater would be present within voids and fractures in the bedrock. During SI activities conducted in March 1994 (LBA, 1995) and during the ESI field activities in August 2006, no groundwater was present in the unconsolidated material above bedrock. Groundwater present within the bedrock would probably flow toward the south.

The Fort Riley well field is located approximately 1 ½ miles west-northwest of the Site, in the floodplain of the Republican River. The back-up supply well for MAAF is located approximately 2 miles southeast of the Site, on the opposite side of the Kansas River. Several private supply wells are also located across the Kansas River, approximately 2 miles east of the Site. The Kansas River acts as a hydrologic boundary for the alluvial aquifer system.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at this site, based on the post environmental overlay, is anticipated to be supply/storage.

10.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

Building 263 housed the central print shop and a photographic processing facility on post for several decades. These activities made use of printing inks containing metal pigments, small quantities of chlorinated solvents (such as PCE), and photographic solutions containing elevated levels of certain metals, including silver. Hydrocarbon solvents were also used in the building. According to interviews with former employees, some of these compounds were discharged to the sanitary sewer. The potential

mechanisms for environmental releases were accidental spills or discharges around the building and leaks from sanitary sewer lines receiving discharges containing hazardous substances. Because of the asphalt paving around the building, migration of contamination to either surface water or air is prevented. The migration of contaminants to groundwater is considered the most likely pathway.

A series of environmental investigations were conducted at the Site in early 1994. A total of 51 soil-gas samples were collected around Building 263 at depths of either 4 or 12 ft bgs. Sixteen of these samples had detections of toluene, xylenes, dichloromethane, TCE, PCE and/or total flame ionization detector (FID) volatiles (Figure 10-2). None of the soil-gas detections exceeded 20 µg/L, with the exception of one detection of total FID volatiles (at 56 µg/L just north of Building 263). A total of 23 soil samples were collected from six borings. One soil sample had detections of toluene, TCE, and PCE (Figure 10-3). None of these detections were above regulatory standards or risk-based guidelines. An effort was made to collect groundwater samples; however, no water was present in the unconsolidated material above bedrock (LBA, 1995).

10.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Four direct-push borings were advanced at Building 263 (Figure 10-1). These direct-push borings were continuously sampled, using a 2-inch MacrocoreTM sampler, from the ground surface to refusal. Three soil samples were collected from each direct-push boring from depth intervals of 0 to 2 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs. The field geologist prepared a lithologic log of each direct-push boring (Boring logs are included in Appendix B). Soil samples were analyzed at an off-site laboratory for VOCs (USEPA Method 8260). The probes were advanced to the refusal with no groundwater encountered; therefore, no groundwater samples were collected from the Building 263 Site. Following the completion of field activities at this Site, all direct-push boring locations were surveyed. The survey data are included in Appendix A.

VOCs were not detected in any of the 12 soil samples collected at Building 263.

10.4 DISCUSSION AND RECOMMENDATIONS

A previous investigation (LBA, 1995) at the Building 263 area indicated only low levels of VOCs present at limited locations within the soil. No VOCs were detected in soil samples during this field investigation. Groundwater was not encountered in the terrace deposits above the bedrock in either investigation. Based upon the above, Building 263 is recommended for closed status.

* * * * *

11.0 BUILDING 727 WASTE PIT (FTRI-051)

11.1 SITE LOCATION, LAND USE, POTENTIAL MIGRATION PATHWAYS, AND RECEPTORS

Building 727 is one of the maintenance hangars located at MAAF. The Site is in the controlled active area on the north side of MAAF and is located on Ray Road (Figures 1-1 and 11-1). Building 727 is at an elevation of 1,061 ft, which is approximately 20 ft above the normal elevation of the Kansas River. The terrain surrounding the Site and the building is essentially flat. The area where the waste pit was located is landscaped and covered with grass. However, a concrete pad exists just west of the former pit.

The Site is located 500 ft southeast of the Kansas River. Although located on the floodplain of the Kansas River, it is protected from 100-year floods by a levee. Due to the topographic position and the use of the Site and surrounding area, there are no streams or other surface water bodies on or in the immediate vicinity of the Site. There are no wetlands at or adjacent to the Site. Surrounding land uses consist of activities associated with an airfield including hangar maintenance and airfield support operations.

The Site is underlain by alluvial sediments of the Kansas River, which overlie shale and limestone bedrock. The alluvial materials are composed of clay, silt, and sand, with some gravel. There is a layer of silt, with some clay, occurring at the surface with a thickness of up to 15 ft. The remaining alluvial materials are fine- to coarse-grained sand. These alluvial materials probably have a thickness of 60 to 80 ft. Groundwater is encountered at a depth of 20 to 25 ft bgs and flows in a general direction to the northeast.

The Fort Riley well field is located approximately 2 ½ miles west-northwest of the Site, in the floodplain of the Republican River. The back-up supply well for MAAF is located approximately 4,500 ft south of the Site. Several private supply wells are located approximately one mile to the northeast of the Site.

No protected or special ecological or cultural features were observed or are known to occur at or near this Site. Current and future land use at this site, based on the post environmental overlay, is anticipated to be as an airfield.

11.2 SITE BACKGROUND AND PREVIOUS SAMPLING RESULTS

Around 1983, an office area was added to the main hangar building. This office space was built directly over the old wash rack facility that dated from the World War II era. The wash rack had four service pits associated with it that were used by workers to stand underneath vehicles without the use of vehicle jacks. During construction of the addition to Building 727, three of the four service pits were removed. The

piping that carried "kerosene detergent" for the one remaining pit was also removed along with the other three pits. The remaining pit was left in place because it was not located under the office addition and was exposed on the eastern corner of the building until the summer of 1992, at which time the concrete pit was removed and the area backfilled. The main concern with the Building 727 service pit is that the remaining former service pit may have been used for unauthorized management of wastes generated by the maintenance hangar (LBA, 1995).

Several common hazardous materials, including petroleum fuels, industrial solvents, paints, and chemicals, were used in and around Building 727. Because some of these materials may have been disposed in the former service pit, the contaminants of concern at the Site were VOCs, SVOCs, TPH, and metals.

During the SI conducted in 1994, 30 soil-gas samples were collected from 15 sampling locations, but there were no detections. In addition, there were five soil samples collected from the vicinity of the former waste pit (Figure 11-2). There were no detections of either VOCs, SVOCs, or TPH-GRO in these soil samples. Three of the samples had detections of TPH-DRO ranging from 7 mg/kg to 16 mg/kg. All five samples had positive detections for arsenic, chromium, copper, lead, nickel, and zinc. Three samples had detections of beryllium. Two samples had detections of silver. Cadmium and selenium were detected in one sample each. The detections of arsenic in the soil samples, although above the lowest USEPA risk-based guidelines, were consistent with detections found across the Site. Beryllium was also detected above the residential guidelines for USEPA Region 10; however, these guidelines are not applicable at a non-residential usage area such as Building 727 (LBA, 1995).

A driven well point (MW01) was installed and developed to sample groundwater in September 1997 (Figure 11-1). A groundwater field sample, a field duplicate sample, a matrix spike sample, and a matrix spike duplicate sample were collected on September 25, 1997 and analyzed for VOCs, SVOCs, TPH (gasoline and diesel), and priority pollutant metals. VOC, SVOC, and TPH compounds were not detected in any of the samples collected. Several metals were detected in the groundwater samples; however, none exceeded their respective MCLs (BMcD, 1997).

11.3 ESI FIELD ACTIVITIES AND ANALYTICAL RESULTS

Two direct-push borings were advanced on the north side of the former waste pit (Figure 11-1). These direct-push borings were continuously sampled, using a 2-inch Macrocore[™] sampler, from the ground surface to a depth where groundwater was encountered. Three soil samples were collected from each direct-push boring from the depth intervals of 0 to 2 ft bgs, 4 to 8 ft bgs, and 8 to 12 ft bgs. The field

geologist prepared a lithologic log of each direct-push boring (Boring logs are included in Appendix B). Soil samples were analyzed at an off-site laboratory for TPH-DRO (USEPA Method 8015) and RCRA metals (USEPA Methods 6010/7000). The probe was then advanced to the water table, and groundwater samples were collected and analyzed for TPH-DRO (USEPA Method 8015) and RCRA metals (USEPA Method 6010/7000; both filtered and unfiltered). Following the completion of field activities at the Site, all direct-push boring locations were surveyed. The survey data are included in Appendix A.

Surface and subsurface soil analytical results (positive hits only) for the former waste pit are presented in Table 11-1. TPH as motor oil was detected in two soil samples, 051-DP01/SB01 (0 to 2 ft bgs) and 051-DP02/SB01 (0 to 1 ft bgs) at 158 J and 30 J mg/kg, respectively, below the KDHE industrial RSK level of 20,000 mg/kg. Arsenic, barium, cadmium, chromium, lead and selenium were detected in the soil samples with only arsenic detected at levels greater than the USEPA Region 9 industrial screening level. Arsenic was detected in all six samples at levels ranging from 2.1 to 4.5 mg/kg, above the USEPA Region 9 industrial screening level of 1.6 mg/kg but below the KDHE industrial RSK value of 38 mg/kg (Figure 11-3). The arsenic levels reported in these soil samples are typical for soil samples from Fort Riley.

Groundwater analytical results (positive hits only) for the former waste pit are presented in Table 11-2. TPH-DRO was not detected in the groundwater samples. Total metals including arsenic, barium, cadmium, chromium, lead, mercury, and selenium were detected in the groundwater samples. As the total metals groundwater samples were collected from undeveloped piezometers, the groundwater samples were turbid and, therefore, were not screened against drinking water standards. Dissolved metals, including arsenic, barium, cadmium, chromium, and lead were detected in the groundwater samples. Arsenic (0.017 and 0.025 mg/L) and lead (0.032 and 0.061 mg/L) were detected in both groundwater samples at levels greater than their respective MCLs or action levels of 0.01 and 0.015 mg/L (Figure 11-4).

Due to the depth to groundwater at the former waste pit (20 to 25 ft bgs), the lack of water supply wells within the immediate area, and the presence of the Fort Riley potable water system, groundwater at this Site does not now and is unlikely in the future to reach potential receptors.

11.4 DISCUSSION AND RECOMMENDATIONS

TPH as motor oil and six metals were detected in the seven (including one duplicate) soil samples from the Building 727 Waste Pit area. Of these, only arsenic was detected at levels greater than the USEPA Region 9 industrial screening level, but less than the KDHE industrial RSK values. TPH was not detected in the groundwater. Seven total metals and five dissolved metals were detected in the two groundwater

samples. Dissolved arsenic and lead were detected in both groundwater samples at levels greater than their respective MCLs or action levels. Fort Riley proposes to advance three additional direct-push borings in the vicinity of the Building 727 Waste Pit to collect groundwater samples for analysis of lead and arsenic. This data will be used to support a recommendation for no additional investigation and site closure.

* * * * *

12.0 REFERENCES

- Army Environmental Hygiene Agency (AEHA), 1988, Interim Final Report, Hazardous Waste Management Consultation No. 37-26-0190-89, Fort Riley, Kansas. May 9-13.
- Burns & McDonnell Engineering Company, Inc. (BMcD), 1997, Technical Memorandum Report for Building 727 Investigation. December 22.
- BMcD, 1998, Technical Memorandum Report for the 892/Fire Fighters Training Area at Marshall Army Airfield, Fort Riley, Kansas. August 10.
- BMcD, 1999, Technical Memorandum Report Addendum for the 892/Fire Fighters Training Area at Marshall Army Airfield, Fort Riley, Kansas. October 20.
- BMcD, 2003, Installation-Wide Investigative-Derived Waste Management Plan for Environmental Investigations, Fort Riley, Kansas (IW-IDW).
- ECC, 2005, Long Term Monitoring Report 2004, Southwest Funston Landfill, Fort Riley, Kansas.
- ECC, 2006a, Long Term Monitoring Report 2005, Southwest Funston Landfill, Fort Riley, Kansas.
- ECC, 2006b, Data Summary Report, March 2006 Sampling Event, Southwest Funston Landfill, Fort Riley, Kansas.
- ECC, 2006c, Data Summary Report, September 2006 Sampling Event, Southwest Funston Landfill, Fort Riley, Kansas.
- Kansas Department of Health and Environment (KDHE), 2003, Risk-Based Standards for Kansas, RSK $Manual 3^{rd}$ Version, March.
- Law Environmental, 1992, Preliminary Site Characterization Summary for RI/FS Southwest Funston Landfill, Fort Riley Military Installation, Fort Riley, Kansas.
- Louis Berger & Associates, Inc. (LBA), 1993, *Installation Wide Site Assessment for Fort Riley, Kansas*. December 7, 1992, with revisions dated February 16, 1993.
- LBA, 1994, Draft Final Site Investigation Report for High Priority Sites at Fort Riley, Kansas.
- LBA, 1995, Draft Final Site Investigation Report for "Other Sites" at Fort Riley, Kansas (2 Volumes).
- Malcolm Pirnie, Inc. (MP) and BMcD, 2004a, Installation-Wide Sampling and Analysis Plan for Environmental Investigations at Fort Riley, Kansas (IW-SAP).
- MP-BMcD, 2004b, Installation-Wide Site Safety and Health Plan for Environmental Investigations at Fort Riley, Kansas (IW-SHP).
- MP-BMcD, 2006a, Sampling and Analysis Plan Addendum, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas (SAP Addendum).
- MP-BMcD, 2006b, Site-Specific Safety and Health Plan, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas (SSHP).

- MP-BMcD, 2006c, Investigative-Derived Waste Management Plan Addendum, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas (IDWPA).
- MP-BMcD, 2006d, Work Plan, Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas (WP).
- MP-BMcD, 2006e, Quality Control Summary Report, Summer 2006 Sampling Event, Petroleum / VOC Sites (Group Three) for the Expanded Site Investigation (Multiple Sites) at Fort Riley, Kansas.
- United States Environmental Protection Agency (USEPA), 2004a, Region 9 Preliminary Remediation Goals (PRG) Table, October.
- USEPA, 2004b, 2004 Edition of the Drinking Water Standards and Health Advisories, EPA 822-R-04-005, Office of Water, Winter.
- United States Geological Survey (USGS), 2000, Characterization and Simulation of Ground-Water Flow in the Kansas River Valley at Fort Riley, Kansas, 1990-98, Water-Resources Investigations Report 00-4096.

* * * * *

Tables

Tal. J 1-1

ESI Site Summary Pesticide / PCB Sites Expanded Site Investigation Fort Riley, Kansas

Site Name		DCDA Begulatery History		CERCLA Regulatory			
Site Name		RCRA Regulatory History		History			
Pesticide / PCB Sites		RCRA Part A: Interim Status	RCRA Part B, Part II HSWA- defers to CERCLA	NPL August 1990/ FFA June 1991			
(Group 1)		Nov 1980-Sept 1998	Oct 1, 1998 to Oct 1, 2008	PA/PAOC	SI Reports	ESI 2006-2007	ESI 2006-2007, Actions Taken/Recommended
DRMO Storage Area 1		Hazardous Waste Storage Facility AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 Elevated POL contamination in NW corner - Deferred to UST Program No PCB detects above 50 ppm in soil	Confirm SI conclusion of no threat to HH & E against new PCB RSK of 4.3 ppm in soil	No actions are necessary to protect HH & E Transfer northern portion of site to Former Bldg 1245 Dispensing Station - FTRI- 066; Closed Status
PCB Storage Building 343		AEHA, 1988 SWMU-Proposed environmental sampling	-			Confirm no threat to HH & E	Sample concrete floor and exterior soil for PCBs If sampling results show levels are protective of HH & E request Closed Status
PCB Storage Conexes 348	FTRI- 008	Hazardous Waste Storage Facility - Clean Closed 1990 AEHA, 1988 SWMU-Proposed environmental sampling				Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Pesticide UST at Camp Funston	FTRI- 010	AEHA, 1988 SWMU-Proposed environmental sampling Tank removed and clean closed in 1991				Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
DRMO Storage Area 3	FTRI- 012	AEHA, 1988 SWMU-Proposed environmental sampling	HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	No ESI field activities conducted	No actions are necessary to protect HH & E; Closed Status
DRMO Storage Area 2	FTRI- 015	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 One PCE GW result above MCL No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Former Livestock Dipping Facility	FTRI- 047		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 Elevated levels of metals and pesticides in mixing pit No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Former Pesticides Facilities	FTRI- 048		HSWA, 1998 No potential risk to HH & E based on site visit of building 1022 and Camp Whitside HSWA, 1998 No potential risk to HH & E based on SI for Custer Hill Golf Course Pesticide Facility	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 No potential risk to HH & E fo Golf Course Pesticide Facility		No actions are necessary to protect HH & E; Closed Status
Mercury Contamination Areas	FTRI- 049		HSWA, 1998 No potential risk to HH & E based on site visit	Mercury removal in 1991/1992 IWSA (LBA, 1993) Identified for Further Evaluation Vaults retrofitted with air	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status

Table 1-1 ESI Site Summary

Pesticide / PCB Sites Expanded Site Investigation Fort Riley, Kansas

Site Name		RCRA Regulatory History	CERCLA Regulatory History	1				
PCB Transformer Sites	FTRI- 050	1	IWSA (LBA, 1993) E based Recommended No Further Action	LBA, 1995 No PCB detects above 50 ppm in soil No potential risk to HH & E		No actions are necessary to protect HH & E; Closed Status		
Milford Campground / Marina	FTRI- 055	HSWA, 1998 No potential risk to HH & E on SI	E based	LBA, 1995 No potential risk to HH & E		No actions are necessary to protect HH & E; Closed Status		

AEHA - Army Environmental Hygiene Agency

AST - Aboveground Storage Tank

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

DRMO - Defense Reutilization Marketing Office

ESI - Expanded Site Investigation

FFA - Federal Facility Agreement HH&E - Human Health & Environment

HSWA - Hazardous and Solid Waste Amendment

IACH - Irwin Army Community Hospital

IWSA - Installation Wide Site Assessment

KDHE - Kansas Department of Health and Environment

LBA - Louis Berger and Associates

MCL - Maximum Contaminant Level

NPL - National Priorities List

PA - Preliminary Assessment

PAOC - Potential Area of Concern

PCB - Polychlorinated Biphenyl

PCE - Tetrachloroethene

POL - Petroleum, Oil, and Lubricant

PPM - Parts per Million

RCRA - Resource Conservation and Recovery Act

SI - Site Investigation

SWMU - Solid Waste Management Unit

TPH - Total Petroleum Hydrocarbons

UST - Underground Storage Tank

Table 1-1 ESI Site Summary

Wastewater Sites Expanded Site Investigation Fort Riley, Kansas

Site Name		RCRA Regulatory History		CERCLA Regulatory History			
Site Ivallie		RCRA Part A: Interim	RCRA Part B, Part II HSWA-	NPL August 1990/		1	
Wastewater Sites	1	Status	defers to CERCLA	FFA June 1991			
(Group 2)	•	Nov 1980-Sept 1998	Oct 1, 1998 to Oct 1, 2008	PA/PAOC	SI Reports	ESI 2006-2007	ESI 2006-2007, Actions Taken/Recommended
Industrial Wastewater System Custer Hill		AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	Identified for Further	LBA, 1994 No CERCLA contaminants East Pond Free Product in GW West Pond No threat to HH & E Central Vehicle Wash Facility found POL in sediment	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Camp Funston WWTP Sludge Drying Beds		AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm PA/PAOC conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Custer Hill WWTP Sludge Drying Beds	FTRI- 023	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm PA/PAOC conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Camp Forsyth WWTP Sludge Drying Beds		AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm PA/PAOC conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Main Post WWTP Sludge Drying Beds	FTRI- 025	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm PA/PAOC conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Range Complex Wastewater Lagoons	FTRI- 026	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (Clean Water Act)	IWSA (LBA, 1993) Recommended No Further Action		Confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status

AEHA - Army Environmental Hygiene Agency

AST - Aboveground Storage Tank

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

DRMO - Defense Reutilization Marketing Office

ESI - Expanded Site Investigation FFA - Federal Facility Agreement

HH&E - Human Health & Environment

HSWA - Hazardous and Solid Waste Amendment

IACH - Irwin Army Community Hospital IWSA - Installation Wide Site Assessment

KDHE - Kansas Department of Health and Environment

LBA - Louis Berger and Associates MCL - Maximum Contaminant Level NPL - National Priorities List

PA - Preliminary Assessment

PAOC - Potential Area of Concern

PCB - Polychlorinated Biphenyl

PCE - Tetrachloroethene

POL - Petroleum, Oil, and Lubricant

PPM - Parts per Million

RCRA - Resource Conservation and Recovery Act

SI - Site Investigation

SWMU - Solid Waste Management Unit

TPH - Total Petroleum Hydrocarbons

UST - Underground Storage Tank

Table 1-1 **ESI Site Summary**

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

Site Name			,"···	CERCLA Regulatory	 		1
Site Name		RCRA Regulatory Histor	у	History	•		
Petroleum / VOC Sites (Group 3)	1	RCRA Part A: Interim Status	RCRA Part B, Part II HSWA- defers to CERCLA	NPL August 1990/ FFA June 1991			ESI 2006-2007, Actions
		Nov 1980-Sept 1998	Oct 1, 1998 to Oct 1, 2008	PA/PAOC	SI Reports	ESI 2006-2007	Taken/Recommended
Abandoned VOC Tanks - IACH		AEHA, 1988 SWMU-Proposed environmental sampling		Tanks removed in September 1990 Field test showed 110 ppm TPH in soil		Confirm conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Waste Oil AST, 3rd Battery		AEHA, 1988 SWMU-No evidence of release		After 1988, AST decommissioned and removed		Site visit to confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status
Waste Oil AST, 4th Battery	FTRI- 017	AEHA, 1988 SWMU-No evidence of release		After 1988, AST decommissioned and removed		Site visit to confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status
Fire Training Area Facility 892		AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 Recommends investigation, review, or remediation	<u> </u>	USTs removed 1996 with clean closure Ground-water contamination above MCLs for 1,2-DCA, benzene, and toluene in 1999	Confirm no threat to HH & E	Sample soil and goundwater for VOCs. If sampling results show levels are protective of HH & E request Closed Status
Fire Training Area, Camp Funston		1982 soil removal AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action Site investigated as part of Southwest Funston Landfill	Vinyl chloride above MCL in 2004 Below MCL in 2006 and 2007 in SFL wells	No ESI field activities	No actions are necessary to protect HH & E; Closed Status
Consolidated Maintenance Facility Building 8100	FTRI- 039			IWSA (LBA, 1993) Identified for Further Evaluation	All USTs and ASTs removed in 1994 with clean closure	Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Former Oil Testing Lab Building 1022	FTRI- 040		HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action		Confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status
Furniture Repair Shops	FTRI- 041		HSWA, 1998 No potential risk to HH & E based on SI	for Further Evaluation Building 1605 soil removed in 1993	LBA, 1995 Building 319 No threat to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Print and Publications Shop Building 263	FTRI- 045		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Building 727 Waste Pit	FTRI- 051		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	Sample groundwater for lead and arsenic If sampling results show levels are protective of HH & E, request Closed Status.

AEHA - Army Environmental Hygiene Agency AST - Aboveground Storage Tank

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act DRMO - Defense Reutilization Marketing Office

NPL - National Priorities List PA - Preliminary Assessment PAOC - Potential Area of Concern PCB - Polychlorinated Biphenyl

T. 1-1

ESI Site Summary

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

		CERCLA Regulatory	
Site Name	RCRA Regulatory History	History	

ESI - Expanded Site Investigation

FFA - Federal Facility Agreement HH&E - Human Health & Environment

HSWA - Hazardous and Solid Waste Amendment

IACH - Irwin Army Community Hospital IWSA - Installation Wide Site Assessment

KDHE - Kansas Department of Health and Environment

LBA - Louis Berger and Associates

MCL - Maximum Contaminant Level

PCE - Tetrachloroethene

POL - Petroleum, Oil, and Lubricant

PPM - Parts per Million

RCRA - Resource Conservation and Recovery Act

SI - Site Investigation

SWMU - Solid Waste Management Unit

TPH - Total Petroleum Hydrocarbons

UST - Underground Storage Tank

Table 1-1 ESI Site Summary

Former Landfill /
Incinerator Sites
Expanded Site Investigation
Fort Riley, Kansas

				CERCLA Regulatory			
Site Name		RCRA Regulatory Histor	у	History			
Former Landfill/Incinerator Sites (Group 4)		RCRA Part A: Interim Status Nov 1980-Sept 1998		NPL August 1990/ FFA June 1991 PA/PAOC	SI Reports	ESI 2006-2007	ESI 2006-2007, Actions Taken/Recommended
Whitside C/D Landfill	1	AEHA, 1988 SWMU-Proposed environmental sampling	• · · · · · · · · · · · · · · · · · ·	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Main Post Landfill	FTRI- 004	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Custer Hill Rubble Dump	FTRI- 005	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action		Confirm evidence of no release of hazardous substances and no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Hospital Incinerator - IACH	FTRI- 014	AEHA, 1988 SWMU-No evidence of release				Confirm evidence of no release of hazardous substances and no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Southeast Funston Landfill Incinerator	FTRI- 029	AEHA, 1988 SWMU-No evidence of release	HSWA, 1998 Recommends investigation, review, or remediation	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 Detected lead in soil Removed impacted soil in 1999	Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Southeast Funston Landfill	FTRI- 036		HSWA, 1998 Recommends investigation, review, or remediation	IWSA (LBA, 1993) Identified for Further Evaluation	LBA, 1995 Detected lead, antimony & VC above MCL in GW	Confirm no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Old Whitside Incinerator	FTRI- 037		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Recommended No Further Action	LBA, 1995 No potential risk to HH & E	Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status
Inactive Landfills - Camp Whitside	FTRI- 052		HSWA, 1998 No potential risk to HH & E based on SI	IWSA (LBA, 1993) Identified for Further Evaluation		Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status

AEHA - Army Environmental Hygiene Agency

AST - Aboveground Storage Tank

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

DRMO - Defense Reutilization Marketing Office

ESI - Expanded Site Investigation

FFA - Federal Facility Agreement

HH&E - Human Health & Environment

HSWA - Hazardous and Solid Waste Amendment

IACH - Irwin Army Community Hospital

IWSA - Installation Wide Site Assessment

KDHE - Kansas Department of Health and Environment

LBA - Louis Berger and Associates

MCL - Maximum Contaminant Level

NPL - National Priorities List

PA - Preliminary Assessment

PAOC - Potential Area of Concern

PCB - Polychlorinated Biphenyl

PCE - Tetrachloroethene

POL - Petroleum, Oil, and Lubricant

PPM - Parts per Million

RCRA - Resource Conservation and Recovery Act

SI - Site Investigation

SWMU - Solid Waste Management Unit

TPH - Total Petroleum Hydrocarbons

UST - Underground Storage Tank

T. 1-1 ESI Site Summary

POL Sites Expanded Site Investigation Fort Riley, Kansas

Site Name		RCRA Regulatory Histor	у	CERCLA Regulatory History						
POL Sites (Group 5)		RCRA Part A: Interim Status	RCRA Part B, Part II HSWA- defers to CERCLA	NPL August 1990/ FFA June 1991						
		Nov 1980-Sept 1998	Oct 1, 1998 to Oct 1, 2008	PA/PAOC	SI Reports	ESI 2006-2007	ESI 2006-2007, Actions Taken/Recommended			
Tactical Vehicle Maintenance Shops	FTRI- 042		HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action - Deferred to UST Program		Site visits to confirm evidence of no release	No actions are necessary to protect HH & E; Closed Status			
Former Gas Stations/Garages	FTRI- 043		HSWA, 1998 No potential risk to HH & E based on site visit	IWSA (LBA, 1993) Recommended No Further Action - Deferred to UST Program		Confirm SI conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status except at Camp Forsyth I & 7th Streets location. Collect subsurface soil samples for VOCs.			
6200 Area Fuel Oil Line	FTRI- 057				POL-contaminated soil removed in 1997 No potential risk to HH & E	Confirm conclusion of no threat to HH & E	No actions are necessary to protect HH & E; Closed Status			
Underground Storage Tanks	FTRI- 059	AEHA, 1988 SWMU-No evidence of release under obsolete FTRI-015	HSWA, 1998 No potential risk to HH & E or addressed under another regulatory program (RCRA Subtitle I)	IWSA (LBA, 1993) Recommended No Further Action - Deferred to UST Program	USTs removed in 1990s Residual POL contamination of soil and ground water No potential risk to HH & E	Confirm conclusion of no threat to HH & E	No actions are necessary to protect HH & E for Closed Sites (See Table 5-1) Request Administrative Closure for Tanks 7903a & b and 7923 from KDHE, North Central District Office			

AEHA - Army Environmental Hygiene Agency

AST - Aboveground Storage Tank

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

DRMO - Defense Reutilization Marketing Office

ESI - Expanded Site Investigation

FFA - Federal Facility Agreement

HH&E - Human Health & Environment

HSWA - Hazardous and Solid Waste Amendment

IACH - Irwin Army Community Hospital

IWSA - Installation Wide Site Assessment

KDHE - Kansas Department of Health and Environment

LBA - Louis Berger and Associates

MCL - Maximum Contaminant Level

NPL - National Priorities List

PA - Preliminary Assessment

PAOC - Potential Area of Concern

PCB - Polychlorinated Biphenyl

PCE - Tetrachloroethene

POL - Petroleum, Oil, and Lubricant

PPM - Parts per Million

RCRA - Resource Conservation and Recovery Act

SI - Site Investigation

SWMU - Solid Waste Management Unit

TPH - Total Petroleum Hydrocarbons

UST - Underground Storage Tank

Ta⊾... 6-1 Groundwater Detections 2004 - 2006 Fire Training Area, Camp Funston (FTRI-028)

Petroluem / VOC Sites
Expanded Site Investigation
Fort Riley, Kansas

SFL92-401		USEPA Region 9 PRGs	Date Sampled: USEPA MCLs/ Action Level	Mar-04	Sep-04	Mar-05	Sep-05	Mar-06	Sep-06
Volatiles	UNITS								
Chlorobenzene	ug/L	106	100	0.35 J	0.59	1.04 J	0.49 J	0.73 J	0.960 J
1,2-Dichlorobenzene	ug/L	370	600	U	U	U	U	U	1.79 J
1,4-Dichlorobenzene	ug/L	0.5	75	0.46 J	0.64	0.94	0.54 J	0.79 J	0.870 J
cis-1,2-Dichloroethene	ug/L	61	70	0.62 J	0.58	0.62 J	0.64 J	0.44 J	0.260 J
Trichloroethene	ug/L	0.028	5	U	U	U	U	υ	0.840 J
Toluene	ug/L	723	1,000	U	U	U	U	0.28 J	U
Vinyl Chloride	ug/L	0.02	2	<i>3.57</i>	<i>3.3</i>	3.49	3.19	1.68 J	1.21 J
Metals	UNITS								
Lead, Total	ug/L	3.60E-06	15	0.234 J	U	U	U _	Ü	U

SFL92-403		USEPA Region 9 PRGs	Date Sampled: USEPA MCLs/	Mar-04	Sep-04	Mar-05	Sep-05	Mar-06	Sep-06
		011100	Action Level						
Volatiles	UNITS								
Benzene	ug/L	0.354	5	U	U	0.67 J	U	Ü	U
Chlorobenzene	ug/L	106	100	0.33 J	0.23 J	0.3 J	0.27 J	0.42 J	0.360 J
Carbon Disulfide	ug/L	1043	-	U	U	0.43 J	U	U	U
1,4-Dichlorobenzene	ug/L	0.5	75.	0.33 J	U	0.45 J	0.31 J	0.93 J	0.530 J
1,1-Dichloroethane	ug/L	810	-	U	0.23 J	0.22 J	U	U	U
cis-1,2-Dichloroethene	ug/L	61	70	0.76 J	0.73	0.85 J	0.74 J	0.42 J	0.200 J
Trichloroethene	ug/L	0.028	5	U	U	U	U	U	0.230 J
Toluene	ug/L	723	1,000	U	U	U	U	0.35 J	U
Vinyl Chloride	ug/L	0.02	2	4.48	4.02	3.89	3.55	1.11 J	0.77 J
Metals	UNITS								
Lead, Total	ug/L	3.60E-06	15	1.171 J	Ú	U	U	U	U

Table 6-1 Groundwater Detections 2004 - 2006 Fire Training Area, Camp Funston (FTRI-028)

Petroluem / VOC Sites
Expanded Site Investigation
Fort Riley, Kansas

SFL92-601		USEPA Region 9 PRGs	Date Sampled: USEPA MCLs/ Action Level	Mar-04	Sep-04	Mar-05	Sep-05	Mar-06	Sep-06
Volatiles	UNITS								
Benzene ·	ug/L	0.35	5	4.72	4.68	4.38	3.78	2.84	2.82
Chloloethane	ug/L	5	٠ -	U	U	U	0.75 J	U -	0.730 J
1,4-Dichlorobenzene	ug/L	Ó.5	75	0.45 J	U	0.55 J	0.32 J	0.94 J	0.770 J
1,1-Dichloroethane	ug/L	810	-	2.31	1.83	1.71 J	1.49 J	0.74 J	0.630 J
1,2-Dichloropropane	ug/L	0.16	5	U	0.23 J	U	U	U	U
1,2,4-trimethylbenzene	ug/L	. .	-	· U	U	U	U	0.77 J	1.89 J
cis-1,2-Dichloroethene	ug/L	61	70	0.23 J	U	U	U	·υ	U
Dichlorodifluoromethane	ug/L	390	-	U	U	U	U	U	1.87 J
Isopropylbenzene	ug/L	-		U	U	U	U	0.92 J	0.810 J
Naphthalene	ug/L	6.2	-	2.32	U	2.34	1.77 J	2.96	1.30 J
Trichloroethene	ug/L	0.028	5	U	U	U	U	U.	1.24 J
m&p-Xylenes	ug/L	-	· -	U	U	0.22 J	U U	0.4 J	0.260 J
o-Xylene	ug/L	-	-	U	U	U	0.2 J	0.21 J	0.200 J
total Xylenes	ug/L	206	10,000	U	U	0.22 J	0.2 J	0.61 J	U
Toluene	ug/L [.]	723	1,000	0.23 J	0.45 J	0.46 J	0.37 J	0.43 J	U
Vinyl Chloride	ug/L	0.02	2	2.57	1.24	U	0.82 J	U	U
Metals	UNITS	,							
Lead, Total	ug/L	3.60E-06	15	NA	NA	NA	NA .	NA	NA

Ta⊾..c 6-1 Groundwater Detections 2004 - 2006 Fire Training Area, Camp Funston (FTRI-028)

Petroluem / VOC Sites
Expanded Site Investigation
Fort Riley, Kansas

SFL92-603		USEPA Region	Date Sampled:	Mar-04	Sep-04	Mar-05	Sep-05	Mar-06	Sep-06
		9 PRGs	USEPA MCLs/		'		,		
			Action Level						
Volatiles	UNITS								1
Benzene	ug/L	0.35	5	U	U	U	U	U	U
Chlorobenzene	ug/L	0.35	5	0.34J	U	U	U	lυ	lυ
Chloroethane	ug/L	5	-	U	U	U	0.43 J	lυ	0.270 J
1,4-Dichlorobenzene	ug/L	0.5	75	0.58 J	U	U	0.32 J	lυ	l u
1,1-Dichloroethane	ug/L	810	-	U	U	U	1.49	lυ	lυ
cis-1,2-Dichloroethene	ug/L	61	70	U	U	U	U	0.36 J	0.310 J
Naphthalene	ug/L	6.2	-	U	U	U	U	l u	U
Trichloroethene	ug/L	0.028	5	U	U ·	U	U	lυ	0.300 J
m&p-Xylenes	ug/L	-	-	U	U	U	U	U	lυ
total Xylenes	ug/L	206	10,000	U	U	lυ	υ	υ	lυ
Vinyl Chloride	ug/L	0.02	2	U	0.56	υ	0.74 J	1.63 J	1.58 J
Metals	UNITS			*-**					
Lead, Total	ug/L	3.60E-06	15	NA	NA	NA	NA	NA	NA

SFL94-03A		USEPA Region 9 PRGs	Date Sampled: USEPA MCLs/ Action Level	Mar-04	Sep-04	Mar-05	Sep-05	Mar-06	Sep-06
Volatiles	UNITS					Ţ.		Y	1
cis-1,2-Dichloroethene	ug/L	61	70	0.16 J	U	U	U	U	U
Trichloroethene	ug/L	0.028	5	U	U	U	υ	lυ	0.350 J
Vinyl Chloride	ug/L	0.02	2	0.62 J	U	lυ	·U	U	U
Metals	UNITS								
Lead, Total	ug/L	3.60E-06	15	NA	NA	NA	NA	NA	NA

Table 6-1 Groundwater Detections 2004 - 2006 Fire Training Area, Camp Funston (FTRI-028)

Petroluem / VOC Sites Expanded Site Investigation Fort Riley, Kansas

SFL94-04B		USEPA Region 9 PRGs	Date Sampled: USEPA MCLs/ Action Level	Mar-04	Sep-04	Mar-05	Sep-05	Mar-06	Sep-06
Volatiles	UNITS								
1,1,1-Trichloroethane	ug/L	3171	200	U	Ü	U	0.21 J	U	U
cis-1,2-Dichloroethene	ug/L	61	70	0.25 J	U	U	U	U	U
Vinyl Chloride	ug/L	0.02	2	0.41 J	U	U	·U	U	U
Metals	UNITS	·							
Lead, Total	ug/L	3.60E-06	15	0.708 J	1.13	2.64	3.4	2.52	2.37

Notes:

 All data screened against the USEPA MCLs/Action Levels (for lead). All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - United States Environmental Protection Agency Maximum Contaminant Levels

References for data: ECC, 2005, 2006a, 2006b, and 2006c.

ug/L - micrograms per liter mg/L - milligrams per liter

U - compound was not detected

J - qualified as estimated during quality control evaluation

Table 7-1

Soil Detections

Consolidated Maintenance Facility Building 8100 (FTRI-039)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region 9	KDHE RSKs (res/ind)	039-DP01/SB01	039-DP01/SB02	039-DP01/SB03	039-DP01/SB33
	Date Sampled:	PRGs (res/ind)		7/27/2006	7/27/2006	7/27/2006	7/27/2006
	Sample Depth:			0.5 - 1.5 ft	7 - 8 ft	9 - 11 ft	9 - 11 ft
La	boratory Number:			06072029	06072030	06072031	06072032
							Duplicate
Volatiles	UNITS						
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	120 U	120 U	230	120 U
Tetrachloroethene	ug/kg	480 / 1,300	79,000 / 140,000	6.2 U	6.2 U	6 U	6 U
Total Petroleum Hydrocarbo	ns UNITS				·		
Quantified as Motor Oil	mg/kg		2,000 / 20,000	12 U	12 U	28 J	16 J
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	5.8	5.4	6.6	6.9
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	130	180	200	250
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	1.2 U	0.62 U	0.6 U	0.6 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	28	25	26	25
Lead, Total	mg/kg	400 / 800	400 / 1,000	14	g	13	13

Notes:

 All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

Table 7-1 Soil Detections

Consolidated Maintenance Facility Building 8100 (FTRI-039)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region 9	KDHE RSKs (res/ind)	039-DP02/SB01	039-DP02/SB02	039-DP02/SB03	039-DP03/SB01
	Date Sampled:	PRGs (res/ind)		7/27/2006	7/27/2006	7/27/2006	7/27/2006
	Sample Depth:	-		0 - 2 ft	7 - 8 ft	11 - 12 ft	0 - 1 ft
La	boratory Number:		•	06072033	06072034	06072035	06072036
Volatiles	UNITS		·				
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	120 U	130 U	120 U	120 U
Tetrachloroethene	ug/kg	480 / 1,300	79,000 / 140,000	5.9 U	6.4 Ų	5.9 Ų	6 U
Total Petroleum Hydrocarbo	ns UNITS						
Quantified as Motor Oil	mg/kg	••	2,000 / 20,000	13 J	42 J	12 U	17 J
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	7.4	6.6	5.1	6.4
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	120	110	88	170
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.59 U	0.64 U	0.59 U	0.6 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	26	20	24	25
Lead, Total	mg/kg	400 / 800	400 / 1,000	9.3	13	4	10

Notes:

 All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

Table 7-1 Soil Detections

Consolidated Maintenance Facility Building 8100 (FTRI-039)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region 9	KDHE RSKs (res/ind)	039-DP03/SB02	039-DP03/SB03	039-DP04/SB01	039-DP04/SB02
	ate Sampled:	PRGs (res/ind)		7/27/2006	7/27/2006	7/27/2006	7/27/2006
	ample Depth:			7 - 8 ft	8 - 9 ft	1 - 2 ft	4 - 7 ft
Labora	atory Number:			06072037	06072038	06072040	06072041
Volatiles	UNITS			•			
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	120 U	120 U	120 U	130 U
Tetrachloroethene	ug/kg	480 / 1,300	79,000 / 140,000	6 U	6.2 U	6.2 U	7.8
Total Petroleum Hydrocarbons	UNITS				,		
Quantified as Motor Oil	mg/kg		2,000 / 20,000	12 Ú	12 U	12 U	13 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	4.8	7.6	6.9	7
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	84	130	220	300
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.6 U	1.2 U	1.2 U	1.3 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	25	· 39	29	30
Lead, Total	mg/kg	400 / 800	400 / 1,000	2.8	12	13	16

Notes:

 All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

Table 7-1 Soil Detections

Consolidated Maintenance Facility Building 8100 (FTRI-039)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region 9	KDHE RSKs (res/ind)	039-DP04/SB22	039-DP05/SB01	039-DP05/SB02	039-DP05/SB03
D	ate Sampled:	PRGs (res/ind)		7/27/2006	7/27/2006	7/27/2006	7/27/2006
	ample Depth:			4 - 7 ft	1 - 2 ft	7 - 8 ft	10 - 11 ft
Labora	tory Number:		·	06072042	06072043	06072044	06072045
				Duplicate			
Volatiles	UNITS						
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	130 U	130 U	130 U	130 U
Tetrachloroethene	ug/kg	480 / 1,300	79,000 / 140,000	8.7	6.3 U	6.3 U	6.7 U
Total Petroleum Hydrocarbons	UNITS						
Quantified as Motor Oil	mg/kg		2,000 / 20,000	13 U	13 U	43 J	13 U
Metals, Total	UNITS			. "			
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	9.5	5.6	6	6
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	110	170	150	120
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	1.3 U	0.63 U	0.63 U	3.4 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	43	27	22	11
Lead, Total	mg/kg	400 / 800	400 / 1,000	13	12	12	4.1

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

Ta⊳ie 7-1 Soil Detections

Consolidated Maintenance Facility Building 8100 (FTRI-039)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region 9	KDHE RSKs (res/ind)	039-DP06/SB01	039-DP07/SB01	039-DP07/SB02	039-DP07/SB03
	Date Sampled:	. , ,		7/27/2006	7/28/2006	7/28/2006	7/28/2006
I .	Sample Depth:			1 - 2 ft	0 - 1 ft	6 - 7 ft	9 - 10 ft
Labo	ratory Number:			06072039	06072132	06072133	06072134
Volatiles	UNITS						
Acetone *	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	120 U	120 U	160 Ú	110 U
Tetrachloroethene	ug/kg	480 / 1,300	79,000 / 140,000	6 U	5.9 U	8 U	5.6 U
Total Petroleum Hydrocarbons	UNITS					·	
Quantified as Motor Oil	mg/kg		2,000 / 20,000	20 J	21 J	16 U	11 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	7.4	7.4	14	15
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	110	160	170	90
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	1.2 U	3 U	1.6 U	2.8 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	33	29	54	8.6
Lead, Total	mg/kg	400 / 800	400 / 1,000	13	15.4	15.5	2.8 U

Notes:

 All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

Table 7-1

Soil Detections

Consolidated Maintenance Facility Building 8100 (FTRI-039)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

S	Sample Point:		KDHE RSKs (res/ind)	039-DP08/SB01	039-DP08/SB02	039-DP08/SB03
	ate Sampled:			7/28/2006	7/28/2006	7/28/2006
	ample Depth:			0 - 1 ft	7 - 8 ft	10.5 - 12 ft
Labora	tory Number:			06072135	06072136	06072137
Volatiles	UNITS					
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	110 U	120 U	120 U
Tetrachloroethene	ug/kg	480 / 1,300	79,000 / 140,000	5.6 U	6.1 U	6.2 U
Total Petroleum Hydrocarbons	UNITS				·	
Quantified as Motor Oil	mg/kg		2,000 / 20,000	130 J	47 J	12 U
Metals, Total	UNITS					
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	5.7	7.4	7
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	170	200	170
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.91	1.2 U	0.85
Chromium, Total	mg/kg	210 / 450	390 / 4,000	25	30	31
Lead, Total	mg/kg	400 / 800	400 / 1,000	12.7	13.9	12.4

Notes:

 All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

Taեւe 8-1 Soil Detections

Former Oil Testing Laboratory Building 1022 (FTRI-040)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

-	Sample Point:	USEPA Region 9	KDHE RSKs	040-DP01/SB01	040-DP01/SB02	040-DP01/SB22	040-DP01/SB03
	Date Sampled:	, ,	(res/ind)	7/28/2006	7/28/2006	7/28/2006	7/28/2006
	Sample Depth:			0 - 2 ft	· 4 - 8 ft	4 - 8 ft	10 - 12 ft
L	aboratory Number:			06072128	06072129	06072130	06072131
						Duplicate	
Pesticides	UNITS						
4,4'-DDE	mg/kg	1.7 / 7.0	25 / 56	0.03	0.03	0.03	0.01 U
Total Petroleum Hydrocarbo	ns UNITS						
Quantified as Motor Oil	mg/kg		,2000 / 20,000	16 J	15 J	13 J	11 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	4.8	3.8	3.6	4.2
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	110	160	150	190
Cadmium, Total.	mg/kg	37 / 450	39 / 1,000	0.54 U	0.59	0.56	0.68
Chromium, Total .	mg/kg	210 / 450	390 / 4,000	15	19	17	22
Lead, Total	mg/kg	400 / 800	400 / 1,000	9.9	9.9	10	10
Mercury, Total	mg/kg	23 / 310	2 / 20	0.1 U	0.1 U	0.1 U	0.1 U
Selenium, Total	mg/kg	390 / 5100	390 / 10,000	1.7	1.8	1.8	2.4

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

QC - quality control

Table 8-1 Soil Detections

Former Oil Testing Laboratory Building 1022 (FTRI-040)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point: Date Sampled: Sample Depth: atory Number:	PRGs (res/ind)	KDHE RSKs (res/ind)	040-DP02/SB01 7/28/2006 0 - 2 ft 06072125	040-DP02/SB02 7/28/2006 6 - 8 ft 06072126	040-DP02/SB03 7/28/2006 10 - 12 ft 06072127	040-DP03/SB01 7/28/2006 0 - 2 ft 06072138
Pesticides	UNITS						
4,4'-DDE	mg/kg	1.7 / 7.0	25 / 56	0.01 U	0.01 U	0.01 U	0.01 U
Total Petroleum Hydrocarbons	UNITS						
Quantified as Motor Oil	mg/kg		,2000 / 20,000	44 J	12 U	12 U	72
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	3.5	3.1	3.9	3.7
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	110	140	150	120
Cadmium, Total •	mġ/kg	37 / 450	39 / 1,000	0.56 U	0.58 U	0.6 U	0.69
Chromium, Total	mg/kg	210 / 450	390 / 4,000	15	16	18	17
Lead, Total	mg/kg	400 / 800	400 / 1,000	22	8.4	8.7 .	16.6
Mercury, Total	mg/kg	23 / 310	2/20	0.1 U	0.1 U	0.1 U	0.2
Selenium, Total	mg/kg	390 / 5100	390 / 10,000	1.1 U	1.2 U	1.2 U	2.4 U

Notes:

 All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

QC - quality control

Ta..e 8-1 Soil Detections

Former Oil Testing Laboratory Building 1022 (FTRI-040)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region 9	KDHE RSKs	040-DP03/SB02	040-DP03/SB03	040-DP04/SB01	040-DP04/SB02
	Date Sampled:	PRGs (res/ind)	(res/ind)	7/28/2006	7/28/2006	7/31/2006	7/31/2006
	Sample Depth:			4 - 8 ft	10 - 12 ft	0 - 2 ft	4 - 5 ft
L	aboratory Number:			06072139	06072140	06072194	06072195
Pesticides	UNITS						
4,4'-DDE	mg/kg	1.7 / 7.0	25 / 56	0.01 U	0.01 U	0.01 U	0.01 U
Total Petroleum Hydrocarbo	ns UNITS			,			
Quantified as Motor Oil	mg/kg		,2000 / 20,000	14 J	12 U	37 J	55 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	3.9	3.2	4.3	3.5
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	140	130	120	140
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.73	0.63	0.8	0.58
Chromium, Ṭotal	mg/kg	210 / 450	390 / 4,000	19	19	15	17
Lead, Total	mg/kg	400 / 800	400 / 1,000	25.2	9.7	17	8.5
Mercury, Total	mg/kg	23 / 310	2 / 20	0.1 U	0.1 U	0.1 U	0.1 U
Selenium, Total	mg/kg	390 / 5100	390 / 10,000	2	2.4 U	1.1 U	2.2 U

Notes:

 All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

QC - quality control

Table 8-1 Soil Detections

Former Oil Testing Laboratory Building 1022 (FTRI-040)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

9	Sample Point:	USEPA Region 9	KDHE RSKs	040-DP04/SB02	040-DP04/SB03	040-DP04/SB33
D	ate Sampled:	PRGs (res/ind)	(res/ind)	7/31/2006	7/31/2006	7/31/2006
S	ample Depth:			4 - 5 ft	8 - 12 ft	8 - 12 ft
Labora	tory Number:		 	06072195R	06072196	06072197
				Reanalysis		Duplicate
Pesticides	UNITS					
4,4'-DDE	mg/kg	1.7 / 7.0	25 / 56	NA	0.01 U	0.01 U
Total Petroleum Hydrocarbons	UNITS					
Quantified as Motor Oil	mg/kg		,2000 / 20,000	11 UR	11 U	11 U
Metals, Total	UNITS					
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	NA	3.7	3.5
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	· NA	130	140
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	NA	0.63	0.59
Chromium, Total	mg/kg	210 / 450	390 / 4,000	NA	19	15
Lead, Total	mg/kg	400 / 800	400 / 1,000	NA	9.4	9.1
Mercury, Total	mg/kg	23 / 310	2/20	NA	0.1 U	0.1 U
Selenium, Total	mg/kg	390 / 5100	390 / 10,000	NA:	2.2 U	2.3 U

Notes:

 All data screened against the USEPA Region 9 PRGs (industrial) with the exception of TPH which is screened against KDHE industrial RSKs. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

NA - not applicable / not analyzed

QC - quality control

Table 8-2

Groundwater Detections

Former Oil Testing Laboratory Building 1022 (FTRI-040)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

•	Sample Point:	USEPA Region	USEPA MCLs/	040-DP01/GW01	040-DP02/GW01	040-DP02/GW11	040-DP03/GW01
	Date Sampled:	9 PRGs	Action Level	8/2/2006	8/2/2006	8/2/2006	8/2/2006
	Sample Depth:	(tap water)		LIQUID	LIQUID	LIQUID	LIQUID
	Laboratory Number:		,	06080326	06080327	06080328	06080324
						Duplicate	
Metals, Total	UNITS						
Arsenic, Total	mg/L	NA	NA	NA	0.383 J	1.07 J	0.052 J
Barium, Total	mg/L	NA	NA	NA	17.6	44.5	2.15
Cadmium, Total	mg/L	ŇA	NA	NA	0.081 J	0.247 J	0.004 J
Chromium, Total	mg/L	NA	NA	NA	0.799 J	2.51 J	0.237 J
Lead, Total	mg/L	NA	NA	NA	0.784 J	2.28 J	0.127 J
Mercury, Total	mg/L	NA	NA	NA	0.0018	0.0027	0.0004
Selenium, Total	mg/L	NA	NA	NA	0.05 UJ	0.2 UJ	0.01 UJ
Metals, Dissolved	UNITS						
Arsenic, Dissolved	mg/L	4.50E-06	0.01	NA	0.026	0.022	0.018
Barium, Dissolved	mg/L	2.6	2	NA	1.05	0.79	0.82
Lead, Dissolved	mg/L	NA	0.015	NA	0.01	0.01	0.016

Notes:

 All data screened against the USEPA Region 9 PRGs (tap water) except for lead which is screened against the USEPA MCL. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - United States Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

mg/L - milligrams per liter

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 8-2

Groundwater Detections Former Oil Testing Laboratory Building 1022 (FTRI-040)

Petroleum / VOC Sites Expanded Site Investigation

Fort Riley, Kansas

	0	LIOEDA Dania	LUCEDA MOLE/	040 DD00/014/04	040 DD04/0W01
•	•	USEPA Region	USEPA MCLs/	040-DP03/GW01	040-DP04/GW01
	Date Sampled:	9 PRGs	Action Level	8/2/2006	8/2/2006
	Sample Depth:	(tap water)		LIQUID	LIQUID
	Laboratory Number:	•		06080324R	06080325
				Reanalysis	
Metals, Total	UNITS				
Arsenic, Total	mg/L	NA	NA	0.052 J	0.121 J
Barium, Total	mg/L	NA	NA	NA	5.56
Cadmium, Total	mg/L	NA	NA	0.007 J	0.022 J
Chromium, Total	mg/L	NA	NA	0.3 J	0.435 J
Lead, Total	mg/L	NA	NA	0.14 J	0.32 J
Mercury, Total	mg/L	NΑ	NA	NA	0.0008
Selenium, Total	mg/L	NA	NA	0.01 UJ	0.021 J
Metals, Dissolved	UNITS				
Arsenic, Dissolved	mg/L	4.50E-06	0.01	NA	0.018
Barium, Dissolved	mg/L	2.6	2	NA	1.15
Lead, Dissolved	mg/L	NA	0.015	NA	0.009

Notes:

1. All data screened against the USEPA Region 9 PRGs (tap water) except for lead which is screened against the USEPA MCL. All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - United States Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

mg/L - milligrams per liter

J - qualified as estimated during QC evaluation

U - compound was not detected

Petroleum / VOC Sites
Expanded Site Investigation
Fort Riley, Kansas

Lab	Sample Point: Date Sampled: Sample Depth: oratory Number:		KDHE RSKs (res/ind)	041-DP01/SB01 8/2/2006 1.5 - 2 ft 06080329	041-DP01/SB02 8/2/2006 7 - 8 ft 06080330	041-DP01/SB03 8/2/2006 11 - 12 ft 06080331	041-DP02/SB01 8/1/2006 0 - 1 ft 06080184
Volatiles	UNITS						
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	110 U	130 U	100 U	110 U
Methylene Chloride	ug/kg	9,100 / 21,000	150,000 / 230,000	5.7 U	6.3 U	5.2 U	5.6 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	3.5	4.8	1 U	3.8
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	130	170	40	100
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.68	0.63 U	0.52 U	1.3
Chromium, Total	mg/kg	210 / 450	390 / 4,000	14	15	2	15
Lead, Total	mg/kg	400 / 800	400 / 1,000	15.4	7.4	1.7	67.3
Mercury, Total	mg/kg	23 / 310	2 / 20	0.1 U	0.1 U	0.1 U	0.1 U
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	2.3 U	1.3 U	1 U	2.2 U

Notes:

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

R- qualified as rejected during QC evaluation

U - compound was not detected

^{1.} All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	•	KDHE RSKs (res/ind)	041-DP02/SB01 8/1/2006	041-DP02/SB02 8/1/2006	041-DP02/SB03 8/1/2006	041-DP03/SB01 8/1/2006
	Date Sampled: Sample Depth:			0 - 1 ft	6 - 7 ft	11 - 12 ft 06080186	0 - 1 ft 06080180
Lac	ooratory Number:			06080184R Reanalysis	06080185	00000100	
Volatiles	UNITS						
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	560 UR	120 U	120 U	110 U
Methylene Chloride	ug/kg	9,100 / 21,000	150,000 / 230,000	28 UR	6.1 U	5.9 U	5.4 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	NA	3) <u>3</u>	1.7	4.5
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	NA	120	70	140
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	NA	0.61 U	0.59 U	1.5
Chromium, Total	mg/kg	210 / 450	390 / 4,000	NA	11	6.3	15
Lead, Total	mg/kg	400 / 800	400 / 1,000	NA	5.9	3.3	55
Mercury, Total	mg/kg	23 / 310	2 / 20	NA	0.1 U	0.1 U	0.1 U
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	NA	1.2 U	1.2 U	1.1 U

Notes:

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

R - data was rejected

^{1.} All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region 9	KDHE RSKs (res/ind)	041-DP03/SB01	041-DP03/SB02	041-DP03/SB03	041-DP04/SB01
	Date Sampled:	PRGs (res/ind)		8/1/2006	8/1/2006	8/1/2006	7/31/2006
	Sample Depth:			0 - 1 ft	7 - 8 ft	9 - 10 ft	1 - 2 ft
	Laboratory Number:			06080180R	06080181	06080182	06072198
				Reanalysis			
Volatiles ·	UNITS						
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	540 UR	120 U	120 U	120 U
Methylene Chloride	ug/kg	9,100 / 21,000	150,000 / 230,000	27 UR	6.2 U	6 U	5.8 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	NA	3.1	3.5 × ×	3.7
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	NA	220	120	100
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	NA	0.62 U	0.6 U	1.2 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	NA	14	12	22
Lead, Total	mg/kg	400 / 800	400 / 1,000	NA	7.4	6.2	6
Mercury, Total	mg/kg	23 / 310	2/20	NA	0.1 U	0.1 U	0.12 U
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	NA	1.6	1.2 U	2.3 U

Notes:

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

R - data was rejected

^{1.} All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

La	Sample Point: Date Sampled: Sample Depth: aboratory Number:	USEPA Region 9 PRGs (res/ind)	KDHE RSKs (res/ind)	041-DP04/SB02 7/31/2006 7 - 8 ft 06072199	041-DP04/SB03 7/31/2006 8 - 10.5 ft 06072200	041-DP04/SB33 7/31/2006 8 - 10.5 ft 06072201 Duplicate	041-DP05/SB01 7/31/2006 1 - 2 ft 06072202
Volatiles	UNITS					22540040	
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	200	130 U	130 U	110 U
Methylene Chloride	ug/kg	9,100 / 21,000	150,000 / 230,000	6.4 U	6.3 U	6.3 U	5.6 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	4.5	4	4.2	3.
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	220	200	260	130
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.64 U	0.68	0.63 U	0.56 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	20	20	21	-11
Lead, Total	mg/kg	400 / 800	400 / 1,000	10	8.4	10	4.9
Mercury, Total	mg/kg	23 / 310	2/20	0.13 U	0.13 U	0.13 U	0.11 U
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	2.6 U	2	1.3 U	1.1 U

Notes:

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

R - data was rejected

^{1.} All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

La	Sample Point: Date Sampled: Sample Depth: boratory Number:	PRGs (res/ind)	KDHE RSKs (res/ind)	041-DP05/SB02 7/31/2006 6 - 7 ft 06072203	041-DP05/SB03 7/31/2006 9 - 10 ft 06072204	041-DP06/SB01 7/31/2006 0 - 1.5 ft 06072206	041-DP06/SB02 7/31/2006 6 - 7 ft 06072207
Volatiles	UNITS						
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	110 U	110 U	120 U	110 U
Methylene Chloride	ug/kg	9,100 / 21,000	150,000 / 230,000	5.7 U	5.7 U	5.9 U	5.5 U
Metals, Total	UNITS	· · · · · · · · · · · · · · · · · · ·					
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	3.5	3.5	3.1	4.1
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	100	140	130	92
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.57 U	0.57 U	0.59 U	0.55 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	10	13	15	10
Lead, Total	mg/kg	400 / 800	400 / 1,000	5.9	8.5	47	5.7
Mercury, Total	mg/kg	23 / 310	2 / 20	0.11 U	0.11 U	0.1 U	0.1 U
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	1.1 U	1.1 U	1.2 U	1.1 U

Notes:

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

R - data was rejected

^{1.} All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

La	Sample Point: Date Sampled: Sample Depth: aboratory Number:	PRGs (res/ind)	KDHE RSKs (res/ind)	041-DP06/SB03 7/31/2006 9 - 10 ft 06072208	041-DP07/SB01 7/31/2006 0 - 1.5 ft 06072209	041-DP07/SB02 7/31/2006 4 - 8 ft 06072210	041-DP07/SB22 7/31/2006 4 - 8 ft 06072211 Duplicate
Volatiles	UNITS			,			
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	110 U	110 U	110 U	110 U
Methylene Chloride	ug/kg	9,100 / 21,000	150,000 / 230,000	5.5 U	5.5 U	5.5 U	5.5 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	3.3	3.9	(* 3.3) · · · ·	3.2
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	150	110	84	78
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.55 U	0.55 U	0.55 U	0.55 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	10	12	9.2	8.7
Lead, Total	mg/kg	400 / 800	400 / 1,000	5.7	12	5.2	5.2
Mercury, Total	mg/kg	23 / 310	2 / 20	0.1 U	0.1 U	0.1 U	0.1 U
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	1.1 U	1.1 U	1.1 U	1.1 U

Notes:

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

R - data was rejected

^{1.} All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

Table 9-1 Soil Detections

Furniture Repair Shops (FTRI-041)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region 9	KDHE RSKs (res/ind)	041-DP07/SB03	041-DP08/SB01	041-DP08/SB02	041-DP08/SB03
	Date Sampled:	PRGs (res/ind)		7/31/2006	8/1/2006	8/1/2006	8/1/2006
	Sample Depth:			8 - 9 ft	1 - 2 ft	6 - 7 ft	10 - 11 ft
La	aboratory Number:			06072212	06080171	06080172	06080173
Volatiles	UNITS						
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 /·6.2E06	120 U	110 U	120 U	120 U
Methylene Chloride	ug/kg	9,100 / 21,000	150,000 / 230,000	6 U	5.5 U	6.2 U	6.1 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	3.4	3.6	3.6	4.1
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	120	120	220	210
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.6 U	0.55 U	0.62 U	0.61 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	11	12	15	19
Lead, Total	mg/kg	400 / 800	400 / 1,000	5.7	8.5	8.1	10
Mercury, Total	mg/kg	23 / 310	2 / 20	0.1 U	0.1 U	0.1 U	0.1 U
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	1.2 U	1.1 U	1.2 U	1.2 U

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

R - data was rejected

Table 9-1 Soil Detections

Furniture Repair Shops (FTRI-041)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

La	Sample Point: Date Sampled: Sample Depth: boratory Number:	PRGs (res/ind)	KDHE RSKs (res/ind)	041-DP09/SB01 8/1/2006 1 - 2 ft 06080176	041-DP09/SB02 8/1/2006 7 - 8 ft 06080177	041-DP09/SB02 8/1/2006 7 - 8 ft 06080177R Reanalysis	041-DP09/SB03 8/1/2006 10 - 11 ft 06080178
Volatiles	UNITS						
Acetone	ug/kg	1.4E07 / 5.4E07	1.7E06 / 6.2E06	120 U	120 U	NA	110 U
Methylene Chloride	ug/kg	9,100 / 21,000	150,000 / 230,000	7.7	5.9 U	NA	5.4 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	5.9	4	NA	2.2
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	150	140	NA	77
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.59 U	0.59 U	NA	0.54 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	23	19 R	12	8.5
Lead, Total	mg/kg	400 / 800	400 / 1,000	13	17.1	NA	25
Mercury, Total	mg/kg	23 / 310	2 / 20	0.1	0.1 U	NA	0.1 U
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	1.2 U	1.2 U	NA	1.1 U

Notes:

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

NA - not applicable / not analyzed

ug/kg - micrograms per kilogram mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

R - data was rejected

^{1.} All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

Ta⊾.e 9-2 Groundwater Detections Furniture Repair Shops (FTRI-041)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region	USEPA MCLs/	041-DP01/GW01	041-DP02/GW01	041-DP03/GW01	041-DP03/GW01
	Date Sampled:	•	Action Level	8/2/2006	8/1/2006	8/1/2006	8/1/2006
	Sample Depth:			LIQUID	LIQUID	LIQUID	LIQUID
	Laboratory Number:			06080332	06080187	06080183	06080183R
	•				·		Reanalysis
Volatiles	UNITS						
Trichloromethane	ug/L	0.17	80	2.6	3.5	3	NA
Metais, Totals	UNITS						
Arsenic, Total	mg/L	NA	NA	0.027 J	0.076	0.077	NA
Barium, Total	mg/L	NA	NA	0.86	2.99	4.44	NA
Cadmium, Total	mg/L	NA	NA	0.003 UJ	0.004	0.003	NA
Chromium, Total	mg/L	NA	NA	0.099 J	0.34	0.418	NA
Lead, Total	mg/L	NA	NA	0.061 J	0.197	0.114	NA
Mercury, Total	mg/L	NA	NA .	0.0002 U	0.0003	0.0002 U	NA
Selenium, Total	mg/L	NA	NA	0.01 UJ	0.046	0.026	NA
Metals, Dissolved	UNITS						
Arsenic, Dissolved	mg/L	4.50E-06	0.01	0.011	0.01 U	0.01 U	NA
Barium, Dissolved	mg/L	. 2.6	2	0.76	0.14	0.14	NA
Chromium, Dissolved	mg/L	0.11*	0.1	0.056	0.005 U	0.005 U	NA
Lead, Dissolved	mg/L	NA	0.015	0.025	0.005 U	0.005 U	NA
Selenium, Dissolved	mg/L	0.18	0.05	0.01 U	0.01 U	0.01 UR	0.01 U

Notes:

 All data screened against the USEPA Region 9 PRGs (tap water) or the USEPA action limit (for lead). All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - United States Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

* for Chromium VI

ug/L - micrograms per liter mg/L - milligrams per liter

J - qualified as estimated during QC evaluation

R - qualified as rejected during QC evaluation

U - compound was not detected

Table 9-2 Groundwater Detections Furniture Repair Shops (FTRI-041)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region	USEPA MCLs/	041-DP04/GW01	041-DP05/GW01	041-DP06/GW01	041-DP07/GW01
	Date Sampled:	9 PRGs	Action Level	7/31/2006	7/31/2006	7/31/2006	7/31/2006
	Sample Depth:	(tap water)		LIQUID	LIQUID	LIQUID	LIQUID
	Laboratory Number:			06072176	06072177	06072178	06072179
Volatiles	UNITS						
Trichloromethane	ug/L	0.17	80	0.5 U	0.5 U	0.5 U	0.5 U
Metals, Totals	UNITS						
Arsenic, Total	mg/L	NA	NA	0.159	0.506	0.644	0.157
Barium, Total	mg/L	NA	NA	8.73	5.67	3.27	6.49
Cadmium, Total	mg/L	NA	NA	0.032	0.022	0.008	0.019
Chromium, Total	mg/L	NA -	NA	0.641	0.446	0.478	0.748
Lead, Total	mg/L	NA	NA	0.448	0.391	0.203	0.379
Mercury, Total	mg/L	NA	NA	0.0008	0.0007	0.0002 U	0.0008
Selenium, Total	mg/L	NA	NA .	0.16	0.288	0.042	0.02 U
Metals, Dissolved	UNITS		·				
Arsenic, Dissolved	mg/L	4.50E-06	0.01	0.01 U	0.01 U	0.026	0.01 U
Barium, Dissolved	mg/L	2.6	2	0.35	0.3	0.37	0.2
Chromium, Dissolved	mg/L	0.11*	0.1	0.005 U	0.005 U	0.005 U	0.005 U
Lead, Dissolved	mg/L	NA	0.015	0.005 U	0.005 U	' 0.005 U	0.005 U
Selenium, Dissolved	mg/L	0.18	0.05	0.047	0.01 U	0.01 U	0.01 U

Notes:

 All data screened against the USEPA Region 9 PRGs (tap water) or the USEPA action limit (for lead). All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - United States Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

* for Chromium VI

ug/L - micrograms per liter mg/L - milligrams per liter

J - qualified as estimated during QC evaluation

R - qualified as rejected during QC evaluation

U - compound was not detected

Groundwater Detections Furniture Repair Shops (FTRI-041)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point:	USEPA Region	USEPA MCLs/	041-DP08/GW01	041-DP08/GW11	041-DP09/GW01
	Date Sampled:	9 PRGs	Action Level	8/1/2006	8/1/2006	8/1/2006
	Sample Depth:		Action Level			
		(tap water)		LIQUID	LIQUID	LIQUID
	Laboratory Number:			06080174	06080175 Duplicate	06080179
Volatiles	UNITS				Duplicate	
Trichloromethane	ug/L.	0.17	80	0.5 U	0.5 U	0.5 U
Metals, Totals	UNITS					·
Arsenic, Total	mg/L	NA	NA	0.043	0.069	0.115
Barium, Total	mg/L	NA	NA	2.41	5.19	4.28
Cadmium, Total	mg/L	NA	NA	0.003 U	0.003	0.031
Chromium, Total	mg/L	NA	NA	0.163	0.271	0.52
Lead, Total	mg/L	NA	NA	0.091	0.165	0.243
Mercury, Total	mg/L	NA	NA	0.0005	0.0008	0.0007
Selenium, Total	mg/L	NA	NA	0.02 U	0.02 U	0.08
Metals, Dissolved	UNITS					
Arsenic, Dissolved	mg/L	4.50E-06	0.01	0.01 U	0.01 U	0.01 U
Barium, Dissolved	mg/L	2.6	2	0.22	0.23	0.39
Chromium, Dissolved	mg/L	0.11*	0.1	0.005 U	0.005 U	0.005 U
Lead, Dissolved	mg/L	NA	0.015	0.005 U	0.005 U	0.005 U
Selenium, Dissolved	mg/L	0.18	0.05	0.01 U	0.01 U	0.01 U

Notes:

 All data screened against the USEPA Region 9 PRGs (tap water) or the USEPA action limit (for lead). All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

USEPA MCLs - United States Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

* for Chromium VI

ug/L - micrograms per liter mg/L - milligrams per liter

J - qualified as estimated during QC evaluation

R - qualified as rejected during QC evaluation

U - compound was not detected

Table 11-1 Soil Detections Building 727 Waste Pit (FTRI-051)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

Labo	Sample Point: Date Sampled: Sample Depth: oratory Number:	PRGs (res/ind)	KDHE RSKs (res/ind)	051-DP01/SB01 8/3/2006 0 - 2 ft 06080445	051-DP01/SB02 8/3/2006 6 - 8 ft 06080446	051-DP01/SB22 8/3/2006 6 - 8 ft 06080447 Duplicate	051-DP01/SB03 8/3/2006 10 - 11 ft 06080448
Miscellaneous Analyses	UNITS					Бариолю	
Quantified as Motor Oil	mg/kg		2,000 / 20,000	158 J	12 U	12 U	13 U
Metals, Total	UNITS						
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	2.7	2.6	2.3	3.3
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	130	160	140	190
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.56	0.59 U	0.59 U	0.65 U
Chromium, Total	mg/kg	210 / 450	390 / 4,000	12	9.6	8.7	16
Lead, Total	mg/kg	400 / 800	400 / 1,000	13	4.7	4.5	7.2
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	1.5	1.2 U	1.2 U	1.5

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 11-1 Soil Detections Building 727 Waste Pit (FTRI-051)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

	Sample Point: Date Sampled: Sample Depth: ratory Number:	PRGs (res/ind)	KDHE RSKs (res/ind)	051-DP02/SB01 8/3/2006 0 - 1 ft 06080442	051-DP02/SB02 8/3/2006 7 - 8 ft 06080443	051-DP02/SB03 8/3/2006 11 - 12 ft 06080444
Miscellaneous Analyses	UNITS					
Quantified as Motor Oil	mg/kg		2,000 / 20,000	30 J	13 U	13 U
Metals, Total	UNITS					
Arsenic, Total	mg/kg	0.39 / 1.6	11 / 38	3.6	2.1	4.5
Barium, Total	mg/kg	5,400 / 67,000	5,500 / 140,000	150	180	300
Cadmium, Total	mg/kg	37 / 450	39 / 1,000	0.72	0.63 U	0.79
Chromium, Total	mg/kg	210 / 450	390 / 4,000	13	10	20
Lead, Total	mg/kg	400 / 800	400 / 1,000	11.8	4.8	11
Selenium, Total	mg/kg	390 / 5,100	390 / 10,000	1.7	1.3 U	2.2

Notes:

1. All data screened against the USEPA Region 9 PRGs (industrial). All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

KDHE RSKs - Kansas Department of Health and Environment Risk-Based Standards

res/ind - residential / industrial

ft - feet

mg/kg - milligrams per kilogram

J - qualified as estimated during QC evaluation

U - compound was not detected

Table 11-2 Groundwater Detections Building 727 Waste Pit (FTRI-051)

Petroleum / VOC Sites Expanded Site Investigation Fort Riley, Kansas

<u> </u>	Sample Point:	USEPA Region	USEPA MCLs/	051-DP01/GW01	OE1 DROGOMO1	OE1 DDOO/CW11
	Date Sampled:	•	Action Level	8/3/2006	051-DP02/GW01 8/3/2006	051-DP02/GW11
	Sample Depth:		Action Level			8/3/2006
	• •	(tap water)		LIQUID	LIQUID	LIQUID
	Laboratory Number:			06080451	06080449	06080450
						Duplicate
Metals, Total	UNITS	·				
Arsenic, Total	mg/L	· NA	NA	0.704	0.067	0.058
Barium, Total	mg/L	NA	NA	5.53	3.25	<i>2.</i> 7
Cadmium, Total	mg/L	NA	NA	0.014	0.024	0.021
Chromium, Total	mg/L	NA	NA	0.345	0.301	0.282
Lead, Total	mg/L	NA	NA	0.364	0.269	0.243
Mercury, Total	mg/L	NA	NA	0.0002	0.0002 U	0.0002 U
Selenium, Total	mg/L	NA	NA	0.095	0.015	0.015
Metals, Dissolved	UNITS					
Arsenic, Dissolved	mg/L	4.50E-06	0.01	0.017	0.021	0.025
Barium, Dissolved	mg/L	2.6	2	0.71	1.2	1.19
Cadmium, Dissolved	mg/L	0.018	0.005	0.003 U	0.004	0.004
Chromium, Dissolved	mg/L	0.11*	0.1	0.02	0.053	0.039
Lead, Dissolved	mg/L	NA	0.015	0.032	0.053	0.061

Notes:

 All data screened against the USEPA Region 9 PRGs (tap water) or the USEPA action limit (for lead). All exceedances are shaded. All detections are in bold.

USEPA Region 9 PRGs - United States Environmental Protection Agency Region 9 Preliminary Remediation Goals

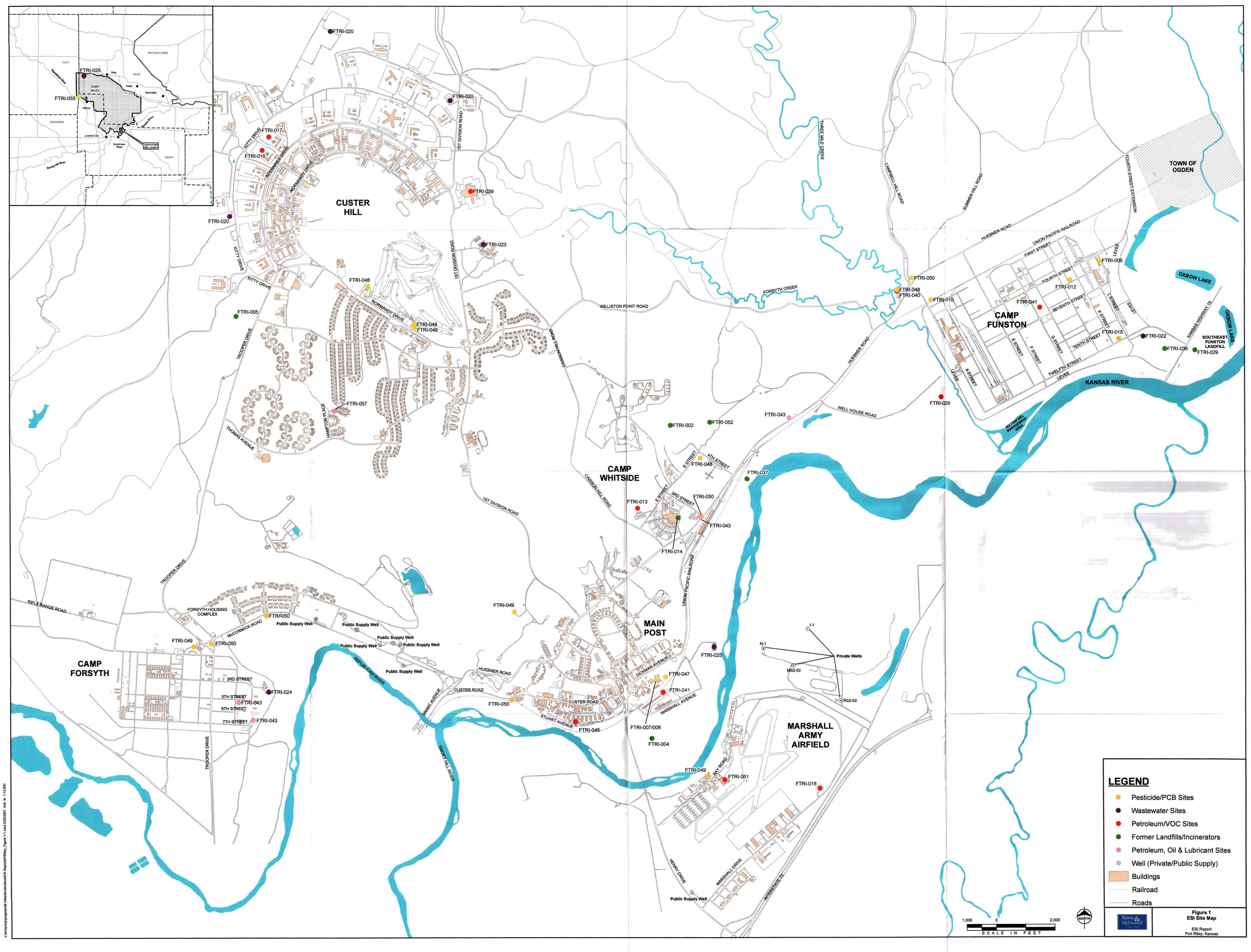
USEPA MCLs - United States Environmental Protection Agency Maximum Contaminant Levels

NA - not applicable / not analyzed

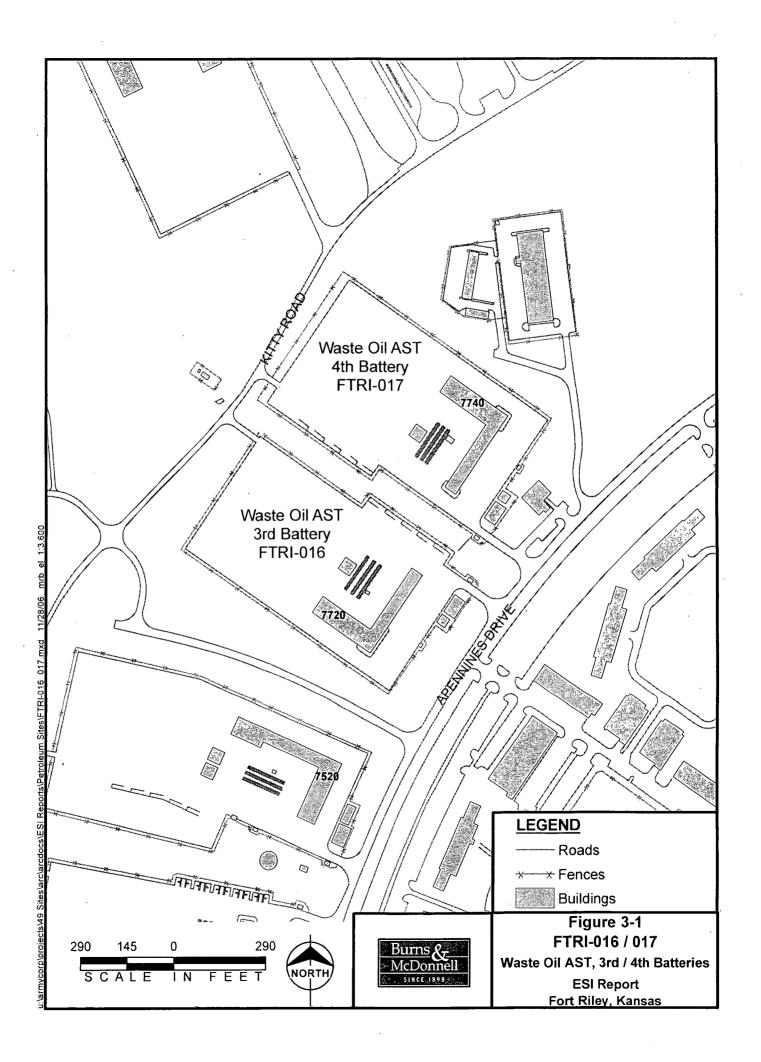
* for Chromium VI

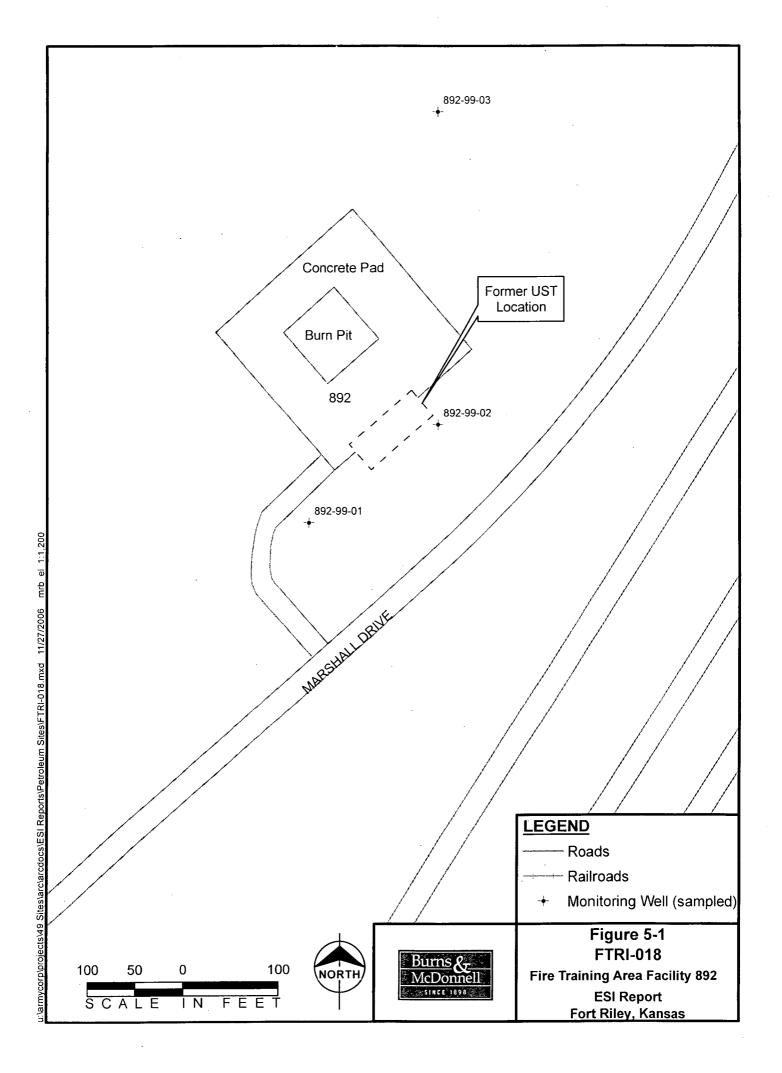
mg/L - milligrams per liter U - compound was not detected

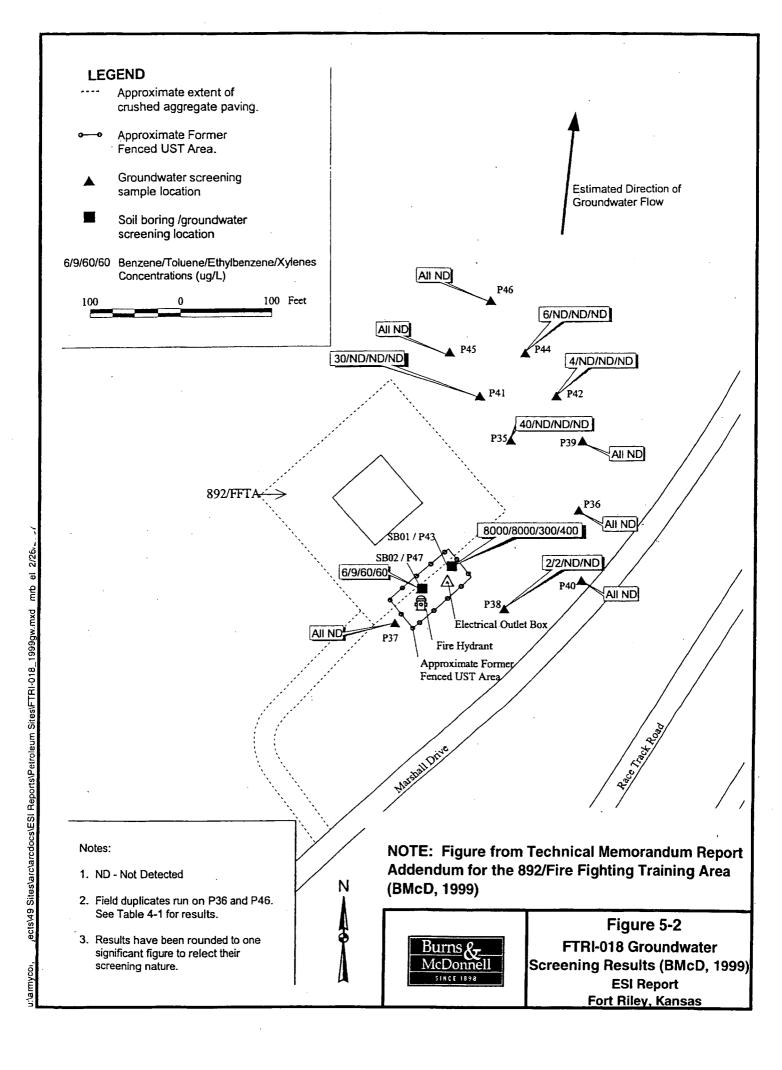
Figures

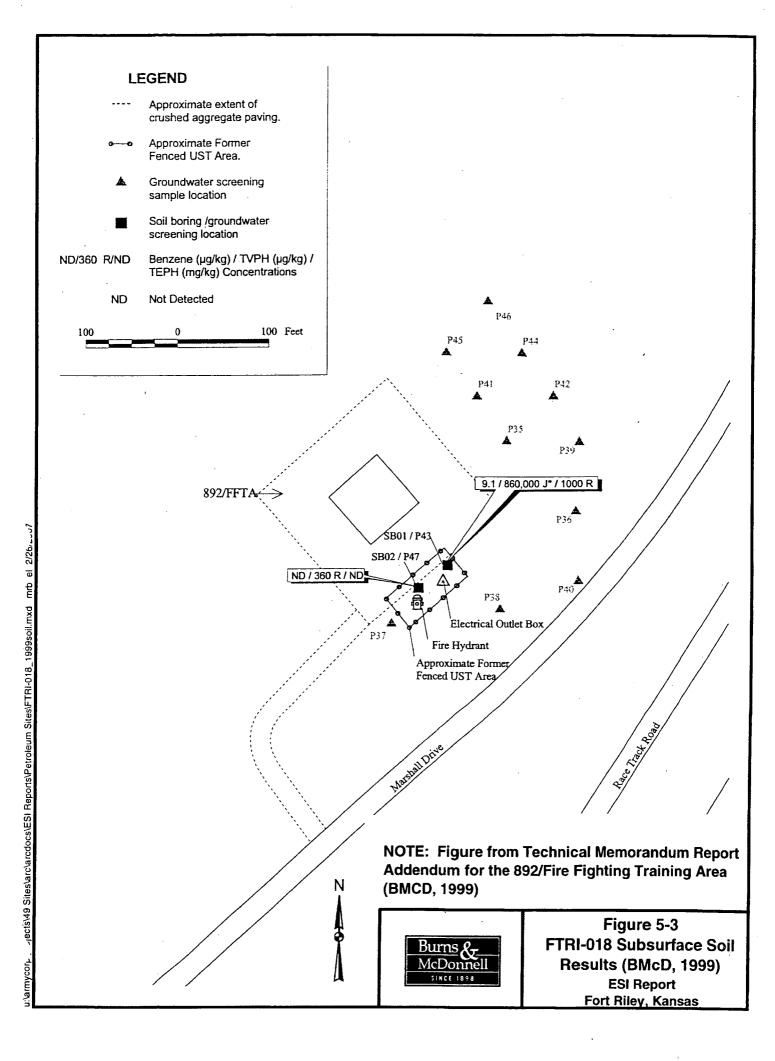


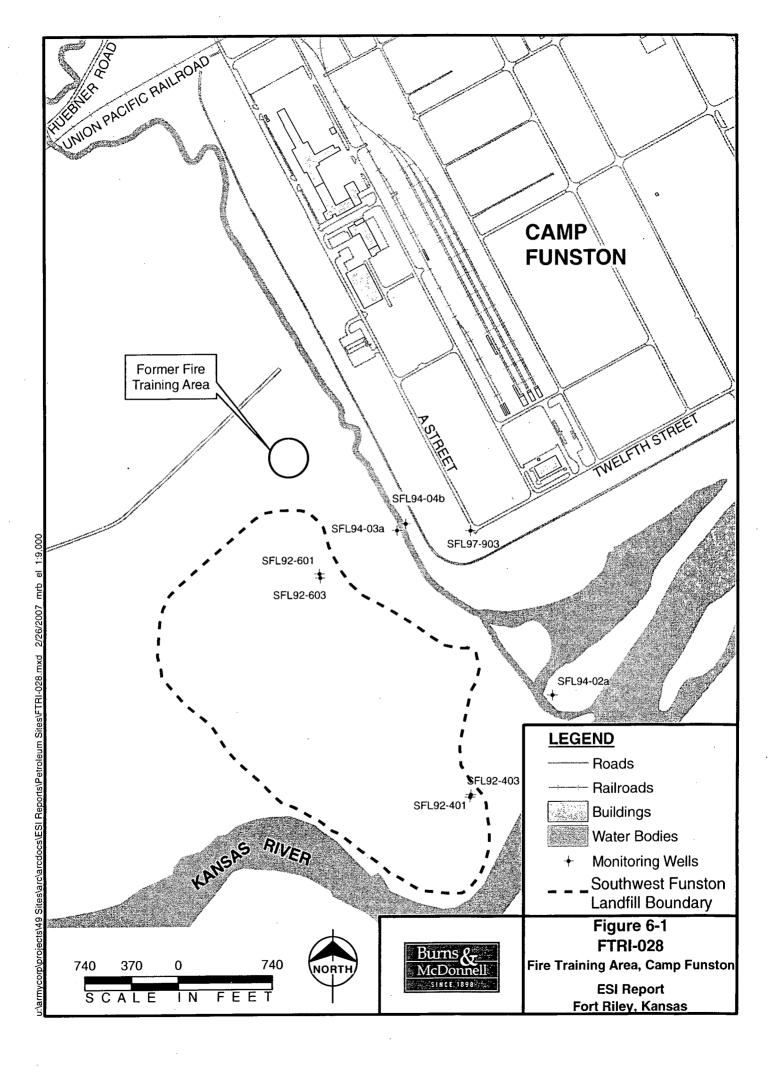


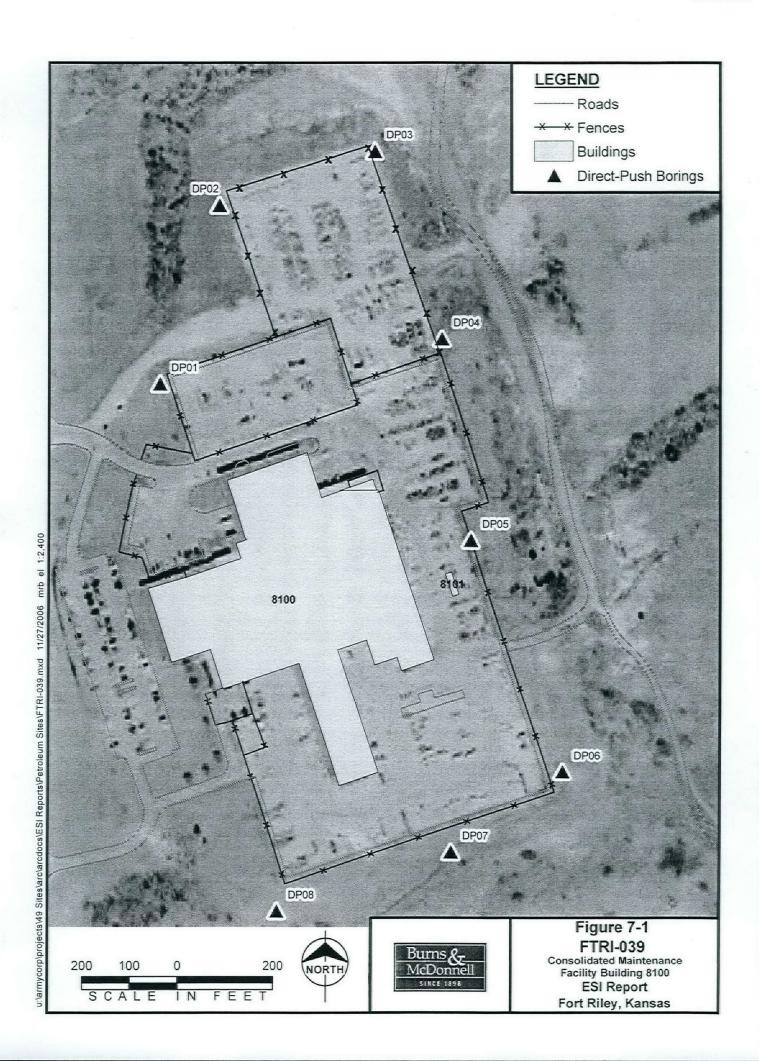


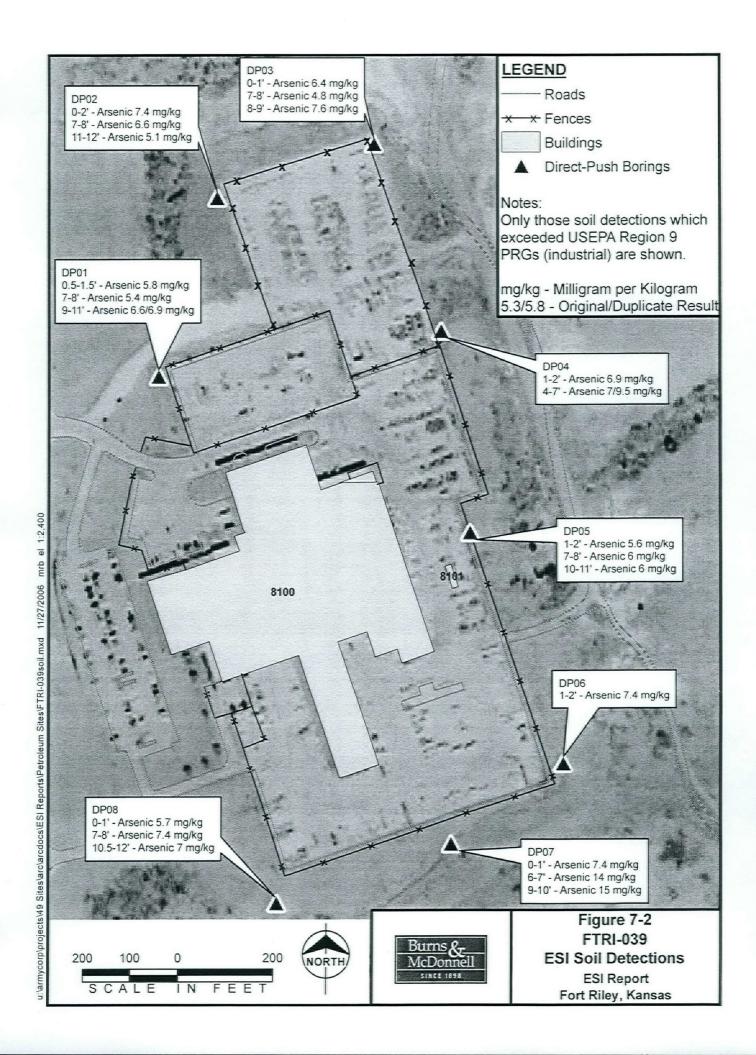


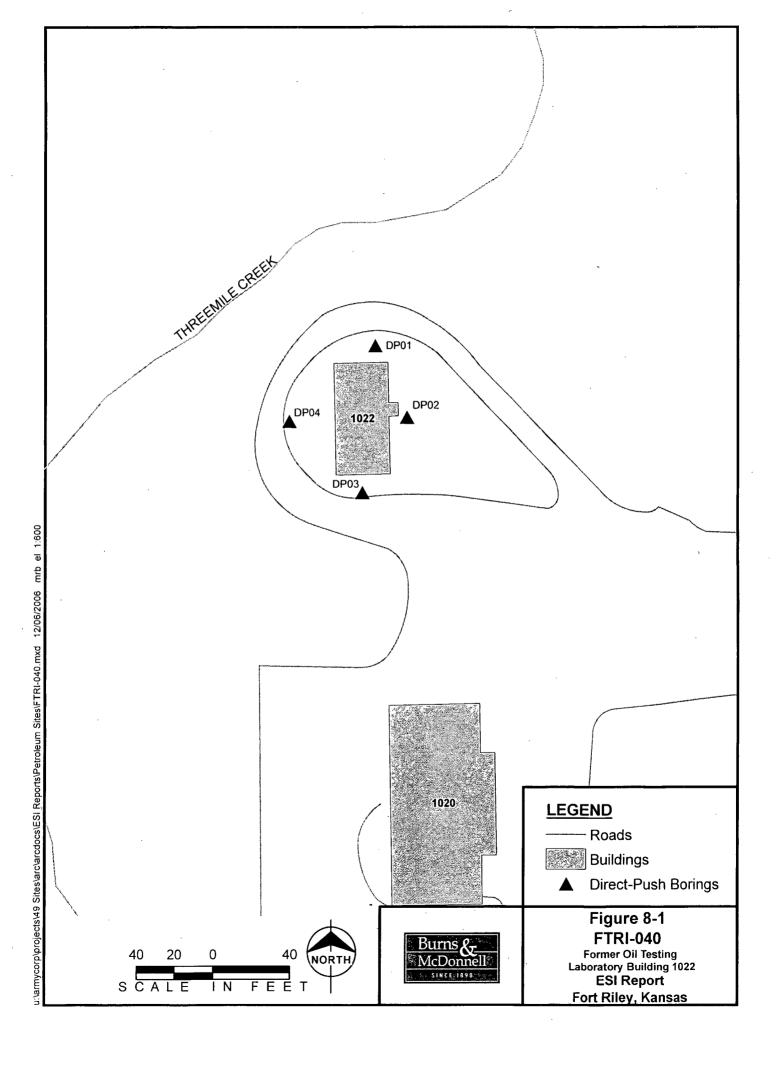


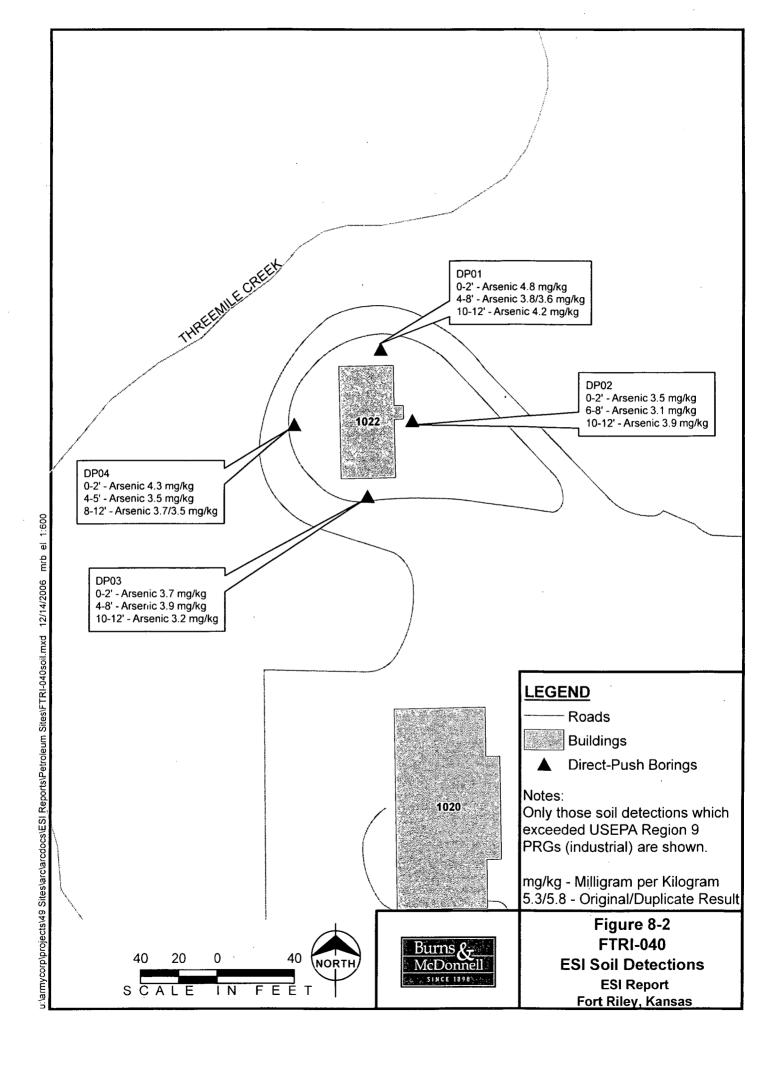


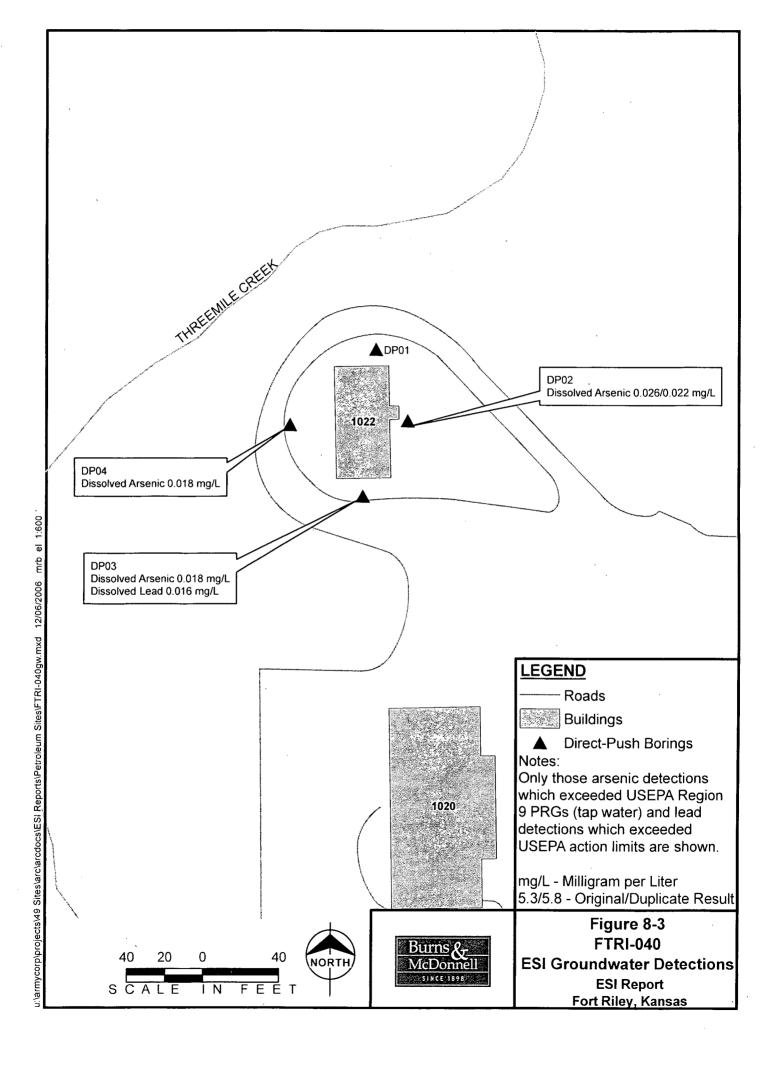


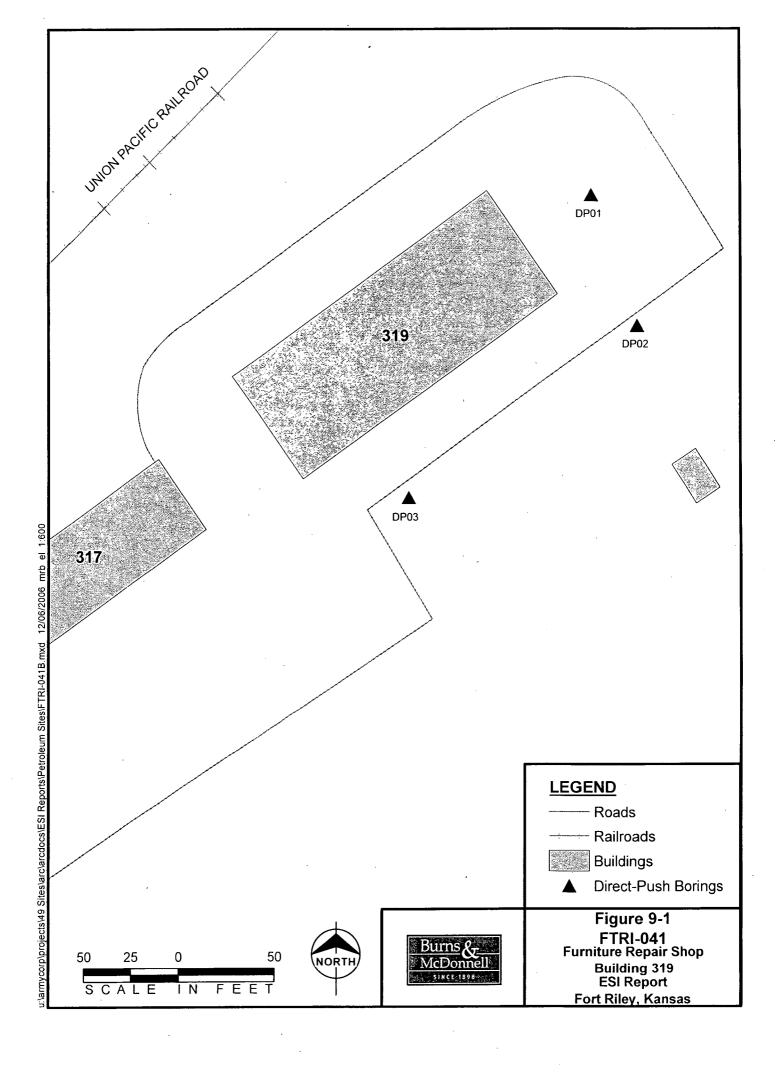


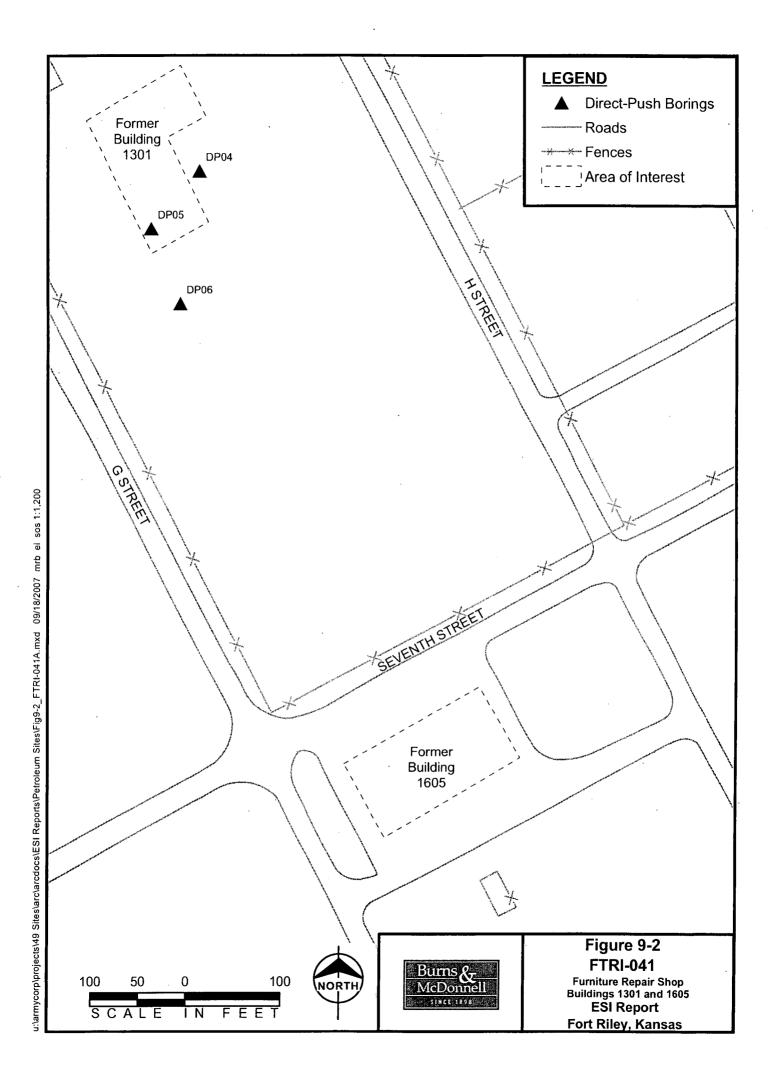


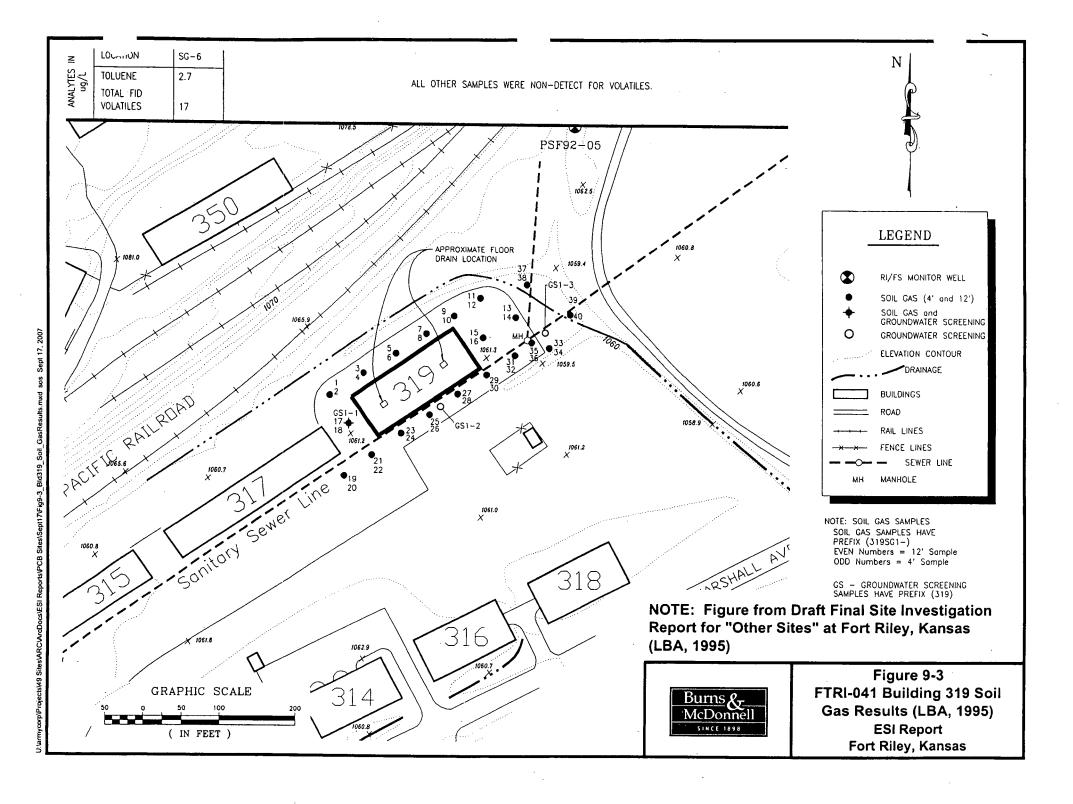


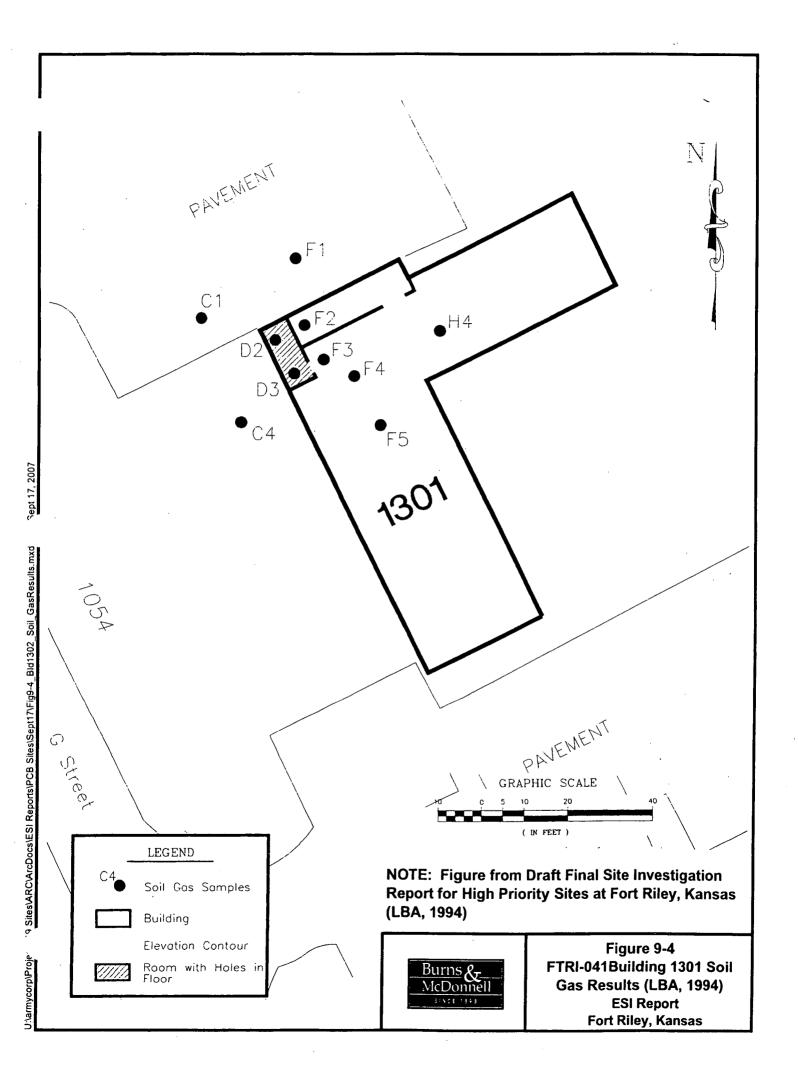


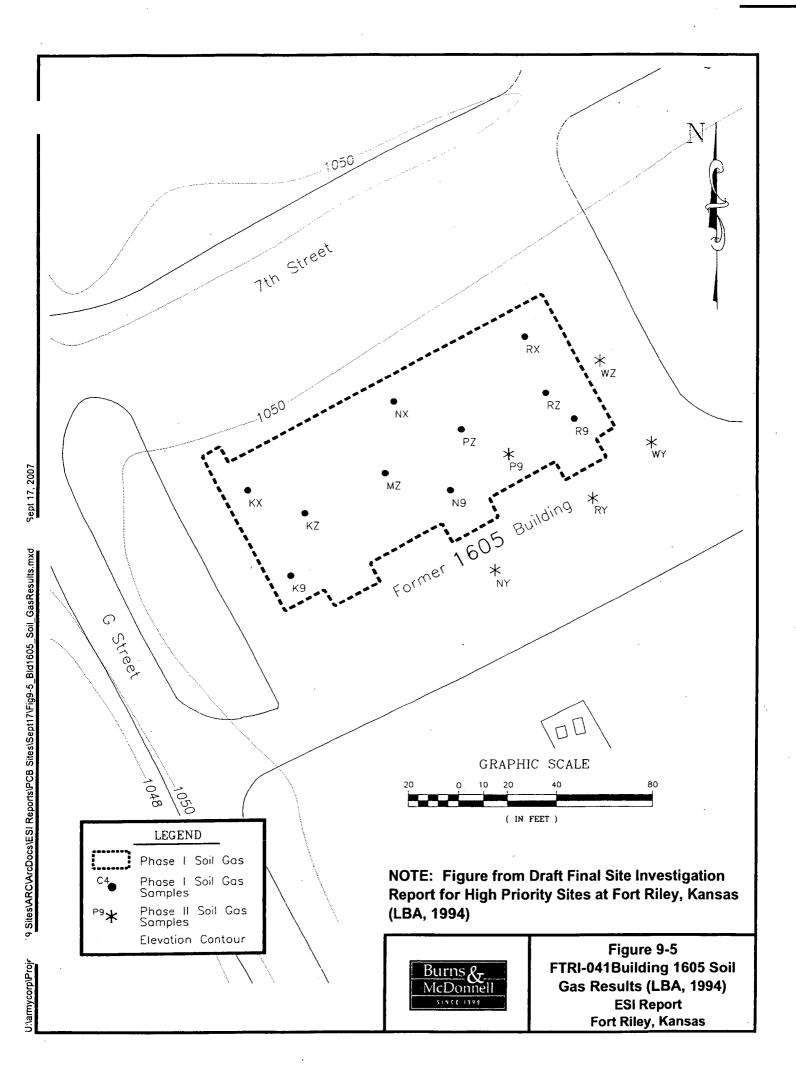


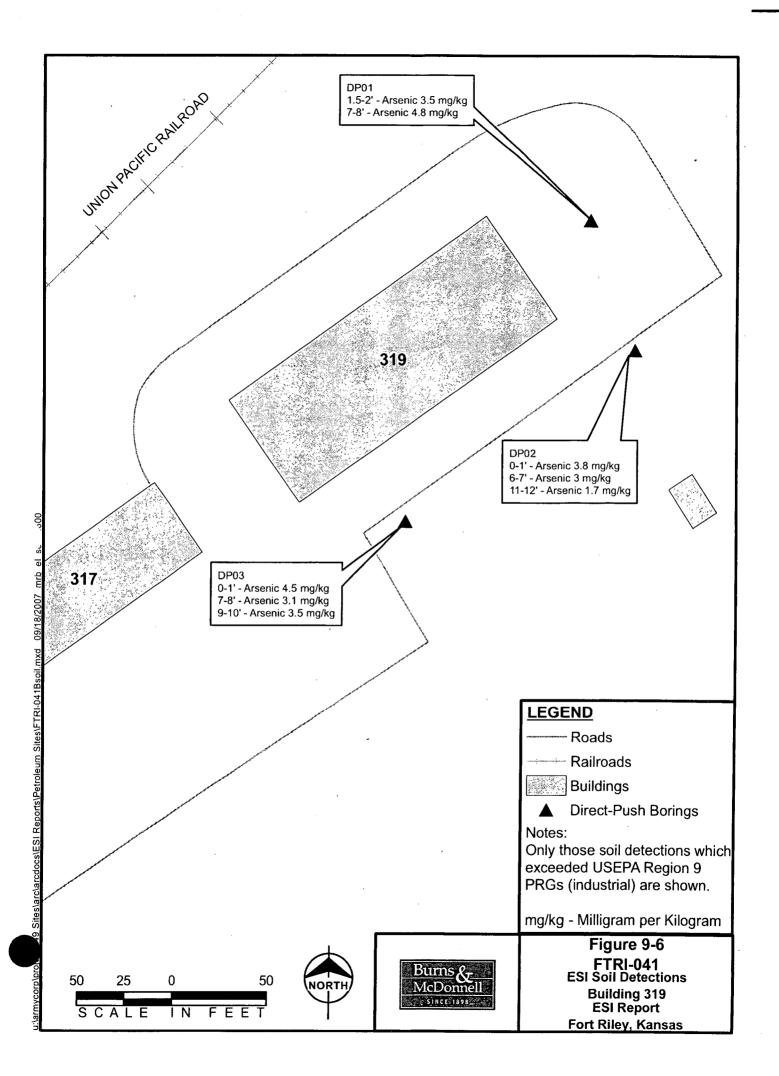


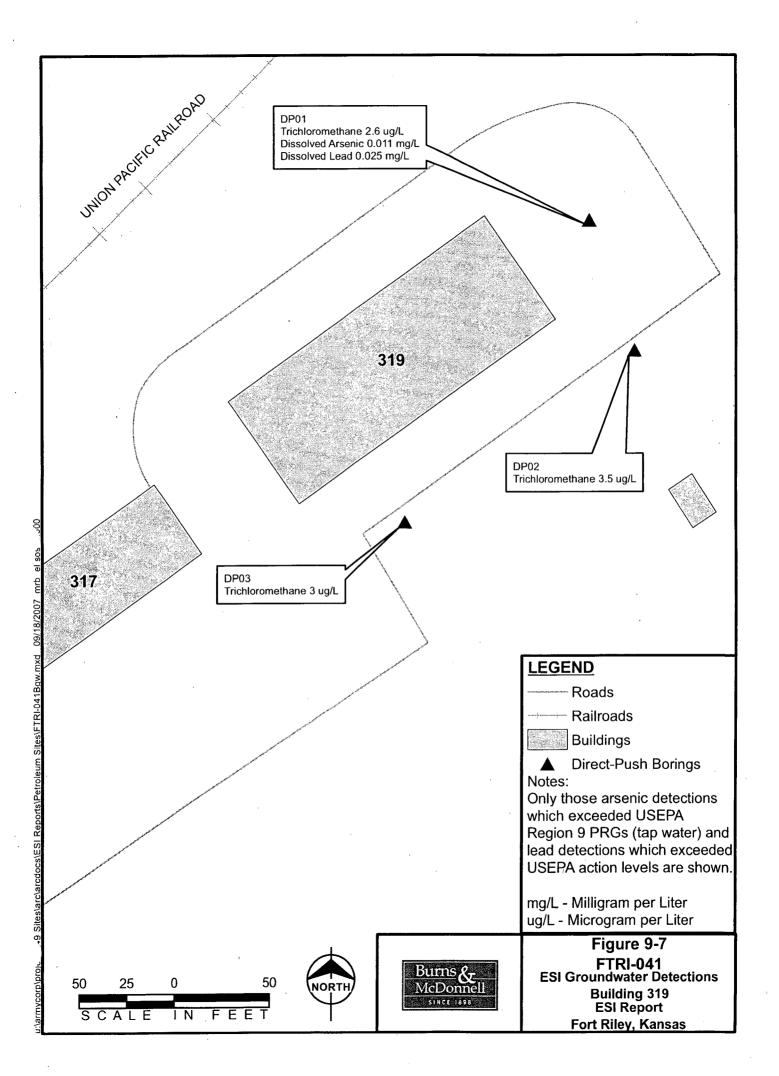


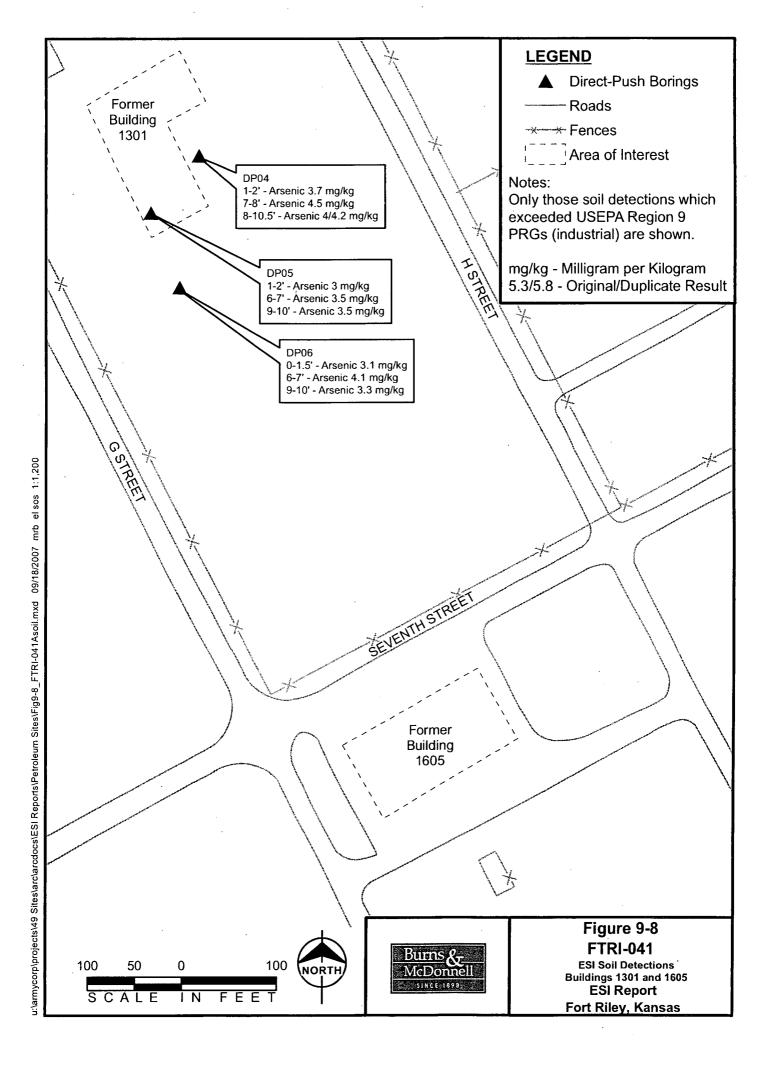


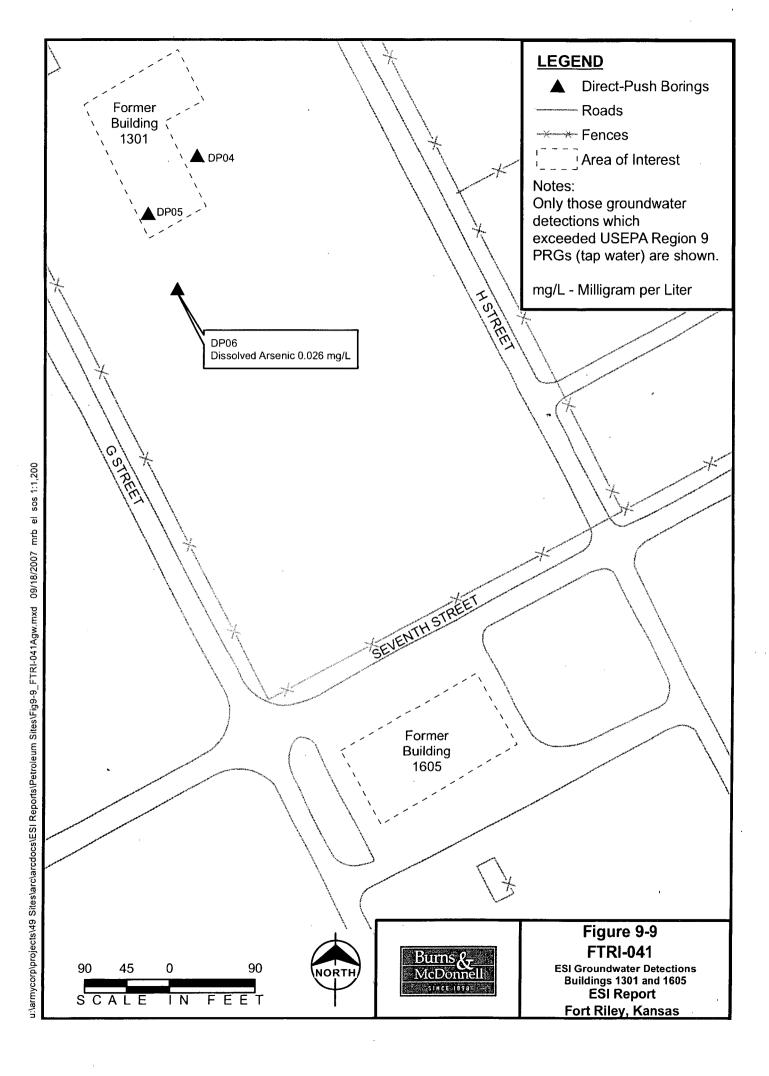


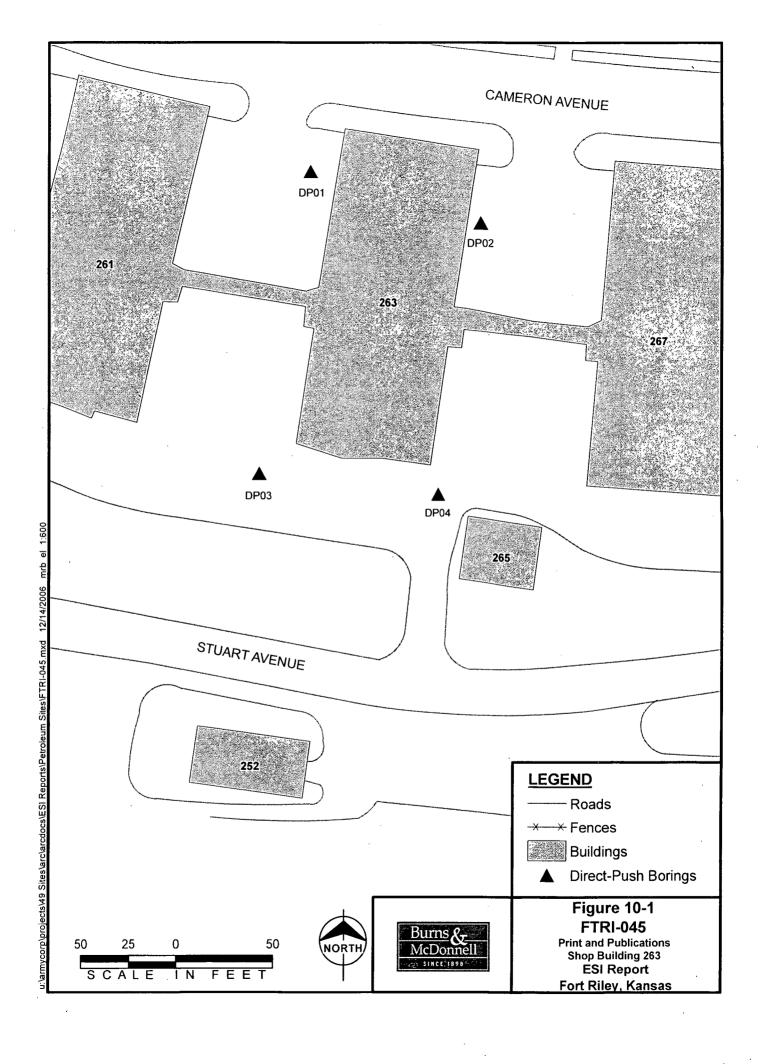


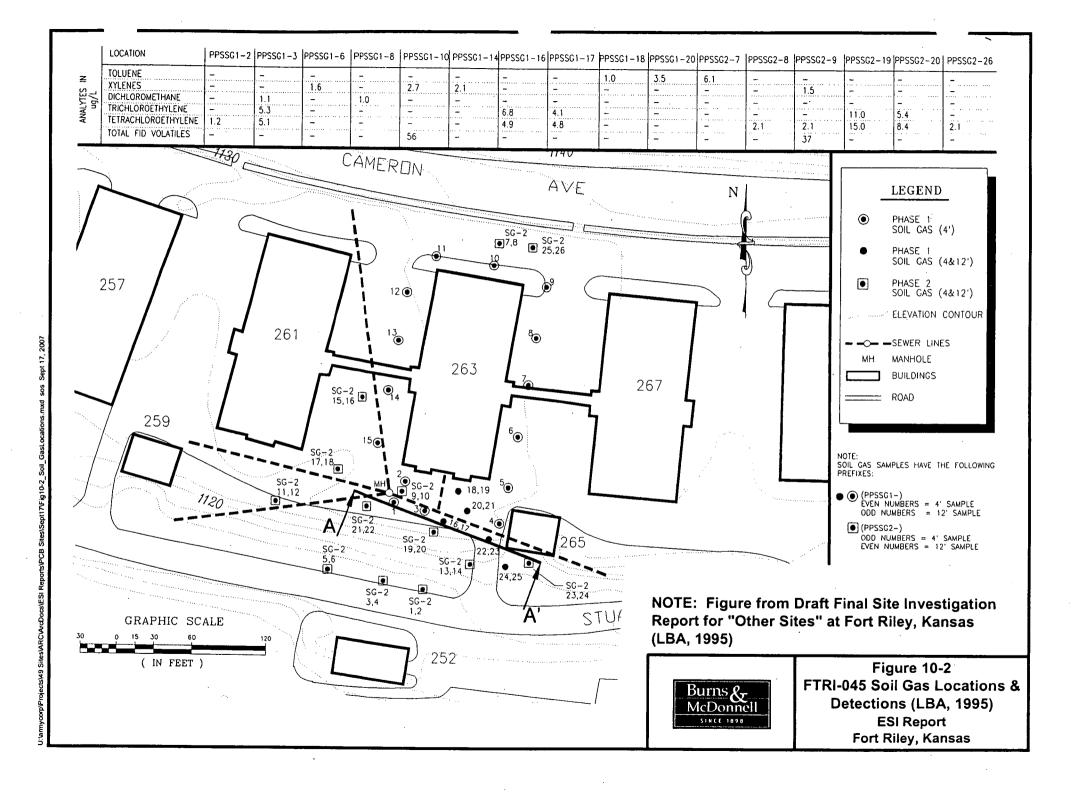


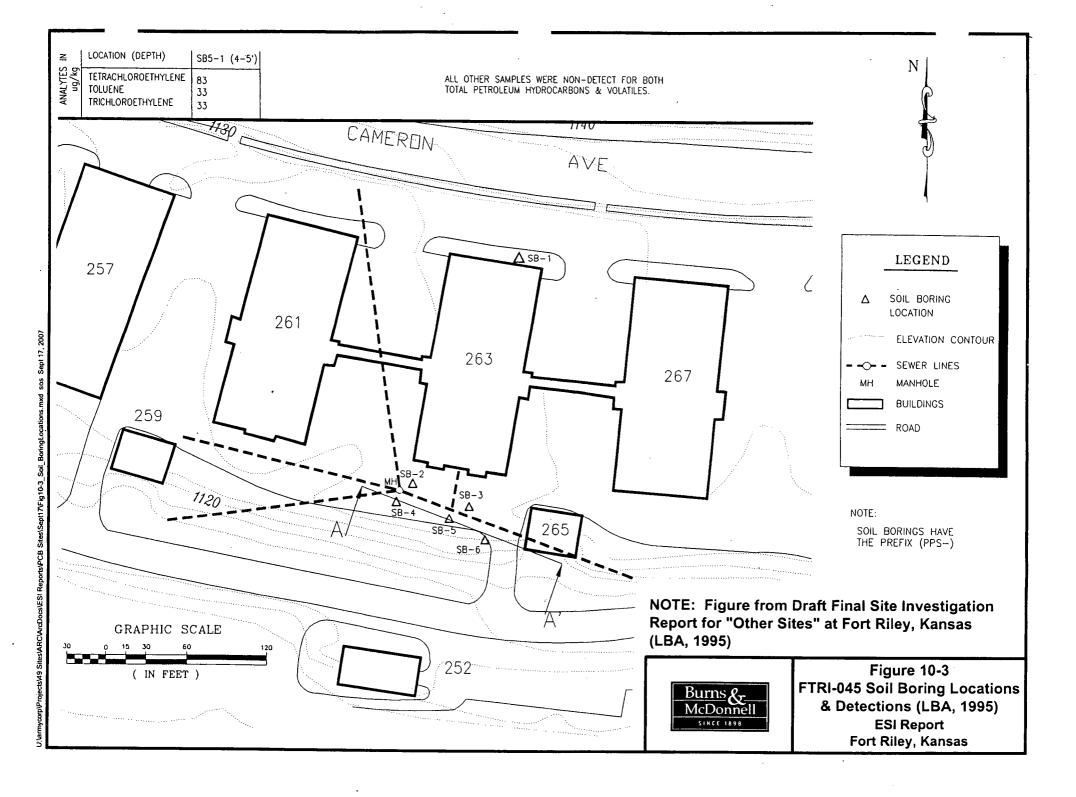


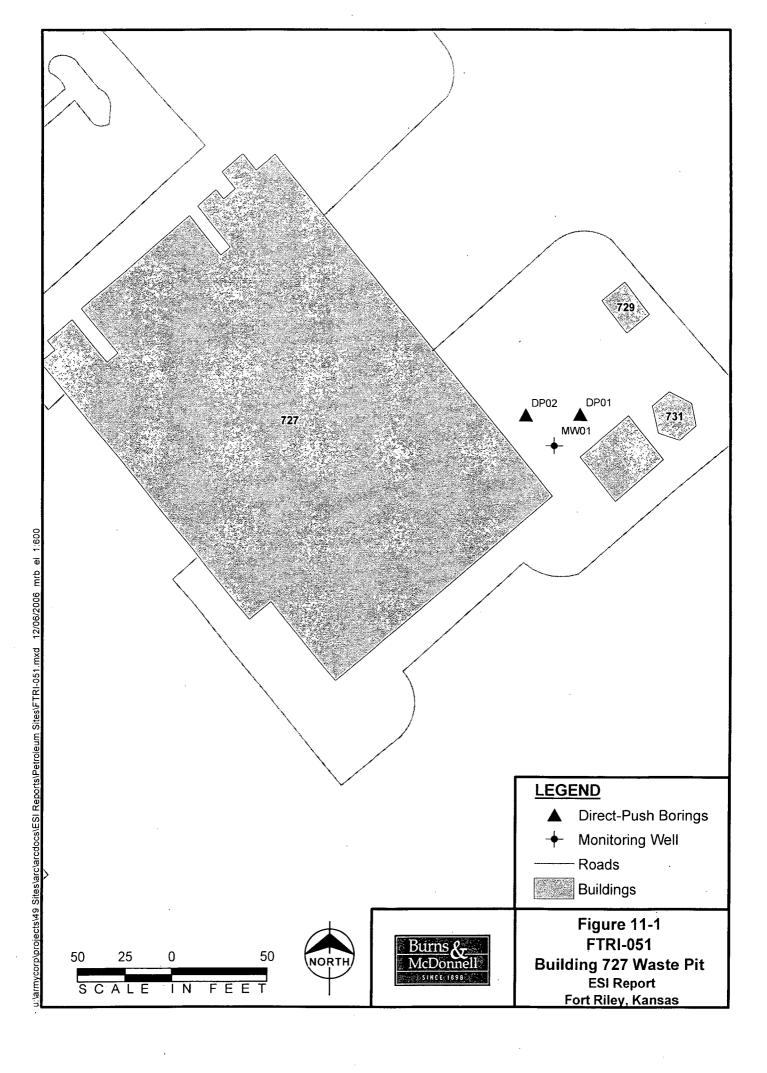


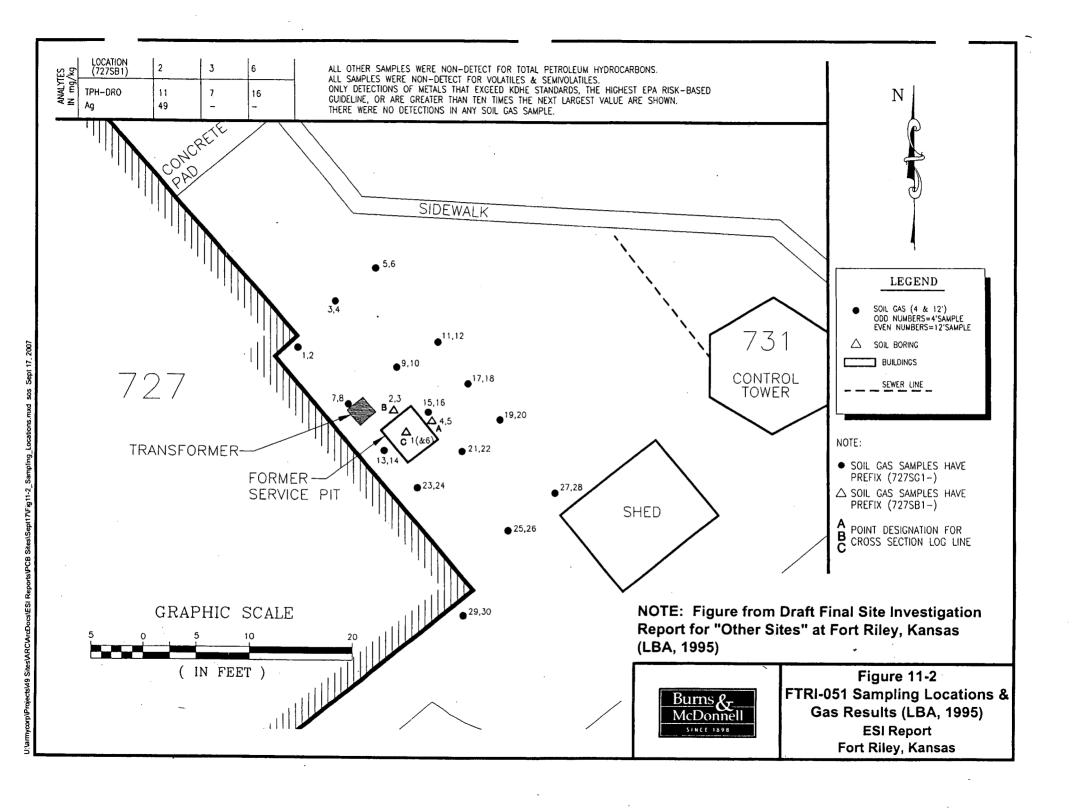


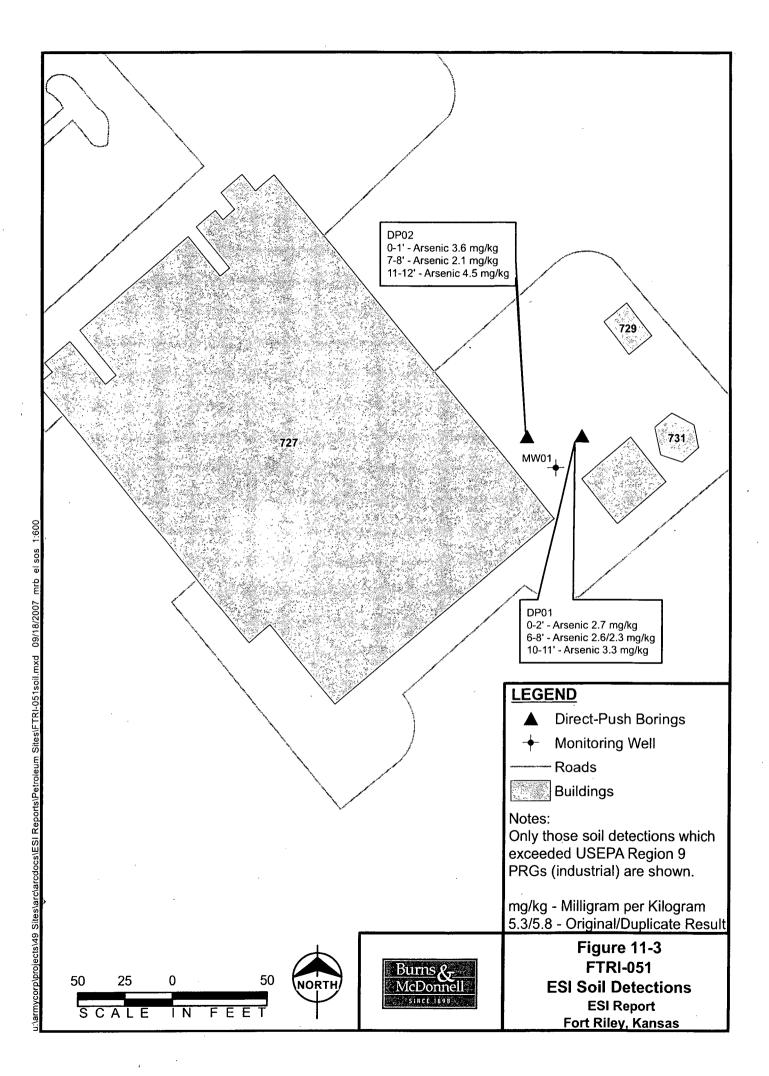


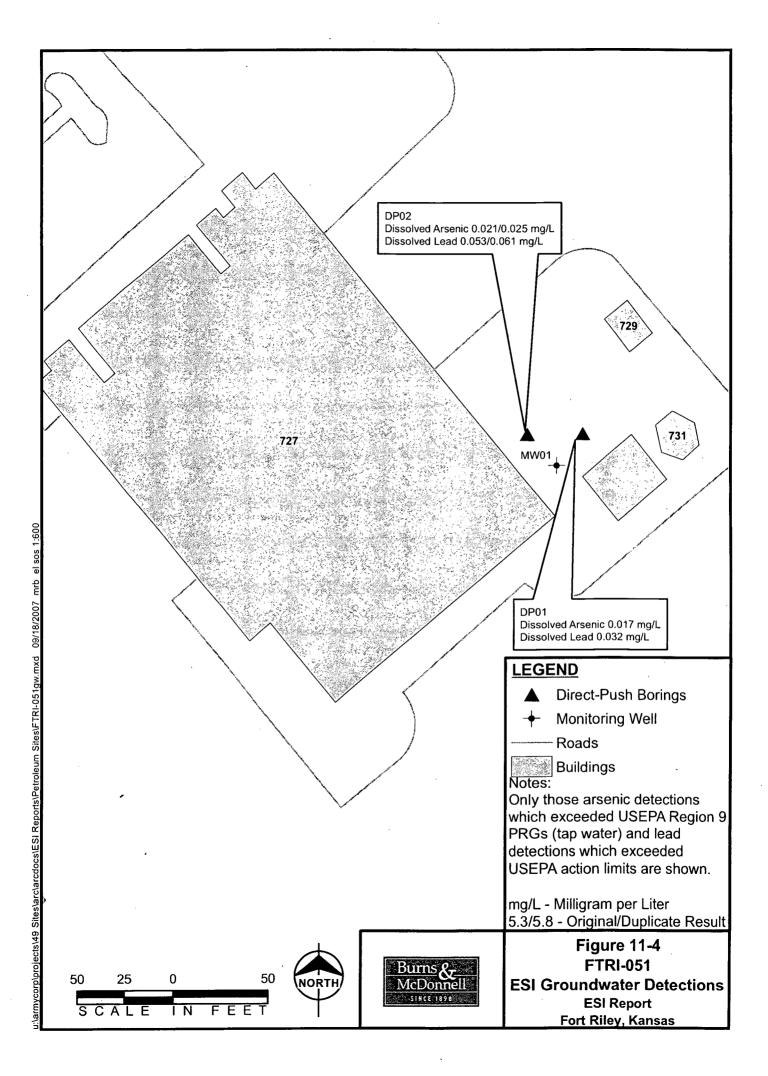












Appendix A Survey Data

Appendix A Survey Data 2319 N. Jackson, PO Box 1304 Junction City, Kansas 66441 www.kveng.com



Tel: 785-762-5040 Fax: 785-762-7744 E-mail: JC@kveng.com

KAW VALLEY ENGINEERING, INC.

FT. RILEY BORING LOCATIONS DATUM = UTM Zone 14, NAD83 US SURVEY FEET NAVD88 US SURVEY FEET

	NAV	D88 US SUR'	VEY FEET	
FTRI#	DP/SS#	NORTHING	EASTING	ELEVATION
6	DP01	14208376.505	2287408.367	1048.756
6	DP02	14208381.456	2287504.721	1047.943
6	DP03	14208431.877	2287593.007	1047.543
6	DP04	14207730.390	2287660:026	1048.259
. 6	S01	14207686.994	2287565.951	1049.288
6	S02	14207599.816	2287596.384	1045.594
6	S03	14207505.263	2287614.691	1044.987
6	S04	14207418.418	2287653.955	1044.954
6	S05	14207365.259	2287690.683	1044.762
8	S01	14193629.305	2272150.873	1080.205
10	DP01	14206804.229	2281176.617	1066.719
· 15	DP01	14205319.511	2287608.715	1047.200
15	DP02	14205364.243	2287700.360	1047.236
15	DP03	14205558.968	2287634.359	1047.847
47	DP01	14193817.289	2272262.635	1067.713
47	DP02	14193868.099	2272281.361	1069.249
47	DP03	14193871.592	2272338.808	1077.090
47	DP04	14193797.142	2272320.512	1072.063
47	DP05	14193766.053	2272363.992	1074.293
47	S01	14193843.424	2272331.183	1077.672
47	S02	14193819.956	2272350.436	1076.708
47	S03	14193817.656	2272372.372	1076.971
47	S04	14193790.460	2272373.007	1077.930
48	DP01	14207157.512	2262364.171	1333.163
48	DP02	14205816.147	2263972.003	1326.366
48	DP03	14201262.083	2273586.383	1121.195

other locations -

FTRI#	DP/SS#	NORTHING	EASTING	ELEVATION
50	S01	14194972.082	2256880.541	1070.159
50	S02	14194972.194	2256894.831	1070.426
50	S03	14194909.461	2256887.285	1069.471
50	S04	14194845.744	2256876.687	1071.476
50	S05	14194845.058	2256889.514	1071.411
50	S06	14195884.658	2258697.805	1080.352
50	S07	14195899.161	2258754.334	1079.695
50	S08	14195858.878	2258743.954	1080.669
50	S09	14195845.745	2258707.515	1080.657
50	S10	14195859.104	2258762.227	1080.302
50	S11	14193016.267	2267148.094	1087.008
50	S12	14192990.158	2267155.300	1086.062
50	S13	14193011.334	2267170.828	1086.555
50	S14	14193031.671	2267194.800	1087.602
50	S15	14193012.606	2267199.358	1086.575
50	S16	14199319.381	2273499.470	1100.237
50	S17	14199263.933	2273456.322	1100.560
50	S18	14199273.482	2273500.342	1099.653
50	S19	14199284.574	2273547.441	1099.082
50	S20	14199226.725	2273503.483	1099.098
50	S21	14207488.067	2280715.017	1071.344
50	S22	14207480.783	2280736.466	1071.466
50	S23	14207460.263	2280721.092	1070.942
50	S24.	14207448.579	2280703.024	1070.683
50	S25	14207437.541	2280733.590	1070.171
20	DP01	14214435.121	2259673.953	1289.758
20	DP02	14214899.952	2259897.904	1295.065
20	DP03	14215453.812	2260175.200	1286.147
20	DP04	14215864.913	2260406.977	1272.983
20	DP05	14216206.838	2260726.902	1264.191
20	DP06	14216576.333	2260933.624	1256.688
20	DP07	14216480.082	2261304.192	1255.386
20	DP08	14216209.447	2261549.040	1255.435
20	DP09	14215776.275	2261262.854	1272.968
20	DP10	14215432.162	2261043.910	1275.827
20	DP11	14215106.193	2260841.222	1279.396
20	DP12	14214803.951	2260494.335	1279.345
20	DP13	14209618.231	2257473.237	1290.823
20	DP14	14209578.681	2257572.693	1291.510
20	DP15	14209531.301	2257473.316	1300.655
20	DP16	14209520.260	2257529.561	1289.617
20	DP17	14213651.062	2264920.772	1273.824
20	DP18	14213461.114	2265021.220	1273.685
20	DP19	14213680.216	2264993.297	1274.487
20	DP20	14213499.353	2265107.146	1277.704
				•

FTRI#	DP/SS#	NORTHING	EASTING	ELEVATION
22	DP01	14205206.575	2288136.306	1047.985
22	DP02	14204940.978	2288125.389	1048.827
22	DP03	14204832.227	2288405.146	1050.720
22	DP04	14204797.820	2288635.093	1046.938
22	DP05	14204986.546	2288823.601	1047.631
23	DP01	14208798.885	2266065.662	1275.268
23	DP02	14208764.370	2266162.061	1256.806
23	DP03	14208634.392	2266238.525	1259.403
23	DP04	14208560.847	2266138.269	1260.795
24	DP01	14193208.646	2258653.500	1072.482
24	DP02	14193358.947	2258825.277	1065.425
24	DP03	14193168.978	2258748.216	1064.545
24	DP04	14193252.025	2258841.294	1065.308
25	DP01	14194833.090	2273889.635	1058.048
25	DP02	14194915.370	2274079.787	1057.389
25	DP03	14194802.933	2274026.533	1057.754
25	DP04	14194665.039	2274017.322	1058.282
25	DP05	14194666.723	2273892.057	1058.286
26	DP01	14276373.567	2226137.084	1280.764
26	DP02	14275965.236	2226137.645	1285.592
26	DP03	14276482.952	2226546.154	1301.016
26	DP04	14275913.896	2226527.359	1303.105
13	DP01	14200416.246	2271150.251	1254.247
13	DP02	14200391.107	2271206.536	1255.964
13	DP03	14200364.935	2271111.676	1256.444
13	DP04	14200333.216	2271187.297	1256.555
39	DP01	14210872.411	2265406.896	1288.890
39	DP02	14211235.762	2265529.682	1281.037
39	DP03	14211344.589	2265857.569	1278.483
39	DP04	14210964.763	2265997.712	1288.688
39	DP05	14210553.565	2266058.667	1292.252
39	DP06	14210076.879	2266251.831	1290.152
39	DP07	14209911.317	2266018.310	1289.237
39	DP08	14209792.091	2265653.887	1288.902
40	DP01	14207103.516	2280239.619	1067.882
40	DP02	14207039.677	2280253.396	1068.880
40	DP03	14206998.143	2280224.720	1068.496
40	DP04	14207037.717	2280187.602	1067.570

FTRI#	DP/SS#	NORTHING	EASTING	ELEVATION
41	DP01	14193241.008	2272346.837	1061.614
41	DP02	14193171.830	2272374.887	1060.710
41.	DP03	14193080.468	2272250.149	1060.735
41	DP04	14206674.963	2285007.242	1052.031
41	DP05	14206616.269	2284955.970	1052.388
41	DP06	14206539.675	2284986.653	1052.609
41	DP07	14206310.229	2285089.663	1051.466
41	DP08	14206225.251	2285167.864	1050.837
41	DP09	14206349.896	2285201.869	1051.959
45	DP01	14192378.953	2269278.723	1125.500
45	DP02	14192359.330	2269370.160	1126.962
45	DP03	14192218.839	2269250.236	1123.491
45	DP04	14192208.121	2269346.907	1125.319
51	DP01	14190188.194	2274396.879	1061.150
51	DP02	14190191.496	2274360.534	1061.375
52	DP01	14201651.123	2273085.716	1181.923
52	DP02	14201891.640	2272215.134	1184.110
52	DP03	14201566.984	2272327.857	1171.548
52	S01	14201818.662	2273439.937	1142.787
52	S02	14201624.341	2273426.000	1139.820
52	S03 .	14201549.059	2273480.738	1130.635
5	S01	14206305.913	2257792.766	1293.040
14	S01	14199239.550	2272787.321	1123.614
14	S02	14199238.430	2272772.051	1124.821
14	S03	14199250.928	2272772.521	1124.826
36	DP01	14204558.334	2288817.482	1050.761
36	DP02	14204350.562	2289382.088	1047.908
36	DP03	14204728.536	2289638.780	1046.514
37	SB01	14200373.276	2274885.084	1075.807
37	SB02	14200336.726	2274952.453	1075.382

FTRI#	DP/SS#	NORTHING	EASTING	ELEVATION
43	DP01	14192927.314	2257709.516	1068.491
43	DP02	14192921.518	2257792.787	1067.624
43	DP03	14192840.041	2257702.623	1069.184
43	DP04	14192822.943	2257784.472	1068.806
43	DP05	14192266.464	2258201.278	1067.532
43	DP06	14192263.336	2258269.872	1067.819
43	DP07	14192171.355	2258192.295	1067.471
43	DP08	14192158.279	2258265.081	1067.651
43	DP09	14199314.126	2273505.435	1099.991
43	DP10	14199284.241	2273543.303	1099.155
43	DP11	14199266.910	2273467.907	1100.294
43	DP12	14199235.324	2273504.847	1099.038
43	DP13	14202641.783	2276307.306	1069.826
43	DP14	14202713.995	2276405.927	1068.879
43	DP15	14202555.759	2276354.527	1067.861
43	DP16	14202626.759	2276468.487	1066.940
57	DP01	14202940.341	2261091.911	1265.152
57	DP02	14202922.358	2261021.712	1262.338

Appendix B Boring Logs Boring Logs Consolidated Maintenance Facility 8100 (FTRI-039)

			HTW	DRIL	LING	LC)G				1	eno. Re-off Mil
COMPA	NY NAME			ſ	2. DRILLING	SUBCON						
		Burns +	McDonnell			T	EFS				OF	ET 1 2- SHEETS
PROJEC	ΣΤ - -1 27	747 ESI	49 siles			4. LOCA	ition o-l-R.Le	1.7				
NAME (JE UBILLEB					6. MANU	JFACTURER'S D	ESIGN	ATION OF DRILL			
			Ler / Paul Voge			6	20prole	/ p.	reed fos	<u>4</u>		<u> </u>
	IND TYPES C MPLING EQU	<u></u>	Geoprole 4200	<u> </u>		4	LOCATION					
אני מוווי	MITDING EQU	NEWELVI	41 mocrocore	<u> </u>		4 SLIRE	ACE ELEVATIO	NI.			 	
		ŀ				, W		•				
				<u> </u>		10. DAT	E STARTED	,		11. DATE CON	_	
OVER	BURDEN THI	ONNECC		· · · · · ·		15 000	7/27/00 TH GROUNDWA		NCOLINTEDED	7/27/	<u> </u>	
OVEN	סטטבוז וחונ	.NA				13. DEP	NA	uen E	NCOUNTENED			
DEPTH	DRILLED IN					16. DEP		and Ei	LAPSED TIME AFT	ER DRILLING CO	OMPLETED	
		+2-	· · · · · · · · · · · · · · · · · · ·				NA					
TOTAL	DEPTH OF I	HOLE					ER WATER LEV ルム	EL ME	ASUREMENTS (SP	ECIFY)		
GEOTE	CHNICAL SA		DISTURBED	UI	NDISTURBED			BER O	F CORE BOXES			
	_		0		٥	<u> </u>				· · · · · · · · · · · · · · · · · · ·		
SAMPL	ES FOR CHE	EMICAL ANALYSIS	S VOC	MET	TALS	OTHE	R (SPECIFY)	0	THER (SPECIFY)	OTHER (S	SPECIFY)	21. TOTAL CORE
	•	G	3	1	3	TPH-	0AZ 3					RECOVERY %
DISPO	SITION OF H		BACKFILLED	MONITORI	ng Well	OTHE	R (SPECIFY)		SIGNATURE OF IN			<u> </u>
		ŅĄ	Bentonile	ΝN		, N	۹		lut an	-		
				<u> </u>	FIELD S	CREENING	GEOTECH SA	MPLE	ANALYTICAL	BLOW		
EV. a	DEPTH b		DESCRIPTION OF MATERIALS C		RES	SULTS d	OR CORE BO		SAMPLE NO.	COUNTS		REMARKS h
		Tao Soil	t gravel				 			g	 	
	_		1 9 2 2 2 7		0				[
		63.11		•	_							
	-	CLAY, C	dark yellowish	PLUSAN					5001			
	/ =	4 iour	stiff damp i				3.9		0.5-1.5			
	1	trace 1	rlastic		0		5.1		3.5			
	=	•					4					
		'					'					
	=				0				:			
	Z				į							
	=		ê									
	= =				0							
	=											
Į	_ =	•										
	3-1											
ŀ	= =				0							
]				 	4	:	!					
	4	CLAY VEI	ry dark grayisl	promise a				Į				
	<i>"</i> ‡	1/2/045)	soft, damp							. 1	1235	
	7	hishlu	plastic		0			_		 -		
	7	77	1						j			
								- 1	ļ			
	7	•						- 1		į		
_	5 -		•						İ			
		Ţ,	PROJECT						· · · · · · · · · · · · · · · · · · ·	HOLE NO.		
(JUN	RM 55	- 1	40747	•					•	FIRI	- 039	DPOI

		HTW DRIL	LING LC)G		F	OLE NO. TRI-039 DFOI
PROJECT	40747	EST 49 siles	INSPECTOR				HEET O Z F 2 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS c	MELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	: -	SAME AS Above CLAY, dark yellowish brown (3/6104R) soft, damp, highly plastic	0	3.8			
	7 -	linestre comble	0		5603- 7-8		
	8_	CLAY, dart grayish brown (4/z104R) soft, damp,	0				1240
		highly plastic	0	3/3			
	ZIA <u>Y</u>	very dark brown (1/2 loy R) soft damp; trace plusticity	0		5803 9 -11		
	jo	CLAY, brown (4/3/04R) medium					
		CLAY, hrown (4/3104R) medium dmp, non plastic	0	0.9			1245
	12_	linestone Refusal		' i			1250
		T PROJECT				HOLE NO	

Burns & O51601

SURECT 1898

FORM MRK-55-2

PROJECT 1 40747 HOLE NO.

FIRT 039 DPO

	<u>, , , , , , , , , , , , , , , , , , , </u>		HTW I	DRILL	ING	LC)G					12-039 DP
COMPA	NY NAME	ns 4 meDo	1)	2.	DRILLING		TRACTOR PS					et 💎 🏅 '3' sheets
PROJE	CT			<u></u>		4. LOCA	TION	 ъ 1 I				Officero
NAME	407 OF DRILLER	47 EST 4	19 sites			6 MANI	Fort	ESIGN	ATION OF DRILL			
IVAME	Ur UNILLEN	Dennis	Eller / Peul 1	vocelshe	45	Ge WAN	<u>श्रीक्षत</u>	ĹΦ.	reet Prs	h		
	AND TYPES O	F DRILLING 6	especte 5400									
AND SA	MPLING EQU	IPMENT 4	11 macrocock				ACE ELEVATION		· · · · · · · · · · · · · · · · · · ·			
		-					/A					
							E STARTED			11. DATE COM		
OVER	BURDEN THIC	KNESS					7 j 23 lo 6 TH GROUNDWA	TER FI	NCOUNTERED	ग्रह्म)०	<u> </u>	
		NA					NA					
DEPTH	1 DRILLED INT	TO ROCK						ND EL	APSED TIME AFTI	er drilling co	MPLETED	
TOTAL	DEPTH OF H	HOLE					N A ER WATER LEVI	EL ME	ASUREMENTS (SP	ECIFY)		
		i6.				<u> </u>	NA					
GEOT	ECHNICAL SA	MPLES O	DISTURBED	UND	isturbed C	1	9. TOTAL NUME To	BER O	F CORE BOXES			
. SAMP	LES FOR CHE	MICAL ANALYSIS	voc	META		OTHE	R (SPECIFY)	01	THER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL COR
		6	3	Ż		7014 -	DAZ 3		_			RECOVERY %
. DISPO	SITION OF HO		BACKFILLED	MONITORING	3 WELL		R (SPECIFY)	23 5	SIGNATURE OF IN	SPECTOR		<u> </u>
		WA	Benjanile	NA		W			lat in			
		•••	2010/10/1	L	FIELD SO	CREENING		MPLE	ANALYTICAL	BLOW	Γ	
LEV. a	DEPTH b	DES	SCRIPTION OF MATERIALS		RES	SULTS d	OR CORE BOX		SAMPLE NO.	COUNTS g		REMARKS h
	-	CLAY, bro	WH(4/3104R) dr	y, 50A								
		non plast		•	٥				560)			
					1		İ		0-2		ļ 	
	=	Soft down	ik brown (bis	04K)			2.8					
	1	William	ila y ore or processing	-								
		\ /Si 4"			0		4					
]			
	2 7				0				1			
]	*										
					0							
	. =											
	3 —								!			
					6							
	=											
	4			ļ			-				1320	
	=	,		1					. 1			
	#			ļ	0							
	\exists							ļ				
	ا د											
	ر1	PR	OJECT				L			HOLE NO.		
iK Ju	DRM N 89 55			4074	7					FIRT	-039	A P.O.Z.

		HTW DRIL	LING LC)G		F	OLE NO
PROJEC	T 40	747 ESI 49 siles			HEET & Z SHEETS		
ELEV	DEPTH b	DESCRIPTION OF MATERIALS	FIELD CREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	-	GAME As Above	D		·		
	6 -	·	O	3.6			- - - - - - - -
	7 _	(7/2 104R) goff, damp,	0 .		580Z 7-8		- - - - - - - - - -
	3 -		0				1325
	9 -	SELT, gray (3/1 104R) doft, damp, non plastic	ð				
	-		0	3.4			
	10 =	szet, light olive gray (6/254) damp, soft, won plastic	O				-
	-	·	0				- - - -
	in —	-	0	·	5603 11-12		
-	12		0	3/4			330 - - - - - -
	13_	FILT. light ofive 4ray (6/2 34)	ρ	·			
	14 =	szet, light olive gray (b/2 34) domp, wedin, son plastic	0				-
Burns	8-	PROJECT				HOLE NO	

Burns & Donnell 051601 Form MRK-55-2

40747

HOLE NO.
Frat-039 OPO2

		HTW DRII	LLING LC	G			HOLE NO FTRI - 039 DF02
PROJECT	SHEET & 3 OF 3 SHEETS						
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	
	-	same as Above	0				
	<i>IS</i>		0			,	-
	ド <u>ー</u>	_	0				1395
			0	0.3			
·	17	Refusal Bottom of hote					
	1						
		•					
	1						
	7						
	1						

Burns & 051601
SINCE 1898
Form MRK-55-2

PROJECT

40747

HOLE NO.
FTRI-039 PPOZ

			HTW	DRILL	ING	LO	G				HOLE FT 6		DPu3
1 COMPA				2	DRILLING	SUBCONT	RACTOR				SHEE		
, PROJE			he Danell			4. LOCA	TION				1 or a	. SHELT	<u> </u>
5 NAME (OF DRILLER	40141	EST 49 siles			+	FACTURER'S D		ATION OF DRILL				-
J. NAME (OI DINCELII	Demnis	Eller / Paul Dog	esbers					reet Pust	Α			
	AND TYPES O	<u> </u>	Cesprole 4200			8. HOLE	LOCATION						
ANU SA	MPLING EQU	PMENI	41 maerocore			ļ	ACE ELEVATION						
						N/							
		-					STARTED 127106			11. DATE COM フ/マフ/ら			
2. OVER	BURDEN THIC					 -	TH GROUNDWA	TER EI	COUNTERED			-	
		بر ل <u>ر</u>	<u> </u>			10.050	NA	ND EI	ADDED TIME AFTE	D DRILLING CO	MOLETED		
3. DEPTH	i drilled int	O ROCK				ווס טבר	H IO WAIER /	AND EL	apsed time afte	H DRILLING CO	MPLETEU		ļ
4 TOTAL	DEPTH OF H	IOLE				17 OTH		EL ME	ASUREMENTS (SPI	ECIFY)			
8 GEOT	ECHNICAL SA		, Z DISTURBED	UND	ISTURBED	19	3. TOTAL NUMI	BER OF	CORE BOXES				
5 02011		0.	O		0		C			· 	_	·	
0 SAMP	LES FOR CHE	MICAL ANALYSIS	s voc	META	LS	OTHE	R (SPECIFY)	01	THER (SPECIFY)	OTHER (S	PECIFY)		TAL CORE COVERY
		6	3	3		TPH-	0AZ 3				- ,		%
2 DISPO	SITION OF HO		BACKFILLED	MONITORIN	G WELL	OTHE	R (SPECIFY)	i	SIGNATURE OF INS				
	Ŋ.	A	Bentonita	AN		N.	4	0	lust Con				
ELEV	DEPTH b		DESCRIPTION OF MATERIALS			CREENING SULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO. f	BLOW COUNTS g		REMARKS h	
	_	CLAY,	pake brown (6)	310YR)							-	-	
]]	day, no	n plastic, soft	•	0								
							37.						
	=		<u> </u>	T	1		3.2		580i				
			dark yellowigh		0		7		0-1				ļ
	=		demp, medium	•									
		Trace p	larticity		0								
	=			•									
	2												
	\vdash		· e										
)								
					-								
	3_=		·										}
	=	SILT, I	ight yellowish be	OWN	0								
	7	(425Y)	demp, seft, won										ŀ
		riastic.											}
	4										iYon		
					 						1		
					_		Ì						-
					0								
									İ				
	5 -	T	PROJECT		<u> </u>		l	_	<u> </u>	HOLE NO.	<u> </u>		
RK 🖟	ORM 55		40747							FIRI	-039	DPOS	

		HTW DRIL	LING LC)G			HOLE NO FT R TUST DPES
PROJEC	T 4074	47 EST 49 5:128	INSPECTOR List	· Cu			SHEET & Z OF 2 SHEETS
ELEV.	DEPTH	DESCRIPTION OF MATERIALS c	FIELD SOMEENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	 - - - - -	SAME As Above	0				,
	6 -		0	4/ ₄			
	7 -		0		560Z 7-8		
	8_		0				1405
	3		0	1.2	5503 8-9		
	· -	Refusal Bottom of hole					1410
Burns		PROJECT				HOLE N	

Burns & Donnell 051601 Form MRK-55-2

40747

HOLE NO.

FTRJ-039 CP03

			HTW	DRILL	ING	LO	G				HOL	ENO 25-039 D PU
COMPA	NY NAME	 		2	DRILLING	SUBCONT	RACTOR				SHE	Τ 1
PROJEC		4 McDan	veli			4. LOCA		ρς			OF	2 SHEETS
rnoc	4074	17 EST 4	9 5:1-23				Fort				-1.	
NAME (OF DRILLER	Cennie El	ller / Paul Vos	ه ۽ مليام					ATION OF DRILL	·ia		
	ND TYPES O	F DRILLING	Georgia 4200	2.3 3273)	8. HOLE	LOCATION	- 1 1	'450. Tos			· · · · · · · · · · · · · · · · · · ·
AND SA	impling Equ	IPMENT	11 macmence				NA					
							ACE ELEVATION A A					
	-					10. DATE	STARTED	<u> </u>		11. DATE COMI	PLETED	
OVERI	BURDEN THIC	CKNESS .				15. DEP	TH GROUNDWA		L ICOUNTERED	11211	0.6	
		NA					NA					
DEPTH	i drilled im	TO ROCK NA		•		16. DEP	TH TO WATER /	AND EL	apsed time afti	er drilling co	MPLETED	
TOTAL	DEPTH OF H					17. OTH	ER WATER LEV	EL ME	ASUREMENTS (SP	ECIFY)		
GEOTI	CHNICAL SA	が MPLES	DISTURBED	UND	ISTURBED	19	O TOTAL NUME	BER OF	CORE BOXES			
		0	0	,	0		රි					
SAMP	ES FOR CHE	EMICAL ANALYSIS	voc	META			R (SPECIFY)	01	HER (SPECIFY)	OTHER (S	PECIFY)	21 TOTAL CORE RECOVERY
		2	2	2			DAZ 2					%
DISPO	SITION OF H		BACKFILLED	MONITORING	3 WELL	OTHE	R (SPECIFY)	23. 8	SIGNATURE OF IN			
	,	NA	Bentonite	NA	,	Ν.	·		het he		.	
LEV.	DEPTH b	·	SCRIPTION OF MATERIALS		RES	CREENING ULTS d	GEOTECH SA OR CORE BO		ANALYTICAL SAMPLE NO. f	BLOW COUNTS g		REMARKS h
	_	CLAY, das	rk brown 3/31 , nos plastic	OIR								
	=	dry, seff	, nos plastic		0					•	,	
	=	Bravel			1							
	, =							!	SBOI			
:	/	CLAY, do	rk yellowish	brown			35		1-2			
							4					
		nedium ,	medium, dan olesticity	•			'					
	, <u>]</u>		,		ن							
	<i>'</i> -								·			
	3	ā										
					0							
	3											
	~ =			i								
	\exists				0							
	긬											
	= =						ł.		Ì		1000	
-	4			-							1500	
	4				_					,		
					0				İ			
1	. 7							- 1				
l												

		HTW DRIL	LING LC)G			HOLE NO POSTOTA
PROJECT	r 43	0747	INSPECTOR /	/ 			SHEET & Z OF Z SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIEO SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS 9	REMARKS h
	-	Graver W/sitt	0	24	5602 4-7		
	6	SILT, Pink (147.54R) soft damp, trace plastice	o	3			
	7_	SILT, light yellowish brown (b/4104B) soft, domp, trace plastic	0				.805
i.	-	blazec	S	0.6			
	8 <u>-</u>	Refused					เรเอ
	- - - - -						
	-						
	- - - -			:			
	- - - - -						
	- - - -						
	- - - -						
Burns	- &-	PROJECT	,			HOLE	NO.

McDonnell street 1898 051601 Form MRK-55-2

40747

FTRE-037 PROY

			HTW	DRILI	INC	LO	G		_		HOLE FT's	: NO :1:-039 <u>b</u> pos	
1 COMPA	NY NAME	Burns + Ma	nonell		2. DRILLING	SUBCONTI					SHEE	T 1 Z SHEETS	
_ PROJEC	T 4071	47 EST 49				4. LOCAT		 У				0,122.0	
5. NAME C	OF DRILLER	zario Filar	I Faul Vagels	و م ثر		6. MANU	FACTURER'S D	ESIGN	ation of drill reet fus	h			
7. SIZES A	IND TYPES O	F DRILLING G	in prove 4200	<u> </u>		8 HOLE	LOCATION	7 1	10-1 103				1
	mpling Equ	IPMENT =	1º macrocore	·			CE ELEVATION	<u> </u>					$\left\{ \right.$
						1	ν Λ <u> </u>						
			·			10. DATE	STARTED 1/27/c	,		11. DATE COM 7/27/	o &		
12. OVERE	BURDEN THIC	KNESS NA				15 DEPT	H GROUNDWA	TER E	NCOUNTERED				
13. DEPTH	I DRILLED IN	TO ROCK				16. DEPT		AND EL	APSED TIME AFTI	R DRILLING CO	MPLETED		
14. TOTAL	DEPTH OF H			<u>. </u>		17. OTH	R WATER LEV	EL ME	ASUREMENTS (SP	ECIFY)			
18. GEOTE	ECHNICAL SA	MPLES O	DISTURBED	UN	IDISTURBE	G 19			CORE BOXES				
20. SAMPL	ES FOR CHE	MICAL ANALYSIS	voc	MET	ALS	OTHER	(SPECIFY)		THER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL CORE	1
		3	3		3	TFH-0	AZ- 3				<u> </u>	HECOVERT %	
22 DISPO	SITION OF H	OLE	BACKFILLED	MONITORI		OTHER	(SPECIFY)	23	SIGNATURE OF IN				
		Au	Bentonile	Piezo:ne		~	·	1	list he	<u> </u>	,		
ELEV.	DEPTH b		CRIPTION OF MATERIALS			SCREENING SULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO.	BLOW COUNTS g		REMARKS h	L
	_		checky (3/3104)	3) dry									F
		stift non			0							·	E
	_	CLAY, dorn	yellowish bro	νM			3.1						Ē
	1 _=	(%10VR) 50	ff, domp, hish	aly			/4		1691				L
	=	plastic		•	10		4		1-2				E
					"							•	F
	-												E
	2												E
					0								F
													E
	-												F
	3				0								E
													F
													E
	=		ι		0								F
	4				-		<u> </u>				1232		E
													E
		á ko		·	0								
		- -	·										E
	5 -	Ton	O JECT				<u> </u>			HOLE NO.	<u></u>		上
νirk .ii	ORM 55	PH	OJECT LI O	747							:- D30	ł	
	., .,	-					•	•					

		HTW DRIL	LING LC	G			HOLE NO
PROJECT	40747	ESI 49 sites	INSPECTOR (n			5	SHEET 0 2 DF 2 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FÆLD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
	1 7 1	CLAY, dark brown (1/3107A) foft, damp, highly flastic	0				
	6		0	1/4	\$60Z		
	7		0		7-8		
	8-	Gravel	0	·			1540
	11111		0				
	9 - 3	SILT, olive gray, (\$254) Jump, soft, high plasticity Yelay	0	3/3			
] <i>*</i>	clay, pale yellow (7454) hoist, soft, hishly plastic /silt	0		13-11		
			0				1545
	· -	Refusel Bollom of hole set a piezometer					
	-	-				_	- - - - -
Burns	R-	PROJECT				HOLE NO).

Burns & D51601
Strate 1898

O51601
Form MRK-55-2

	-		HTW	DRILL	ING	LO	G					ENO. CT-039 DPO	4
COMPA	NY NAME	urns 4 Me	Donne II	2		SUBCONT	RACTOR				SHE		1
J. PROJEC	CT	47 EST 4	,			4. LOCA	TION ort Rila	.,				-	
5. NAME (OF DRILLER		ller / Poul Doge	lehere		6. MANU	FACTURER'S D	ESIGN	ATION OF DRILL				7
	AND TYPES O	F DRILLING 6	eoprolle 4200			8. HOLE	LOCATION	101	rect fush	•			1
							ACE ELEVATION	N					1
						10 DATE	STARTED			11. DATE COM 7/27/0			1
12 OVER	BURDEN THIC	KNESS UA				† 	TH GROUNDWA		NCOUNTERED	776776) <i>B</i>		7
13 DEPTH	1 DRILLED IN				· · · · ·			AND EL	APSED TIME AFT	ER DRILLING CO	MPLETED		1
14 TOTAL	DEPTH OF I			· · · · · · · · · · · · · · · · · · ·		 		EL ME	ASUREMENTS (SF	ECIFY)	<u>.</u>		1
18 GEOTE	ECHNICAL SA		DISTURBED	UND	ISTURBED	19). TOTAL NUMI	BER O	CORE BOXES				1
20. SAMPI	LES FOR CHE	MICAL ANALYSIS	voc	META	LS	OTHER	R (SPECIFY)	0	THER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL COR	Ē
		ĺ	l	1		TPH -					~	RECOVERY %	
22. DISPO	SITION OF H	NA NA	Backfilled Bentonike	MONITORING A) A	3 WELL	OTHER A	R (SPECIFY)	23. \$	SIGNATURE OF IN				
ELEV a	DEPTH b	DE	SCRIPTION OF MATERIALS		RES	CREENING SULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO.	BLOW COUNTS 9		REMARKS h	
	=	CLAY, d	ark yellowish	promn							Offici	et boring	F
			damp, very	slitt.	0				580			20:048	E
		medium	plasticity						i-Z		live	s. Boih	Ę
					0		2.7					Aid 29A	
	, =										1	eal at	E
	\						3.5				w3 ⁺		E
-					Û								E_
	=		,										Ė
	2 —												
					0								Ė
					1 								F
	3_=		3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	E									F
		damp, soci	it clive gray [34]	; c	0								F
	_=		h highly plast gravel								1635		E
	=======================================	Bottom of	hole Relisa	.1									E
	ᆿ												
	=======================================			<u>.</u>									E
		PR	OJECT					1		HOLE NO			

COMPANY NAME BUNNS + MCONNELL PROJECT 40747 EST 49 5/Ls NAME OF DRILLER DEAN'S ELLET / Paul Vissels kers SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT OVERBURDEN THICKNESS OVERBURDEN THICKNESS DEPTH GROUNDWATER ENCOUNTERED NA TOTAL DEPTH OF HOLE 10 GEOTECHNICAL SAMPLES DISTURBED O DI	-			HTW	DRILL	ING	i LC)G				HOLE	ENO CT-039 D F
PROJECT 43 14 7 14 7 15 1 49 5 14.5 NAME OF GRUEN BEACH, S ELLEY / Park Using 25 1 14.5 SUBS AND TYPES OF DRILLING NO SAMPLING EQUIPMENT AD A SUBMANG EQUIPMENT 10 DATE STATETO 11 DATE CONNETED 12 DATE CONNETED 12 DATE CONNETED 13 DATE CONNETED 14 DATE	COMPA	NY NAME			2.	DRILLING		TRACTOR				SHEE	T 1
SMEARCH RESIDENCE OF DRILLING SEES AND TYPES OF PRILLING MOS SMETTERS EDUPMENT SUBMICE CELEVATION AND SUBMICE CELEVATION AND SUBMICE CELEVATION AND SUBMICE CELEVATION AND TO DATE STARTED TO DATE STARTED TO DATE STARTED TO DATE STARTED TO DATE STARTED TO SUBMICE CELEVATION AND SUBMICE CELEVATION AND TO DATE STARTED TO DATE STARTED TO DATE STARTED TO SUBMICE CELEVATION AND SUBMICE CELEVATION AND TO DATE STARTED TO DATE STARTED TO SUBMICE OF COLUMN AND ELAWASED TIME AFTER DRILLING COMPLETED TO SUBMICE OF COLUMN AND ELAWASED TIME AFTER DRILLING COMPLETED TO SUBMICE OF COLUMN AND ELAWASED TIME AFTER DRILLING COMPLETED TO SUBMICE OF CHEEN AND ELAWASED TIME AFTER DRILL	. PROJEC	CT			<u>-</u>		4 LOCA			 .	<u>-, </u>	101	. Office 10
SUES AND THESE OF DRUMEN SUES AND THESE OF DRUMEN AND SAMPLING EQUIPMENT BEST STEPH OF A TO A NAME OF A SAMPLE OF A SAMPLING EQUIPMENT BEST STEPH OF A TO A SAMPLE OF A SA	E MANAS (0147 ES	I 49 siles			6 MANI	EACT DER'S	.y	ATION OF DRILL			
AND SAMPLING EQUIPMENT 3 SURFACE BLEVATION NA 10 DATE STATED 11 DATE COMPLETED 17 LEY TOL 17 SURFACE BLEVATION NA 15 SEPTIME PRODUCTIVE BROCKWITERED NA 16 SEPTIME PRODUCTIVE BROCKWITERED NA 17 OTHER MATER LEVEL MEASUREMENTS ISPECIFY NA 17 OTHER MATER LEVEL MEASUREMENTS ISPECIFY NA 18 TOTAL DEPTIM OF HOLE 19 OTHER SPECIFY NA 19 TOTAL MANUES OF CORE BOXES SAMPLES FOR CHEMICAL MALYSIS VOC METALS OTHER SPECIFY NA 19 TOTAL MANUES OF CORE BOXES OFFICIAL MALYSIS OFFICIAL MALYSIS OFFICIAL MANUES OF CORE BOXES OFFICIAL MALYSIS OFFICIAL MANUES OF CORE BOXES OTHER SPECIFY OFFICIAL MANUES OF CORE BOXES OTHER SPECIFY OFFICIAL MANUES OF CORE BOXES OTHER SPECIFY OFFICIAL MANUES OF CORE BOXES OTHER SPECIFY OTH	J. NAME C	or puliticu	icanis Eli	er / Paul Vogels	i hers		Ge	sprole/					
OVERBURDEN TROORESS OVERBURDEN TROORESS ANA 15 DEPTH FORMAN MATER RECOUNTERED 17 OTHER MATER AND ELAPSED TIME AFTER OPPLING COMPLETED 18 DEPTH OF HOLE 10 OSTUTERED 10 ON MATER SPECIFY) ANA OSTUTERED		AND TYPES O	F DRILLING ·				8. HOLE	LOCATION					
OVERBURDEN THICKNESS OVERBURDEN THOCKIESS AA DEPTH DRILLED NIO ROCK AA TOTAL DEPTH OF MATER AND ELAPSED THAE AFTER DRILLING COMPLETED AA TOTAL DEPTH OF MATER AND ELAPSED THAE AFTER DRILLING COMPLETED AA TOTAL DEPTH OF HOLE 10 GEOTECHNICAL SAMPLES OR METALS OTHER ISPECIFY							9. SURF		٧				
OVERBURDEN THOCKES AND OPPH DRILLED INTO ROCK AND TOTAL DEPTH OF HOLE 10 GEOTECHNICAL SAMPLES DISTURBED UNDISTURBED UNDISTURBED UNDISTURBED UNDISTURBED OTHER ISPECIFY OTHER ISPE			-				10 DAT			<u> </u>	11. DATE COM	PLETED	
DEPTH DRILLED NTO ROLE 10 GEOTECHNOCAL SAMPLES 10 GEOTECHNOCAL SAM								7128106			7/28/	06_	
SEPH TO MATER AND ELAPSED TIME AFTER DRILLING COMPLETED	2. OVER	BURDEN THIC	_				15 DEP		TER E	NCOUNTERED			
TOTAL DEPTH OF HOLE 10 GEOTECHNICAL SAMPLES DISTURBED O UNDSTURBED O O METALS O THER (SPECIPY) OTHER (SPECIPY) OTHER (SPECIPY) OTHER (SPECIPY) OTHER (SPECIPY) OTHER (SPECIPY) SENDITIVE OF INSPECTOR BEODVERY SENDITIVE OF INSPECTOR BEODVERY SENDITIVE OF INSPECTOR DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE NALL TICAL BLOW OF MATERIALS FIELD SCREENING OCCUPANY	3. DEPTI	DRILLED IN	O ROCK				16 DEP		AND EL	APSED TIME AFTI	R DRILLING CO	MPLETED	
GEOTECHNICAL SAMPLES DISTURBED O O O O METALS OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY STANDARD OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY STANDARD OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY STANDARD OTHER ISPECIFY OTHER ISPEC	4. TOTAL	DEPTH OF I					17 OTH	ER WATER LEV	EL ME	ASUREMENTS (SP	ECIFY)		
SAMPLES FOR CHEMICAL ANALYSIS VOC METALS OTHER (SPECIFY) OTHER (SPECIF	e cent	ECHNICAL SA		DISTURBED	LIND	NSTI IRRED			RER O	F CORE ROYES			
DISPOSITION OF HOLE BACKFILLED MONTORING WELL OTHER ISPECTIVY BENNOW IN BENNOW IN BENNOW IN DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE MAILLYTCAL BLOW COUNTS RESULTS OF CLAY, dark yellowsh become (74 104R) very st. ft, damp; medium plasticity 0 0 0 0 0 0 0 0 0 0 0 0 0	o. GEUII	LOTHIUAL DA		_		0	<u>, </u>)				T
DISPOSITION OF HOLE NA BACKFILLED MONTORING WELL OTHER (SPECIFY) 23 SCHATURE OF INSPECTOR BENNAME BACKFILLED BENNAME BACKFILLED MONTORING WELL NA NA FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW COUNTS RESULTS GEOTECH SAMPLE NAME NO COUNTS REMARKS 1 CLAY, dark yell sinish brown (3/4 10 yr) str. ft, damp; Maddium plasticity 0 0 0 0 0 0 0 0 0 0 0 0 0	O. SAMPL	LES FOR CHE	_		 	LS	 		0	THER (SPECIFY)	OTHER (S	PECIFY)	-
DEPTH DESCRIPTION OF MATERIALS DEPTH DESCRIPTION OF MATERIALS CCAY, dark yellowish brown (3/4104R) Usry St. IF, damp; Description of materials O CAST Depth Description of materials O CAST Depth Description of materials O CAST Depth Description of materials O CAST Depth Description of materials O CAST Depth Description of materials O CAST Depth Description of materials O CAST Depth Description of materials O CAST Depth Description of materials O CAST Depth Description of materials O O O O O O O O O O O O O					<u> </u>		<u> </u>		<u> </u>				%
DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS (3/4 104R) Usery St. If, damp; Medium plasticity O O O O O O O O O O O O O	!2. DISPO				† · · · · · · · · · · · · · · · · · · ·		† 	· · · · · · · · · · · · · · · · · · ·		•			
DEPTH DESCRIPTION OF MATERIALS RESULTS OR CORE BOX NO SAMPLE NO COUNTS REMARKS CCAY, dark yellisivish brown (3/4 104R) very stiff, damp; neading plasticity 0 0 0 0 0 0 0 0 0 0 0 0 0		}		Bentonik	NA		l					T	
CCAY, dark yellowish brown (34104R) uzry still, damp; medium plasticity 0 3.2 500; 0-1 0 0 0 0 0 0 0 0 0 0 0 0 0	ELEV.	1		_			SULTS	OR CORE BO		SAMPLE NO	COUNTS		
1 32 500j 2 3 3 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-	 	CLAY, do	ekyellowish b	CON	<u> </u>					<u> </u>		
0			(3/4 104R)	very stiff, de	mρ;	0							
0			medium	plasticity	• •			3.2					
2 -				,				1/		sooj			
3		\				0		1 7		0-1			
3		_											
3								ļ					
3		,				0							
3 — O O O O O O O O O O O O O O O O O O				•			,						
3 — O O O O O O O O O O O O O O O O O O		=											
3 — O O O O O O O O O O O O O O O O O O									i				
9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		, –				0							•
9		7											
9		-											
PROJECT HOLE NO.		目				0							
PROJECT HOLE NO.		ا ن ا										0815	
5 - PROJECT HOLE NO.		7									***		
5 - PROJECT HOLE NO.		=									1		
PROJECT HOLE NO.		日											
PROJECT HOLE NO.		5			i								
			- 1	PROJECT						· <u></u>	HOLE NO.		A.D.0=

		HTW DRIL	LING LC)G			HOLE NO.	7
PROJECT	ī	10747 ESI 495: les	INSPECTOR				SHEET 0 Z OF Z SHEETS	
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FILE SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS		
	-	soft, domp, non plastic W/gravel	0					
	_	SILT, Pake clive (94+54) Soft, damp, trace plastic trace grave	0	3.5	5802 6-7			
	7	·	0					
	G	STLT, brownish yellow	0				0920	
	-	(G/g 104K) damp, medium non plastic Wigrerel	0					
	9 -		0	1 2 m	5 6 05 9-10			
	10		O				0825	E
		Refusal Boitan of hole						
Burns	- 0	PROJECT				HOLE	NO.	上

Burns & O51601
SINCE 1898

O51601
Form MRK-55-2

PROJECT 40747 HOLE NO.
Frat-039 DP07

			HTW	DRILL	.ING	LC	G				HOLE	:no. t-039 (f 1
COMPA	NY NAME	s + MeD	In a li	2	DRILLING		TRACTOR				SHEE	
PROJEC	T			<u>.</u>		4 LOCA	TION				101) SHEETS
NAME O	E DOLLED		19 siles				FACTURER'S		ATION OF DRILL			
IIANIE O) Driideen		er I Paul Vosels			Ger	porole 1		cet fish	·		
	ND TYPES O		Geoprole 4200)		1	LOCATION					
7415 071	im Bita Eac		41 macroeore				ACE ELEVATION	V				
) A _e					
		-		.			E STARTED		•	11. DATE COM 7/28/		
OVERB	URDEN THIC	KNESS NA				15. DEP	TH GROUNDWA	TER E	NCOUNTERED			
DEPTH	DRILLED IN					16. DEP	TH TO WATER	and El	APSED TIME AFTI	ER DRILLING CO	MPLETED	
TOTAL	DEPTH OF H					17. OTH		EL ME	ASUREMENTS (SP	ECIFY)		
GEOTE	CHNICAL SA		DISTURBED	UNC	DISTURBED	1:	9. TOTAL NUMI	BER O	F CORE BOXES			· · · · · · · · ·
SAMPLI	ES FOR CHE	MICAL ANALYSIS	voc	META	C NLS	OTHE	R (SPECIFY)	01	THER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL COR
		6	3	3		<u> </u>	A2 3				-	RECOVERY
DISPOS	ITION OF H	DLE	BACKFILLED	MONITORIN	G WELL		R (SPECIFY)	23. 5	SIGNATURE OF IN	SPECTOR		<u></u>
		NA	Bentonite	NA		N	A	de	ut an			
ELEV.	DEPTH b	DE	SCRIPTION OF MATERIALS		RES	CREENING BULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO f	BLOW COUNTS g	,	REMARKS h
		CLAY, da	irk grayish bro	rivy	1							· · · · · · · · · · · · · · · · · · ·
	-	1/2104R,	dry, soft non	plastie	0				5601			
	=		•	•					0-1			
	; =										¥ 	
ļ	· =				0		3.4					
	=	CLAY, de	uck yellowish b	StoraN			4					
	. =		damp, stiff,				'4					
		Plastic	amp) stop,	NOW	0	·						
	4	Limotic										
	\exists	:										
İ	\exists				0				-			
.	3 -											
	7											
	一				0							,
	#	CLAY, bro	1/43104R)	lenus	1			ì				
	4	ived: m. i	trace plasticil vel, some si		<u> </u>			_			0845	•
	\exists	trace con	uel and or	74 1.1.						į		
		3:00	-017 3000 N	· T	0							
	E			:								
	5 F											
RK FOF	RM 55	PR	OJECT 40747							HOLE NO.	-039	0P08

		HTW DR	ILLING LC)G			HOLE NO. FTRI-139 DP08 SHEET A 2	
PROJEC	T 4076	47 ESI 49 siles	INSPECTOR L	to and			SHEET A A OF 3 SHEETS	
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNTS g		
a		iamé as above	0			, J . <u></u>		- - - - - - - -
	6 =		0	3.6				
	7 3 4	lmp, wedium, nedium plesticity	5 0	4	1803- 7-8			
	- 50 - 50	LLAY, yellowish brown 4104R) soft, damp, hediu	0				0980	
		plasticity Wsitt	0					
	9-		o'	4/4				
	II.	stit, offue (1/254) soft lamp, highly plastic trace elgy	0		105-12			
	11		0					
	12.						0905	
			b				·	
	13 -)					
Burns	14 =	PROJECT				HOLE	NO.	上

Burns & McDonnell O51601 Form MRK-55-2

PROJECT

40747

HOLE NO.

		HTW DRIL	LING LC)G		jr.	HOLE NO TRI-039 DP08
PROJEC	T 407		INSPECTOR			S	SHEET 8 3 OF 3 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO.	BLOW Counts	REMARKS h
<u> </u>	-	GAME AS Above	U			g	"
			0				
				2.7			-
	15_	·	0				
				14			. [
	16		0				0910
	=	Bottom of bulk Refusal					
]						
							-
		•					
			1.				-
		·					
		`					
							-
			4				-
	4						
	크						
ļ	7						
İ	=					•	
	4						
	1						
							-
	=	`		ļ			 - -
	=						
	\exists						<u> </u>
		PRO IECT				LIOI E NO	F

Burns & 051601
SINCE 1898

OSTIGOT MRK-55-2

PROJECT

40747

HOLE NO. FTRI-039 DFO3

Boring Logs Former Oil Testing Lab 1022 (FTRI-040)

OMPANY NAME BUTCH: \$ MICROSCALL 10 10 10 10 10 10 10				HTW	DRI	LL	ING	i LC	G				HOLE		Fo
A LOCATION HOT PT EST 49 Siles FOR PT RILLY MAD OF CHILLER DEFANS BLIEF (Fig.) VO. I Shires GRAPPORE PROJECT (Fig.) Shires GRAPPORE PT VI MOLECULAR (Fig.) Shire	COMPA					2.	DRILLING	SUBCON			 		SHEE	Τ1	
ME OF BRILLES DE CAN'S LIVE (Play Vac; Shire; Shi	PROJEC		urns t [na Dane 11				4. LOCA					OF 5	SHEETS	_
DEFINISHENCE SUPPLES TO SELLING CONTROL 1920 C SAMPLING EQUIPMENT OF SELLING CONTROL 1920 C SAMPLING EQUIPMENT OF SAMPLING EQUIPMENT OF SAMPLING EQUIPMENT OF SAMPLING EQUIPMENT OF SAMPLING EQUIPMENT OF SAMPLING EQUIPMENT OF SAMPLING EQUIPMENT OF SAMPLING SAMPLING EQUIPMENT OF SAMPLING CONFLICTED TO SAMPLING SAMPLING SAMPLING CONFLICTED TO SAM			0747 E	SI 49 siks				F	och Rile	1					
DEPHINDLED HIGHWAY BY MALES OF PLANTS OF BELLEVATION AND SAMPLES COMPLETED TILES Y' MALES COPP. 9 SURPAGE LEVATION AND TILES FOR CHAPTER DECOUNTERED TILES FOR COMPLETED TILES FOR CHAPTER DECOUNTER SPECIFY TO CONTROL TO THE SPECIFY TO CONTROL TILES FOR CHAPTER DECOUNTER SPECIFY TO CONTROL TILES FOR CHAPTER DECOUNTER SPECIFY TO CONTROL TILES FOR CHAPTER DECOUNTER TILES FOR CHA	NAME (6. MAN	JFACTURER'S (DESIGN.					
DUERBURDEN THOMSES DUERBURDEN THOMSES AA 15. DEPTH GROUNDWATER ENCOUNTERED 7/2×10-6 7/2×10-	CIZEC A	NO TYPES O			1661200	:15				o:re	et fush				_
DUPERBURDEN THICKNESS DUPERBURDEN THICKNESS DUPERBURDEN THICKNESS 15. DEPTH GRUNDWINTER BUCQUATERED 71.28 1 a.b. 17. DATE SAMPLED 18. DATE SAMPLED 19. DEPTH OWNER MAD BLASSED TIME AFTER DRILLING COMPLETED NA TOTAL DEPTH OF POLE 17. OTHER WASER BLIEFLE MEASUREMENTS GPEOPTY NA BEOTECHNICAL SAMPLES DISTURBED ON UNDSTURBED 18. TOTAL NUMBER OF CORE BOXES ON ONER ISPECIFY 19. OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY SUPPRISONED OF HORE BLOW REALS OF COPE BOX NO NA REALS OF COPE BOX NO					rateri			4							
DIFFRURDEN THOMAS 15 DEPTH CROUNDAMATER RELOCUNTERED 7/25/06 16 DEPTH CROUNDAMATER RELOCUNTERED 17/25/06 18 DEPTH CROUNDAMATER RELOCUNTERED 18 DEPTH CROUNDAMATER RELOCUNTERED 18 DEPTH CROUNDAMATER RELOCUNTERED 19 TOTAL REPTH OF ONE REASON TO THE RESOURCE OF THE										N			.,		
OFFRENCHEN THICKNESS 15. CEPTH GROUNTER ROOLUNTERED 36. 32 16. DEPTH TO WAITER AND ELAPSED TIME AFTER DRILLING COMPLETED NA TOTAL DEPTH OF HOLE 4C 17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) ANA CECTECHNICAL SAMPLES O UNDSTURBED O UNDSTURBED O UNDSTURBED O UNDSTURBED O UNDSTURBED O UNDSTURBED O UNDSTURBED O UNDSTURBED O UNDSTURBED O UNDSTURBED O UNDSTURBED O THER SPECIFY O															
DISTRIBUTION OF HAZE BACKFLED MA BERTH DRILLED INTO ROCK MA TOTAL DEPTH OF NAME HOLE NO DISTRIBUTION TOTAL DEPTH OF NAME HOLE NO DISTRIBUTION TOTAL DEPTH OF NAME HOLE NO DISTRIBUTION TOTAL DEPTH OF NAME HOLE NO DISTRIBUTION TOTAL DEPTH OF NAME HOLE NO DISTRIBUTION TOTAL DEPTH OF NAME BACKFLED MONTORING WELL DISTRIBUTION THE DESCRIPTION OF MATERIALS THAT OAZ 3 RESTRICT AA BECANONILL FIELD SOFERINING GESTITECH BAURIE RESILIS THAT OAZ 3 RESTRICT THAT OAZ 3 RESTRICT THAT OAZ 3 RESTRICT THAT OAZ 3 RESTRICT THAT OAZ 3											ŀ				
DEPTH DRILLED NTO ROCK NA 16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED NA TOTAL DEPTH OF HOLE 4c. 17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) ALA SECRETION CALL SAMPLES O UNDSTURBED U	OVER	BURDEN THIC	CKNESS							ITER EI	NCOUNTERED	11001			
TOTAL DEPTH OF HOLE Ye 17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) NA SECTECHNICAL SAMPLES O DISTURBED UNDISTURBED 19. TOTAL NUMBER OF CORE BOXES O METALS OTHER (SPECIFY) OTHER (SPEC								<u> </u>							
TOTAL DEPTH OF HOLE YC ONSTURBED ONSTURBER ONSTURBED ONSTURBED ONSTURBED ONSTURBED ONSTURBED ONSTURBER ONSTURBED ONSTURBE	DEPTH	I DRILLED IN						16. DEP		and El	APSED TIME AFTE	er drilling co	MPLETED		
GEOTECHNICAL SAMPLES ODSTURBED	TOTAL	DEDTU OF I		···				17 074		E ME	ACHDEMENTS (CD	ECIEV)			
DISTURBED ON DISTURBED UNDSTURBED 19 TOTAL NUMBER OF CORE BOXES SAMPLES FOR CHEMICAL AMALYSIS VOC METALS OTHER (SPECIPY) OTH	TOTAL	. DEPIR OF I						17. 0111		CL ME	ADUNEMENTO JOF	COIPT			
SAMPLES FOR CHEMICAL ANALYSIS 9 3 3 1PH-DAZ 3 Restrict & 3 21 TOTAL CO. RECOVER 3 33 1PH-DAZ 3 Restrict & 3 20 30 30 30 30 30 30 30 30 30 30 30 30 30	GEOTE	CHNICAL SA		_				1:	3. TOTAL NUM	BER O	CORE BOXES				-
RECOVER SUPPOSITION OF HOLE BACKFILLED BACKFILLED MONTORING WELL OTHER (SPECIFY) 23 SIGNATURE OF INSPECTOR NA Remarkanial FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW REMARKS RESULTS OR COPE BOX NO SAMPLE NO CLAY, brown [4/3 104 R) dry SAFt, non plashic O CLAY, brown [4/3 104 R) damp SOFt, non plashic O PROJECT HOLE NO HOLE NO HOLE NO HOLE NO HOLE NO					<u> </u>									I	_
DISPOSITION OF HOLE BACKFILED BACKFILED MONTTORING WELL OTHER (SPECIFY) 23 SIGNATURE OF INSPECTOR MARK BENDANNIA BENDANNIA PRED SCREENING GEOTECH SAMPLE NAME TO COUNTS RESULTS FIELD SCREENING OF CORE BOX NO SAMPLE NO COUNTS REMARKS SBO! O CLAY, brown (4/3 104R) dry SnFt, non plastic O CLAY, brown (4/3 104R) drup SoFt, non plastic O J350 PROJECT MOLENO PROJECT MOLENO HOLE NO HOLE NO HOLE NO HOLE NO	SAMPL	ES FOR CHE	MICAL ANALYS	s voc	-	METAL	S	OTHE	R (SPECIFY)	1 0	HER (SPECIFY)	OTHER (S	SPECIFY)		
DESCRIPTION OF MATERIALS PREDUITS PRESUITS PROSECT PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PROSECT PRESUITS PRESUITS PRESUITS PROSECT PRESUITS PRESUITS PROSECT PRESUITS PRESUITS PROSECT PRESUITS PRESUITS PRESUITS PROSECT PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PROSECT PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PRESUITS PROSECT PRESUITS PRESUITS PROSECT PRESUITS PROSECT PROSECT PRESUITS PROSECT PRO			9	3		3_		TPH-C	A2 3	Pest	icide 3				
DESCRIPTION OF MATERIALS FELD SCREENING GEOTECH SAMPLE AMALYTICAL BLOW COUNTS REMARKS CLAY, brown (1/3 104R) dry snft, non plastic CLAY, brown(1/3 104R) damp CLAY, brown(1/3 104R) damp CLAY, brown(1/3 104R) damp Soft, non plastic O FRED SCREENING GEOTECH SAMPLE AMALYTICAL BLOW COUNTS REMARKS N SBOI O-2 FROJECT (10247) HOLE NO	DISPO	SITION OF H	DLE	BACKFILLED	MONI	TORING	WELL	OTHE	R (SPECIFY)	4 .					
DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE ON COUNTS RESULTS OR CORE BOX NO SAMPLE NO. SAMPLE NO. SAMPLE NO. CLAY, brown (4/3 104R) dry Soft, non plastic O CLAY, brown(4/3 104R) damp Soft, non plastic O (32) (4) (5) (6) (7) (7) (8) SAMPLE NO.			NA	Bentanilo	Field	concl	<i>ber</i>	JA	١.,	J.	of Cut				
CLAY, brown (4/3 104R) dry Soft, non plastic CLAY, brown(4/3 104R) damp Soft, non plastic O J32 GLAY, brown(4/3 104R) damp Soft, non plastic O J350 PROJECT (1024)	LEV.	DEPTH			.s						1			REMARKS	
Suft, non plastic Suft, non plastic CLAN, brown(4/3 104R) demp Soft, non plastic O 1350 PROJECT (10217)	а			c				d	e		1	g		h	
22 4 CLAY, brown(4/3 love) demp Soft, non plastic PROJECT (10247) HOLE NO) dry	l									
2 CLAN, brown(4/3 love) damp Soft, non plastic O J350 HOLE NO			soft, n	on plastic			'n				SBOI				
2 CLAN, brown(W3 love) demp Soft, non plastice O PROJECT MODILE 2 HOLENO.											0-2				
2 CLAN, brown(4/3 love) demp Soft, non plastic O PROJECT 402-12									33						
2 CLAN, brown(M3 104R) damp Soft, non plastic O PROJECT 40217		<i>i</i>				ĺ			4						
2 CLAN, brown(M3 104R) damp Soft, non plastic O PROJECT 40217							0		'			•			
3 — CLAN, brown(W3 104R) damp Soft, non plastic O PROJECT (1021) 7 HOLE NO.							Ŭ								
3 — CLAN, brown(W3 104R) damp Soft, non plastic O PROJECT (1021) 7 HOLE NO.		=													
3 — CLAN, brown(W3 104R) damp Soft, non plastic O PROJECT (1021) 7 HOLE NO.		, –								٠.					
3.— CLAN, brown(W3 104R) dump SOFT, non plastic O PROJECT 402-17 HOLE NO.	i						O								
3.— CLAN, brown(W3 104R) dump SOFT, non plastic O PROJECT 402-17 HOLE NO.			1 > 101 %	~ acasel											
SOFT, NON plastice O PROJECT MOSALS HOLE NO.			200	, ,								·			
SOFT, NON plastice O PROJECT MOSALS HOLE NO.		7									•				
SOFT, NON plastice O PROJECT MOSALS HOLE NO.		3 <u> </u>	Ci AVI i	THE MAN	ما		0				ļ				
9 350 350 1350	.	<u> </u>			demp	,					ľ				•
HOLE NO.		E	JOHY, V	ion plastic											
HOLE NO.		亅				ĺ									
PROJECT WOOD TO HOLE NO.	i					į	0								
PROJECT #02-17 HOLE NO.		4_	,			_		·····		_			1350		
PROJECT #02-17 HOLE NO.		=	•												
PROJECT #02-17 HOLE NO.	į	=					_								
PROJECT HOLE NO.	ĺ	<u> </u>					O								
PROJECT HOLE NO.		_ =									-				
$\mu(v) = \mu(v) = \mu(v)$		<u> </u>										· 			_
	o FC	ORM		PROJECT 407H7	7							1	n/	oo t	

		HTW D	RILLING	LOG			HOLE NO.
ROJECT	40	2741 EST 49 5iles	INSPECTOR	at Com			SHEET 4 2 OF 5 SHEETS
LEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCRI RESUL' d	EENING GEOTECH SAMPLI	E ANALYTICAL SAMPLE NO.	BLOW COUNTS g	REMARKS h
	-	SAME AS Above	0				
	6-1-1-1		0	4	5002 4-8		
	7		O	·			
	8		0				1355
			0	4			
	9		O	4			
	-c1				5B03		
		· .	0				
	!)		0				
	iz_		6		-		/400
	13 <u> </u>		0	3.3			
	'S		O			į	
	i4 -	, , , , , , , , , , , , , , , , , , ,	0				
rns :Dor	&z inell	PROJECT 951601 . 49 Form MRK-55-2	7747			HOLE FTR	NO. T-040 <i>DP</i> 01

		HTW DRII	LING LO	OG			HOLE NO.
PROJECT		747 EST 49 Siles	INSPECTOR		SHEET 9 3 OF & SHEETS		
ELEV a	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS
	 	SAME AS ALOUR	0			· · · · · · · · · · · · · · · · · · ·	·
	is	,	0				
	16 _		0				i405
	- - - - - -		0				
	17_	e	0	36			
	18		О	3.6			
	19	cear, brown 431042 damp medium, trace placeity 45:14	0				
	26		0				1410
	=	CLAY, brown (4/310YR) damp soft, Misilf, non plastic	0				
) 	*** 1 total 1 no. biroarc	0	3.3			
	12		0				
	23		0				

Burns & 051601
Street 1892
Form MRK-55-2

40747

HOLE NO. FTRE-040

DPOI

-		HTW DRIL	LING LC	G			HOLE NO. FTRT-OHO DPU	
PROJECT	407		INSPECTOR	6		į	SHEET # 4 OF 5 SHEETS	
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNTS g	REMARKS	
	-	SAME AS About						
	_ 		0					
	_							
	24_						_ 14iS	
	_							
		GLAV (brown (4/2104R) SOFT	. 0					
	_ _ 	CLAY, brown (4/3104R) soft damp, medium plasticity trace sitt						
	<i>D</i>	trace sitt		,				
			0	3.7				
	-			3.7				
	26_	C. J. March March	0					
.	_	CLAY, brown (1/3 104R) addism damp, highly plastic						
		omp, a said brown						
	27 _							
				. ,				
			,					
	_	CLAY, brown (4/2104B)	0				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
	28	soft, damp, highly plactic					1420	
	_ 	plactics						
			0					
	29			3.9				
				4				
	_		0	1		٠		
	_							
	30							
	- -		0					
	- -							
	3 i _					•		
			0					
							1425	
urns	32 -	PROJECT				T HOLE N		

Burns & McDonnell 051601 Form MRK-55-2

PROJECT

40747

HOLE NO.
FIRT-040 DPO)

	HTW DRILLING LOG FIRI-OHO DFOL										
PROJEC	t 407	17 ESI 49 sites	INSPECTOR	fin			SHEET 0 5 OF 5 SHEETS				
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. 8	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g					
	-	SAME AS About	0	3.7	J						
	33		O	4							
	34		0								
į	35		0								
	36.		0				i435				
-	37_	clay, brown (4/3 love) wet, soft, hishly plastic	0	3.1 			V waker				
			o	4							
	38		0								
	39		0								
	40		0				144.5				
		Bottom of hole Set piezoscher	·								
urns		PROJECT				HOLE N					

Burns & 051601
SINCE 1898
OFFICE OFFI

PROJECT 40747

HOLE NO.

				HTW									rt-010 bpt
COMPA	ANY NAME	gras 4	MeDA	mieli	2	. DRILLING	SUBCONTI	RACTOR					et 1 5' sheets
3. PROJE							4. LOCAT						
5 4445	or pout 50	40747	ESI	: 49 siles			E MANUE	ort R. L	2.V	ATION OF DRILL			
5. NAME (of driller	Dean's	Eiler	/ PENI UD	ulsher	,				rect Pus	1		
7. SIZES /	AND TYPES O			ste 4200		·	8. HOLE	OCATION	, .	<u> </u>			
AND SA	ampling Equ	IPMENT	Die	ct 4 mai	crocore		Ŋ	·			<u>· </u>		
		-					1	CE ELEVATIO A	N				
		-						STARTED			11. DATE COM		
								128/06			7/28/0	56	
12. OVER	BURDEN THIC	KNESS VA						H GROUNDWA 37 ¹	ATER EN	ICOUNTERED			
13 DEPTI	H DRILLED IN							<u></u>	AND EL	APSED TIME AFTE	R DRILLING CO	MPLETED	
		AN						V-A				<u> </u>	
14. TOTAL	L DEPTH OF I	HOLE					1	R WATER LEV ル人	/EL ME/	ASUREMENTS (SPI	ECIFY)		
18. GEOT	ECHNICAL SA	<u> </u>	1	DISTURBED	UNI	DISTURBED			IBER OF	CORE BOXES			
		0		0	, 	0		0			- r		·r
20. SAMP	LES FOR CHE	MICAL ANALYSI	s	VOC	META	LS	OTHER	(SPECIFY)	10	HER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL COR RECOVERY
		9		3	3		THE-0	42 3	Pes	licides 3			%
22. DISPO	SITION OF H	DLE		BACKFILLED	MONITORIN	G WELL	OTHER	(SPECIFY)	23 5	SIGNATURE OF IN	SPECTOR		
		A L	62	intonite	Piezona	ele	NA	4		A Go			
								GEOTECH S			BLOW	T	DEMAC!
:LEV. a	DEPTH b		DESCRIPT	TON OF MATERIALS		RES	BULTS d	OR CORE BO	OX NO.	SAMPLE NO f	COUNTS g		REMARKS h
· · · · · · · · · · · · · · · · · · ·		CLAY, G	Jark	brown (3/3)	OYR)								
		soft, di	₩ø	Mon plasti	c /	0						,	
		•	u	•	·								
	=							3.1		(20)			
	i					1		۶۰ ۱ سسه		5801			
	=					0		4		0.2			
	=												
										,			
	=					0							
	2							·		·			
	=												
]					0							
	3												
	4	CLAY L		H/ INJO)	.1.	0							
	=			(4/310YR)	dam								
	\vdash	soft, a	ig no.	astie								450	*
	4 -				-	 						1	
	• 🖠					_						1	
						0							
						ŀ						l	
	5 7												

	HTW DRILLING LOG HOLE NO FIRT OND DECZ									
PROJECT	Ho	147 ESI 49 sil		INSPECTOR (15				SHEET 6 72 OF 5 SHEETS		
ELEV.	DEPTH b	DESCRIPTION OF		RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS 9	REMARKS h		
	-	SAME AS Aba	مادو	0						
	6 =			O	3.2	seoz	·			
	7 -			O		G- 8				
	8-			0				1155		
				0						
,	9 -		,	C	3.6					
		damp, brown the	stork) soft.	0						
	11_			0		5B03 10-12				
	- - 129			С				1200		
				0	3.6					
	13 <u>-</u>		·	C	4					
	14 -		,	o	,		·			
Burns McDor		051601 Form MRK-55-2	PROJECT	7			HOLE I	NO. t-040 DPOZ		

		HTW DRI	LLING LO	OG			HOLE NO FTRE-OTO DF62
PROJECT	40-	747 ESI 49 siles	INSPECTOR /	212			SHEET & 3 OF 5 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	
	-	SAME AS Above	0			·	
	ぴ <u></u>	·	0	,			
	16 _						1705
			0				
	11		0	3.8 /4			
	18 =		O				
	N	CLAY, hown (Halova) damp medium, trace plustic	0				
	20_	medium, trace plastic w/s:14	0				1210
			0				
	3 1_		0	3.1			
	272		О				
	23 -		0				
urns &		PROJECT				HOLE N	O.

McDonnell state 1898

40747

FIRI-040 DF03

		HOLE NO. FTRE-040 0002					
PROJECT	4074	17 ESI 49 siles	INSPECTOR CO				FTRE-040 ODSZ SHEET # 1 OF 5 SHEETS
ELEV a	DEPTH b	DESCRIPTION OF MATERIALS	PELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	1
	-	SAME AS Above	0				1215
	24_		0				
	2 5		O	3.9			
	26	Stati Marana a St	0	4	-		
	.71	CLAV, brown(4/3104R) soft. damp, hishly plastic	0				
	28_		O				
			0				
	24		0	3.2			
	30		0				
	31		0				
	3 0		0				1225
	32 <u>-</u>	PROJECT	1			HOLE !	

Burns & McDonnell 051601 Form MRK-55-2

PROJECT 40747

HOLE NO.

FTRT-040 DPOZ

			HTW DRII	LLING LC)G			HOLE NO FIRT; -010 DF92
PROJEC	407			INSPECTOR				SHEET O 5 OF 5 SHEETS
ELEV.	DEPTH b	DESCRIPTION C	DF MATERIALS	RESULTS	GEOTECH SAMPLE OR CORE BOX NO	ANALYTICAL SAMPLE NO f	BLOW	
<u>a</u>	-	SAME AS Abo		u	е	1	g	"
	-			0				
		-						
	- -						:	
	33 _			0	1.2			
	-				4		}	
	-				•			·
				0				
	3H							
	_ _	1				:		
	_			0				
	35 =]						
		1						
	-			0				
		CLAY, brown (4)	BIOYR) SOFF					
	36 =	most, highly	plastic					/230
	_			0		:		
	_				1.1			
1	37 <u> </u>	ivet.			4			Pivalec
				0				
	38 _			0				<u> </u>
	=							
	\exists							
	=							
	39 🗏			0				
								<u> </u>
	뒥			0				
	=							1240
	10 -	set piezonel	2f					-
	=	per prezonen	-					
	=							
	41							E
rns (PROJECT	·			HOLE N	D.

McDonnell 051601 Form MRK-55-2

			HTW	DRIL	LING	LC	G				FTR	T-040 OP	
COMPA	NY NAME	Burns & D	neDonuell'		2. DRILLING	3 SUBCON	RACTOR E	PS			SHEI OF	ET 1 S SHEETS	
PROJEC	CT 4	0747 E	SI 49 5:123			4. LOCA	TION Feel Ril	0.V					
NAME (OF DRILLER	ennis Ell		· · · · · · · · · · · · · · · · · · ·		6. MANU	FACTURER'S	ESIGN	ATION OF DRILL		•		
SIZES A	AND TYPES O		Geoprole 4200			8 HOLE LOCATION							
	MPLING EQU		"I' macrocore			NA NA							
		-				-1	ACE ELEVATIOI NA	N	-				
						10. DAT	E STARTED _		T	11 DATE COM			
OVERE	BURDEN THIC	KNESS					7/28/06		NCOUNTERED	7/28/0	16		
		N A	4			<u> </u>	36.8			D DOULING CO	MOLETED		
. DEPTH	i drilled in	TO ROCK	\			16. DEP	MA	AND EL	APSED TIME AFTE	R DRILLING CO	MPLETED		
TOTAL	DEPTH OF I	HOLE 40				17. OTH	ER WATER LEV	EL ME	ASUREMENTS (SPE	ECIFY)			
GEOTE	ECHNICAL SA		DISTURBED	Ur	NDISTURBED	1	9. TOTAL NUM	BER O	CORE BOXES				
SAMPI	C LES FOR CHE	MICAL ANALYSIS	VOC		TALS	OTHE	O R (SPECIFY)	01	THER (SPECIFY)	OTHER (S	PECIFYI	21. TOTAL COF	
,. O	20 1 011 0112	6		3		1	0AZ 3	 	tizide 3			RECOVERY	
2. Dispos	SITION OF H		BACKFILLED	MONITORI	NG WELL	ļ	R (SPECIFY)		SIGNATURE OF INS	PECTOR		<u> </u>	
		A W	Benforite	fiezona	.ter	~	A	A	ant la	_			
FLEV a	DEPTH b		DESCRIPTION OF MATERIAL	LS		CREENING SULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO.	BLOW COUNTS 9		REMARKS h	
		ددمه, ۷	iery dark bro.	NN (42104	Q)	_							
	=	Soft, do	mp, non pla	stie	0				sbo!				
			•				3.1		0-2				
	i						4.0						
	'												
					0								
	, =												
					0								
]												
	3				0						e i		
	3 —	CLAY, b	county's mue	١	1								
,	\exists	soft, do	mp, non plas) Skie								•	
			/- / p	-11.0	0								
											:00-		
	거극	,									1005		
İ	= =		•										
					0								
	<u> </u>												
	5' -	<u></u>	PROJECT							HOLE NO.			
RK FG	DRM N 89 55		40747		,		•				-040	DP03	

		нти	/ DRIL	LING LC)G		E	TRI-040 DF03		
ROJECT	4074	7: EST 49 sites		INSPECTOR Late	la	•		SHEET 5 2 OF 5 SHEETS		
LEV. a	DEPTH b	DESCRIPTION OF MATERIA	ILS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h		
		SAME AS Above		0	ų,	_				
	6 -	•		0	4	5892 4-8				
	7 -	CLAY, dark brown doft, damp, leace p	(3/3104R)	C						
	8 _			O			<u></u>	1010		
	4	chay, brown (4/3104) domps soft, brace l-ace sitt	(R) 2 plastie	0						
	10			0	3.8 4					
	·	:		O		5 8 03				
	/			0		10-12				
	12			0				1015		
	,			0						
	13			0	3.1 /					
	14			Ø			· r			
rns Don	℃ nell ^	PROJE	ECT 40747				HOLE NO). -040 0003		

	HOLE NO FT RI-O-10 DFO3 SHEET 0-3 OF 5 SHEETS							
PROJECT	40	747 ESI 49 siles	INSPECTOR	INSPECTOR LATER CONTRACTOR CONTRA				
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RÉSULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g		
		SAME AS Abour	0					
	15 -		0					
	6=						1020	
	1		0					
	17		0	3.7				
	i8-		O					
	19	CLAY, brown (4/3104R) soft damp, medican plasticity U/s. It	0					
	20	V/s. I+	0				lo.52.2.	
			0					
	21 -		o	3.6			·	
	17		9	-				
	23 -		0					

Burns & McDonnell

051601 Form MRK-55-2

PROJECT 40747

HOLE NO.
FT RI - 040 DF03

		HTW DRIL					HOLE NO.
PROJECT	402	47 ESI 49 51 Yes	INSPECTOR	_			SHEET & *! OF S SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNTS g	
	-	CLAY, brown (1/3104R) damp, stiff, non plastie w/sitt	0				1930
	55.		0	31			
	1	CLAY, brown (Halorr) damp soft, trace plastic	0	:			-
	76-	W/s:H	0				
	プリー - - - - - - - - - - - - - - - - - - -		0				-
	- - - - 28	,	0				1035
	1111	CLAY, brown (1/3 10-1R)	0				
	29	damp, soft, highly plastic some silt	0				
	30 _		0	3.5			
,	3;		O				
	32_ =		0				1040
Burns		PROJECT			<u> </u>	HOLE	10

Burns & O51601
Stace 1888

Form MRK-55-2

PROJECT

40747

HOLE NO.
FIRE -040 DP03

HTW DRILLING LOG PROJECT 40747 EST 49 Siles									
LEV	DEPTH	7 ESI 49 Siles DESCRIPTION OF MATERIALS	FIE D SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO	ANALYTICAL SAMPLE NO.	BLOW COUNTS	SHEET Ø S SHEETS REMARKS		
a	b	SAME AS Above	d	е	1	g	h		
	=	JAME NO MOUVE	0			•			
İ	=								
	,,	4							
	33 -								
			0	3/4					
	=			14					
	Ē.	`							
	34		0						
	=		V						
	-								
	35_		0						
	=								
	+	Tarana Tarana	0						
	,, =	CLAY, brown (4/3 KYR)					1045		
		Soft, moist, highly							
	=	plastic, some silf	0						
	\exists						wwwler		
	,, \	STET, brown (46 aug)					W		
	"	set, # + sand	0	36					
	=	, J#W		1.					
	7			4					
	35		0	·					
	7								
	\exists		6						
	39						<u>;</u>		
	#								
	₫.		0						
	=	(LAY, brown (HISTOYR)							
	H0 ===	soft, moist, highly				·	1032		
	. =	plastic, some 3:17				_			
	1	set a piezoneter							
	‡	Bottom of hole		-					
ns & Doni		PROJECT 4075				HOLE NO	-010 DP03		

			HTW	DRILL	.INC	LC)G				HOLE FT:P	E-040 DEC
COMP/	ANY NAME	·	D 011	2	DRILLING	SUBCONT					SHEE	
B. PROJEC		ficus q	mcDonell			4. LOCA	EPS TION				I OF	SHEETS
. , , , , ,		40747 6	SI 49 siles			F	ort Ril		·			
NAME (OF DRILLER	Dennis E	ilar			1			ATION OF DRILL			
SIZES	AND TYPES O		Geoprole 4200				LOCATION	<u> U ;</u>	irect Pus	<u> </u>		
	AMPLING EQU		y' macrocore			1	A					
		_				₹	ACE ELEVATION	١				
		-				IO DAT	E STARTED			11. DATE COM	DI ETEN	•
		<u> </u>					7/31/06			7/31/06		
OVER	BURDEN THIC					15. DEP	TH GROUNDWA	TER E	COUNTERED			
R DEPTI	H DRILLED IN	O BOCK		-		16 DEP	37.5 TH TO WATER A	AND EL	APSED TIME AFTE	R DRILLING CO.	MPLETED	
, , , , , , , , , , , , , , , , , , , ,	TOTALLES IN	NA		***			ηĄ					
TOTAL	L DEPTH OF I	iole iole				17. OTH	ER WATER LEV メム	EL ME	ASUREMENTS (SPI	ECIFY)		
3. GEOT	ECHNICAL SA	·	DISTURBED	UND	DISTURBED) [1:		BER OF	CORE BOXES			
		0	0		0		0			, ,		·
D. SAMPI	LES FOR CHE	MICAL ANALYSIS	voc	META	LS	OTHE	R (SPECIFY)	01	HER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL COR RECOVERY
		9	3	3		TPH-)VT 3		hicide 3		·	%
2. DISPO	SITION OF H	OLE	BACKFILLED	MONITORIN		OTHE	R (SPECIFY)	4	SIGNATURE OF INS	1		
		/A	Benton, he	Piezou	eler	٨(ي.	A.		hor h	~		
FLEV.	DEPTH b	C	DESCRIPTION OF MATERIALS			CREENING SULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO f	BLOW COUNTS g		REMARKS h
		Gravel	Fiil		†							
] =			Pi.	- 0	i			sont			
		der wan	plastic Ward	evel					580			
	=	,,,	, ,				İ		0-2			
	1				1 0	,						
	=	CLAY, ho	own (4/3 10 YR)	soft			2.1					
		damp, r	von plastic				4			•		
	2 =				6	,						
] =				ļ							
	$ $ \exists								1			
	=				0							
	3											•
	_7				0					_		
!]						}					
	[İ		,	0825	
	4						 			·	0023	
	▎ᅼ				0							
	=											
,	<							1		HOLE NO		
		**	PROJECT									

0.1505			LING LC)G		- 1	HOLENO FTREE OND DPOY		
OJECT	1:0-			- 6~			SHEET OF Z OF 45 SHEETS		
_EV.	DEPTH b	747 EST 49 SINS DESCRIPTION OF MATERIALS C	FIELD SOMEONING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNTS g			
		SAME As Above	0		5.652 5.6				
	6		0	17,					
	7 =		0			•			
	- - - - & _		0				0830		
	7_		0	4,4					
	- - - - - -		0		5803 8-12				
	10	·	0						
	n =	chay, brown(4/3104R) damp medium trace plasticity	. 0						
	12	V/silt	0				0535		
	- - - - - - - 13		0			•			
	-		0						
irns	H =	PROJECT	0			HOLE			

Burns & O51601
STREET 1898
Form MRK-55-2

40747

HOLENO.
FTRE-040 PPO4

HTW DRILLING LOG									
UJECT	4074	7 ÉSI 49 riles	INSPECTOR	-60	,		SHEET & 3 OF SHEETS		
.EV. DI	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCHEENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g			
	11111	Same as Above	0	3.6			,		
	R		0	4					
	16		0				0540		
	11111		0						
	<i>i</i> 7		0	3.3 4					
	18		0						
į	19		0						
 - -	y 0 –	CLAY, browd 43104R) damp sliff, trace plasticity	0	~~~~~~	~~~~~	~~~	0650		
		"/silt "LAY brown(4310VR) damp soft, trace plasticity "/silt	0	3.5					
	1 - 1 - 1		0						
2	27		0						
2	13 -		D						

DPOY FTRI-010

		ITW DRII	LING LC	G			HOLE NO FURT - CHO DOOM
ROJECT	0747 ESI 49 sile		INSPECTOR Com				SHEET 8 4 OF SHEETS
LEV. DEP	PTH DESCRIPTION O	IF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO.	BLOW COUNTS 9	•
2	dmp, medium	1310YR) soft plasticity	0				୍ୟ ଓଡ଼
			0				
	25_		0	27			
7.	6_	•	0				
72:	7_		0	·			
2:	ccay, brown (Va damp, highly p	iour) soft lastic i	0				of ic
	= \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		0	3. i \			
26	* - - - -		0				
30	,		0				
31			0				
32		PROJECT	0	·		HOLEN	M20

Burns & ... 051601
STUCE 1898 Form MRK-55-2

PROJECT	11 = -		ILLING LO			·· - -	FTRI OLD DPD: FTRI OLD DPD: OF S SHEETS			
ELEV.	407 DEPTH	DESCRIPTION OF MATERIALS	FELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	8LOW COUNTS	S REMARKS			
a	b -	SAME AS Above	O	e	f	g	h			
	33 -		0			•				
	, <u> </u>		•	1.4						
	34		٠ ७							
	32 -	scul, brown (Majoya) moist Soft, hisnly plastic M	0							
	-	,	0							
	36_		0				0933			
	37	we.t.	0	3.7 4			1 water			
	36		C							
	39_		O							
	40		0				5940			
	,	site piezometer Bottom of hote								
irns &	051	PROJECT 601 40747				HOLE NO	D. C-040 DPO4			

Boring Logs Furniture Repair Shops (FTRI-041)

			HTW I	DRILI	LING	LC	G				HOLI HOLI	ENO. (T:041 <u></u>
COMPA	NY NAME	0 -			2. DRILLING	SUBCONT	RACTOR	EFS			SHE	T 1 1 SHEETS
PROJEC		Surme 4 1	nebowell			4. LOCA	TION	<u> </u>	<u></u>		TOF •	1 SHEETS
1110020	, .	40747	ESI 49 Sile	25			Fort	R.Le	· y			
NAME C	F DRILLER						IFACTURER'S D	ESIGN	ATION OF DRILL			
		Denn	is Eller			*	Bungeof	92	5400 / bi	reet Pus	<u>k. </u>	····
	ND TYPES O	• —	Beoperate 64			8. HOLE	LOCATION					
AND SAI	MPLING EQU	IPMENI	11 Macrocan	<u>, </u>	NA.							
		<u> </u>				9. SURF	ACE ELEVATION	٧				•
		⊢				10 DAT	NR E STARTED			11 DATE COMP	I FTFD	
		<u></u> ⊢				1	81210	6	}	812/06		
OVERB	URDEN THIC	KNESS				15. DEP	TH GROUNDWA		NCOUNTERED			
		NA				,		-8				
DEPTH	DRILLED INT					16 DEP			APSED TIME AFTE	R DRILLING COM	APLETED	
		N.P.					4.W		1 OLIDELIEU TO 100	FO(E) ()		
TOTAL	DEPTH OF H	OLE 2.5	**			17. OIH			ASUREMENTS (SP	ECIFY)		
GEOTE	CHNICAL SA		DISTURBED	LIN	DISTURBED	11	A.CA MUNIATOT P		F CORE BOXES			
GLUIL	.c. more or	Ö	0		O	["	O		30			
SAMPL	ES FOR CHE	MICAL ANALYSIS	VOC	MET	ALS	OTHE	R (SPECIFY)	01	THER (SPECIFY)	OTHER (SF	PECIFY)	21. TOTAL CORE
		6	3	ڌ	,				_			RECOVERY %
				ļ <u> </u>	MONITORING WELL		OTHER (SPECIFY)			1		76
DISPOSITION OF HOLE			BACKFILLED	MONITORI	NG WELL			23. 3	SIGNATURE OF IN			
		,	Benjaile	114	,	v	J.K.		Just 2			
LEV. a	DEPTH b	D	ESCRIPTION OF MATERIALS		RES	CREENING SULTS d	GEOTECH SA OR CORE BO e	MPLE X NO.	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g		REMARKS h
	3 1111111111111111111111111111111111111	Asphal stir, b soft, d W/s and	rown (% 104R amp, non pla) slie	0 0 0		31 /4		580[1.5-2			
ZK E	5]	P	PROJECT	40747		· · · · ·				HOLE NO) 1 FC	

		HTW DRIL	LING LC)G			HOLE NO Fret-Oal Opol
PROJECT	1 40	0747 ESI 49 site	INSPECTOR				SHEET C I OF 4 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIRM SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	
	-	GAME As Abouz	D				
	6 =		0	3.7	SB02- 7-8		
	7 =		0	I		ġ.	
	8 -		٥				-
	-		0				
	9 -		0	3.1	5803 11-12	<u>, , , , , , , , , , , , , , , , , , , </u>	
	- oi 		0	4			
	ii —	FAND, light yellowish from (6/4 104R) loose, damp, lie grained,	0				
	12 —	sand, pake brown (G/SIOYR) andium, damp, fin- medium grained	6				
	13-	, ,	0	·			2051
		SAND, pale brown (613104R) loose, damp, fire-medium gained	0			.:.	
Burns	&z	' PROJECT				HOLE	VO .

McDonnell o51601 sixee 1899 Form MRK-55-2

FTRE-041 OPOI

		HTW DR	<u>ILLING LC</u>)G			OLE NO. <u>37 Rt-O41 DPOL</u> HEET & 3
ROJECT	407-	17 EST 49 siles	INSPECTOR			s	HEET 63 F 4 SHEETS
LEV. a	DEPTH b	DESCRIPTION OF MATERIALS	FIEVD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO.	BLOW COUNTS 9	REMARKS h
		SAME AF Above	0			9	
Î				3.1			
	13.			3.1			
			0				
	,						
	16 -		0				
:	17						i31 S
	-						
)	23			
	is	SAND, Scown (43 104R) damp loose, fix-medium scale		3.3			
		loose, fix-medium scale	0				
	i9				·		
			0				
		•					
	20		0				
	1		0				
	21						<i> 325</i>
	*\		·O	2.8			
	22		0	4			
	=		3				
	23 -		5			_	U water

McDonnell 051601 SINCE 1898 Form MRK-55-2

40747

FIRT-OHI DAVI

		H	TW DRIL	LING LC	G		- -	HOLE NO.]
PROJECT	์ น ่อ	747 EST 49 siles		INSPECTOR Con	b.		S	SHEET OY OF Y SHEETS	
ELEV.	DEPTH b	DESCRIPTION OF M		FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS	
	-			2					+
	그러_ - -			0		,			
				c					E
	J22	Bottom of habe				·		1330	-
	1 1								
	-								
							-		
	- - -								
			:					,	
	-								
					io ·				E
	- - - -								F
									E
								,	
Burns		Τ,	PROJECT				HOLE NO	1	E

Burns & O51601

STREET 16398

O51601

Form MRK-55-2

PROJECT 40747

HOLENO.

Fraz-041 DPO

			HTW	DRILL	INC	LO	G				HOLI Fire Bru	E NO. E T: ~0	ell bro	72.
1. COMPA	NY NAME			2	DRILLING	S SUBCONT	RACTOR EPS				SHEE	II 1 3 SH	FETS	
J. PROJE	CT	Burnes	4 McConvell		.	4. LOCA	TION				101-	- Jr	CLIO	-
		40747	ESI 49 siles			1	Fort R.L	24						_
. NAME (OF DRILLER	Dennis	: Eller			1			ation of drill eet Pugi					
SIZES	AND TYPES OF		Geoprole 420	c			LOCATION		261 1000	·				_
AND SA	MPLING EQU	PMENT	il macrococ			+	N.K.							_
		. -		·		_	ACE ELEVATION んへ	4						
		<u> </u>				 	STARTED			11. DATE COM				
			· · · · · · · · · · · · · · · · · · ·				8/1106			8/1/0	<u>b</u>			_
2. OVER	Burden Thic	KNESS ALL	Δ-			15 DEP	TH GROUNDWA		NCOUNTERED					
3. DEPTI	I DRILLED INT		-			16 DEP			APSED TIME AFTE	R DRILLING CO	MPLETED			
	257711 05 11	N A	<i>§</i>			17 OTH		C) MC	ASUREMENTS (SPI	CIEVI				_
4. IOIAI	. Depth of H	22				17 011	WATER LEV	CL MC	MOUNEMIENTO (OF	Cirij				
B GEOT	ECHNICAL SAI		DISTURBED	UND	STURBEC) 19		BER O	F CORE BOXES					
CAMP	ES EAR OUE	MICAL ANALYSIS	Voc	META	0	OTHE	R (SPECIFY)	0	THER (SPECIFY)	OTHER (S	PECIEY)	21	TOTAL COR	
JUNNIF	LES FOR ORE			3			110120111		THEN (OF EAST !)	0.11.2.11 (0			RECOVERY	
		<u> </u>	3 BACKFILLED	MONITORIN	C MELL	OTUE	R (SPECIFY)	02	SIGNATURE OF IN	PECTOR		<u> </u>		
2. DISPO	SITION OF HO			 	G WELL			23.	SIGNATURE OF INC	_				
	 _	.A.W.	Bentonile	NA	T	NA.		1			r			
ELEV a	DEPTH b		DESCRIPTION OF MATERIALS			SCREENING SULTS d	GEOTECH SA OR CORE BO		ANALYTICAL SAMPLE NO. f	BLOW COUNTS 9		REMA h	RKS	
		(4/3 104E)	lark grayish bro dry, soft, non	own plastic	0		3.3/		5601					
							14		0-1					
	1 . 4		 						,					
	│ ' ─∃	CLAY,	on plastic	domp	0									
	∃	soft, h	on playric											
	7													
	2_7				0				(,			
			÷											
		SILT, be	cown (3/310VR)	domp]									
	\exists	soft, n	on plastic	,	0									
	3 -		•	*	ĺ									
	1													
	\exists										-			
					0									
	=													
	4										1325			
	7													
	=				0									
			-											ŀ
	5 -													ł
			PROJECT	27,17			· · · · · · · · · · · · · · · · · · ·		<u> </u>	HOLE NO.				_
RK J	ORM 55		7.0	747						FIRE	-041	DP	12	

		HTW DRIL	LING LC	G	,	F.	OLE NO RI-UHI BPO Z
PROJECT	40	147 ESI 49 siles	INSPECTOR	6		SI	HEET 0 2- 3 SHEETS
ELEV. a.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
		FAME AS About	3 .	4,	560Z 6-7		
	6 <u> </u>		0	4			
	7		o				
	8-		O				1330
	- - - -		O		5603		
	. 9 1 1 1 1 1 1 1 1 1		0	3.6	11-12		
	i6		O				
	11-	·	Ø .				
	12_	SAND, yellowish brown (54104R) looce, damp, fire-wedirm grained	0				.1735
			0	1.1.			
	13-		O	4			
Burns	14 _	PROJECT	Ö			HOLE NO	1340

Burns & McDonnell 051601
SISCE 1898 Form MRK-55-2

PROJECT

HOLENO. FTRI-OH DP02

		HTW DRI	LLING LC)G		•	HOLE NO FT&1-041 DPG2
OJECT	407	147 ESI 49 siles	INSPECTOR A				FT&1-04 DFO7 SHEET O 3 OF 3 SHEETS
.EV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	
-		SAME AS About					
	-		0				
			·				
	i5_	ř	0	7.7			i
	<u> </u>	SAND, Scown (4310YR) down		3.7			
	<u> </u>	sand, brown (1/3104R) damp looce, tie-medium grained		•			
	16_	graned	0				
	\exists	•					
			0				
	17 =			,			
	=	·	0				
				,			
	18						1345
	=						
	=		0		i		
	19						
	''=			4			
	=		C	4			
	1						
	20_	•	ပ				
	=	•					·
	\exists						
	21		0				
	=						
	=		O				y water
	22			į			1350
		Boltom of home					
	1						
	=						·
ns		PROJECT 40				Tuoisni	0. -041 proz

Burns & 051601
McDonnell 051601
Form MRK-55-2

			HTW [DRILL	ING	LO	G				HOLE F-T-R	eno Troyl Dpo	3
1. COMPA	NY NAME	rat & Meb	411	2.	DRILLING	SUBCONT	RACTOR				SHEE OF 3	T 1 3 SHEETS	
, PROJEC			40747 EST	<u> </u>		4. LOCA	TION For the	Ω·	(2 s)				
5. NAME C	OF DRILLER	000	10747 123	TT SITES		6. MANU	FACTURER'S D	ESIGN	ATION OF DRILL				1
			is Eller			2 11015	Coprole LOCATION	/ Di	sect first	1			4
	IND TYPES O IMPLING EQU		Geoprole 4200 41 macrocore			1	LOCATION V A						
							ACE ELEVATION	ł	·				7
		-			- 	<u> </u>	STARTED			11. DATE COMP	HETEN		\dashv
			·····			10. DAIL	8/1/06			8/1/06			
12. OVERE	BURDEN THIC	KNESS				15 DEP	TH GROUNDWA	TER EI	COUNTERED				
13. DEPTH	DRILLED IN					16 DEP1	TH TO WATER A	AND EL	APSED TIME AFTE	R DRILLING CO	APLETED .		
14. TOTAL	DEPTH OF I	OLE				17 OTH		EL ME	ASUREMENTS (SPI	ECIFY)			1
18 GEOTE	CHNICAL SA	MPLES	DISTURBED	UNDI	ISTURBED	19		BER O	CORE BOXES				\dashv
		0	0		0		O	<u> </u>	TUED (000000000000000000000000000000000000	071150 101	TOIT!	191 TOT# 000	_
20 SAMPI	ES FOR CHE	MICAL ANALYSIS	VOC	METAL	LS	OTHE	R (SPECIFY)	0	THER (SPECIFY)	OTHER (SI	(ECIFY)	21. TOTAL COR RECOVERY	
		6	3	3				_				%	4
22. DISPO	SITION OF H	V ₩	BACKFILLED	MONITORING	3 WELL	1	R (SPECIFY)	23	SIGNATURE OF IN				
	<u>,</u>	701/	Bantonile	N.A.		N.		Lé	,		·		4
ELEV. a	DEPTH b		SCRIPTION OF MATERIALS		RES	CREENING SULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO	BLOW COUNTS g		REMARKS h	
		CLAY, 8	non plastic	210YR)	0				SBOI				=
	=	Soft, dry	, non plastic						1===				E
									0-1				Ę
							3.3						F
	'	CLAY, VEC	y duck, grayis	h brown	0		4						E
		(3/2104R) 1	y duck, grayis undivon, domp, ustic w/silt										F
	_												F
		STILT, bic	own (4/3104R) a	Imp	0								E
		soft, no.	a plastic	í									-
	_												E
	-												
· · · · · · · · · · · · · · · · · · ·	_				0								F
	3												E
	_												E
					0		İ						F
													E
	4 -			_							1220		E
				_									F
					0	•							F
													E
													E
	5 -	I P	ROJECT		<u> </u>					HOLE NO.	L		
MRK 🎜	ORM 55			407.	17					FTRT.	041	b 603	

10 10 10 10 10 10 10 10			HTW DRIL	LING LC	G	-	· ·	HOLE NO. FIRE TO SHI CAS
Control Supplies	PROJECT	4074		1 -				SHEET \$ 2 OF 3 SHEETS
10 1225 10 1225 10 1225 10 1225 10 1225 10 1225 10 1225 10 1225 10 1225 10 1225		DEPTH	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	SAMPLE NO.	BLOW COUNTS	REMARKS
7 0 1225 0 1.1/4 Page 1225 0 1.1/4 Page 1225 10 0 1.1/4 Page 1225 11		-	samé as Above	0	4	1 !		-
7 9 10 11 5AND, 1: ght yellowsh brown (4) KNR) loose, damp, 12 wed: vm grained 0 17 2 13		&		C				
10 1225 10 1225 10 1225 10 1225 10 1225 10 1225 11 1225 11 1225 12 1225		7						
10- 10- 11- 5AND, 1:ght yellowish brown (6/4 KNR) bosse, damp, 12- hedium graind 0. 1.1 2 0. 1.235		8 <u>-</u>	- -	0				1225
13 13 14 (SVR) light yellowish brown (4) (SVR) loose, damp, 12 hedivm grained 0 1.7 2 0 135		-	,	0	3.37			
11- SAND, 1:ght yellowish brown C 12 wed:vm graind C 13 C 14 C 17 C 18 19 19 19 19 19 19 19		-		0	14			
5AND, light yellowish brown [6/4 kovik) loose, damp, 12 aredivm grained 0. 1.7 2 13- 14- 17- 18- 19- 19- 19- 19- 19- 19- 19		10-		0				-
12 wed: vm graind 0 1230 1235 1235		/1 -	SAND light vellowith brown	0				-
13 _ 0		12_		0				/230
1-1- C /235		 		O.	17/2			-
17-		- - - -		0		·		
				0			Lua	

Burns &-McDonnell SISSEE 1898 051601 Form MRK-55-2

PROJECT 40747 HOLE NO.

FIRT-041 DFW3

		HTW DRIL					HOLE NO FTRE-041 1603
PROJEC	407	47 ESI 49 siles	INSPECTOR	Com			SHEET 03 OF 3 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD & CREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS 9	
	-	SAME As About	0				-
	გ_ 	·	0	3.7	,		
	16 _	(1/310 yr) domp, loose, line-nedium grained	0				
,	17_		0				
·		SAMO, GLAYISH Brown (F/2104R)	0				
		samp, grayish brown (through) downp, loose, the medium gravited Moilt	o				1240
	19		0	3.7 4			
	7.0	SAND, light yellowish brown (6/4104R) damp, loose, E:n-medium graited	ပ				
	-		O				<u> </u>
	21 -		0			·	
	22_	Bellom of hale					1250 -
		Delivers of the en					
Burns McDon	nell o	PROJECT 407	47		1	HOLE N	NO. RI-CHI BPO3

Burns & McDonnell O51601
SIXCE 1898 O51601
Form MRK-55-2

			HTW	DRIL	LING	LO	G				HOLE FIRE	inu Goti dest
COMPA	NY NAME	. , ,	m n . 14		2. DRILLING	SUBCONT	RACTOR EPS		<u> </u>		SHEE	T 1 / SHEETS
PROJEC		Weiks 4 1	Mc Don 11	1		4 LOCA						OHEE13
	407	47 ESI	49 siles			<u> </u>	Fort R	iley	ATION OF DRILL			
NAME O	F DRILLER	h	11.0									
SIZES A	ND TYPES OF	DENA.S E	Genorale 4200				LOCATION	U	reet fush			
	MPLING EQUI	-	4' maers cord	,		10 11012	NA					
		<u></u>				9 SURF	ACE ELEVATION	I				-
		 -					NA		т		L CTCD	
		┝				10. DAIL	STARTED 7/31/cl	6		11. DATE COMP 7/31/0		
OVERB	JURDEN THIC	KNESS				15. DEP	TH GROUNDWA	TER EN	COUNTERED	** >** **		
		. لي	A:				21				_	
DEPTH	DRILLED INT	O ROCK	L			16. DEP1			APSED TIME AFTE	R DRILLING COM	APLETED	
TOTAL	DEPTH OF H					17 OTH	N A FR WATER LEV		ASUREMENTS (SPE	ECIFY)		
· IOIAL	DEI III OI II	Ji.	1				NA		,	,		
GEOTE	CHNICAL SAI	_	DISTURBED	1	NDISTURBED	19). TOTAL NUME	BER OF	CORE BOXES			
0445	CO COD OUT	O AND VENE	S VOC		C) Tals	OTUE	(SPECIFY)	01	THER (SPECIFY)	OTHER (SF	PECIEVI	21. TOTAL COR
. SAMPL	es fun Che	MICAL ANALYSIS		ME		- Oine	(OF EOIF)	 "	men (or coir 1)	Jillen (or	2011)	RECOVERY
		6	3		3			<u> </u>				%
. DISPOS	SITION OF HO		BACKFILLED	MONITOR	ING WELL	 	R (SPECIFY)		SIGNATURE OF INS			
		IJR	Bentonite	NA.		NA		1	Caster liv			•
LEV.	DEPTH b		DESCRIPTION OF MATERIALS	3		CREENING SULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO. f	BLOW COUNTS g		REMARKS h
-		Fill										
		• • • •							1001			
					_ Ó		2 %		४ ९०।			
	1	CLAY, U	very dock grayis	h brown			3.4		1-2			
	i _ =	(3/2 10 VR) soft, damp,				4				:	
		irace f	soft, damp, plasticity, trace	siH								
		CLAY, U	very dark brow	u (7/210)	<u>(I)</u>							
	コ	soft, de	emp, brace pla	sticity	,							
	2	soine s	silt.	•	0		1					
	7				,							
	╛									,		
	3 =				10							
- 1	~ ==						:					
	╡											
		•	•									
	7									÷		
	4 1				0						1030	
	7											
					0							
	3											
	.]				1		1					
	<u> </u>		PROJECT							HOLE NO.		

		H7	W DRIL	LING LC	G			HOLENO. FTRI-041 DPD4	
PROJECT	T 407-	17 ESI 49 s. h.s		INSPECTOR foot				SHEET & ZON SHEETS	
ELEV.	DEPTH b	DESCRIPTION OF MA	TERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h	
	- - - -	SAME AS Above		0					
	6 _	CLAY, very dark (3/2104R) soft, da medium plasticit	promy	O	3.7				111111
	7	silt	, some	O		9802 7-8	•		
	8 -		;	0			·····	/ð3S	
	c -		151,1000	0	2.7 4				
	-	stet, grayish brown soft, demp, highly "/clay CLAY, dark yellow (3/4104R) damp, w		С		5603 8-105			
	io	hedin plasticity	y	0					
	<i>ii_</i>	· .		O					
\	12_			C				1040	
	, - -	stati, dark grayis	h brown	С	3 l 4				
	13_ - - - -	trace plastic m	ipi Iemal	0	14				
	i4 _	·	ROJECT	0			HOLEN		- - - -

Burns & 051601
SCUCE 1898

OFFICE 1898

OFFICE 1898

PROJECT

40747

HOLE NO. FERE-041 DP04

		HTW DRIL	LING LC)G	· · · · · · · · · · · · · · · · · · ·	F	OLE NO.
PROJEC	40	147 ESI 49 sites	INSPECTOR			S	HEET Ø 3 F 4 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS 9	REMARKS h
	-	SAME As Above	อ				 - - - -
	15' _	sand, pale brown (431048) 10000, domp, file grailed	0				
]6 <u>-</u>		О				1050
	- - - - - -		6	<i>Ž</i> 4			
	15_	(Ga love) damp, loose, fine grained	0				
	19_		٥			·	
	2o_	SAND, brown (5/3 104R) damp, loose, fine grained	0				ii∞ -
) i		0	32-4			
	72.	damp, loose, fine- nedism programed	0				-
	-		O				
Burns	23	PROJECT	0			HOLE NO.	V water

Burns & McDonnell 051601 Form MRK-55-2

PROJECT

40747

HOLE NO.

FYRI-041 DP04

		HTW DRIL	LING LC)G		1	HOLE NO FTET-OH DPOH
PROJECT	4074		INSPECTOR		SHEET # 4 OF # SHEETS		
ELEV.	DEPTH	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO. f	BLOW COUNTS 9	REMARKS h
a	b	SAND, durk grayish brown Vizioux, fix-coarse grained loose; well graded	0		-	y	
	<u> ۲</u>						ino
	_	soften of hole					. [
					.]		<u> </u>
	=						
							[
							<u> </u>
	.]						-
							-
	_						
	7	•		,			
	\exists						
	=						
	亅	•					<u> </u>
	=						
	\exists						
	. =						
			,				
	=						
	\exists						
	=						
	=						
	=						[
	\exists						
	-						
	Ⅎ						
	. =	·					
	\equiv						
							
Burns	0	PROJECT				HOLE N	n

Burns & McDonnell o51601
STREET 1898 OF THE FORM MRK-55-2

PROJECT

HOLE NO.

			HTW	DRILL	ING	LO	G				HOLE FT R	ENO.	15
1 COMPA	NY NAME		C 13	2	DRILLING						SHEE	T 1 SHEETS	
PROJEC		i de Mel	Volvall.	<u></u>		4 LOCA	EPS TION				TOF .	7 SHEETS	\dashv
		747 ES	I 49 siks	 ,			Fort R						4
5. NAME C)F DRILLER	Denn	a Eilec						ation of Drill ect Push				
. SIZES A	ND TYPES O	FDRILLING	Geoprohe 4200			8. HOLE LOCATION							
AND SA	MPLING EQU	IPMENT -	4 marrococ	ર		a Slige	ACE ELEVATION	1					\dashv
		-				J. GOIR	NA				_		╛
		-				10. DATI	STARTED 7/31/c	6		11. DATE COMP 7/31/56			
2 OVERE	BURDEN THIC					15. DEP	TH GROUNDWA		NCOUNTERED	212170			
3 DEPTH	DRILLED INT	O ROCK	<u>A</u>	·		16. DEP	TH TO WATER A	AND EL	APSED TIME AFTE	ER DRILLING CO	MPLETED		7
4 TOTAL	DEPTH OF H				-	17. OTH		EL ME	ASUREMENTS (SP	ECIFY)			_
0. 0000	CHNICAL SA	24	DISTURBED	LIND	ISTURBED	110	TOTAL NUMI	BEB OF	CORE BOYES				\dashv
3 GEUIE	CHNICAL SA	MPLES C	C)		C	JEN O					
O SAMPL	ES FOR CHE	MICAL ANALYSIS	s voc	META	LS	OTHE	R (SPECIFY)	01	THER (SPECIFY)	OTHER (SI	PECIFY)	21. TOTAL CO RECOVERY	- 1
		G	3	3								%	
2. DISPOS	SITION OF HO	DLE	BACKFILLED	MONITORING	3 WELL	OTHE	R (SPECIFY)	23. 3	SIGNATURE OF IN				
		とな	Bentonite	NA		N	A	1	late he				╛
ELEV. a	DEPTH b		DESCRIPTION OF MATERIALS	8	RES	CREENING ULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO.	BLOW COUNTS 9		REMARKS h	
	2 3	(3/2 loyr madiun	very dark graying soft damp, a plasticity, who ark grayish brown, soft, damp,	/s.1+	0 0 0 0		33/4		580 1-2		1150		
	<u> </u>		PROJECT	40747	<u> </u>		<u> </u>		<u> </u>	HOLE NO.	<u></u> ⊘¥≀	DF05	

		HTW DRIL	LING LC)G			HOLE NO F1:R1-O+1 DAGS
PROJECT	Eic	10747 tst 49 siles	INSPECTOR	-6-			SHEET O Z OF 4 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO f	BLOW COUNTS 9	
	-	same as above	0	3.5			-
	\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	174T, brown (4/3 love) Soft damp, non plastic Wisand	0	3.5	380Z		
	", "	Wismad Non plastic	С		6-7		
	\$ 		0				nrs
			0				- - - - -
	₹		0	2.2.			
	10-1		0	4			
	<i>u</i>		0		5803		
	12	SAND, pute brown (6/3104R) 1005e, Amp, fix grained -	0		6-14) H-14>		/220
	-	SAND, pule brown (6/3104R) 1005e, damp, fire grained - Yolt. STLT, hrown (43104R) damp, soft, how plastic	0	21,			
	13 =		0	21/4			
Burns	14	PROJECT	O			HOLE	

Burns &-McDonnell Strict 1898 051601 Form MRK-55-2

PROJECT

40747

HOLE NO.
FIRT-CHI DPOS

		ŀ	ITW DRII	LLING LC	G		1/	HOLE NO. FTRI-OH DPDS
PROJECT	407	47 EST 47 SIL		INSPECTOR	t h			SHEET 6 3 OF 7 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF		FIELD SCHEENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
,		SAME AS Akon	.9	0				
	В			O				
	16_			0				_iz10
	17_			0	3.6 4			
				9		·		·
	18			0				
	A	SAND, light yell	Lange Lange	0				
	20	(4104R) locse, d line - rudium g	inp,	0				j215
	21			0	3.2			
				O				
	27.			0				
irns &	23 -		PROJECT	0			HOLE NO).

McDonnell 051601 SIGGE 1898 Form MRK-55-2

40747

FTRI-041 Dros

		HTW DRIL	LING LC)G			HOLE NO. FTRITCHI DPUS
ROJECT	400	17 Esi 49 siles	INSPECTOR	-6-			SHEET O i
LEV	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	
	=						
		CAND, dark grayish brown (1/2104A) 10052, net, fine-medium grain	0				Dwaler
	247	Bottom of hohe					1230
	-						
	-				,		
			;				5
						·	
	, =	·					
	- - -						
rns.	-	PROJECT				HOLEN	10

Burns & Donnell O51601 Form MRK-55-2

40747

HOLE NO.

FTRT-041 CFOS

1. COMPANY MAME PROJECT 10 1147 EST 47 SILES 1 MANE OF DRILLER 1 DEAN'S ELLAC 1 CARROLL PLYST 1 MANE OF DRILLER 1 DEAN'S ELLAC 1 CARROLL PLYST 1 MANE OF DRILLER 1 DEAN'S ELLAC 2 CARROLL PLYST 3 MESS AND TYPES OF DRILLER 1 CARROLL PLYST 1 MANE OF DRILLER 1 DEAN'S ELLAC 2 OBSERVED REVIRING 1 NA 1 DEPTH MANUFACTURENS DESOUNTON OF DRILL 1 MANE OF DRILLER 1 DEPTH MANUFACTURENS 1 DEPTH MANUFACTU				HTW	DRIL							HOLE FUR		0606
FROJECT HOTH 7 EST 49 SILES NAME OF DRILLER BOWN 75 ESTLEY GENERAL DEPARTS BOWN 75 ESTLEY GENERAL DEPARTS BOWN 75 ESTLEY GENERAL DEPARTS BOWN 75 ESTLEY GENERAL DEPARTS BOWN 75 ESTLEY GENERAL DEPARTS BOWN 75 ESTLEY GENERAL DEPARTS BOWN 75 ESTLEY GENERAL DEPARTS BOWN 75 ESTLEY GENERAL DEPARTS BOWN 75 ESTLEY GENERAL DEPARTS 17 ENDER COMMERCE 18 DEPTH GRILLED NTO ROOK NA 18 DEPTH GRILLED NTO ROOK NA 18 DEPTH GRILLED NTO ROOK NA 18 DEPTH GRILLED NTO ROOK NA 19 DETHINGED 19 TOTAL AUMORITH EACOUNTERED NA 20 DAWNES FOR CHEMCAL AMALYSIS O DETHINGED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED UNDISTRIBED NA NA 10 DEPTH MILLIER MEASUREMENTS (SECOPY) AND NA RECUTOR OF REFERENCY O DEPTH DESCRIPTION OF MATERIALS RED SOSRESHING GEOFTECH SAMPLE AMALYTICAL BLOW SAMPLES FOR CHEMCAL AMALYSIS O DEPTH DESCRIPTION OF MATERIALS RED SOSRESHING GEOFTECH SAMPLE AMALYTICAL BLOW SAMPLES OF OCCURRENCY NA RED SOSRESHING GEOFTECH SAMPLE OF RISPECTOR NA CLAN, Kery Dark gray; 35 brown O DESCRIPTION OF MATERIALS RED SOSRESHING GEOFTECH SAMPLE AMALYTICAL BLOW SAMPLE NO SAMPLES OF OCCURRENCY SAMPLES OF OCCURRENCY SAMPLES OF OCCURRENCY SAMPLES OF OCCURRENCY SAMPLES OF OCCURRENCY SAMPLES OF OCCURRENCY SAMPLES OF OCCURRENCY O DEPTH DESCRIPTION OF MATERIALS RED SOSRESHING GEOFTECH SAMPLE AMALYTICAL BLOW SAMPLES OF OCCURRENCY O DEPTH DESCRIPTION OF MATERIALS RED SOSRESHING GEOFTECH SAMPLE AMALYTICAL BLOW SAMPLES OF OCCURRENCY O DEPTH DESCRIPTION OF MATERIALS RED SOSRESHING GEOFTECH SAMPLE AMALYTICAL BLOW SAMPLES OF OCCURRENCY O DEPTH DESCRIPTION OF MATERIALS RED SOSRESHING GEOFTECH SAMPLE AMALYTICAL BLOW SAMPLES OF OCCURRENCY O DEPTH DESCRIPTION OF MATERIALS O DEPTH DESCRIPTION OF MATERIALS O DEPTH DESCRIPTION OF MATERIALS O DEPTH DESCRIPTION OF MATERIALS O DEPTH DESCRIPTION OF MATERIALS O DEPTH DESC	1. COMPA		ا شــ مد	Ma Dannell		2. DRILLIN	G SUBCON	TRACTOR	 S					
5 NAME OF DRILLER DEWN'S ELLEY SEES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT SEES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT SOURCE CONTROL SOURCE	J. PROJEC							TION						
SUES AND TYPES OF DIRLING SAND SAMPLENG COLUMNENT 1	NAME (DE DRILLER	<u> </u>	EST 49 siles			6 MAN							
SUES AND TYPES OF BRILLING AND SAMPLING ECURPINION 10 DATE STATED 11 DATE COMPLETED 17 1/3 Co. 17 1/3 Co. 2 OVERRURDOEN THICKNESS NA 3 DEPTH DRILLED INTO ROOK A TOTAL DEPTH OF HOLE 4 TOTAL DEPTH OF HOLE 3 GEOTEGINICAL SAMPLES D DISTURBED O UNDISTURBED O SAMPLES FOR CHEMICAL MAILYSIS VOC METALS D DESCRIPTION OF HOLE D BEACHFILED NA RELEY DEPTH DESCRIPTION OF MATERIALS PRED SCREEDING RESALTS GEOTEGIN SAMPLES D DESCRIPTION OF MATERIALS PRED SCREEDING RESALTS O O O O O O O O O O O O O O O O O O O	INAME	JF UNILLEN	Den	his Eller			U. WAT				rh			
2 OVERBURDEN THICKNESS NA 15 DEPTH GROUNDMATER ENCOUNTERED 24 3 DEPTH ORILLED NTO ROCK NA 16 DEPTH OF HOLE 25 3 DECTECHNICAL SAMPLES O OSTURBED UNDSTURBED 19 TOTAL NUMBER OF CORE BOXES C DISPOSITION OF HOLE BACKFILLED MONTORING WILL OTHER ISPECIFY OTHER ISPECTIVE AFTER DEPLINATION OF HOLE BACKFILLED MONTORING WILL OTHER ISPECTIVE OTHER DEPLINATION OF HOLE BACKFILLED MONTORING WILL OTHER ISPECTIVE OF ANY A NA 18 DEPTH OF HOLE BACKFILLED MONTORING WILL OTHER ISPECTIVE OF ANY A NA 18 DEPTH DEECRAPTION OF MATERIALS PLAN OF A TERMAS			⊢				8 HOLE	LOCATION						
2. OVERBURDEN THICKNESS N.A. 15. DEPTH GROUNDWATER ENCOUNTERED 7/31 / ok 16. DEPTH OR WATER AND ELAPSED TIME AFTER DRILLING COMPLETED A.A. 17. OTHER MATER LEVEL MEASUREMENTS (SPECIFY) N.A. 18. DEPTH OR CHEMOLAL ANIALYSIS 19. TOTAL DEPTH OF HOLE 25. 17. OTHER MATER LEVEL MEASUREMENTS (SPECIFY) N.A. 19. TOTAL DEPTH OF HOLE 25. 19. TOTAL MAMPES OF CORE BOXES 19. TOTAL MAMPES OF CORE BOXES 19. TOTAL MAMPES OF CORE BOXES 10. DAMPLES FOR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 10. DEPTH OR CHEMOLAL ANIALYSIS 11. DATE COMPLETED 11. DATE COMPLETED 12. TOTAL DEPTH OR ANIALYSIS COMPLETED 13. SCHATURE OF HOSPECIFY 14. DEPTH OR CHEMOLAL ANIALYSIS 15. DEPTH OR CHEMOLAL ANIALYSIS 16. DEPTH OR CHEMOLAL ANIALYSIS 17. OTHER ISPECIFY 17. OTHER MATER LEVEL MEASUREMENTS (SPECIFY) 18. DEPTH OR CHEMOLAL ANIALYSIS 18. DEPTH OR CHEMOLAL ANIALYSIS 19. TOTAL MAMPER OF CORE BOXES 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR CHEMOLAL ANIALYSIS 19. DEPTH OR C	AND SA	IMPLING EQU	IIPMEN!	1, mactacot.	د		a SURE							
2 OVERBURDEN THOCKNESS NA 15 DEPTH DRILLED INTO ROCK NA 4 TOTAL DEPTH OF HOLE 25 17 OTHER WATER LEVEL MEASUREMENTS (SPECIFY) NA 18 DEPTH DRILLED INTO ROCK NA 4 TOTAL DEPTH OF HOLE 25 18 GEOTECHNICAL SMAPLES D OS ON SAMPLES FOR CHEMICAL MALTYSIS VOC METALS OTHER (SPECIFY) OTHE			}				1 301							
2 DISPOSITION OF HOLE BLEV DEPTH DESCRIPTION OF FRAILS CLAN, Kery Jank Gray, sh krown CLAN, Sh Kank Gray, sh krown CLAN, Sh Kank Gray, sh Kank Gray, sh Kank Gray, sh Kank Gray, sh Kank Gray, sh Kank Gray, sh Kank Gray,							10. DAT	E STARTED						
SOURCE PROBLEM OF HOLE 25 3 GEOTECHNICAL SAMPLES D STURBED D SAMPLES FOR CHEMICAL ANALYSIS D BACKFILLED MONTORING WELL TO THER ISPECIFY) J SAMPLES FOR CHEMICAL ANALYSIS D BACKFILLED MONTORING WELL MONTORING MONTORING WELL MONTORING MONTO	2. OVERE	BURDEN THIC	CKNESS	<u> </u>			15. DEP			NCOUNTERED	2/31/	\$ CO		
TOTAL DEPTH OF HOLE 25 17. OTHER WATER LEVEL MEASUREWENTS (SPECIFY) NA 18. TOTAL DEPTH OF HOLE 25 19. TOTAL MARKEN 0 OSTURBED 19. TOTAL MARKEN OF CORE BOXES 0 OF CORE 0. SAMPLES FOR CHEMICAL AVAILYSS 10. SAMPLES FOR CHEMICAL AVAILYSS 10. DEPTH DESCRIPTION OF MATERIALS 11. TOTAL METHOD 12. TOTAL METHOD 13. SAMPLES FOR CHEMICAL AVAILYSS 14. TOTAL METHOD 15. SAMPLES FOR CHEMICAL AVAILYSS 16. DEPTH DESCRIPTION OF MATERIALS 17. OTHER (SPECIFY) 18. SAMPLES FOR CHEMICAL AVAILYSS 18. SAMPLES FOR CHEMICAL AVAILYSS 18. SAMPLES FOR CHEMICAL AVAILYSS 19. OTHER (SPECIFY) 19. OTHER (SPECIFY) 21. TOTAL RECO 19. TOTAL METHOD 19. TOTAL METHOD 19. TOTAL MEASUREWENTS (SPECIFY) 19. TOTAL METHOD 10. THER (SPECIFY) 10. OTHER (SPECIFY) 22. SGMATURE OF MOSPECTOR 19. TOTAL METHOD 19. TOTAL MEASUREWENTS (SPECIFY) 23. SGMATURE OF MOSPECTOR 19. TOTAL MEASUREWENTS (SPECIFY) 24. TOTAL 10. TOTAL 10. THER (SPECIFY) 10. THER (SPECIFY) 10. THER (SPECIFY) 10. THER (SPECIFY) 11. TOTAL 12. TOTAL 12. SGMATURE OF MOSPECTOR 13. SGMATURE OF MOSPECTOR 19. TOTAL MEASUREWENTS (SPECIFY) 19. TOTAL MEASUREWENTS (SPECIFY) 10. THER (SPECIFY) 10. THER (SPECIFY) 11. TOTAL 12. TOTAL 12. TOTAL 13. SGMATURE OF MOSPECTOR 14. SECOND 15. SGMATURE OF MOSPECTOR 16. SAMPLE NO. SAMPLE ANALYTICAL 19. SAMPLES FOR CHEMICAL AVAILYSS 10. OTHER (SPECIFY) 24. TOTAL 17. TOTAL 18. COMPANY 19. TOTAL MEASUREWENTS (SPECIFY) 19. TOTAL MEASUREWENTS (SPECIFY) 19. TOTAL MEASUREWENTS (SPECIFY) 19. TOTAL MEASUREWENTS (SPECIFY) 19. TOTAL MEASUREWENTS (SPECIFY) 11. TOTAL 10. TOTAL MEASUREWENTS (SPECIFY) 12. TOTAL 12. TOTAL 13. SGMATURE OF MOSPECIFY 12. TOTAL 13. SGMATURE OF MOSPECIFY 19. TOTAL MEASUREWENTS (SPECIFY) 23. SGMATURE OF MOSPECIFY 24. TOTAL 17. TOTAL 18. SGMATURE OF MOSPECIFY 19. TOTAL MEASUREWENTS (SPECIFY) 23. SGMATURE OF MOSPECIFY 19. TOTAL MEASUREWENTS (SPECIFY) 24. TOTAL MEASUREWENTS (SPECIFY) 25. TOTAL MEASUREWENTS (SPECIFY) 26. SGMATURE OF MOSPECIFY 26. SGMATURE OF MOSPECIFY 27. TOTAL ME				NA										
3 GEOTECHNICAL SAMPLES O DISTURBED O DISTU	3. DEPTH	i drílled int		NA			16. DEP	-	and el	apsed time afti	er drilling co	MPLETED		
3 GEOTECHNICAL SAMPLES O ONTHERED UNDISTURBED 19 TOTAL MUMBER OF CORE BOXES D. SAMPLES FOR CHEMICAL AMALYSIS VOC METALS OTHER (SPECIFY) OTHER	I. TOTAL	DEPTH OF I	HOLE 2	5			17. OTH		EL ME	ASUREMENTS (SP	ECIFY)			
DISPOSITION OF HOLE BACKFILLED MONITORING WELL OTHER ISPECIFY) OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER IS	S GEOTE	ECHNICAL SA	MPLES	DISTURBED	1 (UNDISTURBE	1		BER O	F CORE BOXES				
ELEV DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW COUNTS RESULTS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS REMARKS OR COUNTS REMA	CALADI	EG EOD OUE	_		1 140		OTUE		1 0	THER (SDECIEV)	OTHER 16	PECIEVI	21 TOTAL	CORE
BACKFILLED MONTORING WELL OTHER ISPECIFY 23. SIGNATURE OF INSPECTOR NA BACKFILLED MONTORING WELL OTHER ISPECIFY 23. SIGNATURE OF INSPECTOR NA DESCRIPTION OF MATERIALS FIELD SCREENING RESULTS OR ODER BOX NO SAMPLE NO COUNTS REMARKS 1 STORY CLAY, Kery Dark gray: sh brown 1 Story Plastic: O 15 4 15 4 1735	J. JAMPI	LCO PUN UNE					UIRE	n (SEEUP,T)	"	men (SPECIFT)	OTHER (S	LOHII	RECOVE	ERY
ELEY DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW SAMPLE NO COUNTS REMARKS Gravel, Fill CLAY, Very dark grayish brown Alternation of Materials Field Screening Geotech Sample analytical BLOW SAMPLE NO COUNTS FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW SAMPLE NO COUNTS REMARKS O 1.5 7.10 7.10 7.15	DIOCC.	00000 05 :::					OTUE	D (CDECIEV)	122	CIONATURE OF ""	COECTOR		<u></u>	%
ELEV DEPTH DESCRIPTION OF MATERIALS GENTLAN, Very dark gray; sh brown GENTLAN, Very dark gray; sh	2. DISPO	SITION OF HE					+		23.	_				
ELEV DEPTH DESCRIPTION OF MATERIALS RESULTS OR CORE BOX NO SAMPLE NO COUNTS REMARKS Gravel, F:11 CLAY, Kery dark gray; sh brown 3/2104R) soft, damp, non 15 7 7 7 7 7 7 7 7 7 7		1		Benjon.te	7031			т	<i>k</i>	Z**	DI OW	r		
3001 312104R) soft, damp, non Plastic 0 0 1.5 0 0 1.5 0 1.5 0 1.5 0 1.5 1.5					LS		SULTS	OR CORE BO		SAMPLE NO	COUNTS			
3/2104R) soft, damp, non Plastic 0 15 0 15 4 15 0 15 15 4 15 0 15 15 16 17 18 18 18 18 18 18 18 18 18		-	Gravel,	p:11						4.				
3/2104R) soft, damp, non plastic 0 1.5 4 0 1.5 4 1.5 4 1.5 4 1.5 4						10								
1 = (3/2104R) soft, damp, non Plastic 0 0 1 3 1 1 1 1 1 1 1 1 1 1 1		-	CLAY,	Very dack coar	ish brown	_				0.15				
Plastic 0 4		. =	(3/2000)	Seoft dama	A a.a			1.5		}				
		<i>i</i>	3/21011	3 sort, desire		16		1 -		<				
3		=	Plasme					1						
3		=												
3		12 7	•			0								
3										·	Tive six			
3]												4
3														
4		=				0								
4 =		3						į						
4 =														
4 =		_ =												
		\equiv				0								
	İ	4 =	•							,		1335	:	
		'				47 SEASON KIL 100					,			
	.					0								¥ 2.
		<u> </u>											•	
		5]						<u> </u>						
PROJECT HOLE NO. RK JUN 89 55 FTRI-041 DF06	ov FC	ORM EE			? u=							_τ ΔΩ1	nunL	

		HTW DRIL	LING LC)G		Ė	HEET 9 2
PROJECT	407	47 EST 19 5 Hzs	INSPECTOR	for		C	SHEET 6 72- OF 4 SHEETS
ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD & CREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	6	SAME AS Above SILT, [brown 7/3104R) Soft damp, non plastic	0	31	5802 6-1		
	7 -	damp, non plastie	J				
	- - -		0		,		1340
	8 — —		0		Can		
	9_		0	14.2	9-10		7
	P		0	4/4			
	:1		0			·	
	12_		o		·		/345
	13			1.1/2			
Burns	. <i> </i> =	PROJECT				HOLE NO	1350

Burns & McDonnell 051601 Form MRK-55-2

PROJECT

40747

HOLE NO.

FTRI-041 DP06

		HTW DRIL	LING LC)G		1	OLE NO. PTET-OH DPISE
PROJECT	r HO	747 Est 49 oiles		· links	,	S	HEET 4 3 F 4 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO.	BLOW COUNTS g	REMARKS h
	-	SAME AS Abone	0				-
	15		0	3.8			-
	16		0				-
	<i>II</i> =		0				
	18	SAND, light yellowish brown (54 DOYR) loose, damp Fine-nedium grained	O				<i>j755</i>
	19 -		O	3.2			
	20_	•	0	4			, -
	111111		5				-
	ZI		0				- - - - - -
	12		0			·	1405
Burns	23	PROJECT				HOLE NO	

Burns & McDonnell o51601 Form MRK-55-2

40747

HOLE NO.

FTRI-OHI DPOG

		Н	TW DRIL	LING LC)G		H	OLE NO. TRI-511 OF56	,
PROJECT	407	47 ESI 49 siles	5	INSPECTOR	and	·	SI	HEET 14 F4 SHEETS	
ELEV.	DEPTH b	DESCRIPTION OF M		FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO f	BLOW COUNTS 9	REMARKS h	
		SAME AS Above SAND, brownish ye losesedomp, fin-	How (Gioyr)	၁	a6.				
	24 =	loses dampy five	coaree grain	9			-	₩ water	
	25			0				1413	<u> </u>
	75	Bottom of hole							
Burns McDon		51601 form MRK-55-2	PROJECT	7			HOLE NO	-c-li DroG	

Burns & Donnell o51601 Form MRK-55-2

Boring Logs Print and Publications Shop 263 (FTRI-045)

COMPANY NAME BUCAS + Maddonall PROJECT HC747 EST 49 Sites NAME OF DRILLER DEMAIS ELLA SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT T. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT AND SAMPLING EQUIPMENT DEMAIS ELLA SERVICE GEORGIA 5400 B HOLE LOCATION NA 10. DATE STARTED SIZES CELEVATION NA 10. DATE STARTED SIZES CELEVATION NA 11. DATE COMPLETED SIZES CELEVATION NA 12. OVERBURDEN THICKNESS 15. DEPTH GROUNDWATER ENCOUNTERED NA 14. TOTAL DEPTH OF HOLE 17. OTHER WATER AND ELAPSED TIME AFTER DRILLING COMPLETED NA 14. TOTAL DEPTH OF HOLE 17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) NA 18. GEOTECHNICAL SAMPLES DISTURBED O UNDISTURBED O O O O O O O O O O O O O O O O O O O				HTW	DRILL	ING	LC	G				1	eno Rti-ohs Droi
PROJECT 10 11 12 13 14 15 15 15 15 15 15 15	COMPA				2	DRILLING	SUBCONT					SHE	ET 1
MANUSCRIPTION OF HOLE 10 DEPTH PRILLED INTO AND SAMPLES DESCRIPTION OF HOLE 11 TOTAL DEPTH OF HOLE 12 DESCRIPTION OF MOLE 13 DESCRIPTION OF MOLE 14 DESCRIPTION OF MOLE 15 DEPTH PRILLED INTO MOCK 16 DEPTH OF HOLE 17 OFFER MATER LEVEL MEASUREMENTS (SPECIFY) 28 SIGNATURE OF MONE SOME SOME SOME SOME SOME SOME SOME SOM			BUTHS + M	reDonnell								OF	3 SHEETS
SZES AND TYPES OF DOLLING MIND SAMPLING EQUINNEH Coppose Copp	PROJE		U7 507	iin ail am					a.,				
DESCRIPTION OF HOLE DESCRIPTION OF MATERIALS DESCRIPTION DESCRIPTION OF MATERIALS DESCRIPTION DESCRIPTION OF MATERIALS DESCRIPTION DESCRIPTION OF MATERIALS DESCRIPTION DESCRIPTION OF MATERIALS DESCRIPTION DESCRIPTION OF MATERIALS DESCRIPTION DESCRIPTION DESCRIPTION OF MATERIALS DESCRIPTION OF MATERIALS DESCRIPTIO	NAME		1/ 627	49 5, 1.25			6 MANU	EACTHRER'S D	ESIGN	ATION OF DRILL			
SUBSTANT PRES OF BRILLING AND SAMPLING EQUIPMENT 10 DATE STARTED 10 DATE STARTED 11 DATE COMPLETED 13 13 10 B 13 13 10 B 14 TOTAL DEPTH OFFILED 17 OTHER WATER AUGUMENEENTS (SPECIFY) SAMPLES FOR CHEMICAL AMAIYSS 10 DISTURBED 10 DATE STARTED 11 DATE COMPLETED 13 10 DATE STARTED 15 DEPTH GROUNDWATER ENCOUNTERED 16 DEPTH OFFILED WATER AUGUMENEENTS (SPECIFY) AND AND AND AND TOTAL DEPTH OF HOLE 19 OSTURBED 19 TOTAL MANGER OF CORE BOXES CONTROL SAMPLES FOR CHEMICAL AMAIYSS 10 DEPTH OFFILED MONITORING WELL 10 THER (SPECIFY) 11 TOTAL MANGER OF CORE BOXES 12 TOTAL MANGER OF CORE BOXES 13 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	HAIRL		Dennis El	م ما			6	eonale	100	rect Push	L.		
9 SUPPAGE ELEVATION NA 10 DATE STATED S 13 o 6 15 DEPTH GROUNDWATER ENCOUNTERED NA TOTAL DEPTH OF HOLE 19 S SAMPLES FOR CHEMICAL ANALYSIS DISTURBED DISTURBED DISTURBED O O O O O O O O O O O O O	SIZES /				,								
OVERBURDEN THICKNESS OVERBURDEN THICKNESS NA DEPTH DRILLED INTO ROCK NA TOTAL DEPTH OF HOLE 19.5 GEOTECHNICAL SAMPLES O DISTURBED O O UNDISTURBED O UNDISTURBED O UNDISTURBED O UNDISTURBED O UNDISTURBED O O UNDISTURBED O O UNDISTURBED O O UNDISTURBED O O O O O O O O O O O O O	AND SA	ampling Equ	JIPMENT	41 macrocore				VA					
OVERBURDEN THICKNESS OVERBURDEN THICKNESS OPPTH ORILLED INTO ROCK NA TOTAL DEPTH OF HOLE OPPTH ORILLED INTO ROCK NA TOTAL DEPTH OF HOLE OPPTH ORILLED AND ELAPSED TIME AFTER ORILLING COMPLETED NA TOTAL DEPTH ORILLED AND ELAPSED TIME AFTER ORILLING COMPLETED NA TOTAL DEPTH ORILLED MAN ELAPSED TIME AFTER ORILLING COMPLETED NA TOTAL DEPTH ORILLED MAN ELAPSED TIME AFTER ORILLING COMPLETED NA GEOTECHNICAL SAMPLES O DISTURBED O UNDISTURBED IS I TOTAL NUMBER OF CORE BOXES O O METALS OTHER (SPECIFY)			_				•		N				
OVERBURDEN THICKNESS NA DEPTH DRILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK NA TOTAL MER INTERLEVEL INTO ROCK INTO ROCK SOCIETY TOTAL RECO TOTAL OPILLED INTO ROCK NA TOTAL DEPTH OPILLED INTO ROCK INTO ROCK SOCIETY TOTAL RECO TOTAL DEPTH OPILLED INTO ROCK SOCIETY TOTAL RECO TOTAL RECO TOTAL OPILLED INTO ROCK SOCIETY TOTAL RECO TOTAL			<u> </u>	*********									
15 DEPTH GROUNOWATER ENCOUNTERED NA 16 DEPTH TO MATER AND ELAPSED TIME AFTER DRILLING COMPLETED NA TOTAL DEPTH OF HOLE 19,5 DISTURBED UNDISTU			}	-,		,	10. DATI		7				
DEPTH PRILLED INTO ROOK NA TOTAL DEPTH OF HOLE (9,5) GEOTECHNICAL SAMPLES D DISTURBED O D D D D D D D D D D D D D D D D D D	OVER	RURDEN THI	CKNESS				15 DEP			NCOUNTERED.	01310		
DEPTH DRILLED INTO ROCK ANA TOTAL DEPTH OF HOLE (19,5) DISTURBED O DISTURBED	. OTEM	DOTIDE IT					10. 521		.,	100011121125	•		
TOTAL DEPTH OF HOLE 19. TO THER WATER LEVEL MEASUREMENTS (SPECIFY) ANA GEOTECHNICAL SAMPLES 0 DISTURBED 0 DISTURBED 19. TOTAL NUMBER OF CORE BOXES SAMPLES FOR CHEMICAL ANALYSIS VOC METALS OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) DISTURBED OTHER (SPECIFY) OT	DEPTI	I DRILLED IN					16. DEP		and El	APSED TIME AFT	ER DRILLING CO	MPLETED	
GEOTECHNICAL SAMPLES DISTURBED O O O O O O O O O O O O O													
GEOTECHNICAL SAMPLES DISTURBED O O O O O O O O O O O O O	TOTAL	L DEPTH OF I	HOLE	ζ:			17. OTH		EL ME	ASUREMENTS (SP	ECIFY)		
SAMPLES FOR CHEMICAL ANALYSIS 3 3 DISPOSITION OF HOLE BACKFILLED MONITORING WELL OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) PRECORD RECORD BACKFILLED MONITORING WELL OTHER (SPECIFY) OTHER (SPECIFY) OTHER (SPECIFY) 21. TOTAL RECO RECORD BACKFILLED MONITORING WELL OTHER (SPECIFY) OTHER	OFOT	ECUNION OF			LIND	NOTI IDDEC	1		DED O	CODE BOYCE			
SAMPLES FOR CHEMICAL ANALYSIS 3 3 3 DISPOSITION OF HOLE ANA BEACHILLED BACKFILLED MONITORING WELL OTHER (SPECIFY) OTHER (SPECIFY) 23 SIGNATURE OF INSPECTOR BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO BEACH TOTAL RECO TOTAL RECO	GEUII	CUMNICAL SA		i	טאט		13		DEN U	OUNE BUXES			
BEAUDITION OF HOLE BACKFILLED MONITORING WELL OTHER ISPECIFY) BEAUDITION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW COUNTS REMARKS THE SPECIFY ANALYTICAL BLOW RESULTS OR CORE BOX NO SAMPLE NO COUNTS REMARKS TO A SPIRAL COUNTS SAMPLE NO COUNTS REMARKS OR CORE BOX NO AS PIRAL COUNTS	SAMP	LES FOR CHE	EMICAL ANALYSIS		META		OTHE		0	THER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL CORE
DISPOSITION OF HOLE AND Bentunite NA Bentunite NA Bentunite DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW COUNTS RESULTS OR CORE BOX NO SAMPLE NO. COUNTS REMARKS OR CORE BOX NO SAMPLE NO. COUNTS REMARKS OR CORE BOX NO Application CLAY, yellowish prown (% 1048) CLAY, yellowish prown (% 1048) Plastic OR CORE BOX NO Application CLAY, yellowish prown (% 1048) OR CORE BOX NO Application OR CORE BOX NO Application FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW COUNTS OR CORE BOX NO Application OR CORE BOX NO Application FIELD SCREENING GEOTECH SAMPLE OF INSPECTOR ANALYTICAL BLOW COUNTS OR CORE BOX NO Application FIELD SCREENING GEOTECH SAMPLE OF INSPECTOR APPLICATION FIELD SCREENING GEOTECH SAMPLE OF INSPECTOR APPLICATION FIELD SCREENING GEOTECH SAMPLE OF INSPECTOR FIELD SCREENING GEOTECH SAMPLE OF INSPECTOR APPLICATION FIELD SCREENING GEOTECH SAMPLE OF INSPECTOR FIELD SCREENING GEOTECH SAMPLE OF INSPECTOR APPLICATION FIELD SCREENING GEOTECH SAMPLE OF INSPECTOR FIELD SCRE				7							1		RECOVERY
DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE NO COUNTS REMARKS OR COME BOX NO SAMPLE NO S													%
DEPTH DESCRIPTION OF MATERIALS Asphalt Asphalt CLAY, yellowish prown (76 loys) very stiff, damp, trace plastic FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW COUNTS REMARKS FIELD SCREENING GEOTECH SAMPLE ON COUNTS SAMPLE NO. SAMPLE NO. 2	DISPO	ISITION OF H		BACKFILLED	MONITORING	G WELL	OTHE	R (SPECIFY)	23.	^			
DESCRIPTION OF MATERIALS As phalt As phalt CANA, Grown (V3 iova) domp Soft, non-fix grained CLAY, yellowish prown; (76 lova) Very stiff, damp, trace plastic OR CORE BOX NO. SAMPLE NO. COUNTS REMARKS 1 CRAY, John (V3 iova) domp 2 Soft, non-fix grained CLAY, yellowish prown; (76 lova) Plastic O 1135			AU.	Bentonite	A.A.		N:	A	1	KNOT B			
Asphalt SAUD From (1/3 104R) domp Soft , man fix grained CLAY, yellowish prown [76 (04R) Very slift, damp, broad plastic O 1135			D			RES	ULTS	OR CORE BO			COUNTS		
		3 4	Gravel CLAY, yel Very stiff	- fix grained	76 (OVR)	0		2/2		5501 1.5~Z-		1135	
PROJECT HOLE NO FTRI-045 DAY 1		L,i	P								HOLE NO.		

PROJECT		TIW DRIL	LING LC)G		F	OLE NO TRI- 645 DFOI
	ษอาน	7 EST 49 siles	INSPECTOR	Com		SI	HEET 0 2 F 3 SHEETS
ELEV C	DEPTH b	DESCRIPTION OF MATERIALS	FIECO SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNTS g	REMARKS h
		STATI Vellowish boom	0	27/	5802 5.5-6.5		
	(1	sklove) deep , soft, non plastic Yeard	Ð		5,5-613		
,	, <u> </u>					······································	Jirio
	7		0	·			
	8 =		O	3.4 / 35	5603 8-9		
		•	0	,			
	1	SILT, yellowish brown Skioya) down, soft	O				
	10	skings) domp, soft trace plasticity some sound		·			1145
			0			·	
	1 -		0	3.7			
	12_		0				
	3		0				
	- - - -	SAMD, light yellowish bound	0				
	14 = 1	tie grained					1155

Burns & O51601

Since 1698

O51601

Form MRK-55-2

PROJECT

40747

HOLE NO.
FTRI-DYS DPO)

		HTW DRIL	LING LC	G		}	HOLE NO FIRE OPUL
PROJECT	T 45	7747 ESI 49 siles		The Contraction of the Contracti		S	SHEET 0 3 DF 3 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SOREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS
	-	SAME AS Above	0	3.8			
	is		0	7			
	16 _		0				
	17 =		0				
	18	·	0				1205
	-	SAND, light yellowish brown 16/4 Dyr) loose, domp, Fix- coarse quality	0	1.2		,	
	i9		0				1217
	20	Refusal Bollom of kole					
					-		
							-
į							
Burns	-	PROJECT				HOLE NO.	-

Burns & O51601
SIDECT 1898
FORM MRK-55-2

PROJECT 4

40747

HOLE NO.

FTRT-OHS DESI

			HTW I	DRILL	ING	LO	G				1	E NO. 25-045 🐧	ايرم
COMPAN	NAME	Green & O	JeDonneli	2.	DRILLING	SUBCONT		เก			SHEI	ET 1 10 SHEETS	
. PROJECT				<u></u>		4 LOCA	LIÓN				10.	<u> </u>	\dashv
NAME OF	DRILLER		I 49 sites	•			THE RILLY FACTURER'S D		ATION OF DRILL			 	ᅱ
		Dennis						10:1	rect Prsh				_
. Sizes ani and sam	d types of Pling Equi		Geoprale 5400 4' macrocore	 			LOCATION						
			T VIGORAL TILE TO			9 SURF	ACE ELEVATION	1					
				10 DATE STARTED						11 DATE COM	DIETEN		_
						IO DATE	813106		<u> </u>	81310			
2. Overbu	rden Thic	KNESS A/A				15. DEP1	H GROUNDWA	ter en	NCOUNTERED				
3. DEPTH D	RILLED INT	O ROCK		····		16. DEP1		AND EL	APSED TIME AFTE	R DRILLING CO	MPLETED		
4 TOTAL D	SERTU OF U	NA				17 OTUS	NA D WATER LEV	EI ME	ASUREMENTS (SP	ECIEV)			
1 TOTAL L	EPIN OF N	21 <u>.5</u>				II. UIN	NA	EL IVIE	ROUNCHICATO (OF				
8 GEOTEC	HNICAL SAI		DISTURBED	UND	isturbed ``	19	i. Total numi O	BER OF	F CORE BOXES				•
D. SAMPLE	S FOR CHE	MICAL ANALYSIS	voc	META		OTHER	R (SPECIFY)	01	THER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL CO	
		. 3	3								~	RECOVER	₹Y 6
2. DISPOSI	TION OF HO		BACKFILLED	MONITORING	G WELL	OTHER	(SPECIFY)	23.	SIGNATURE OF IN	SPECTOR		1	
		AU	Bentonite	λŃΑ		^	AL		frot 1				
ELEV.	DEPTH b	DE	SCRIPTION OF MATERIALS		FIELD SC RESI		GEOTECH SA OR CORE BO e	MPLE X NO.	ANALYTICAL SAMPLE NO.	BLOW COUNTS g		REMARKS h	
	2_	(4/4 154R)	ck yellowish i very stiff, a esticity we	tomp	0 0		3.8 <i>j</i>		580j 1.5-3-				
	4 — 11 — 1 — 1 — 1 — 1 — 1 — 1 — 1 — 1 —	Msand	donish brown (domp, non pl		0					HOLE NO.	in s Begin again	Her Styck ample.c Probing 1020	† J

		HTW DRIL					HOLE NO. FIRT-OIS BPOZ
PROJEC	T 40	747 EST 495iles	INSPECTOR List	· Com			SHEET & 2 OF 3 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	
	6	SAME AS Above	0	<i>3</i> .5	5802		
	7-	STLT, brownish yellow (Sclove) soft, damps medium plasticity, trace clay, frame sand	0	3.5 / 3.5	5-6		
	3-		0				
		STLT, light yellowish brown	0				1025
	9	(6/4104R) soft, damp non plastic	0	3/3	1803 10-11.3		
	[O]		0				
	11	SAND, brownish yellow Klova) loose, domp file geniled	0				1030
	12	tie geniud	0				
	13		O	2.6 3			
	- - - 14 -		O				
Burns	<i>Q</i>	PROJECT				HOLE N	10.

Burns & McDonnell Street 1898 Form MRK-55-2

40747

HOLENO.
FIRE-OAS DPOZ

		HTW DRIL	LING LC)G			HOLE NO.
PROJECT		40747 EST 49 siles	INSPECTOR Out	- land			SHEET 63 OF 3 SHEETS
ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO	BLOW COUNTS g	
		SAME AS Above	0			9	
	-		0			<u> </u>	1010
	15_						
	-	And the second s	0	3,4			
	_	SAMD, light brownish yellow	0	1.4			
	16_	(GUIDUR) loose, dmp.					
			0				
	17_		0				
						,	1945
	-			1440 T. I. O. CH M			
	13-		0	28			
	-			3			
	.]		၁	·			
	19_						
	\exists		O				
		SAND, durk yellowish brown					
	29	THICYR) damp, I good	0				
	=	the - coarse graved					1055
	<u></u>		0				
	- - -						
		Refused Botton of hold					1/05
	22_						
ns &		PROJECT				HOLE NO	

Burns & Donnell O51601 Form MRK-55-2

PROJECT

40747

HOLE NO. FTRI-045 DFOZ

2 DRILLING SUBCONTRACTOR PROJECT PROJECT 4 LOCATION Fort Riley 5 NAME OF DRILLER DAM'S Eller 6 MANUFACTURER'S DESIGNATION OF DRILL GEOCICLE SHOC AND SAMPLING EQUIPMENT 7 SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT 10 DATE STARTED 8/3/06 11 DATE COMPLETED 8/3/106 12 OVERBURDEN THICKNESS 15 DEPTH GROUNDWATER ENCOUNTERED NA 10 DATE THE ROUNDWATER ENCOUNTERED NA 11 TOTAL DEPTH OF HOLE 17.9 18 GEOTECHNICAL SAMPLES O DISTURBED UNDISTURBED UNDISTURBED UNDISTURBED O THER (SPECIFY) OTHER (SPECIFY) OTHER (SPE	COMPANY MANE PROJECT 40747 657 19 51475 PROJECT 40747 657 19 51475 PROJECT 40747 657 19 51475 PROJECT 40747 657 19 51475 PROJECT 40747 657 19 51475 PROJECT 40747 657 19 51475 PROJECT PROJ			HTW I	DRILL	ING	LO	G				HOLE	NO. Dedes	(e)
PROJECT 40747 EST 419 51 AS PARE OF DRILLES DEARLY STEELS SEES AND TYPES OF DRILLING SEES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT AND SAMPLING EQUIPMENT AND SAMPLING EQUIPMENT 10 DATE STRATED 11 DATE COMPLETED 13 DEPTH OFFILLED NTO ROOK AND 15 DEPTH OFFILLED NTO ROOK AND 16 DEPTH OFFILLED NTO ROOK AND 17 OTHER WATER LEVEL ASSISTEMENTS (SPECIFY) AND A OUTSITURBED DESCRIPTION OF HOLE 17. Q SAMPLES FOR CHEMICAL MARKINS ON METALS OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY AS PARALLED MONITORING WELL OTHER ISPECIFY AS PARALLED DESCRIPTION OF MATERIALS OFFICE SAMPLES OFFICE SAMPLES OFFICE SAMPLES OFFICE SAMPLES OFFICE SAMPLES OTHER ISPECIFY 23. SIGNATURE OF INSPECTOR MA BLOV AS PARALLED MONITORING WELL OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY OTHER ISPECIFY AS PARALLED OFFICE SAMPLE AND ANTICKAL BLOW AS PARALLED AS PARALLED OTHER ISPECIFY OT	PROJECT 40747 651 19 51635 AMA BANAS CIVILAR SUSS MOD PRES OF BRILLING SUSS MOD PRES OF BRILLING AND SURFINE COUPLER TO MACRO COLOR TO MACRO COLOR AMA SUBMICE COUPLER TO MACRO COLOR TO MACRO COL	COMPANY NAME		a. b. 11	2.	DRILLING SL	UBCONTI					SHEE	Τ 1	
NAME OF DRILLER DEARN'S ELLEX SEZES AND TYPES OF DRILLED DEARN'S ELLEX SEZES AND TYPES OF DRILLED AND SAMPLES COLUMENT AND SAMPLES COLUMENT AND SAMPLES COLUMENT OF THE SEZES AND TYPES OF DRILLED AND SAMPLES COLUMENT AND SAMPLES COLUMENT OF THE SEZES AND TYPES OF DRILLED AND SAMPLES COLUMENT OF THE SEZES AND TYPES OF DRILLED OF THE SEZES AND TYPES OF DRILLED OF THE SEZES AND TYPES OF DRILLED OF THE SEZES AND TYPES OF DRILLED OF THE SEZES AND TYPES OF DRILLED OF THE SEZES AND TYPES OF DRILLED OF THE SEZES AND TYPES OF DRILLED OF THE SEZES AND TYPES OF THE SEZES AND TYPES OF THE SEZES AND TYPES OF THE SEZES AND THE SEZES AND THE SEZES AND TYPES OF THE SEZES AND TY	NAME OF DELLEM DEMANS ELLER DEMANS ELLER DEMANS ELLER DEMANS ELLER DEMANS ELLER DEMANS ELLER TY MACKYO CO F.C. SUSSEMED PRESS DESIMBORING OF ORLL DEMONSTRATE ELER LEVITION AND AND SUSPENDED FOR ELLER INFORMATION SUSPENDED FOR ELLER INFORMATION SUSPENDED FOR ELLER INFORMATION SUSPENDED FOR ELLER INFORMATION SUSPENDED FOR ELLER INFORMATION SUSPENDED FOR ELLER INFORMATION SUSPENDENCE WAS ARRESTED FOR EXPERT OF HUMBER OF CORR ROTES SUSPENDENCE WAS ARRESTED ON THE SPECIFY AND SUSPENDENCE WAS ARRESTED ON THE SPECIFY AND SUSPENDENCE WAS ARRESTED ON THE SPECIFY AND SUSPENDENCE WAS ARRESTED ON THE SPECIFY AND SUSPENDENCE WAS ARRESTED ON THE SPECIFY AND THE SPECIFIC WAS ARRESTED ON THE SPECIFY SUSPENDENCE WAS ARRESTED ON THE SPECIFY AND THE SPEC	DDO IECT	ROCKS A !	MaDoniell		Ta	LOCAT					OF 3	SHEETS	
SZES AND PYPES OF DIRLING AND SAMPLAGE COLUMENT AT MACKED CLOT CLOT CL AT MACKED CLOT CLOT CL AT MACKED CLOT CLOT CLOT CLOT CLOT CLOT CLOT CLOT	SLEE NAD THESE OF BIRDING SCHOOL SHOULD SHOU	PROJECT	40747 ÉS	SI 49 siles					ile	1				
SUZES AND TYPES OF DRILLING AND SAMPLUNG EQUIPMENT I MACKTO COTT.2 I MACKTO COTT.2 I MACKTO COTT.2 I SUPPRESENTATION AND I TO LAST STARTED I TO LAST STARTED I TO LAST STARTED I TO LAST STARTED I TO LAST STARTED I TO LAST STARTED I TO WARTE AND ELARSED TIME AFTER DRILLING COMPLETED AND I TOTAL DEPTH OF HOLE I TO PHER WATER LEVEL MASSUREMENTS (SPECIFY) AND I TOTAL DEPTH OF HOLE I TO THER WATER LEVEL MASSUREMENTS (SPECIFY) AND I SAMPLES FOR CHEMICAL ANALYSIS VOC METALS I TO THER (SPECIFY) I TO THER (SPECIFY) I TO THER (SPECIFY) I TO THER (SPECIFY) I TO THER (SPECIFY) I TO THER (SPECIFY) I TO THER (SPECIFY) I SECURITION OF HOLE BACKFILLED MONITORING WELL ON CORR BOX NO SAMPLE NO COUNTS REMARKS I TO ALL COLONY, I FRACE SIMP I TO ALL COLONY I TO ALL COLONY I TO THER (SPECIFY) I TO THER (SPECIFY) OTHER (SPECIFY) I TO THER (SPECIFY) OTHER (SPECIFY) I TO THE (SPECIFY) I TO THE (SPECIFY) OTHER (SPECIFY) I TO THE (SP	SUES AND THESE OF BRILLING NO SAMPLING EQUIPMENT	NAME OF DRILLER				6.								
AND SAMPLUS COUPMENT 9 SUPFACE ELEVATION MA 10 DATE STARTED 8/3/3/6 11 DATE COMPLETED 8/3/3/6 12 OVERBURDEN THICKNESS 13 DEPTH DRILLED INTO ROCK AND 4 TOTAL DEPTH OF HOLE 17 OTHER WATER LEVEL MEASUREMENTS (SPECIFY) 18 TOTAL MUMBER OF CORRE BOXES 2 DISPOSITION OF HOLE 19 DESCRIPTION OF MATERIALS 10 DEPTH DRILLED ANALYSIS 11 DATE COMPLETED 12 DISPOSITION OF HOLE 13 3 3	AND SAMPLING EQUIPMENT 1								Dire	ect fush				
3 SUPPLIES ELEVATION ANA 10 DATE STATIED 8/3/3/6 11 DATE COMPLETED 8/3/3/6 12 DEPTH PRILED INTO ROCK AA 15 DEPTH OF HOLE 17. OPEN WATER LEVE LIMEASUREMENTS (SPECIFY) ANA 18 DEPTH OF HOLE 17. OPEN WATER LEVE LIMEASUREMENTS (SPECIFY) ANA 19 DESTURBED 19 TOTAL NUMBER OF CORE BOXES 10 DESTURBED 10 DESTURBED 11 DITER MATER LEVE LIMEASUREMENTS (SPECIFY) ANA 12 DEPTH OF HOLE 13 3 3 DEPTH OF HOLE 14 DESCRIPTION OF MATERIALS 15 DEPTH OF WATER LEVE LIMEASUREMENTS (SPECIFY) ANA 16 DEPTH OF HOLE 17. OPEN WATER LEVE LIMEASUREMENTS (SPECIFY) ANA 20 DEPOSITION OF HOLE 21 TOTAL CORRECTIONS 3 3 20 DEPOSITION OF HOLE 21 DEPTH OF HOLE 22 DEPTH OR HOLE 3 3 3 BROCKFLIED MONITORING WELL OTHER (SPECIFY) 23 SIGNATURE OF INSPECTOR ANA DESCRIPTION OF MATERIALS PELD SCREENING OR CORE BOX NO SAMPLE NO COUNTS REMARKS AS PACH! 1 SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) 3 3 O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) 3 3 O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) 3 3 O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SOUTH OR HOLE 1 SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SOUTH OR HOLE 1 SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SOUTH OR HOLE 1 SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R) O SEC. 1, gray, ch. bs own (\$\frac{7}{2}\$ 191R)	9 SURFACE ELEVATION MA 10 DATE STARTED 3 (3/3/06) 11 DATE COMPRETED 3 (3/3/06) 12 DEPTH DRILLED INTO ROOK 13 DEPTH DRILLED INTO ROOK 14 TO TO HER WIRE LEVEL MEASUREMENTS (SPECIFY) MA 16 DEPTH OF HOLE 17 ONER WIREFE LEVEL MEASUREMENTS (SPECIFY) MA 17 DESCRIPTION OF HOLE 18 DESCRIPTION OF HOLE 19 TOTAL MAKEER OF CODE MOSS OF THE SPECIFY) MA 10 DESCRIPTION OF HOLE 11 DESCRIPTION OF HOLE 12 DESCRIPTION OF MATERIALS 13 3 3 3 10 DESCRIPTION OF HOLE 11 DESCRIPTION OF MATERIALS 12 DESCRIPTION OF MATERIALS 13 DESCRIPTION OF MATERIALS 14 DESCRIPTION OF MATERIALS 15 DEPTH DRILLED MEASUREMENTS (SPECIFY) 16 DESCRIPTION OF MATERIALS 17 DESCRIPTION OF MATERIALS 18 DEATH TO MAKE AND ELEVATED THE MEASUREMENTS (SPECIFY) 21 DIVIDIAL COMPRESSION 22 DEPTH DRILLED MEASUREMENTS (SPECIFY) 23 DEMANTICE OF INSPECIFY 24 DEMANTS 25 DEPTH DRILLED MEASUREMENTS (SPECIFY) 25 DEPTH DRILLED MEASUREMENTS (SPECIFY) 26 DEPTH DRILLED MEASUREMENTS (SPECIFY) 27 DEPTH DRILLED MEASUREMENTS (SPECIFY) 28 DEPTH DRILLED MEASUREMENTS (SPECIFY) 29 DEPTH DRILLED MEASUREMENTS (SPECIFY) 20 DEPTH DRILLED MEASUREMENTS (SPECIFY) 21 DIVIDIAL COMPRESSION OF THE RESPECIFY 21 DIVIDIAL COMPRESSION OF MEASUREMENTS (SPECIFY) 22 DEPTH DRILLED MEASUREMENTS (SPECIFY) 23 DEPTH DRILLED MEASUREMENTS (SPECIFY) 24 DEPTH DRILLED MEASUREMENTS (SPECIFY) 25 DEPTH DRILLED MEASUREMENTS (SPECIFY) 26 DEPTH DRILLED MEASUREMENTS (SPECIFY) 26 DEPTH DRILLED MEASUREMENTS (SPECIFY) 27 DEPTH DRILLED MEASUREMENTS (SPECIFY) 28 DEPTH DRILLED MEASUREMENTS (SPECIFY) 29 DEPTH DRILLED MEASUREMENTS (SPECIFY) 20 DEPTH DRILLED MEASUREMENTS (SPECIFY) 21 DIVIDIAL COMPRESSION OF THE RESPECIFY 21 DIVIDIAL COMPRESSION OF THE RESPECIFY 21 DIVIDIAL COMPRESSION OF THE RESPECIFY 21 DIVIDIAL COMPRESSION OF THE RESPECIFY 21 DIVIDIAL COMPRESSION OF THE RESPECIFY 21 DIVIDIAL COMPRESSION OF THE RESPECIFY 21 DIVIDIAL COMPRESSION OF THE RESPECIFY 22 DEPTH DRILLED MEASUREMENTS (SPECIFY) 23 DEPHT DRILLED MEASUREMENTS (SPECIFY) 24 DEPTH DRILLED MEASUREMENTS (S					8.								
2. OVERBURDEN THICKNESS 2. OVERBURDEN THICKNESS 2. DEPTH DRILLED INTO ROCK 3. DEPTH DRILLED INTO ROCK 3. DEPTH DRILLED INTO ROCK 4. TOTAL DEPTH OF HOLE 5. DECTECHNICAL SAMPLES 6. DECTECHNICAL SAMPLES 7. DISTURBED 8. DISTURBED 9. DISTURBED 17. OTHER INTERLEDEL MEASUREMENTS (SPECIFY) 18. DISTURBED 19. DISTURBED 10. DISTURB	O CARESURDEN THICKNESS NA 10 CATE STATED 11 DIASE COMPRETED 8/3/06 13 CEPTHORRILLED INTO ROCK NA 11 TOTAL DEPTH OF HOLE 17.0 10 CEPTHORRILLED INTO ROCK NA 11 TOTAL DEPTH OF HOLE 17.0 18 CEPTECHNICAL SAMPLES O CONTROL DEPTHOR HOLE 17.0 19 CONTROL DEPTHOR HOLE 17.0 10 CEPTECHNICAL SAMPLES O CONTROL DEPTHOR HOLE 18 CEPTECHNICAL SAMPLES O CONTROL DEPTHOR HOLE 19 CONTROL DEPTHOR HOLE 10 CEPTECHNICAL SAMPLES O CONTROL DEPTHOR DEPTHOR HOLE 10 CEPTECHNICAL SAMPLES O CONTROL DEPTHOR HOLE 10 CEPTECHNICAL SAMPLES O CONTROL DEPTHOR DESCRIPTION OF MATERIALS REGISTER REGISTER O CONTROL SAMPLE O CONTROL SAMPLE ON SAMPLE ON COUNTS RESOURCE SECURITY O CONTROL SAMPLE ON COUNTS REMARKS O CONTROL SAMPLE O COUNTS REMARKS O CONTROL SAMPLE O COUNTS REMARKS O CONTROL SAMPLE O COUNTS REMARKS O COUNTS	AND ONE DIG LEC		4 Medito Carte								· · · · · · · · · · · · · · · · · · ·		
2. OVERBURDEN THICKNESS ALA 3. DEPTH OPRILED INTO ROCK ALA 4. TOTAL DEPTH OF HOLE 17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY) B. GEOTECHNICAL SAMPLES O D. SAMPLES FOR CHEMICAL ANALYSIS 2. DISPOSITION OF HOLE BACKFILLED BACKFILLED MONITORING WELL OFFIN BELEV DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GROVEN SAMPLE NO COUNTS RESULTS OFFIN GROVEN SAMPLE NO COUNTS RESULTS OFFIN GROVEN SAMPLE NO COUNTS REMARKS AS phalt AS phalt AS phalt O AS phalt AS phalt O O O O O O O O O O O O O	2 OVERBURDEN THICKNESS ALL 15 DEPTH GRILLED INTO ROCK ALL 16 DEPTH GRILLED INTO ROCK ALL 17 OFFER WATER LEVEL MASUREMENTS (SPECIFY) 18 DEPTH GRILLED AND RUSSELED 19 TOTAL NUMBER OF CORE BOXES 10 DESTURBED 10 DESTURBED 11 TOTAL NUMBER OF CORE BOXES 12 DEPTH GRILLED AND PLACE SPECIFY 13 BACKFLIED 14 DESCRIPTION OF MATERIALS 15 DEPTH GRILLED AND RUSSELED 16 TOTAL NUMBER OF CORE BOXES 17 OTHER SPECIFY 18 DEPTH GRILLED AND RUSSELED 19 TOTAL NUMBER OF CORE BOXES 10 DEPTH GRILLED AND RUSSELED 10 DEPTH GRILLED AND RUSSELED 10 DEPTH GRILLED AND RUSSELED 10 DEPTH GRILLED AND RUSSELED 10 DEPTH GRILLED AND RUSSELED 11 TOTAL NUMBER OF CORE BOXES 12 DEPTH GRILLED AND RUSSELED 13 DEPTH GRILLED AND RUSSELED 14 DEPTH GRILLED AND RUSSELED 15 DEPTH GRILLED AND RUSSELED 16 DEPTH GRILLED AND RUSSELED 17 DESCRIPTION OF MATERIALS 18 DEPTH GRILLED AND RUSSELED 18 DEPTH GRILLED AND RUSSELED 19 DEPTH GRILLED AND RUSSELED 10 DESCRIPTION OF MATERIALS 10 DEPTH GRILLED AND RUSSELED 10 DESCRIPTION OF MATERIALS 10 DEPTH GRILLED AND RUSSELED 10 DESCRIPTION OF MATERIALS 10 DEPTH GRILLED AND RUSSELED 10 DESCRIPTION OF MATERIALS 10 DEPTH GRILLED AND RUSSELED 10 DESCRIPTION OF MATERIALS 10 DEPTH GRILLED AND RUSSELED 10 DESCRIPTION OF MATERIALS 10 DEPTH GRILLED AND RUSSELED 10 DESCRIPTION OF MATERIALS 10 DEPTH GRILLED AND RUSSELED									,				
2 DEPTH PROLICED INTO ROCK AA 16 DEPTH OF HOLE 17. 9 18 GEOTECHNICAL SAMPLES D DSTURBED D C D C D C D C D C RECOVER 18 DEPTH PROLICED INTO ROCK AA 19 TOTAL DEPTH OF HOLE 17. 9 D STURBED D C D C D C D C D C D C D C D C D C D	15 DEPTH GROUNDWATER ENCOUNTERED ALA 10 DEPTH DRILLED INTO ROCK ALA 11 TOTAL DEPTH OF HOLE 17.9 10 DESTURBED 17.9 10 DISTURBED 17.9 10 DESTURBED 17.9 10 DESTURBED 17.9 10 DESTURBED 18 TOTAL MARBER OF CORE BOXES O O O O O O O O O O O O O O O O O O O					1	O. DATE		,		11 DATE COMP	PLETED		
DEPTH DRILLED NTO ROCK AA 16 DEPTH TO MARE AND ELAPSED TIME AFTER DRILLING COMPLETED NA 17 OTHER WATER LEVEL MEASUREMENTS (SPECIFY) NA B GEOTECHNICAL SAMPLES D DISTURBED D SAMPLES FOR CHEMICAL ANALYSIS D DESTURBED D SAMPLES FOR CHEMICAL ANALYSIS D DESTURBED D SAMPLES FOR CHEMICAL ANALYSIS D DESTURBED D SAMPLES FOR CHEMICAL ANALYSIS D DESTURBED D SAMPLES FOR CHEMICAL ANALYSIS D DESTURBED D SAMPLES FOR CHEMICAL ANALYSIS D DESTURBED MONITORING WELL D THER (SPECIFY) D SAMPLES FOR CHEMICAL ANALYSIS D DESTRIPTION OF HOLE BACKFILLED MONITORING WELL D DEPTH D DESCRIPTION OF MATERIALS FIELD SCREENING RESULTS FIELD SCREENING RESULTS FIELD SCREENING RESULTS FIELD SCREENING RESULTS FIELD SCREENING RESULTS FIELD SCREENING RESULTS RESULTS RESULTS SBOT 1.5-2- 14 3 3 7 1.5-2- 14 3 3 7 1.5-2- 14 3 3 7 1.5-2- 14 3 3 7 1.5-2- 14 3 3 7 1.5-2- 14 3 3 7 1.5-2- 14 3 3 7 1.5-2- 14 3 3 7 1.5-2- 14 3 3 7 1.5-2- 15 16 17 17 17 17 17 17 17 17 17	ALA SEPTHORILED INTO POCK AA 16 CEPTHORILED INTO POCK AA 17 OTHER WATER LYEVE MEASUREMENTS (SPECIFY) AA SECTECHNICAL SMAPLES O DISTURBED O	01/5001/00511 71/1/	1				e pent			JOOUNTERED.	81310	<u>(c</u>		
15 DEPTH DRILLED INTO ROCK JA 17 OTHER WATER LEVEL MEASUREMENTS (SPECIFY) JA 3 GEOTECHNICAL SAMPLES O DISTURBED O C METALS OTHER (SPECIFY) JA 18 DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED NA O C METALS OTHER WATER LEVEL MEASUREMENTS (SPECIFY) JA O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLED BACKFULED MONITORING WELL OTHER (SPECIFY) OTHER (SPECIFY) 22 SIGNATURE OF INSPECTOR NA ANA RESULTS OR CORE BOXES O OTHER (SPECIFY) OTHER (SPEC	15 DEPTH DRILLED INTO ROCK NA 15 TOTAL DEPTH OF HOLE 17. 9 30 GEOTECHNICAL SAMPLES O DISTURBED O DETURBED UNDISTURBED UNDISTURBED O DETURBED UNDISTURBED O DISTURBER (SPECIFY) O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBED O DISTURBER SPECIFY SECULTS O DISTURBED O DISTURB	OVERBURDEN THIC		L		"	ס טברו		IEH EI	ACOOM IEVED				
4 TOTAL DEPTH OF HOLE 17.9 B. GEOTECHNICAL SAMPLES D. DISTURBED D. D	1 TOTAL DEPTH OF HOLE 17. 9 16 GEOTECHNICAL SAMPLES 17. OTHER WATER LEPEL MEASUREMENTS (SPECIFY) MA MA MA MA MA MA MA MA MA M	DEPTH DRILLED IN	TO ROCK			11	6 DEPT	H TO WATER	AND EL	APSED TIME AFTE	R DRILLING CO	MPLETED		
3 GEOTECHNICAL SAMPLES O DISTURBED UNDISTURBED 19 TOTAL NUMBER OF CORE BOXES O COUNTS OF MATERIALS OF CORE BOXES OR CORE BOX NO COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF COUNTS OF MATERIALS OF CORE BOX NO COUNTS OF MATERIALS OF COUNTS OF COUNTS O	GEOTECHNICAL SAMPLES O DISTURBED O UNDISTURBED O UNDISTURBED O UNDISTURBED O OTHER (SPECIFY) SAMPLES FOR CHEMICAL ANALYSIS O DESPOSITION OF HOLE BACKFULED MONTONING WELL OTHER (SPECIFY) O DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE MALYTICAL BLOW SAMPLE NO COUNTS RESULTS O DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE MALYTICAL BLOW SAMPLE NO COUNTS RESULTS O SECT, grayich brown (92 191R) O SOFT damp, non plastic Hall Clay, hrace Sund O SELT, dark brown, dar (92 191R) O DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE MALYTICAL BLOW SAMPLE NO COUNTS REMARKS O SECT, grayich brown (92 191R) O SELT, dark brown, dar (92 191R) O HOLE NO. FROM THE SPECIFY OTHER (SPECIFY) THE SPECIFY OF HOLE SHAPLE OF INSPECTOR NO. FROM THE SPECIFY OF HER SPECIFY OF THE SPE				•		7. OTUS		CL MC	ACHIDENATATE (COS	COLEVA			
O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLE FOR CHEMICAL ANALYSIS O SAMPLE FOR CHEMICAL ANALYSIS O SAMPLE FOR CHEMICAL ANALYSIS O SAMPLE FOR CHEMICAL ANALYSIS O SAMPLE OF INSPECTION RESULTS O STATUTE OF INSPECTOR ANALYTICAL BLOW REMARKS O SAMPLE NO COUNTS REMARKS O STATUTE OF INSPECTOR AS Phalt O SAMPLE NO COUNTS REMARKS O STATUTE OF INSPECTOR AS Phalt O SAMPLE NO COUNTS O SAMPLE N	D. SAMPLES FOR CHEMICAL MALYSS D. SAMPLES FOR CHEMICAL MALYSS D. SAMPLES FOR CHEMICAL MALYSS D. DIFFER SPECIFY) D. SAMPLES OF CHEMICAL MALYSS D. DIFFER SPECIFY) D. SAMPLES OF CHEMICAL MALYSS D. DIFFER SPECIFY) D. SAMPLES OF CHEMICAL MALYSS D. DIFFER SPECIFY) D. SAMPLES OF CHEMICAL MALYSS D. DIFFER SPECIFY) D. SAMPLES OF CHEMICAL MALYSS D. DIFFER SPECIFY) D. SAMPLES OF COPE BOX NO. SAMPLE NO. COUNTS RESULTS D. SAMPLES OF CHEMICAL SAMPLE NO. COUNTS REMARKS D. SAMPLES OF CHEMICAL MALYSCAL BLOW COUNTS REMARKS D. SAMPLES OF CHEMICAL D. SAMPLES OF COPE BOX NO. SAMPLE NO. COUNTS REMARKS D. SAMPLES OF CHEMICAL MALYSCAL BLOW COUNTS REMARKS D. SAMPLES OF CHEMICAL MALYSCAL BLOW COUNTS REMARKS D. SAMPLES OF CHEMICAL MALYSCAL BLOW COUNTS REMARKS D. SAMPLES OF CHEMICAL D. SAMPLES OF COPE BOX NO. SAMPLE NO. COUNTS REMARKS D. SAMPLES OF CHEMICAL MALYSCAL BLOW REMARKS D. SAMPLES OF CHEMICAL BLOW COUNTS REMARKS D. SAMPLES OF CHEMICAL BLOW BLOW BLO	TOTAL DEPTH OF	17.0	}			/ UIME		EL ME	ASUKEMENTS (SPE	CUPT)			
O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES FOR CHEMICAL ANALYSIS O SAMPLES OF INTER (SPECIFY) O SAMPLE OF INSPECTOR NA O SAMPLE NO COUNTS O SAMPLE NO COUNTS O SAMPLE NO O SAMPLE NO COUNTS O SAMPLE NO O SAMPLE	D. SAMPLES FOR CHEMICAL ANALYSIS D. DISPOSITION OF HOLE BACKFILLED MONITORING WELL DESCRIPTION OF MATERIALS FIELD SCHEENING GEOTECH SAMPLE AS Phalt AS Phalt AS Phalt FIELD SCHEENING	GEOTECHNICAL SA	AMPLES ^				19		BER O	CORE BOXES				
BACKFILLED MONTORING WELL OTHER (SPECIFY) 23. SIGNATURE OF INSPECTOR BELEV DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE NO COUNTS SAMPLE NO COUNTS REMARKS NO SOFT, damp, non plast a frace clay, trace sand 1 SELF, gray; ch brown (\$2101R) SOFT, damp, non plast a frace sand 1 SELF, gray; ch brown (\$2101R) 1 SOFT, damp, non plast a frace sand 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 1 SELF, gray; ch brown (\$2101R) 2 SELF, gray; ch brown (\$2101R) 3 T SELF, gray; ch brown (\$2101R) 3 T SELF, gray; ch brown (\$2101R) 3 T SELF, gray; ch brown (\$2101R) 4 SELF, gray; ch brown (\$2101R) 5 SELF, gray; ch brown (\$2	BECKFILED MONTORING WELL OTHER (SPECIFY) 23. SIGNATURE OF INSPECTOR BELEV DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE NALITICAL BLOW COUNTS RESULTS OR CORE BOX NO SAMPLE NO COUNTS SELET, gray, sh brown, frace smid Asphalt SELT, drak brown, drafts soyr Amp, soft, non plastic SELT, drak brown, drafts soyr Amp, soft, non plastic THOLE NO PROJECT PROJECT PROJECT HOLE NO RESULTS ASPHAPT 23. SIGNATURE OF INSPECTOR ANA PROJECT P	O11101 50 50 50 50 50 50 50 50 50 50 50 50 50		 			07:55			LIED (COPONIA	OTHER IN	DECIEV?	101 707	AL COD
BASELT, grayish brown (\$2101R) SELT, grayish brown (\$2101R) Soft, damp, non plast c trace clay, trace smad 3 O O O O O O O O O O O O	BECKFILLED MONTONING WELL OTHER ISPECTIFY 23 SIGNATURE OF INSPECTOR BELLEV DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE NO SAMPLE NO COUNTS RESULTS OR COPE BOX NO SAMPLE NO COUNTS REMARKS SELF, gray.ish brown (Yz 101R) SELF, gray.ish brown plastic trace class, trace smad 37 15 SELT, dark brown, darlystoyr damp, soft, non plastic surp, soft, non plastic yround PROJECT HOLE NO PROJECT HOLE NO PROJECT HOLE NO PROJECT HOLE NO ASSIGNATURE OF INSPECTOR 23 SIGNATURE OF INSPECTOR 23 SIGNATURE OF INSPECTOR 23 SIGNATURE OF INSPECTOR 24 SIGNATURE OF INSPECTOR 24 SIGNATURE OF INSPECTOR 25 SIGNATURE OF INSPECTOR 25 SIGNATURE OF INSPECTOR 26 SIGNATURE OF INSPECTOR 26 SIGNATURE OF INSPECTOR 27 SIGNATURE OF INSPECTOR 28 SIGNATURE OF INSPECTOR 29 SIGNATURE OF INSPECTOR 29 SIGNATURE OF INSPECTOR 29 SIGNATURE OF INSPECTOR 20 SIGNATURE OF INSPECTOR 21 SIGNATURE OF INSPECTOR 21 SIGNATURE OF INSPECTOR 22 SIGNATURE OF INSPECTOR 23 SIGNATURE OF INSPECTOR 24 SIGNATURE OF INSPECTOR 25 SIGNATURE OF INSPECTOR 26 SIGNATURE OF INSPECTOR 27 SIGNATURE OF INSPECTOR 27 SIGNATURE OF INSPECTOR 28 SIGNATURE OF INSPECTOR 29 SIGNATURE OF INSPECTOR 29 SIGNATURE OF INSPECTOR 29 SIGNATURE OF INSPECTOR 29 SIGNATURE OF INSPECTOR 29 SIGNATURE OF INSPECTOR 20 SIGNATURE OF INSPECTOR 20 SIGNATURE OF INSPECTOR 20 SIGNATURE OF INSPECTOR 20 SIGNATURE OF INSPECTOR 20 SIGNATURE OF INSPECTOR 20 SIGNATURE O	SAMPLES FOR CHE		VOC	METAL	L3	UIHER	(SPECIFY)	0	nek (Specify)	OTHER (SE	CUITY)		
ELEV DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW COUNTS REMARKS OR CORE BOX NO SAMPLE NO COUNTS OR COUNTS OR CORE BOX NO SAMPLE NO COUNTS OR C	ELEV DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE ANALYTICAL BLOW COUNTS RESULTS AS placed + SELT, grayich brown (\$72101R) Soft, damp, non plastic trace clear, trace smod 37 15-2		3	3	<u></u>	•				_				<u>%</u>
ELEV DEPTH DESCRIPTION OF MATERIALS Asphalt SELT, grayish brown (\$2101R) Soft, damp, non plastic trace clay, trace smd 3 0 0 0 0 0 0 0 0 0 0 0 0	DESCRIPTION OF MATERIALS FIELD SCREENING GEOTECH SAMPLE NO COUNTS AS phalt SELT, Grayich brown (72101R) Soft, damp, non plastic trace class, trace sund 37 15-2 3 O SELT, dark brown, dollstoyr) dmp, soft, non plastic ympand PROJECT HOLE NO.	DISPOSITION OF H	OLE	BACKFILLED	MONITORING	WELL	OTHER	(SPECIFY)	23.					
ELEV DESCRIPTION OF MATERIALS Asphalt SELT, grayish brown (\$\forall 201R) Soft, damp, non plastic trace class, trace sund 37 15-2	DEPTH DESCRIPTION OF MATERIALS RESULTS OR CORE BOX NO SAMPLE NO COUNTS REMARKS AS phalt SELT, grayich brown (\$\frac{9}{2}\$107R) Soft, damp, non plastic trace class, trace sound 3.7 1.5-2 SELT, dark brown, doc \$\frac{9}{2}\$104R) amp, soft, non plastic w/smd PROJECT HOLE NO	•	AIU	Bentonile	NA		ίΝ.	Ą		hot in			*	
SELT, grayish brown (\$\forall 201R) Soft, damp, non plastic trace clay, trace smd 0 37 1.5-2	SELT, grayish brown (\$2101R) Soft, damp, non plastic trace clay, trace smd 37 15-2 4 SELT, dark brown, driftstoyr) dmp, soft, non plastic m/smd PROJECT HOLE NO.	1 .	DE			RESUL		OR CORE BO		SAMPLE NO	COUNTS			'
dup, soft, non plastie 0		3	SELT, gr. soft, dam trace cl	p, non plasticy, traces	e mad	0 0		37/4		1		\$ 750		
	RK JUN 89 55 40747 PTRI-045 DPO3	RK JUN 89 55	PR											

		HTW DRIL	LING LO	G			HOLE NO. FTRI-045 DP53
PROJECT	ન	0747 ESI 49 5; les	INSPECTOR Lat	Car			SHEET & 7- OF 3 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. B	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	
		SAME AS Above		-			
	_		0				
	_						
	6=		0	3,5			
	-	SILT dark yellowish brown		3.5° 4	9802		
	_	(Miour) damp, soft, trace plusticity, wand			7-8		
		trace plusticity, wand	0				
	7 _						
	-		0				
	8 _						
							<i>:</i>
			0				
			U				
	9						@22
	<u>-</u>						
	_		0				
	10_						
	- 70		0	4,			
	_)	14	5803		
					lo-ii		
	11-		0				
	=						
	=						
	<u>,</u> =		0				
	12		-				
	=						
			0				
	$o \stackrel{\neg}{\exists}$	SAND, beganish vellow (bibsove)	,				0900
	=	damp, hoose, fie graind					
	\exists		0				
	ا بيز						
<u>ırns</u>	14 -	PROJECT				HOLE	

McDonnell
sixti 1898

051601
Form MRK-55-2

FTRI-645 DF03

	HOLE NO FIRE-OUS DEOS							
ROJECT	4	10747 EST 49 5	HTW DRIL	INSPECTOR		SHEET 63 OF 3 SHEETS		
LEV.	DEPTH b	DESCRIPTION C	OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	
		SAME AS Abo				'	y	
	-			0				
ľ								
	15_			6	29			
					29			
	=				·			
ļ			•	O				
İ	16							
	_							
		SAND homen inte	wallan	0				
	-	SAND, brownish (6/6104R) damp fine medium	· lone z					
	17	fin medium	arrived					ભાગ
	=				0.7/			
	크	•		0	0.7/			
					•			0915
	18 =	Refuel Botton	n of hohe					
	=							
	\exists							
	=		•					
	14					ĺ		
	\exists							
	7							
	=							
	\exists							
	7							
	\exists							
	=			.				
	\exists							
	\pm			į				
	\exists							
	\exists							
	=							-
	1							
	=	,						
	<u></u>	· · · · · · · · · · · · · · · · · · ·					T	
ns & Ionn	2	1601	PROJECT 4077				HOLE NO). -045 PP03

Burns & Donnell 051601
SIXCE 1898 Form MRK-55-2

1. COMPANY NAME 2. DRILLING SUBCONTRACTOR	FTRE-OUS DPSY SHEET 1
	OF 3 SHEETS
PROJECT EPS 4. LOCATION	OF 3 SHEETS
40747 EST 49 siles Fort likey	
NAME OF DRILLER 6 MANUFACTURER'S DESIGNATION OF DRILL Geophicie / Birect Fush	
SIZES AND TYPES OF DRILLING Georgia 5400 8. HOLE LOCATION	
AND SAMPLING EQUIPMENT 4' WACTO CO PE 9 SURFACE ELEVATION	
SURFACE ELEVATION NA	•
10. DATE STARTED 11.	DATE COMPLETED
OVERBURDEN THICKNESS 15 DEPTH GROUNDWATER ENCOUNTERED	813/0kg
NA NA	
DEPTH DRILLED INTO ROCK 16 DEPTH TO WATER AND ELAPSED TIME AFTER D NA	DRILLING COMPLETED
TOTAL DEPTH OF HOLE 17 OTHER WATER LEVEL MEASUREMENTS (SPECIF	FY)
GEOTECHNICAL SAMPLES DISTURBED UNDISTURBED 19. TOTAL NUMBER OF CORE BOXES	
O O O O O O O O O O O O O O O O O O O	OTHER POPOLOGY AT TOTAL CORE
SAMPLES FOR CHEMICAL ANALYSIS VOC METALS OTHER (SPECIFY) OTHER (SPECIFY)	OTHER (SPECIFY) 21. TOTAL CORE RECOVERY
3 3	%
DISPOSITION OF HOLE BACKFILLED MONITORING WELL OTHER (SPECIFY) 23. SIGNATURE OF INSPER	
DENTOURE NO NA	
LEV DEPTH DESCRIPTION OF MATERIALS FIELD SCREENING RESULTS OR CORE BOX NO SAMPLE NO C d e f	BLOW COUNTS REMARKS g h
= Ashah Asphalt	•
AS ASSETT	
= STLT, Grayish brown (9/2 104R) 0 SEC;	
= damp, soft, non plastic 1-2	
- Walery	
SZLT, dark brown (3/3104R)	
dmp, soft, non plastic	
1 -1	
3 = trace cky "small 0	
	୦ ୫୯୫ -
PROJECT	HOLE NO.
K FORM 55 40747	FIRI-045 DAOY

		HTW DRIL	LING LC	G			HOLE NO FIRE CHS DPOH
ROJECT	ų.	oran Est 49 siles	INSPECTOR CA	 _			SHEET # Z. OF 3 SHEETS
LEV.	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	S REMARKS
		SELT, vellowish brown (School dump; soft, non plastic some semal	, 0		,		
	-	SAND, yellowish brown	0	3.1	5602 7-8		
	7 -	E/2104R) loose, damp, five grained	O				
	8-		0				
	9 -		R				୧୫୮୯
	-	SAND, light yellowich brown (GH104R) damp, looce, fix grained, trace silt	O	3.2			
		`	Q		5603 11-12		
	 		0	. •			
	12_	SAND, very pale brown	0				
	13_	(7/4104R) loose, domp fire grained	٥				0812
	- - - - 14 -		0				
rns Don	&	PROJECT 051601 40747 Form MRK-55-2			<u> </u>	HOLE N	10. -015 DPO4

Burns & McDannell 051601 Form MRK-55-2

		HTW DRIL	LING LC)G			HOLE NO.
PROJECT	T 41	0747 ESI 49 siles	INSPECTOR Land	to have			SHEET & 3 OF 3 SHEETS
ELEV.	DEPTH	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO	BLOW COUNTS g	
	-	5AND, brownish yellow (6/6104R) medium, damp, fine-medium grained	0	21			
	15_ -		0	3.6.			
	i6		0				
	17_		0				0825
		SAND, light brownish wellown))	i _z			
	18	(1/4104R) loose, damp, fix-course grained	0				
	19	·	0				0830
		Refusal Bottom of home					
		·			٠.		
							-
Burns &		PROJECT				HOLE N	0.

McDonnell 051601 STREE 1898 FORM MRK-55-2

40747

FTRI CHS DPS4

Boring Logs Building 727 Waste Pit (FTRI-051)

				HTW [RILL	ING	LO	G				HOLE	.00. <u> 1=051 DPD</u>
. COMPA					2	. DRILLING						SHEE	T 1
PROJEC		Burns & D	ne D	icinell			4. LOCA					OF •	SHEETS
FNOJEG		47 EST	49	siles				rt Riley	ı	_			
NAME C	F DRILLER	Denni								ATION OF DRILL			
01750.4	ND T/DEC 0							oprobe /	D:1	ect Fush			
	ND TYPES O			ieoprole 540 I'macrocore	<u>v</u>		•	N.A					
				1 1100001 (3022)1 6				ACE ELEVATION	١				7 7 7
		ļ						A.U					
							10 DATE	STARTED B13/04	_		11. DATE COM		
OVERE	SURDEN THIC	KNESS					15. DEP	TH GROUNDWA		NCOUNTERED	01011	<i>y</i>	
		NA						29.7					
DEPTH	DRILLED INT						16. DEP1		and El	APSED TIME AFT	ER DRILLING CO	MPLETED	
TOTAL	DEPTH OF H						17 OTH	NA ER WATER LEV	EL ME	ASUREMENTS (SP	ECIEVI		
TOTAL	DEFINOR	241				:	17. 0111	NA		NOONEWELVYO (OF	2011 17		
GEOTE	CHNICAL SA			DISTURBED	UNE	DISTURBED	19	. TOTAL NUM	BER OF	F CORE BOXES			
	50 505 01:5	C	10	<u> </u>		<u>0</u>	OTUE	O (SDECIEV)	<u> </u>	THED (COPPOSE)	OTUCE 45	DECIEVI	21. TOTAL CORE
SAMPL	ES FUR CHE	MICAL ANALYS	10	VOC	3_	11.5	<u> </u>	R (SPECIFY)	-"	THER (SPECIFY)	OTHER (S	r culr ()	RECOVERY
		lo		-3 ,				0RO 3					%
DISPOS	SITION OF HO		ļ	BACKFILLED	MONITORIN	G WELL	OTHER	R (SPECIFY)	23. 5	SIGNATURE OF IN			
		NA	١	Bentonile	AU		WW	,	0	fuet a	in a		
LEV.	DEPTH b		DESC	CRIPTION OF MATERIALS		RES	CREENING SULTS d	GEOTECH SA OR CORE BO e		ANALYTICAL SAMPLE NO	BLOW COUNTS g		REMARKS h
		STET 0	وما يه	e brown (6/310	ME)								·
				man plastic	1119	0				spoj		·	
		ard1 30	. v .	which because						0-2			
	╕							3.9					
	i. 🗏					10		4					
	\equiv							4					
						1							
				L hisun (6/310									
	=	dunp, s	.,(1	, non plustic		9					•		
	2				÷								
	. 🗐												
Ì	7					-		ļ					
	\equiv					0		ļ					
	_ =												
İ	3-1												
:	Ⅎ										٠٠,		
		•				0							
	#												
	4 =											1435	
	'												
- 1	7			[mi - 1		0							
	\dashv			m (\$/3104R) d.	er b							:	
- 1	\exists	DOTT N	σų	plastic				:	Ì				
	5 -										<u></u> j		
	ORM 55		PRO	JECT	10747						HOLE NO.	T'ሳ ኖ	1 DPO1

		HTW DRIL	LING LC)G		H F	OLE NO TRI-OSI DPDÍ
PROJECT	407	747 ESI 49 xiles	INSPECTOR	ho		S 0	HEET 0 2 F 4 SHEETS
ELEV a	DEPTH b	DESCRIPTION OF MATERIALS c	FIEAD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h
-	-	SAMÉ AS Above	0				- - - - -
	6 =		٥	3.6	560Z		
	7	·	٥		& -0		
	8		0				1440
			0				
	4-11-11-11-11-11-11-11-11-11-11-11-11-11	SILT, brown(8310YR) soft moist, nadium plasticity	Ó	39	5803 10~i1	·	
	/s		O				-
	ii		0	·		,	
	12_	CLAS darkigrayion brown (1/2104R) Staff, dump, highly plastic	0				1445
	- - - - - - - -	- -	0	3.8			
·	111111		0	,			
Burns	14	PROJECT				HOLE NO	<u> </u>

Burns & OS1601
Since 1898
Form MRK-55-2

PROJECT

HOLE NO.

		HTW DRIL	LING LC)G			HOLE NO. FTRI-OSI CFOX
PROJEC	T 40:	747 ESI 49 Siles	INSPECTOR LAND				SHEET \$ 3 OF 'Y SHEETS
ELEV	DEPTH	DESCRIPTION OF MATERIALS	FIELD SPREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNTS	REMARKS
а		SAME AS About	0	e		<u>g</u>	
	15 <u>-</u>	SAND, yellowish brown (5/4104R) loose, dmp	c				-
	- - - - -	fine grained	o				1450
	- - - - -		5	3.7			-
	12_	(1/3104A) loce, dmp fil graved	o	3.7			
	18_		0				-
	} ***		O	,			- - - - -
	-	SAND, brown (43104R) dmp loose, fine-medium greined	0				1455
	20 <u> </u>		0	3. ¥			
	ב - - - -		0	3.8			
			o				- - - - - - - -
			О	-			
Burns	23 -	PROJECT				HOLE N	<u> </u>

Burns & 051601
SINCE 1898

051601
Form MRK-55-2

40747

FTRI-OSI DEOL

		HTW DF	RILLING LO		HOLE NO. FTRI OSI DEOI SHEET & 7 OF 4 SHEETS					
ROJECT	407	147 ESI 49 sites		with the						
LEV.	OEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCHEENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO e	ANALYTICAL SAMPLE NO f	BLOW COUNTS g	REMARKS h			
		SAME AS About								
	3		0							
	\exists						# waler			
ļ							isoo			
	25			<u> </u>			1,300			
	=									
i	\exists			1			-			
l	=									
	4									
	4									
	4									
	7									
	\exists									
	=			,						
-	=									
	=						1			
	1									
	3			-						
	4									
	=									
ļ	=			i						
	_									
	=									
	ゴ									
					i,					
	\exists						·			
	=						[
							_			
	=						<u> </u>			
	4			•						
]						[
	\exists									
	‡									
	=						, E			
	=						<u> </u>			
	‡	•								

Burns & 051601
SUNCY 1898
Form MRK-55-2

40747

HOLE NO.

FTRT-051 BFO

		,	HTW	DRILL	.ING	LO	G				HOLI FIR	ENO. ‡~051 GR
COMPA	NY NAME	R	1 McDonnell	2	DRILLING		RACTOR PS				SHE	T 1 J SHEETS
PROJEC						4. LOCA	TION					0.2210
		40747	ESI 49 siles				rt Rile		ITION OF DRILL			
NAME O	F DRILLER	Denni.	s Eller						rzet fu	sh		
	ND TYPES O	F DRILLING	Geoplane 5	100		8. HOLE	LOCATION					
AND SA	MPLING EQU	PMENT	"maeroco	re_		N						
		ŀ				9. SUHF	ACE ELEVATION	•				
						10. DATE	STARTED			11. DATE COM		
OVERR	URDEN THIC	NICOG				15 DED	8/3/06 TH GROUNDWA	TER EN	ICOLINTERED	8/3/06	·	
. Oveno	UNDEN I HIC	N1E22	A				23.8	1411 4				
DEPTH	DRILLED INT	O ROCK				I		AND EL	APSED TIME AFTE	R DRILLING CO	MPLETED	
TOTAL	DEPTH OF H	N)	<u> </u>				NA ER WATER LEVI	FI MF	ASUREMENTS (SP	FCIFY)		
i. IOIAL	ULT III OF I	ર્ય					NA					
3. GEOTE	CHNICAL SA	MPLES	DISTURBED	UNI	DISTURBED ()) 19	D. TOTAL NUMB	BER OF	CORE BOXES			
0. SAMPL	ES FOR CHE	MICAL ANALYSIS		META		OTHE	R (SPECIFY)	01	HER (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL CO
		6		3	,		DEO 3					RECOVER'
2 DISPOS	SITION OF HO		BACKFILLED	MONITORIA			R (SPECIFY)	23 5	SIGNATURE OF IN	SPECTOR	<u></u>	
. DIOFOC		.u. A N.				N			Porter Con			
			BENTONITE	N/E	EIEI D S	<u> </u>	,	MPI F	ANALYTICAL	BLOW	I	
ELEV.	DEPTH		DESCRIPTION OF MATERIA	ALS		SULTS d	OR CORE BO		SAMPLE NO.	COUNTS		REMARKS h
<u>a</u>	b	STIT	ale brown, d	la . en[l	 -	u	e		<u> </u>	g		
	_	now plea	eric acoming a	"Y / SLIFT	0				5801		,	
		historic false							0-1			
	=											
	1				0		3.2					
			,				4					
		STAT. be	Jun (8/3 1048)	demo	7		'					
	\equiv	5011.0	on plastic	· · · · · · · ·								
	2	20(1) 1	on plastic		0							
	~											
	. =											
					0							
	= =											
	3											
	3											
					0						£	
	#											
	4				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			···			1305	
	=				0							
ĺ	ᆿ									•		
ļ	_ =				Ì		ļ.					
- 1	5 7				1		1				ı	

		HTW DRII	LLING LC)G		1.	OLE NO. 051 FTRI -ST DPOZ
PROJEC1	4	0747 EST 49 siles	INSPECTOR L	to lit		S	HEET & Z F 4 SHEETS
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	- - - - - -	SAME As Above	0	3.7/	560Z 7-8		
	6 -		0	3.7/			-
	7 =	SILT, brown (% 104R) domp soft, nedium plasticity	0				-
	8	,					1315
	9	·	•		5803 11-12		-
	7 —	SILT, brown (7310 yr) moist soft, wedirm plasticity	0	4,4			
	10 _		0				
		CLAN alact and the	0				
-	- - - 1z_	CLAY, dark grayish brown (4/5104R) soft, damp highly plashie	0				1315
		166	0	3.Z			
	<i>i3</i>	STLT, brown (\$3104R) soft moist, wedium plasticity. W/s and	0	•			- - - - - -
	!y -		0			 	E '
Burns	<i>Q</i>	PROJECT				HOLE NO	

Burns & OS1601
STREET 1898

OS1601
Form MRK-55-2

40747

FIRI-OSI DPUZ

		HTW DRIL)G			HOLE NO. FTRI-051 DP02
PROJEC1	T 407	47 ESI 49 siles	INSPECTOR	SHEET O 3 OF 4 SHEETS			
ELEV.	DEPTH b	DESCRIPTION OF MATERIALS	FIELD SEREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	
α	- - - -	SAME AS Above	0	,		<u> </u>	
	15 _		c				
,	16_	SAND, brownish yellow (6/6104R) loose, dang fin-medium graned	0				132.0
	 - - -	·	0	28			
-	/1		O	4			
	18	SAND, light yellowish brown (6/4104R) loose; domp, addison grained	0			,	
	18-		0				
	20_		0				1325
			១	3.1			-
	21 -		0	7			
	22		0				
Burns A	23 -	PROJECT	0			HOLE N	

Burns & McDannell o51601 Form MRK-55-2

PROJECT

40747

HOLE NO.

FTRI-051 DP02

HTW DRILLING LOG								HOLE NO. FTRI-051 DFCZ	
PROJEC1				INSPECTOR Last and				SHEET # 4 OF 4 SHEETS	
ELEV.	DEPTH b	DESCRIPTION OF MA		FIELD SPREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNTS g	i	
		SAME AS About	۷.						
	\exists			0					
								a walac	
	<u> </u>							1 water	
	~ ' <u>-</u>	Bottom of how						_	
	=								
	\exists								
	=							<u>E</u>	
				.2					
	_							<u> </u>	
								· E	
	=								
	\exists							[E	
	=							E	
	=							[
ļ								<u> </u>	
								. -	
	=							E	
								<u> </u>	
			,					[]. [
ĺ	_								
]	,						-	
	\exists						,		
	=								
	\exists							<u> </u>	
	=								
	\exists							[-	
	7								
	=								
						·			
	=								
Burns (<u> </u>	l Dr	ROJECT				HOLE N		

McDonnell 051601 SINCE 1908 Form MRK-55-2

40747

FTRI-051 DPOZ