TARGETED BROWNFIELD ASSESSMENT

For

Oklahoma Army National Guard
Former 44th Street Oklahoma City Armory
Oklahoma City, Oklahoma

ASTM E 1527-05
Phase I Environmental Site Assessment
All Appropriate Inquiry

Prepared by:

OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY

December 16, 2010

Prepared for:

The City of Oklahoma City
420 W. Main Street, Suite 900
Oklahoma City, Oklahoma 73102

Prepared by:

Oklahoma Department of Environmental Quality
Land Protection Division
707 N. Robinson
P.O. Box 1677
Oklahoma City, Oklahoma 73101-1677

I declare that to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of this part. I have specific qualifications based on education training, and experience to assess a property of the nature, history and setting of the subject property. I have developed and performed the all appropriate inquiry in conformance with the standards and practices set forth in 40 CFR Part 312.

Environmental Professionals in charge of the project:

Beatriz Santamaria
Environmental Intern

Heather Mallory
Environmental Programs Specialist III

Rita Kottke, PhD
Environmental Programs Manager

Background and Disclaimer: The purpose of an environmental site assessment is to identify actual or potential "recognized environmental conditions" that may result in liability or land use restrictions. The ASTM Phase I Environmental Site Assessment E 1527 – 05 is the minimum standard for environmental due diligence in the commercial real estate industry and meets the standard for All Appropriate Inquiry under the Small Business Liability Relief and Brownfields Revitalization Act of 2002. A diligent effort in accordance with generally accepted good commercial and customary standards and practices was undertaken to identify the "recognized environmental conditions" that might affect the redevelopment project. However, the identification of old hazardous waste sites is an evolving process; therefore, Oklahoma Department of Environmental Quality (DEQ) cannot state with absolute certainty that no other potential hazardous waste sites are located in the area. In no event shall the DEQ or its employees be liable for any damages, injury, loss, cost or expense whatsoever arising in connection with the use or reliance on the information contained in this report, except as otherwise provided by law.

Table of Contents

1.0 EXECUTIVE SUMMARY 6

2.0 INTRODUCTION 7
- 2.1 Purpose.....8
- 2.2 Detailed Scope-of-Services.....8
- 2.3 Significant Assumptions 8
- 2.4 Limitations and Exceptions.....8
- 2.5 Special Terms and Conditions 9

3.0 SITE CHARACTERIZATION AND HISTORY.....9
- 3.1 Location and Legal Description.....9
- 3.2 Site and Vicinity Characterization 10
- 3.3 Description of Structures, Roads, and Other Improvements 10
- 3.4 Owner, Property Manager, and Occupant Information 10
- 3.5 Information Reported by User Regarding Environmental Lien or Specialized Knowledge or Experience.....10
- 3.6 Commonly Known or Reasonably Ascertainable Information.....10
- 3.7 Valuation Reduction for Environmental Issues 11
- 3.8 Current Use of the Property 11
- 3.9 Past Use of the Property.....11
  - 3.9.1 Review of Aerial Photographs 11
  - 3.9.2 Fire Insurance Maps.....12
- 3.10 Current and Past Uses of Adjoining Properties 12
- 3.11 Environmental (Physical) Setting 13
  - 3.11.1 Surface Water Characteristics.....13
  - 3.11.2 Soil Characterization.....14
  - 3.11.3 Subsurface Geological Characterization.....14
  - 3.11.4 Groundwater Characteristics.....15
  - 3.11.5 Air Characteristics 15

4.0 RECORDS REVIEW.....15
- 4.1 Federal National Priorities List (NPL).....16
- 4.2 Federal CERCLIS List.....16
- 4.3 Federal RCRA CORRACTS List 16
- 4.4 Federal RCRA non-CORRACTS TSD List 16
- 4.5 Federal RCRA Generators List.....16
- 4.6 Federal ERNS List 17
- 4.7 Federal Institutional Control/Engineering Control Registries 17
- 4.8 State-Equivalent NPL 17
- 4.9 State-Equivalent CERCLIS 17
- 4.10 State Landfill and/or Solid Waste Disposal Sites 17
- 4.11 State Leaking UST List.....17
- 4.12 State Registered UST Sites 19
- 4.13 State Institutional Control/Engineering Control Registries 20

4.14 State Voluntary Cleanup Sites 20
4.15 State Brownfield Sites.....21
4.16 Oil and Gas Records 21

5.0 SITE RECONNAISSANCE AND INTERVIEWS 22
5.1 Methodology and Limiting Conditions.....22
5.2 General Site Conditions 22
5.3 External Observations.....24
5.4 Internal Observations 24
5.5 Interviews.....24

6.0 FINDINGS 26
7.0 OPINION AND RECOMMENDATIONS.....28
8.0 DATA GAPS 29
9.0 CONCLUSIONS.....29
10.0 ADDITIONAL SERVICES.....29
11.0 DEVIATIONS 29
12.0 REFERENCES 29
13.0 APPENDICES 33
Appendix A Legal Documents
Appendix B Site Map, Aerial Photographs, and Topographic Maps
Appendix C Review of Regulatory Records
Appendix D Site Photographs
Appendix E Site Visit Notes
Appendix F Qualification(s) of Environmental Professionals

1.0 Executive Summary

On November 2, 2010, Beatriz Santamaria and Dustin Davidson of the DEQ performed a site reconnaissance of the former Oklahoma City 44th Street armory that is located at the southeast corner of Southwest 44th Street and South Youngs Boulevard in Oklahoma City, Oklahoma. All other research on the Targeted Brownfield Assessment (TBA) was performed by Heather Mallory with the DEQ. The subject property is in a section of town characterized by residential areas, commercial development, and a city park. The purpose of the TBA was to identify potential environmental concerns by reviewing historical data, regulatory information, and by performing a visual inspection of the site and surrounding area. The following is an executive summary of the environmental site assessment results:

- Recognized environmental conditions (RECs) on site are the possible indoor firing range (IFR) and possible buried sand trap in the drill floor.

- Due to the age of the building, there is a potential for asbestos and lead-based paint at the subject property. There is also a potential for lead dust in the building due to weapons fire and cleaning.

- Meth houses have been reported nearby. One of the meth houses recently caught fire, therefore, this is considered a REC due to the potential air emissions associated with chemicals burning.

- The subject property is composed of 5 acres of land. The armory building is surrounded by grassy areas on all sides and by paved parking areas on the east, west, and south sides. The vehicle compound is located on the east side and is bordered by Brock Creek.

- Adjoining properties in the area are commercial, residential, and recreational in nature. To the north are a bowling alley, restaurants, apartments, and a gas station. To the east are Young's Park, a residential area, and some commercial properties. To the south is Young's Park. To the west is a residential area. According to Sergeant Kevin Coffman, several of the houses nearby are meth houses and one recently caught fire.

- The aerial photographs from 1995 to 2010 show an area of oil and gas development to the south of the armory building, south of Brock Creek. Several oil and/or gas tanks are observed in these photographs. The Oklahoma Corporation Commission's (OCC) Oil and Gas Well database shows four wells listed for Young's Park. The OCC oil and gas database indicates that oil exploration was attempted in the past. However all of these wells have been abandoned or plugged. Since this area of oil and gas development is located on an adjacent property, it is considered a REC. One gas well is currently operating onsite. Three oil or gas wells are listed as being near the subject property. These do not appear to be located on adjacent properties. One of these wells has been plugged and the other two are listed as active and probably producing.

- The Sanborn map from 1922-1955 for the Oklahoma City area showed the subject property as Brock Park. No armory building is shown in the Sanborn map. Adjacent

properties to the north, south, east, and west are all residential. No other Sanborn maps for the subject properties were viewed for this assessment.

- The Polk City Directories from 1955 to 1970 were viewed at the Oklahoma City Downtown Metropolitan Library for the subject property only. Two addresses were found for the National Guard Armory. It appears that both addresses pertain to the armory. One of the addresses, 2222 SW 44th Street, corresponds to the current address of the armory and is listed as the National Guard Meeting Room in the 1970 directory. Prior to 1970, 2222 SW 44th Street was not listed in the city directories. The other address, 2140 SW 44th Street, is listed as the National Guard Armory in the 1970 directory. The 2140 SW 44th Street address was listed as vacant in 1958 and 1966, as Harmon AJ Plumbing and Heating Contractors from 1959 to 1964, and Security Fence Construction in 1965.

- No National Priorities List (NPL) or delisted NPL sites, active Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) site listings, Resource Conservation and Recovery Act (RCRA) Corrective Action (CORRACTS) and non-CORRACTS Treatment, Storage, or Disposal (TSD) listings, Emergency Response Notification System (ERNS) list, State-equivalent NPL or CERCLIS lists, or State landfills and/or solid waste disposal sites were found on the subject property or within the ASTM recommended search radii. No archived CERCLIS site listings, RCRA generators, or Voluntary Cleanup Program (VCP) sites were found on the subject property. No Brownfield sites were found on the subject property either. The armory building on the subject property is being investigated for potential lead-based paint, lead dust, and asbestos. If any of these materials are found, the DEQ Site Cleanup Assistance Program (SCAP) will address them during cleanup of the building.

- Five confirmed Leaking Underground Storage Tank (LUST) cases and one unconfirmed LUST case were reported in the OCC's Underground Storage Tank (UST) database within the ½ mile radius of the subject property. No LUST cases were reported on the subject property. Some of the LUST cases are located upgradient of the subject property, but should not affect the subject property due to their proximity.

- No registered UST's were found on the subject property. However, 28 registered USTs were found within ½ mile of the subject property. None of the adjacent properties contained registered USTs. Some of the USTs are located upgradient of the subject property, but should not affect the subject property due to their proximity.

- The property owner and representatives of the property were not aware of any Institutional Controls (ICs) or Engineering Controls (ECs) on the property. No ICs or ECs were found in the Oklahoma County Courthouse records.

2.0 INTRODUCTION

The State of Oklahoma Department of Environmental Quality (DEQ) under a Brownfield Assistance Agreement (No**.** RP976412010) (Ref. 1) with the U.S. Environmental Protection

Agency (EPA) conducted a Targeted Brownfield Assessment of a property on the southeast corner of SW 44th Street and South Youngs Boulevard (2222 SW 44th Street Oklahoma City, Oklahoma).

2.1 Purpose

The purpose of this assessment is to look at the environmental conditions within the target area and provide this information to the City of Oklahoma City to assist in its revitalization planning as well as meet the All Appropriate Inquiry requirement of the landowner liability protections under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, better known as Superfund – Ref. 2), as provided in the Small Business Relief and Brownfield's Revitalization Act of 2002 (Public Law 107-118, Subtitle B – Ref. 3). The purpose of a Phase I Environmental Site Assessment is to identify, to the extent feasible, recognized environmental conditions in connection with the target property through a systematic review of readily available information sources and a site reconnaissance.

The DEQ is providing technical assistance to the project by evaluating the environmental condition of the property prior to the City acquiring the property. Funding for this assessment has been provided by the EPA.

2.2 Detailed Scope-of-Services

The DEQ examined the current use of the property and then identified the historical uses of the property to determine if recognized environmental conditions exist. The DEQ examined historical documents, governmental databases, oil and gas records, aerial photographs, Sanborn Fire Insurance Maps, and conducted interviews, and performed a site reconnaissance of the area. A good faith effort was made to identify possible environmental conditions that might affect the development of the property.

2.3 Significant Assumptions

Significant assumptions of the subject property from the history and knowledge of the subject property indicate that the drill floor may have been used as an indoor firing range and that weapons were cleaned onsite.

2.4 Limitations and Exceptions

The purpose of an environmental site assessment is to identify actual or potential "recognized environmental conditions" that may result in liability, land use restrictions, or cause delays in revitalization. The ASTM Phase I Environmental Site Assessment E 1527 – 05 (Ref. 4) is the minimum standard for environmental due diligence in the commercial real estate industry and meets the standard for All Appropriate Inquiry under the Small Business Liability Relief and Brownfields Revitalization Act of 2002. A diligent effort in accordance with generally accepted good commercial and customary standards and practices was undertaken to identify the "recognized environmental

conditions" that might affect the revitalization project. However, the identification of old hazardous waste sites is an evolving process; therefore, DEQ cannot state with absolute certainty that no other potential hazardous waste sites are located in the area. This assessment was conducted under constraints of time, cost, and scope and reflects a limited investigation and evaluation. It reflects the normal degree of care and skill that is ordinarily exercised by environmental professionals conducting business in this or similar localities. In no event shall the DEQ or its employees be liable for any damages, injury, loss, cost or expense whatsoever arising in connection with the use or reliance on the information contained in this report, except as otherwise provided by law.

The information in this report is based on a review of governmental records, interviews with knowledgeable representatives of the property, information provided by the Oklahoma Military Department, and observations of the environmental professional. The result of this assessment, as written in this report, is valid as of the date of report. The assessment does not include sampling of rock, groundwater, surface water, or air.

2.5 Special Terms and Conditions

This assessment report has been prepared for the City of Oklahoma City, Oklahoma by the DEQ using EPA funding. Information about this report will be provided to the EPA for its files. This report and the working file are public record and subject to the Oklahoma Open Records Act and the federal Freedom of Information Act.

3.0 SITE CHARACTERIZATION AND HISTORY

3.1 Location and Legal Description

The subject property is located in the southeast corner of SW 44th Street and South Youngs Boulevard (2222 SW 44th Street Oklahoma City, Oklahoma). The subject property is located in the NW1/4, NE1/4, NE1/4 of Section 19, Township 11 North, and Range 3 West Indian Meridian. This property is described on the lease agreement as: All of block 2, including the alley therein which has never been used by the public, 45th Street between blocks 2 and 7 which has never been used by the public; and the north 13' of lots 1 to 24 inclusive of block 7; all in Moore's Heights Addition to Oklahoma City, Oklahoma County, Oklahoma, containing five acres more or less.

The land is owned by the City of Oklahoma City and leased to the State of Oklahoma on November 28, 1962 to build the National Guard armory. A deed search was performed and only the lease agreement between the City of Oklahoma City and State of Oklahoma could be found. A search of archived newspaper articles from the Daily Oklahoman was performed and several news articles were found about the armory. An article from June 14, 1963 indicates that the property was a city park before the armory was constructed (see Appendix A). A site map and topographical map of the property have been provided in Appendix B of this report.

3.2 Site and Vicinity Characterization

The subject property is an approximate 5 acre tract of land with an armory building built onsite. It is located in south Oklahoma City, in the southeast corner of SW 44th Street and South Youngs Boulevard (2222 SW 44th Street Oklahoma City, Oklahoma). North of the subject property lies the Penn 44 Lanes bowling alley, pawn shop, bank, bridal shop, church, restaurants, and an apartment complex. Brock Creek bounds the subject property to the east. To the east of Brock Creek are residential areas, Young's Park, restaurants, a thrift store, VFW Post, and Unique Cleaners dry cleaning downgradient to the armory. South of the subject property is Young's Park. West of the subject property is a residential area. The areas where the subject property and adjacent properties are located are best characterized by residential and commercial development. A site vicinity map of the subject property can be found in Appendix B.

A review of the topographical map indicated that the surface elevation of the site is approximately 1230 feet above mean sea level. The topographical gradient is to the southeast, toward Brock Creek. Brock Creek is located on the eastern edge of the subject property. The topographical map can be found in Appendix B.

3.3 Description of Structures, Roads, and Other Improvements

The subject property consists of approximately 5 acres of land bounded by Brock Creek to the east, with a brick armory building built onsite. The northern portion of the property houses the armory building and the southern portion of the property is a city park. SW 44th Street bounds the subject property to the North and South Youngs Boulevard bounds the subject property to the west. The subject property is in an urban area and is surrounded by homes and businesses.

3.4 Owner, Property Manager, and Occupant Information

The subject property was leased by the Oklahoma Army National Guard from 1961 to 2010. The subject property is currently owned by the City of Oklahoma City. See Appendix A for lease agreement.

3.5 Information Reported by User Regarding Environmental Lien or Specialized Knowledge or Experience

The property owner and/or representatives reported no environmental liens on the subject property and had no specialized knowledge or experience regarding recognized environmental conditions at the site.

3.6 Commonly Known or Reasonably Ascertainable Information

It is commonly known within the community that the National Guard Armory resides on the subject property.

3.7 Valuation Reduction for Environmental Issues

Valuation of the property is outside the scope of this assessment. A professional appraiser should be consulted to place a value on the property.

3.8 Current Use of the Property

The armory building on the property is currently being vacated by the Oklahoma Army National Guard. DEQ will clean up lead and asbestos in the building and the building will be turned over to the City of Oklahoma City. A city park is located south of the subject property. The city park is not part of this Phase I Targeted Brownfields Assessment.

3.9 Past Use of the Property

3.9.1 Review of Aerial Photographs

Historic aerial photographs were searched to view the changes to the property over time. The 1941 aerial photograph was found at the Oklahoma Department of Libraries. The aerial photographs from 1995, 2003, and 2008 were obtained from the DEQ database of aerial photographs. The aerial photographs from 2006 and 2010 were found on Google Earth. Aerial photographs from 1941, 1995, 2003, 2006, 2008, and 2010 were obtained. All these photographs are located in Appendix B. The following represents a summary of what was found at the subject property from each photograph.

1941 aerial photograph

The 1941 aerial photograph shows the subject property to be farmland.

1995 aerial photograph

The 1995 aerial photograph shows the subject property developed as the Armory. Young's Park is shown to the south and an area of oil and gas development can be seen near a residential area. Brock Creek is shown to the east of the large building. Residential areas are shown to the east and west. Commercial areas are shown to the north.

2003 aerial photograph

The 2003 aerial photograph shows some dirt work along Brock Creek on the subject property and across the street to the north. Most adjoining properties appear to be the same as in 1995. A few buildings have been added to the west of the subject property. The only environmental condition noted from the photograph is the area of oil and gas development.

2006 aerial photograph

The 2006 aerial photograph shows a concrete channel for Brock Creek that was not shown in the 2003 aerial photograph. Other then the absence of dirt work and new creek channel, the subject property did not change in appearance from the 2003 aerial photograph. Adjoining properties have not changed much either. The only environmental condition noted from the photograph is the area of oil and gas development.

2008 aerial photograph

The 2008 aerial photograph shows the building to the south as being removed. It appears that a round concrete pad has been poured in place of the building. Not much has changed on the subject property other than four metal storage containers being added to the southeast corner of the armory parking lot, near Brock Creek. Adjacent properties have not changed much either. The only environmental condition noted from the photograph is the area of oil and gas development.

2010 aerial photograph

The 2010 aerial photograph shows a water spray park on the round concrete slab and playground equipment located south the subject property. The subject property has not changed much form the 2008 aerial photograph. It appears that three metal storage containers are now located in the southeast corner of the armory parking lot, near Brock Creek. The only environmental condition noted from the photograph is the area of oil and gas development.

3.9.2 Fire Insurance Maps

Sanborn Fire Insurance maps were viewed and downloaded from the Oklahoma Department of Libraries website. One Sanborn map of the subject property and adjoining properties was found for 1922-1955. This Sanborn map is located in Appendix C. The following represents a summary of what was found at the subject property and adjoining properties for this Sanborn map.

1922-1955 Sanborn map

The 1922-1955 Volume 4, sheet 438 Sanborn shows the subject property as a city park called Brock Park during that time. No armory building is shown. Adjacent properties to the north, south, east, and west are residential.

3.10 Current and Past Uses of Adjoining Properties

The adjacent properties are currently developed as follows according to Google Earth: to the south is a city park; to the north is the Penn 44 Lanes bowling alley; to the west is a residential area; to the east is a residential area, thrift store, VFW post and a dry cleaner;

to the northeast is a pawn shop, restaurant, bank, and apartments; and to the northwest is a restaurant, church, bridal shop, and residential area.

The 1922-1955 Sanborn shows the subject property without an armory and indicates that the property was a city park called Brock Park during that time. Adjacent properties to the north, south, east, and west are residential.

The Polk City Directories from 1955 to 1970 were viewed at the Oklahoma City Downtown Metropolitan Library for the subject property only. Two addresses were found for the National Guard Armory. It appears that both addresses pertain to the armory. One of the addresses, 2222 SW 44th Street, corresponds to the current address of the armory and is listed as the National Guard Meeting Room in the 1970 directory. The other address, 2140 SW 44th Street, is listed as the National Guard Armory in the 1970 directory. The following table summarizes the information found in the directories.

Year	2222 SW 44th St	2140 SW 44th St
1955	Not listed	Not listed
1957	Not listed	Not listed
1958	Not listed	Vacant
1959	Not listed	Harmon AJ Plumbing and Heating Contractors
1961	Not listed	Harmon AJ Plumbing and Heating Contractors
1962	Not listed	Harmon AJ Plumbing and Heating Contractors
1964	Not listed	Harmon AJ Plumbing and Heating Contractors
1965	Not listed	Security Fence Construction
1966	Not listed	Vacant
1970	National Guard Meeting Room	National Guard Armory

3.11 Environmental (Physical) Setting

The DEQ reviewed several sources to obtain information on the physical setting of the subject property and its surrounding areas. These sources include: The United States Department of Agriculture Oklahoma County Soil Survey, Oklahoma Geological Survey**,** and the Federal Emergency Management Association. Review of the physical setting of the area is to evaluate the sensitivity of the hydrogeology to potential contamination from sources either on or near the site

3.11.1 Surface Water Characteristics

According to the DEQ Dataviewer, the nearest water body is Brock Creek. Brock Creek runs along the eastern edge of the subject property and drains into the North Canadian River. The North Canadian River is located 2.27 miles north of the subject property. The topography of the site is relatively flat and the general topographical gradient is to the southeast, toward Brock Creek.

According to the Federal Emergency Management Association, the subject property and the adjacent properties to the east and south are in an area determined to be inside the 100-year floodplain of Brock Creek. A map of this information is located in Appendix C.

3.11.2 Soil Characterization

The subject property is located in Oklahoma City, Oklahoma and Oklahoma County. Oklahoma County is in the Interior Lowlands physiographic region, the Central Lowland physiographic province, and the Osage Plain physiographic subprovince. The subject property is located in the OK094 Kirkland-Renfrow-Zaneis (Kirkland-Urban Land-Renthin) soil map unit. The Kirkland-Renfrow-Zaneis soil map unit is characterized by areas of very deep and deep, well drained, clayey soils and areas of urban land; on prairie uplands. The subject property is located in an urban area. Urban land soils in this soil map unit tend to have 1 to 5 percent slopes and various soil textures that are covered by streets, parking lots, buildings, and other structures. Urban land soils are not typically suited for cropland due to urban encroachment. Kirkland-Renfrow-Zaneis soils are poorly suited for urban development, since they have a high shrink-swell potential, very slow permeability, high corrosivity to steel, hazard of erosion, and clayey subsoil (USDA, 2003).

3.11.3 Subsurface Geological Characterization

Surface geology of Oklahoma County typically consists of outcroppings of reddish brown sandstone and shales of Permian age (USDA, 2003). This formation is known as the Bison Formation and consists of mostly red-brown shale; grades northward into many thin greenish-gray calcitic siltstones and some orange-brown fine-grained sandstones and siltstones. The Reeding Sandstone Bed is at the base of the Bison Formation (Bingham, 1975). Permian sandstones are major freshwater aquifers within Oklahoma. The outcropping Permian strata overlie older sedimentary rocks that are important petroleum reservoirs in many parts of Oklahoma. Subsurface rock units in the southwestern portion of the county (where the subject property is located) tend to be 13,000 feet thick. These strata rest on granite and other igneous or metamorphic rocks that extend 20 to 25 miles down to the Earth's crust (USDA, 2003).

3.11.4 Groundwater Characteristics

Groundwater in this area is stored in terrace deposits. Water from most of the terrace deposits contains less than 500 mg/l dissolved solids; the water is of the calcium bicarbonate type and is generally suitable for irrigation purposes (Bingham, 1975).

The Oklahoma Water Resources Board (OWRB) Reported Well Log Viewer was utilized to make a map of groundwater and monitoring wells within a 1 mile radius of the subject property. The closest monitor wells to the subject property are located 0.22 miles west and were used for site assessment purposes. There are also some monitor wells located 0.29 miles southeast of the subject property, these wells were used for site assessment. The closest groundwater well is 0.82 miles northwest of the subject property. For a list and map of wells that are within 1 mile of the subject property, see Appendix C.

3.11.5 Air Characteristics

No permitted air facilities are located on the subject property or adjoining properties. No odors were noticed at the subject property during the site visit. Meth houses have been reported nearby. One of the meth houses recently caught fire. Therefore, there is a potential for air emissions associated with chemicals burning in the house. The illegal manufacture of methamphetamine releases hazardous chemicals into the air. It is unlikely that the property has been impacted by these airborne chemicals.

The closest facility on the DEQ Air Emissions Inventory is located at 4401 S Western about 0.98 miles northeast of the subject property (DEQ, 2010). The facility is Southwest Medical Center and appears to be permit exempt. In 2008 and 2009, Southwest Medical Center emitted carbon monoxide, nitrogen oxides, PM-10, PM-2.5, sulfur oxides, volatile organics, and ethylene oxide. For emission amounts and associated email from Holly Taber in the DEQ Air Quality Division see Appendix C.

4.0 RECORDS REVIEW

A regulatory database search was conducted by the DEQ. This search included, at a minimum, those records and distances from the site dictated as appropriate in the ASTM standard. The DEQ performed a review of available federal and state databases to assess whether the subject property or proximate properties were listed as having environmental concerns, which could have an adverse impact on the subject property. The following provides a summary of the databases reviewed.

4.1 Federal National Priorities List (NPL)

The EPA database was searched for NPL sites near the subject property within the ASTM's recommended search radius of one mile. The subject property is not a listed NPL site. There are no NPL sites reported within a one-mile radius of the subject property.

There is also an EPA database for Delisted NPL sites, which ASTM requires to be reported within ½ mile of the subject property. No delisted NPL sites are within the ½ mile search radius.

4.2 Federal CERCLIS List

The EPA database for Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Information System was searched for active and archived CERCLIS sites on and near the subject property. The ASTM's recommended search radius of the subject property for both active and archived CERCLIS sites is ½ mile. No active or archived CERCLIS sites were found within ½ mile of the subject property. The closest archived CERCLIS site is located 2.06 miles north of the subject property. It is the Union Carbide Corporation located at 1700 S Agnew Avenue Oklahoma City, Oklahoma 73108. This site did not qualify for the national priorities list. A preliminary assessment was performed on the site in 1980 by the EPA.

4.3 Federal RCRA CORRACTs List

The EPA database for RCRA facilities subject to corrective action was searched within the ASTM's required minimum distance of one mile of the subject property. No RCRA CORRACT facilities are within the one-mile radius of the subject property.

4.4 Federal RCRA non-CORRACTS TSD List

The EPA database for RCRA facilities not subject to corrective action was searched within the ASTM's required minimum distance of ½ mile of the subject property. No RCRA non-CORRACT Treatment, Storage and Disposal sites are within the ½ mile radius of the subject property.

4.5 Federal RCRA Generators List

The EPA RCRA Notifiers database and DEQ Oklahoma Notifiers database were searched for RCRA generators within the ASTM's required minimum search distance of the subject property. The minimum distance is the property and adjoining properties. The subject property did not have any RCRA notifiers or generators. However, there was one facility found near the subject property.

Capital Hill Typewriter located at 4301 S Penn in Oklahoma City, Oklahoma. This facility is listed as never generating hazardous waste (see EPA Facility Location Information (RCRA Info) map in Appendix C).

4.6 Federal ERNS List

Emergency Response Notification system maintained by the National Response Center was searched for any hazardous substance releases or spills within the subject property. ASTM requires a minimum search distance of property only when identifying ERNS cases. No ERNS sites were reported within the property or the adjoining properties.

4.7 Federal Institutional Control/Engineering Control Registries

Institutional Control/Engineering Control registries are under development but not available at this time. There are no known Institutional Controls/Engineering Controls on the subject property from speaking to the owner and representatives of the subject property.

4.8 State-Equivalent NPL

The DEQ does not have a State-equivalent NPL database. Oklahoma does not have a State Superfund law to establish a State-equivalent NPL database.

4.9 State-Equivalent CERCLIS

The DEQ does not have a State-equivalent CERCLIS database.

4.10 State Landfill and / or Solid Waste Disposal Sites

The DEQ regulates landfills and solid waste disposal sites across the State of Oklahoma. State landfills and solid waste disposal facilities were searched in the DEQ database within the ASTM required minimum distance ½ mile from the subject property. No permitted landfills or solid waste disposal facilities are located within the search distance of the subject property (see 1 mile radius map in Appendix C).

4.11 State Leaking UST List

The OCC UST Notification Database was searched to locate any known LUST sites located within the ASTM's minimum search distance of a ½ mile of the subject property. Five confirmed LUST sites and one unconfirmed LUST site were found within the ½ mile radius. The following sites are listed and described below. For more information on the LUST sites, see Appendix C.

- The former Circle K Store number 1279 (currently TK Quik Stop), located at 5201 South Pennsylvania Avenue, is 0.5 miles southeast of the subject property. This release was reported on March 4, 1994 and was closed on April 13, 2000.

The direction of groundwater flow is to the northwest. Contaminated soil was excavated from the former tank pits. Following excavation of the contaminated soil, groundwater concentrations for benzene and total petroleum hydrocarbons continued to decline. Contaminated groundwater was determined to be contained onsite. The OCC granted closure based on these results. The Facility ID number is 5503567.

- The 44 Quick Mart store, located at 4500 South Pennsylvania, is 0.22 miles east of the subject property. This release was reported on May 1, 1996 and closed on November 19, 1998. The highest benzene concentration in groundwater was 0.16 mg/l, which did not exceed risk based screening levels. The closure letter indicates that the chemicals of concern are below risk based screening levels and do not pose a threat to human health, safety, or the environment. The facility ID number is 5503571.

- The former Super Saver number 17 (currently Penn Quick Stop), located at 4836 South Pennsylvania Avenue, is 0.33 miles southeast of the subject property. The release was reported on August 27, 1997 and closed on March 9, 2006. The maximum soil concentrations detected for benzene (0 mg/kg), toluene (0.02 mg/kg), ethylbenzene (0.2 mg/kg), and xylenes (0.1 mg/kg) were all below risk based screening levels. The maximum groundwater concentrations detected for benzene (0.2 mg/l), toluene (0.0003 mg/), ethylbenzene (0.003 mg/l), and xylenes (0.004 mg/l) were all below risk based screening levels. The facility ID number is 5504351.

- The Maverick Mini-Mart number 16, located at 4915 South Pennsylvania Avenue, is 0.34 miles southeast of the subject property. The release was reported on July 19, 1994 and closed on September 23, 1998. The maximum benzene concentration in groundwater was 1.19 mg/l. The maximum benzene concentration in soil was 1.6 mg/kg. The facility ID number is 5506377.

- The former Circle B Food Mart (currently Dkok Holdings Llc Dba Mama Mia), located at 2412 SW 44th Street, is 0.20 miles west of the subject property. The release was reported in September of 2007 and closed January 21, 2009. The concentrations detected in soil for benzene, toluene, ethylbenzene, xylenes, and total petroleum hydrocarbons-gasoline range organics were all below laboratory detection limits. The maximum concentrations detected in groundwater are as follows: benzene (7.5 mg/l), toluene (23 mg/l), ethylbenzene (4.5 mg/l), xylenes (22 mg/l), and total petroleum hydrocarbons-gasoline range organics (82 mg/l). The facility ID number is 5511121.

- Mom's Auto Repair, located at 4715 S Pennsylvania, is located 0.24 miles southeast of the subject property. The OCC UST Notification Database notes that there was an unconfirmed release that was closed on April 22, 1998. OCC had no reports on file for this LUST case. The facility ID number is 5513830.

4.12 State Registered UST Sites

The Oklahoma Corporation Commission UST Notification Database was searched to locate registered UST located within the ASTM's minimum search distance of the subject property and its adjoining properties. No registered UST's were found on the subject property. However, 28 registered USTs were found within ½ mile of the subject property. None of the adjacent properties contained registered USTs. The following USTs are listed and described below.

Facility ID	Name	Address	# USTs	LUST case
5506377	Maverick Mini-Mart #16	4915 S Pennsylvania	3	X
5503567	TK Quik Stop	5201 S Pennsylvania	5	X
5503571	44 Quick Mart	4500 S Pennsylvania	3	
5503606	Circle K #2454	1607 SW 44th St	2	X
5504351	Penn Quick Stop	4836 S Pennsylvania	3	X
5509037	Onan #7	5202 S Pennsylvania	5	
5511121	Dkok Holdings LLC Dba Mama Mia	2412 SW 44th St	3	X
5513435	Endurance Auto Parts	4408 S Pennsylvania	3	
5513830	Mom's Auto Repair	4715 S Pennsylvania	1	X

- The Maverick Mini-Mart number 16, located at 4915 South Pennsylvania Avenue, is 0.34 miles southeast of the subject property. The site had three USTs on record. These tanks were installed on April 21, 1978 and removed on July 8, 1994. These tanks all held gasoline and were 10,000 gallon, 8,000 gallon, and 4,000 gallon respectively. The facility ID number is 5506377.

- The former Circle K Store number 1279 (currently TK Quik Stop), located at 5201 South Pennsylvania Avenue, is 0.5 miles southeast of the subject property. The site had a total five USTs on record. Three of the USTs were installed on April 10, 1978 and removed on March 1, 1987. These USTs contained gasoline and were 10,000 gallon tanks. Two USTs are currently in use on the site and were installed on June 11, 1996. These tanks hold 8,000 gallons of gasoline each. The Facility ID number is 5503567.

- The 44 Quick Mart store, located at 4500 South Pennsylvania, is 0.22 miles east of the subject property. The site has three USTs that are currently in use. These tanks were installed on June 1, 1986 and hold 10,000 gallons of gasoline each. The facility ID number is 5503571.

- The Circle K #2454, located at 1607 SW 44th Street, is located 0.26 miles northeast of the subject property. The site had two USTs on record. The USTs are permanently out of use, contained gasoline, and had a capacity of 12,000 gallons and 8,000 gallons respectively. These tanks were installed on April 11, 1971 and removed on October 1, 1985. The facility ID is 5503606.

- The former Super Saver number 17 (currently Penn Quick Stop), located at 4836 South Pennsylvania Avenue, is 0.33 miles southeast of the subject property. The site had three USTs on record. One of the USTs was installed on April 7, 1981 and removed on September 11, 2007. This tank held 1,000 gallons of gasoline. The remaining two USTs are currently in use and were installed on April 7, 1976. These tanks hold 10,000 gallons of gasoline each. The facility ID number is 5504351.

- The Onan #7, located at 5202 S Pennsylvania, is 0.51 miles southeast of the subject property. The site had five USTs on record. All of the tanks are permanently out of use. Two of the tanks were installed on May 5, 1969 and held 10,000 gallons of gasoline. Two of the tanks were installed on May 5, 1982 and held 10,000 gallons of gasoline. The remaining tank was installed on May 6, 1975 and held 1,500 gallons of diesel. All of the tanks were removed on October 14, 2003. The facility ID number is 5509037.

- The former Circle B Food Mart (currently Dkok Holdings Llc Dba Mama Mia), located at 2412 SW 44th Street, is 0.20 miles west of the subject property. The site has three USTs that are listed as currently in use. These tanks were installed on August 26, 1987 and hold 10,000 gallons of gasoline each. The facility ID number is 5511121.

- Endurance Auto Parts, located at 4408 S Pennsylvania, is located 0.23 miles northeast of the subject property. This site had three tanks on record. All of the tanks are permanently out of use. These tanks were closed on November 1, 1984. The OCC database does not indicate the date of installation, substance(s) that these tanks held, the tank capacities, or how they were closed (i.e. left in place or removed). The facility ID number is 5513435.

- Mom's Auto Repair, located at 4715 S Pennsylvania, is located 0.24 miles southeast of the subject property. The OCC UST Notification Database notes that there was an unconfirmed release that was closed on April 22, 1998. OCC had no reports on file for this LUST case. The facility ID number is 5513830.

4.13 State Institutional Control/Engineering Control Registries

The State Institutional Control/Engineering Control Registry is currently under development by the DEQ. There are no known Institutional Control/Engineering Controls in effect for this property (see Brownfields Program Public Record in Appendix C).

4.14 State Voluntary Cleanup Sites

The DEQ Voluntary Cleanup Program (VCP) database was searched for VCP sites within the required ASTM search distance of ½ mile of the subject property. No VCP sites are located on or within ½ mile of the subject property.

4.15 State Brownfield Sites

The DEQ Brownfield database was searched for Brownfield sites within the required ASTM search distance of ½ mile of the armory. No Brownfields sites were found on the subject property or within ½ mile of the subject property (Appendix C).

4.16 Oil and Gas Records

The DEQ determined that the subject property is located in the NW ¼ of the NE ¼ of the NE ¼ of Section 19 – T11N – R3W. The DEQ performed a search of oil and gas records from the OCC oil and gas records database. The search area consisted of the property as described from the legal locations above and the quarter, quarter, quarter sections directly above and upgradient of the site. The following describes each well record found in these areas. Spreadsheets from the OCC oil and gas database are located in Appendix C.

- Four wells are listed for Young's Park. The location of the wells is 0.10 miles southeast of the subject property in the NE ¼ of the NE ¼ of the SW ¼ of Section 19-Township 11 North- Range 3 West. The wells are visible on the April 9, 2010 aerial photograph available on Google Earth and other aerial photographs from 1995 to present that are provided in Appendix C. Well 19A-1 is listed as an injection well that has been plugged or abandoned. Well 19D-4 is listed as a gas well that is active and probably producing. Well 20B-4 is listed as an oil well that has been plugged or abandoned. Well 20B-2 is listed as both a oil and a gas well that has been plugged or abandoned.

- One well is listed for Capitol Hill. The location of the wells is the SW ¼ of the NW ¼ of the SE ¼ in Section 19-Township 11 North-Range 3 West. The exact location of these wells could not be located on Google Earth. These wells would most likely be located to the west of the subject property. Well number 16C-2 is used for several entries in the spreadsheet provided in Appendix C. These entries list the well as an oil well that has been plugged or abandoned and a gas well that is listed as active and probably producing.

- One well is listed for Willow Creek. The location of the well is the SE ¼ of the NW ¼ of the SE ¼ of the SW ¼ of Section 30-Township 11 north-Range 3 west. The well could not be located on Google Earth, but is likely located in the Willow Creek golf course approximately one mile upgradient of the subject property. Well 1 is a gas well and listed as active and probably producing.

- One well is listed as Brincks "A". The location of the well is listed as being located in Section 30-Township 11 north-Range 3 west. The exact location of the well could not be located on Google Earth. Well 30-A-1 is an oil well and is listed as active and probably producing.

5.0 SITE RECONNAISSANCE AND INTERVIEWS

5.1 Methodology and Limiting Conditions

A site reconnaissance of the subject property located on the southeast corner of South Youngs Boulevard and Southwest 44th Street in Oklahoma City, Oklahoma was performed on November 2, 2010. Beatriz Santamaria and Dustin Davidson of the DEQ met Sergeant Kevin Coffman at the armory. Sergeant Coffman has worked at the armory for 14 months. Sergeant Coffman introduced Santamaria and Davidson to the site and answered questions to the best of his knowledge. Sergeant Coffman lead Santamaria and Davidson inside the building and gave his knowledge of what the building was used for and what kinds of activities occurred there in the past. All areas of the building were observed noting any environmental conditions that might need additional investigation. The outside area of the property was walked entirely for observations that might need additional investigation as well.

5.2 General Site Conditions

The former Oklahoma City 44th Street armory is composed of approximately five acres consisting of land with an armory building and parking lots surrounding the south, east, and west sides of the building. The building is currently being vacated by the Oklahoma National Guard. Southwest 44th Street bounds the subject property to the north, Brock Creek bounds the subject property to the east, south Youngs Boulevard to the west, and Young's Park to the south. The following are general site conditions that were looked for on the property.

<u>Aboveground Storage Tanks (ASTs)</u>

The subject property does not have any ASTs. No ASTs were found on the adjacent properties during the site reconnaissance.

<u>Landfills and/or Dumping</u>

No landfills, dumping, or disturbed soil was found on the property.

<u>Impoundments</u>

No impoundments were observed at the subject property. Stormwater runoff drains into a storm drain system, which bounds the property to the east.

<u>Monitoring Wells</u>

No monitoring wells are present on the property.

Disturbed and Stained Soils

No disturbed and/or stained soils were observed at the subject property. There was no stressed vegetation of concern either.

Seeps

No seeps of any kind were observed at the subject property.

Chemical Spills

No chemical spills were observed at the subject property. Seargent Coffman reported that several of the nearby houses are meth labs and one of these houses caught fire recently.

Farm Waste

No farm waste was observed at the subject property.

Known Pesticide Misapplication

No known pesticide misapplications were detected during the site visit or from the historical research.

Discharges and Runoff from Adjacent Property Affecting the Site

No discharges and/or runoff were observed from any of the adjacent properties that would affect the subject property.

Petroleum Products

No petroleum products were observed on the subject property during the site visit. However, there is an area of oil and/or gas development on the adjacent property to the south.

Asbestos

It is unknown if the building contains asbestos; however due to the age of the building, there is a potential for asbestos containing materials to be present in the building. DEQ is performing additional assessments of the building to identify whether asbestos is present.

Lead

Sergeant Coffman did not know if there was an indoor firing range in the armory in the past. The questionnaire provided by the Oklahoma Military Department (OMD) indicates that there was an IFR in the armory on or before 1997 and that lead sampling

was performed on the IFR in 1991. A news article published in the Oklahoman on December 25, 1962 indicates that preliminary plans for the armory included a large, rectangular drill hall incorporating a rifle range and doubling as a recreation hall and athletic gymnasium (Appendix A). Dustin Davidson and Beatriz Santamaria observed the drill floor on the subject property and noted that the north end of the drill floor had a long, rectangular strip of newer concrete that ran the width of the drill floor. Davidson and Santamaria also noticed pole holes evenly spaced behind the rectangular strip of concrete. Sergeant Coffman indicated that the pole holes looked like holes for target posts. No vent fans were observed on the exterior of the building.

Due to the evidence that the entire drill floor may have been used as an IFR, there is a potential for lead dust in the building. Also, due to the age of the building there is a potential for lead-based paint in the building. DEQ is performing additional assessments to determine if lead is present in the armory.

Transformers/PCB Equipment

No transformers were observed on the subject property. Drop ceilings with modern white fluorescent fixture were observed throughout the building. However, a new drop ceiling has been installed and it is unknown if older fluorescent light fixtures exist above the drop ceiling, older fluorescent fixtures may contain PCBs in their ballasts.

5.3 External Observations

The external observations showed no recognized environmental conditions. The area is composed of paved parking lots on the east, west, and south sides of the armory building and grassy areas in between the building and the parking lots and southwest 44th Street. Brock Creek bounds the subject property to the east. Photographs of the external view of the site can be found in Appendix D.

5.4 Internal Observations

The building is currently being vacated by the Oklahoma Army National Guard. Most rooms are vacant, but some military equipment remains onsite. According to Sergeant Coffman, the building will be completely vacant by December 15, 2010. Most of the rooms were used as offices. The drill floor had a long rectangular concrete strip that ran the width of the northern end of the drill floor. See Section 5.2 for more detail on the concrete strip and possible IFR. Photographs of the internal view of the site can be found in Appendix D.

5.5 Interviews

A news article published in the Oklahoman on December 25, 1962 indicates that preliminary plans for the armory included a large, rectangular drill hall incorporating a rifle range and doubling as a recreation hall and athletic gymnasium (Appendix A). John Gibson at OMD was briefly interviewed by Heather Mallory with the Oklahoma

Department of Environmental Quality on September 23, 2010. Mr. Gibson was asked if the armory had an IFR. Mr. Gibson indicated that OMD did not observe an IFR during their recent tour of the armory. However, OMD did observe an area at the north end of the drill hall that had new concrete and new paint. Mr. Gibson said that the area of new concrete and paint was a long, rectangular strip that was flush with the floor. Mr. Gibson also provided a copy of a questionnaire that was filled about the armory in 1997. This questionnaire indicated that the armory did have an IFR either past or present and that lead testing had been performed on the IFR in 1991. No lead testing results were provided. See Appendix C for a copy of the questionnaire.

The questionnaire also listed the following information (Appendix C):

- Regular and unleaded gasoline was stored onsite in 5 gallon containers for yard work
- 1,1,1-Trichloroethane was used for cleaning weapon parts
- The armory generated ½ pound of rags and patches associated with rifle cleaning
- Dry cleaning solvent and carburetor cleaner were used onsite
- Latex paint and primer was stored onsite
- Paint thinner was stored onsite
- A small amount of rodenticide was stored onsite
- Motor oil and antifreeze were stored onsite
- Nickel cadmium and/or alkaline batteries were stored onsite
- Magnesium batteries were stored onsite
- The facility was considered a conditionally exempt small quantity generator
- Stormwater run-off from the parking areas emptied into a storm drain system
- A private contractor disposed of the trash at the facility
- The flammable materials cabinet was housed in the Company C supply room and Company A storage room
- The petroleum, oil, and lubricant storage was located on the southeast side of the vehicle compound

On November 2, 2010, Beatriz Santamaria and Dustin Davidson performed a site reconnaissance on the subject property and interviewed Sergeant Kevin Coffman. Sergeant Coffman provided the following information. Site visit notes can be found in Appendix E.

- Unsure of the types of chemicals that were used at the armory
- Chemicals currently at the armory include 40 gallons of a chemical known as COP used for cleaning weapons
- The property to the north is commercial, property to the east is residential and commercial, property to the south is a playground, and the property to the west is residential
- Historical uses of adjacent properties are the same as above except for the playground was not present to the south until recently
- Not aware of any current industrial use of properties in the area

- Meth houses are located nearby and one recently caught fire
- Not aware of an IFR at the armory in the past 11 years, however it appears that one may have existed in the drill floor
- There has been a huge termite problem in the north hall of the building in the past few months. However, no information was available regarding the use of chemical treatment for the removal of termites.
- There is a gas station nearby
- Nearby properties observed: bowling alley, pawn shop, apartments, church, gas stations, restaurants, veterinary clinic
- Not aware of any discarded auto/industrial batteries, pesticides, paints, or other industrial chemicals present onsite
- Not aware of any drums or storage tanks in the area
- Not aware of any fill dirt brought onto the property
- There is a drainage ditch on the east side of the armory
- Not aware of any stained soil, chemical spills, or groundwater seeps
- Not aware of any oil and gas exploration in the area
- Not aware of any groundwater or surface water contamination at the subject property
- The armory has not been flooded
- Not aware of any vent pipes or fill pipes protruding from the ground now or in the past
- Not aware of any USTs onsite in the past or present
- Not aware of any unusual odors coming from the soil, structures, or drains in the area
- Not aware of any wells in the area or nearby
- Not aware of any environmental lawsuits, liens, or violations nearby
- Not aware of any wastewater discharges in the area
- Not aware of any transformers in the area
- There is no radiation signage in the building
- No water impoundments are present onsite
- No above ground storage tanks have been used on the subject property past or present
- Not aware of any hazardous air emissions on the property or nearby
- The armory contents will be moved to a new location following Thanksgiving and will most likely be moved out by December 15, 2010

6.0 FINDINGS

Summarized below are the major findings from this Targeted Brownfield Assessment and DEQ's recommendations. The major findings of the highest environmental concern are presented first.

- The following RECs were identified, former IFR and possible buried sand trap in the drill floor were found at the subject property during the site reconnaissance performed on November 2, 2010.

- Due to the age of the building, there is a potential for asbestos and lead-based paint at the subject property. There is also a potential for lead dust in the building due to weapons fire and cleaning.

- Meth houses have been reported nearby. One of the meth houses recently caught fire, therefore this is considered a REC due to the potential air emissions associated with chemicals burning.

- The subject property is composed of 5 acres of land. The armory building is surrounded by grassy areas on all sides and by paved parking areas on the east, west, and south sides. The vehicle compound is located on the east side and is bordered by Brock Creek.

- Adjoining properties in the area are commercial, residential, and recreational in nature. To the north are a bowling alley, restaurants, apartments, and a gas station. To the east are Young's Park, a residential area, and some commercial properties including a dry cleaner. To the south is Young's Park. To the west is a residential area. According to Sergeant Kevin Coffman, several of the houses nearby are meth houses and one recently caught fire.

- The aerial photographs from 1995 to 2010 show an area of oil and gas development to the south of the armory building, south of Brock Creek. Several oil and/or gas tanks are observed in these photographs. The OCC Oil and Gas Well database shows four well listed for Young's Park. The OCC oil and gas database indicates that oil exploration was attempted in the past, however all of these wells have been abandoned or plugged. Since this area of oil and gas development is located on an adjacent property, it is considered a REC. One gas well is currently operating onsite. Three oil or gas wells are listed as being near the subject property. These do not appear to be located on adjacent properties. One of these wells has been plugged and the other two are listed as active and probably producing.

- The Sanborn map from 1922-1955 for the Oklahoma City area showed the subject property as Brock Park. No armory building is shown in the Sanborn map. Adjacent properties to the north, south, east, and west are all residential. No other Sanborn maps for the subject properties could be found.

- The Polk City Directories from 1955 to 1970 were viewed at the Oklahoma City Downtown Metropolitan Library for the subject property only. Two addresses were found for the National Guard Armory. It appears that both addresses pertain to the armory. One of the addresses, 2222 SW 44th Street, corresponds to the current address of the armory and is listed as the National Guard Meeting Room in the 1970 directory. Prior to 1970, 2222 SW 44th Street was not listed in the city directories. The other address, 2140 SW 44th Street, is listed as the National Guard Armory in the 1970 directory. The 2140 SW 44th Street address was listed as vacant in 1958 and 1966, as Harmon AJ Plumbing and Heating Contractors from 1959 to 1964, and Security Fence Construction in 1965.

- No NPL or delisted NPL sites, active CERCLIS site listings, RCRA CORRACTS and non-CORRACTS Treatment, Storage, or Disposal listings, ERNS list, State-equivalent NPL or CERCLIS lists, or State landfills and/or solid waste disposal sites were found on the subject property or within the ASTM recommended search radii. No archived CERCLIS site listings, RCRA generators, or VCP sites were found on the subject property. No Brownfield sites were found on the subject property either. The armory building on the subject property is being investigated for potential lead-based paint, lead dust, and asbestos. If any of these materials are found, the DEQ Site Cleanup Assistance Program (SCAP) will address them during cleanup of the armory.

- Five confirmed LUST cases and one unconfirmed LUST case were reported in the OCC's UST database within the ½ mile radius of the subject property. No LUST cases were reported on the subject property. Some of the LUST cases are located upgradient of the subject property, but should not affect the subject property due to their proximity.

- No registered UST's were found on the subject property. However, 28 registered USTs were found within ½ mile of the subject property. None of the adjacent properties contained registered USTs. Some of the USTs are located upgradient of the subject property, but should not affect the subject property due to their proximity.

- The property owner and representatives of the property were also not aware of any ICs or ECs on the property. No ICs or ECs were found in the Oklahoma County Courthouse.

7.0 OPINION AND RECOMMENDATIONS

Due to the potential for asbestos and lead-based paint in the armory building and the possible indoor firing range and buried firing range sand, the environmental professionals working on this site believe that additional assessment is warranted. Several findings mentioned in Section 6.0 of this Phase I TBA report support this opinion.

The DEQ feels there is a low potential of impact from the LUST cases due to the distance they are located from the site. None of these LUST cases were found on the adjoining properties either. The UST sites located nearby to the southeast are upgradient according to the topographical map, however there is a low potential of impact from the USTs due to their proximity to the subject property. The DEQ feels there is a low potential of impact to the site from the LUST and UST sites.

The meth houses located nearby are believed to pose a low impact to the subject property, because no dumping of chemicals from these houses has been observed or reported by personnel at the armory. One of the meth houses recently caught fire. Therefore there is a potential for air emissions associated with this event. The DEQ feels that there is a low potential of impact from this incident.

8.0 DATA GAPS

No tribal information was obtained for this assessment. No tax records or zoning records were reviewed for this report. The Limited Environmental Baseline Assessment (LEBA) had not been completed by the Oklahoma Military Department (OMD) at the time this TBA was conducted. There is a gap in knowledge of what the OMD says was used on site as shown by the interview responses. However, this did not affect the ability of the DEQ to make a recommendation on the subject property. Serious environmental contaminants were used on site with no specific information about use available.

9.0 CONCLUSIONS

The DEQ has performed a *Phase I Environmental Site Assessment* in conformance with the scope and limitations of ASTM Practice E 1527-05 of the former Oklahoma City 44th Street armory located at 2222 SW 44th Street Oklahoma City, Oklahoma. Any exceptions to, or deletions from, this practice are described in Section [10.0] of this *report*. This assessment has revealed no evidence of *recognized conditions* in connection with the *former Oklahoma City 44th Street armory property*. However, the following RECs exist on site: one former injection well, two former oil wells, and one currently producing gas well found in the OCC database that are near the subject property; the potential of asbestos, lead dust, and lead-based paint in the armory building; the potential indoor firing range and buried firing range sand trap located in the drill floor of the armory building; and meth labs located nearby, one that recently burned.

The information provided in this assessment is to assist the City of Oklahoma City in its revitalization planning as well as meet the All Appropriate Inquiry requirement of the landowner liability protections under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, better known as Superfund – Ref. 2), as provided in the Small Business Relief and Brownfields Revitalization Act of 2002 (Public Law 107-118, Subtitle B – Ref. 3).

10.0 ADDITIONAL SERVICES

No additional services were provided in this Phase I Targeted Brownfield Assessment. However, sampling and analysis of asbestos, lead paint and lead dust is ongoing and results will be provided.

11.0 DEVIATIONS

No deviations and deletions from E 1527-05 were made for this Phase I Targeted Brownfield Assessment.

12.0 REFERENCES

1. U.S. Environmental Protection Agency. (2006). Oklahoma *Brownfields Assistance Agreement (No* #RP976412010*).* Unpublished Document. State of Oklahoma: Oklahoma City, Oklahoma.

2. U.S. Environmental Protection Agency. (1980). *Comprehensive Environmental Response, Compensation, and Liability Act.* (Public Law 96-510). Washington, DC: U.S. Government Printing Office.

3. U.S. Environmental Protection Agency. (2002). *Small Business Liability Relief and Brownfields Revitalization Act*. (Public Law 107-118, Subtitle B). Washington, DC: U.S. Government Printing Office.

4. ASTM International. (2005). Water and Environmental Technology: Phase I Environmental Site Assessment E 1527 – 05. Baltimore, Maryland.

5. United States Department of Agriculture, Natural Resources Conservation Service (2003). *Soil Survey of Oklahoma County, Oklahoma Part I.* Online document.

6. Oklahoma Geological Survey. Bingham, Roy H. and Robert L. Moore. *Hydrologic Atlas 4: Reconnaissance of the Water Resources of the Oklahoma City Quadrangle Central Oklahoma.* The University of Oklahoma, Norman, OK. (1975).

7. Oklahoma Department of Environmental Quality. *DEQ GIS Map and Data Viewer*. Last accessed October 26, 2010. http://maps.scigis.com/deq_wq/

8. Google Earth. Downloadable software. 2010 Europa Technologies. Last accessed November 3, 2010.

8. Federal Emergency Management Association (FEMA). Last accessed October 26, 2010. https://msc.fema.gov

9. Oklahoma Department of Environmental Quality. *State Landfill site list*. Last accessed October 26, 2010. http://www.deq.state.ok.us/LpDnew/swindex.html

10. National Response Center. *Emergency Response Notification System*. Last accessed October 26, 2010. http://www.nrc.uscg.mil/foia.html

11. U.S. Environmental Protection Agency. *CERCLIS current and archived sites*. Last accessed October 26, 2010. http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm.

12. U.S. Environmental Protection Agency. *RCRAInfo*. Last accessed October 26, 2010. http://www.epa.gov/enviro/html/rcris/rcris_query_java.html

13. Oklahoma Department of Environmental Quality. *RCRA NOTIFIERS sorted by county and then city*. Last accessed October 26, 2010. http://www.deq.state.ok.us/LPDnew/HW/Notifiers/notifiersbycountycity.pdf

14. *Sanborn Fire Insurance Maps.* Oklahoma Department of Libraries. www.odl.state.ok.us

13.0	Appendix A	Legal Documents
	Appendix B	Site Map, Aerial Photographs, and Topographic Maps
	Appendix C	Review of Regulatory Records
	Appendix D	Site Photographs
	Appendix E	Site Visit Notes
	Appendix F	Qualification(s) of Environmental Professionals

APPENDIX A:

LEGAL DOCUMENTS AND SITE MAP

NEWS ARTICLES AND LEASE AGREEMENT

Publication: The Oklahoman; Date: Jun 14, 1963; Section: None; Page: 42

n armory will begin to take shape at SW 44 and Youngs Blvd. with ground breaking ceremonies at 5 p.m. Sunday

Armory Ground Breaking Sunday

Ground breaking ceremonies will be held at 5 p.m. Sunday for a new 45th Infantry Division national guard armory in Capitol Hill.

The $252,399 structure, to be completed in January, will be on former city park property at SW 44 and Youngs Blvd.

A five-acre site was given to the Oklahoma National Guard by the city. Construction costs will be shared by the state and federal government.

Gov. Bellmon will be principal speaker at the ceremonies, and Col. John H. McCasland, Oklahoma City postmaster and 45th Division chief of staff, will be master of ceremonies. The public is invited.

Sharing the armory will be Headquarters and Headquarters Company, 120th Engineer Battalion, and Company A, 145th Signal Battalion.

Total combined strength of the units is 231 officers and enlisted men, with an annual guard payroll of $145,512.

There are two other 45th Infantry Division armories in Oklahoma City — the Gen. McLain armory on NE 23 near the capitol and the Lincoln Park armory.

Architect for the new armory is the Oklahoma City firm of Hudgins-Thompson-Ball and Associates. Construction will be by Benmore Construction Co., Inc., Oklahoma City.

Publication: The Oklahoman; Date: Dec 25, 1962; Section: None; Page: 44

First Planning Completed For Capitol Hill Armory; Early Approva Expected

Annexation

Action Places Three Cities On Defensive

Action which has placed Oklahoma City, Mustang, and Piedmont on the defensive in their annexation dispute has been filed in Canadian County district court.

John D. Whelan jr., Canadian County attorney, said he has filed a que warranto action and intends to file an amended petition shortly after Christmas substituting the state as the plaintiff.

The suit was originally brought against Oklahoma City by Mustang and Piedmont residents who asked that Oklahoma City's annexation of land southwest the two towns be nullified.

3 Cities Defendants

Whelan explained that under the new action, all three cities are now defendants and the state will question their right to annex the areas. (Mustang and Piedmont annexed the same land about the same time Oklahoma City took its action.) It could end up that neither of the three (cities) had the authority to annex, Whelan commented.

Whelan has until Friday to file the amended petition and no further action is expected until that time.

Work Continues

Meanwhile, Mustang continues to construct its first municipal water system in the disputed area.

The town's consulting engineer Ross Ralph said contractors have completed drilling a water well near the South Canadian River and Mustang Rd. and have installed nearly three miles of water line from the well, through the disputed area, to Mustang's city limits at SW 89.

He said the only remaining work to be done is connecting the new line with existing facilities in the town.

Mayor Howard D. Silver said the project should be completed within the next four months, but Ralph added that contractors may finish by February.

Permit Lacking

The Mustang water project in what could be Oklahoma City was brought up at the Oklahoma City council this week.

City water superintendent Frank Taylor reported his findings that the project is nearing completion and the well was drilled without obtaining an Oklahoma City permit.

Oklahoma City attorney Roy Sommer recommended to councilmen, however, that no action be taken since the area is still tied up in court litigation.

Officials indicated that if Oklahoma City gains a favorable ruling in the annexation dispute, some action may be taken against Mustang at that time.

When the ruling is made, however, the water project may be a moot question since completion is expected before the annexation dispute is settled.

Library Service Expansion Eyed

The Midwest City library board has voted to draft long range plans for possible expansion of the library services and establishment of a branch library.

At the last board meeting, members unanimously approved a plan to conduct a study, utilizing outside assistance from the state li-

Start of Construction On $275,000 Structure Possible in Two Months

By Jack Taylor

Preliminary plans for a national guard armory in Capitol Hill have been completed and approval is expected within the next few days.

A spokesman for Hodgins, Thompson, and Ball, architects for the $275,000 structure, said final plans will be drawn and bids advertised as soon as the preliminaries are approved.

Construction could begin within the next two months, the spokesman said, with an estimated six to eight months needed for building the armory.

Preliminary plans call for the armory to include a large, rectangular drill hall incorporating a rifle range and doubling as a recreation hall and athletic gymnasium.

The armory will be located on a 10-acre park department tract on SW 44 between Youngs and Barnes. The site is presently under development from 1961 park bond issue funds.

In addition to the drill hall, a low level classroom area will be attached, architects said.

The site will include a playground, normal park landscaping, and off-street parking for the armory.

The building will be occupied by segments of the 120th engineer battalion and the 145th signal battalion, units of the 45th infantry division of the Oklahoma National Guard.

It will be available for community activities when not in use as a drill hall.

Tax-Report

Retail Sales Up 4 Percent In 3 Counties

Early fall sales tax collections in the three-county metropolitan area increased almost four percent over the same period last year, a newly - released state tax commission report indicates.

Cleveland County posted the largest gain—3.78 percent. All cities in the area, which includes Oklahoma, Canadian and Cleveland Counties, also reported collection increases.

The commission report, a standard barometer of retail activity across the state, covers taxes collected in October for September sales.

Moore High

Oklahoma County showed a 2.81 percent increase and Canadian County collections were up .06 percent. Sharply fluctuating sales across the state were indicated by a 27.35 percent decrease in Harmon County in western Oklahoma.

Tax collections in Cleveland County increased from $59,445 to $66,410; Oklahoma County, $1,247,756 to $1,282,831, and Canadian County, $40,304 to $40,328.

Boerning Moore in Cleveland County again showed a healthy increase in collections and Edmond in Oklahoma County recovered from a decrease shown in the last tax commission report.

Edmond Jumps

The last commission report, covering taxes collected in September for August this year, showed a 33.5 increase for Moore—from $2,403 to $4,454—over the same period last year. The current report credits Moore with $6,004 in collections.

Edmond's collections jumped from $17,420 in the 1961 report to $19,447 in the current one. The city suffered a collection decline from $17,065 to $16,490 in the preceding commission report comparing August, 1961 with the same month this year.

Here are the collections by other cities in the metropolitan area:

Bethany, up from $11,196 in September, 1961, to $15,106 in September, 1962; Del City, up from $12,029 to $14,[illegible] Midwest City, up from $44,618 to $48,7[illegible] and Oklahoma City, up from $1[illegible] $1,476,759.

El Reno, up from $25,021 to $25,990; Yukon, up from $9,357 to $9,718, and Norman, up from $73,530 to $77,[illegible]

Museum of Art At OU Opening for Three Days

NORMAN — The University of Oklahoma Museum of Art will be open three days during the Christmas vacation, said James L. Henkle, acting director of the museum.

The museum will be closed December 22-25 and December 29-January 1, but will be open from 9 a.m. to 5 p.m. December 26-28. On January 2, the museum will return to its regular schedule with a 9 a.m. opening of the "American Figure Drawings" exhibition from the Corcoran Gallery in Washington, D. C.

Regular hours for the art gallery are: Monday through Friday, 8 a.m. to 5 p.m.; Saturday, [illegible]

LEASE AGREEMENT

73493

In the interest of the National Defense and in consideration of One Dollar ($1.00) and other good and valuable considerations, The City of Oklahoma City, a municipal corporation, hereinafter known as Lessor, hereby leases and lets unto the State of Oklahoma, a sovereign State of the United States of America, hereinafter known as Lessee, a tract of land 600' East and West and 363' North and South in Moore's Heights Addition to Oklahoma City, Oklahoma County, Oklahoma, more particularly described as follows, to-wit:

> All of Block 2, including the alley therein which has never been used by the public, 45th Street between Blocks 2 and 7 which has never been used by the public; and the North 13' of Lots 1 to 24 inclusive of Block 7; all in Moore's Heights Addition to Oklahoma City, Oklahoma County, Oklahoma, containing five (5) acres more or less,

for the purpose of erecting an armory thereon for the use of the Oklahoma National Guard and for such other purposes as may be permitted by Title 44, Oklahoma Statutes, 1961, Sec. 232.1 to 232.7.

To have and to hold for a term of 50 years from the date hereof, with an option in lessee to renew this lease for an additional period of 50 years at the end of the primary term hereof upon the same terms and conditions herein contained, excepting this option, and upon payment of $1.00.

This lease is made and entered into upon the understanding that the property leased hereby and all improvements and fixtures placed thereon shall revert to the lessor at the end of the primary term if the above said option to renew is not exercised by lessee and at the end of the secondary term, if said option is exercised. It is further agreed and understood that at any time the State of Oklahoma abandons the above described property for armory purposes, the same shall revert to lessor together with all improvements and fixtures placed thereon.

WITNESS the hands and seals of the parties hereto on the 28

UNOFFICIAL

day of November, 1962.

ATTEST:

City Clerk

THE CITY OF OKLAHOMA CITY
A Municipal Corporation

By James H. Norick
Mayor

STATE OF OKLAHOMA

ACCEPTED:

Adjutant General

APPROVED:

Governor

STATE OF OKLAHOMA }
COUNTY OF OKLAHOMA } SS.

Before me, the undersigned, a Notary Public, in and for said County and State on this 28th day of November, 1962, personally appeared James H. Norick, to me known to be the identical person who subscribed the name of the maker thereof to the foregoing instrument as its _____ Mayor and acknowledged to me that he executed the same as his free and voluntary act and deed and as the free and voluntary act and deed of such municipal corporation, for the uses and purposes therein set forth.

Given under my hand and seal of office the day and year last above written.

Notary Public

My commission expires the 15th day of January, 1963

APPROVED as to form and legality this 27th day of November, 1962.

Charles E. Halley
Assistant Municipal Counselor

APPROVED by the Board of Park Commissioners this 28 day of November, 1962.

Chairman

ATTEST:

Secretary

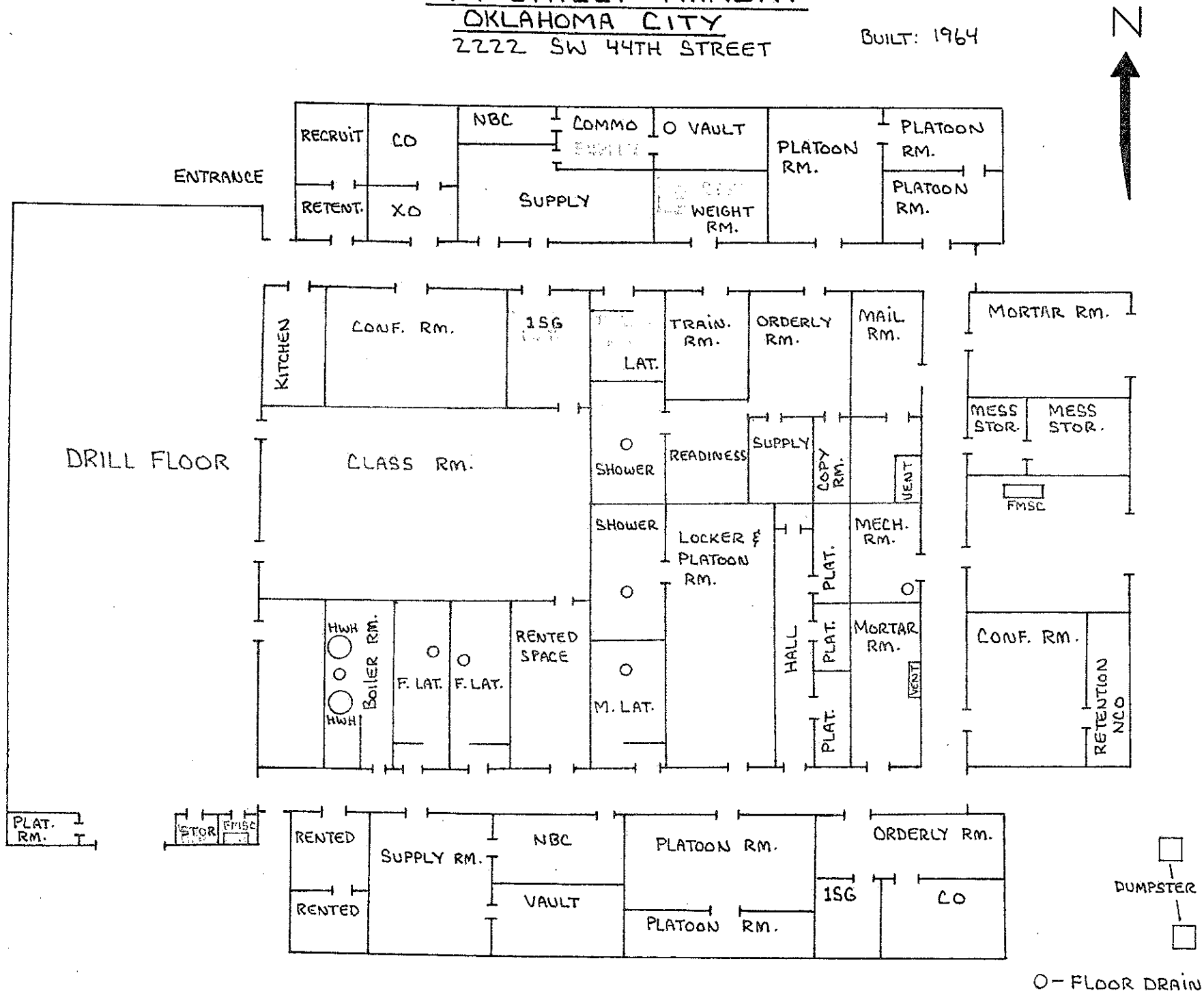
STATE OF OKLAHOMA, OKLAHOMA COUNTY, SS: THIS INSTRUMENT WAS FILED FOR RECORD ON PAGE 102 THE 30 DAY OF Nov, 1962, AT 11:00 O'CLOCK A.M. AND DULY RECORDED.

JOE MATTOX, COUNTY CLERK FEE Note BY _____ DEPUTY

FLOOR PLAN MAP

44TH STREET ARMORY
OKLAHOMA CITY
2222 SW 44TH STREET

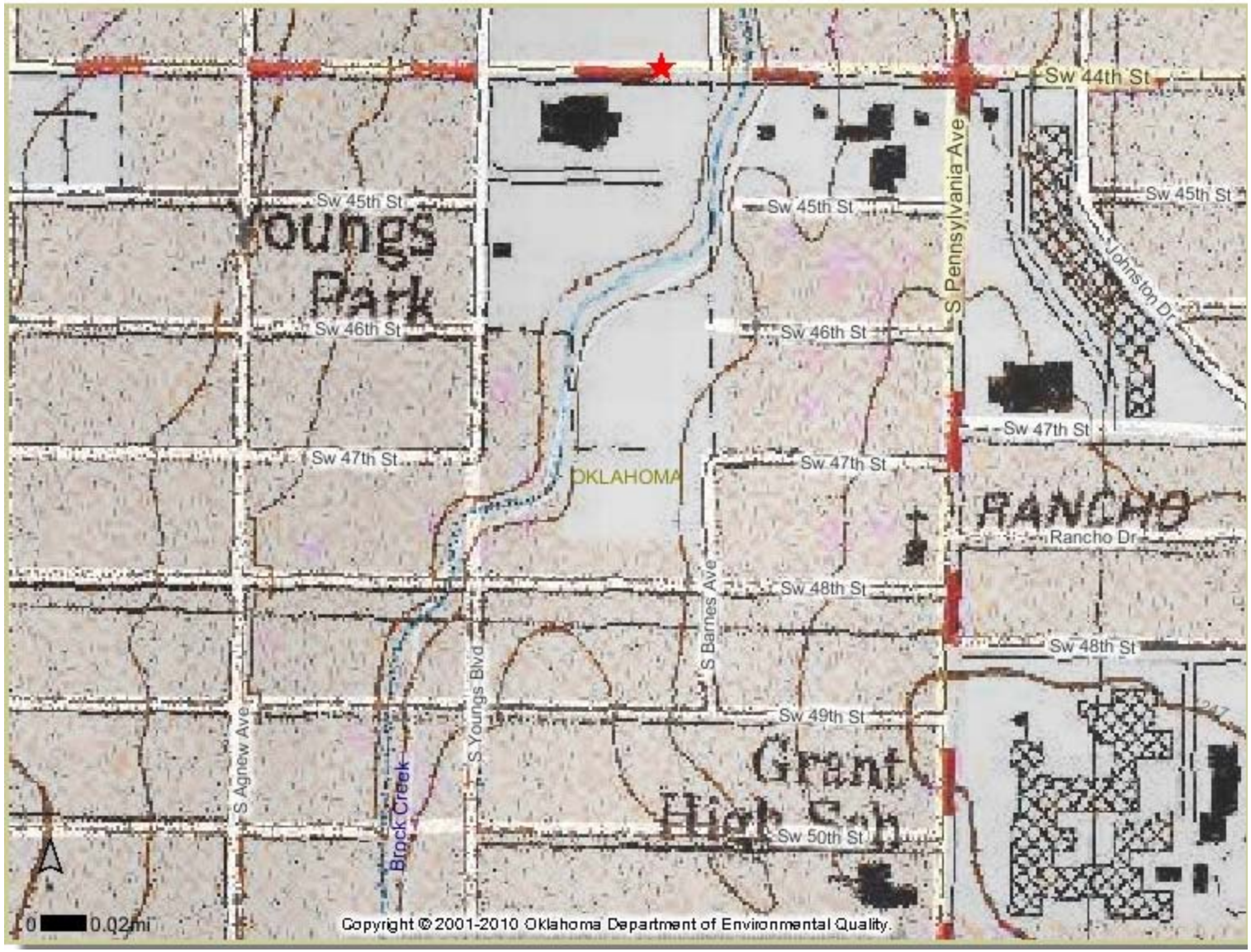
BUILT: 1964



APPENDIX B:

AERIALS AND TOPOGRAPHIC MAP

TOPOGRAPHIC MAP



Topographic Map from DEQ Dataviewer

AERIAL PHOTOGRAPHS

1941 Aerial from OK Dept of Libraries

1995 Aerial from DEQ Dataviewer

2003 Aerial from DEQ Dataviewer

September 28, 2006 Aerial from Google Earth

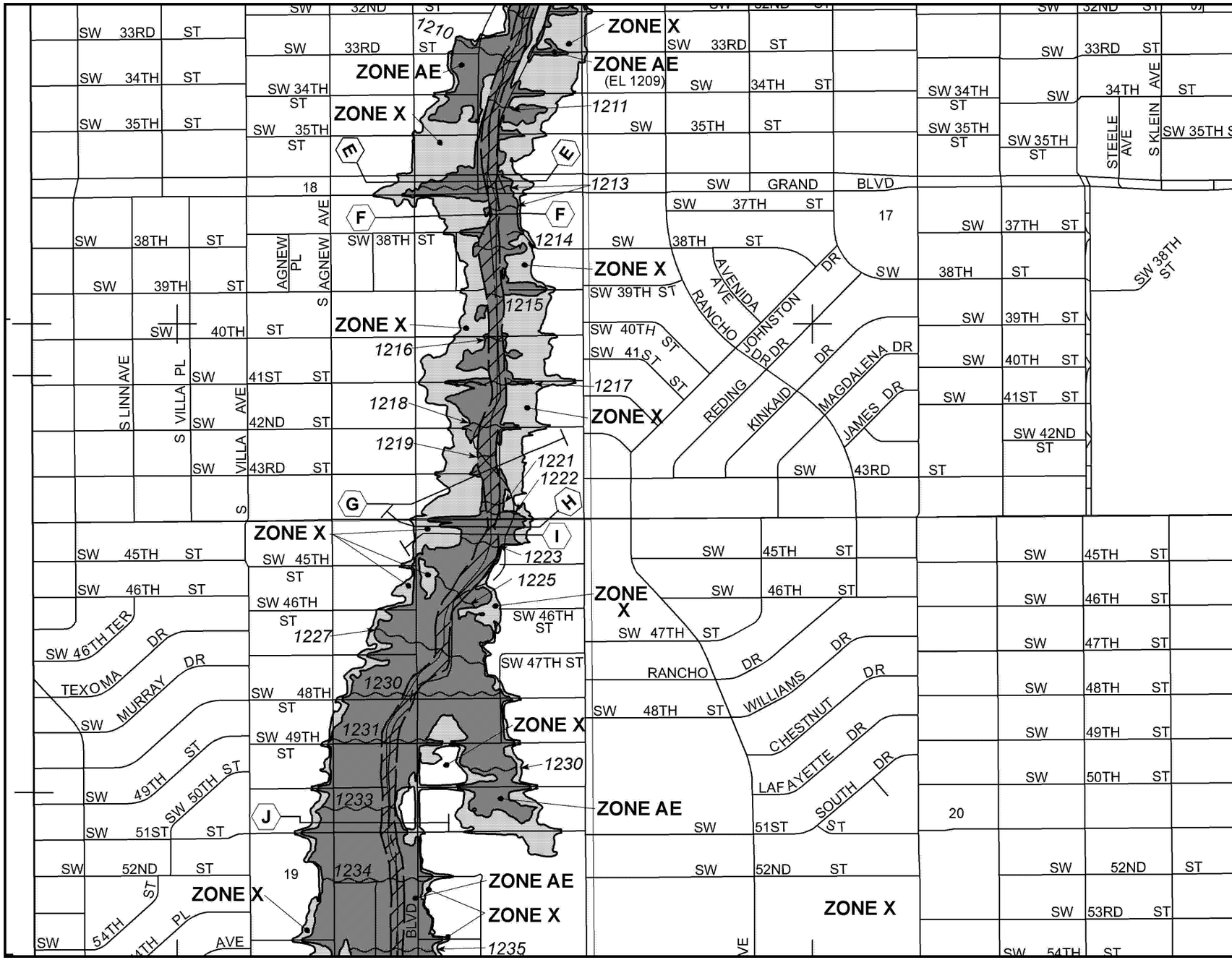
2008 Aerial from DEQ Dataviewer

April 9, 2010 Aerial from Google Earth

APPENDIX C:

REGULATORY RECORDS

FEMA FLOOD INSURANCE MAP



e Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

0 500 1,000 1,500 2,000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0295H

FIRM

FLOOD INSURANCE RATE MAP

OKLAHOMA COUNTY
OKLAHOMA
AND INCORPORATED AREAS

PANEL 295 OF 370

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
OKLAHOMA CITY, CITY OF	405378	0295	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
40109C0295H

REVISED DATE
DECEMBER 18, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevation determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.

e Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

0 500 1,000 1,500 2,000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0295H

FIRM

FLOOD INSURANCE RATE MAP

OKLAHOMA COUNTY
OKLAHOMA
AND INCORPORATED AREAS

PANEL 295 OF 370

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
OKLAHOMA CITY, CITY OF	405378	0295	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

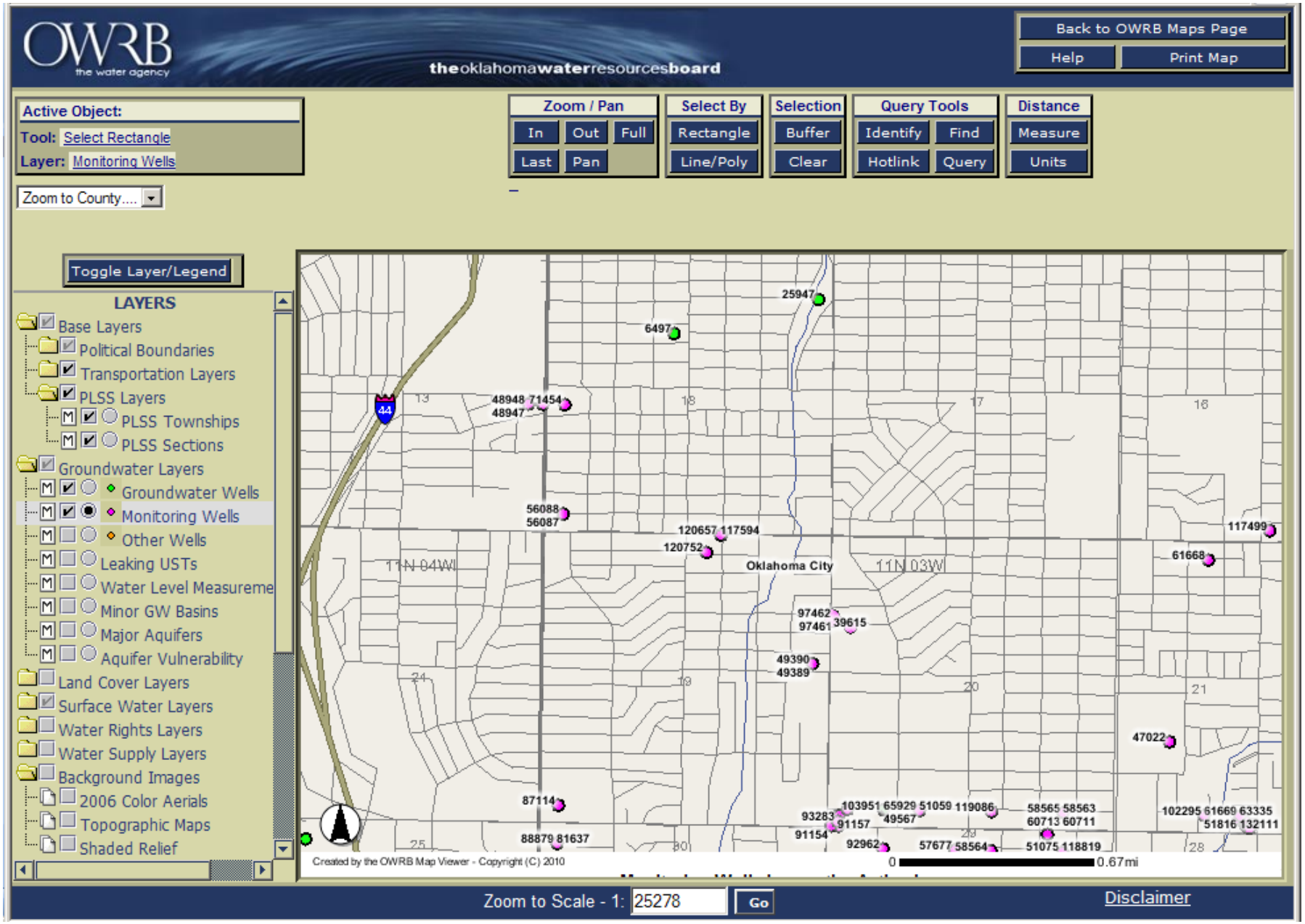
MAP NUMBER
40109C0295H

REVISED DATE
DECEMBER 18, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

OWRB WATER WELL SEARCH



1 mile radius – OWRB groundwater and monitoring wells

1 mile radius

Groundwater Wells

Rec	Latitude	Longitude	Well ID	County	Well Type	Permit Number	Well Owner	Quarter 1	Quarter 2	Quarter 3	Section	Township	Range	Use Class	Total Depth	First Water	Approximate Yield	Lat/Lon Method	Construction Date
1	35.43062	-97.557807	6497	Oklahoma	Groundwater Well		Wilson Beardsley	NE	SE	NW	18	11N	03WI	Domestic	140	60	20	Interpolation from PLSS	Mon, 20 Apr 1987 00:00:00
2	35.432428	-97.548936	25947	Oklahoma	Groundwater Well		City of Oklahoma City	SE	NE	NE	18	11N	03WI	Public Water Supply	800	315	253	Interpolation from PLSS	Wed, 13 Apr 1955 00:00:00
3	35.407188	-97.544423	103951	Canadian	Groundwater Well		Steel Custom Homes	SE	SW	SW	20	11N	03WI	Domestic	100	14	15	Mathematical conversion program	Wed, 23 Aug 2006 00:00:00

Zoom to these records

1 mile radius

Monitoring Wells

Rec	Latitude	Longitude	Well ID	County	Well Type	Permit Number	Well Owner	Quarter 1	Quarter 2	Quarter 3	Section	Township	Range	Use Class	Total Depth	First Water	Approximate Yield	Lat/Lon Method	Construction Date
1	35.416224	-97.54664	39615	Oklahoma	Monitoring Well		Super Saver #17	NW	SW	NW	20	11N	03WI	Water Quality	20	0	0	Interpolation from PLSS	Tue, 28 Apr 1998 00:00:00
2	35.427006	-97.566716	48944	Oklahoma	Monitoring Well		Sinclair Oil Co.	NE	NE	SE	13	11N	04WI	Water Quality	15	0	0	Interpolation from PLSS	Tue, 16 Nov 1999 00:00:00
3	35.427006	-97.566716	48945	Oklahoma	Monitoring Well		Sinclair Oil Corp.	NE	NE	SE	13	11N	04WI	Water Quality	15	0	0	Interpolation from PLSS	Tue, 16 Nov 1999 00:00:00
4	35.427006	-97.566716	48946	Oklahoma	Monitoring Well		Sinclair Oil Corp.	NE	NE	SE	13	11N	04WI	Water Quality	15	0	0	Interpolation from PLSS	Tue, 16 Nov 1999 00:00:00
5	35.427006	-97.566716	48947	Oklahoma	Monitoring Well		Sinclair Oil Corp.	NE	NE	SE	13	11N	04WI	Water Quality	15	0	0	Interpolation from PLSS	Tue, 16 Nov 1999 00:00:00
6	35.427006	-97.566716	48948	Oklahoma	Monitoring Well		Sinclair Oil Corp.	NE	NE	SE	13	11N	04WI	Water Quality	0	0	0	Interpolation from PLSS	Tue, 16 Nov 1999 00:00:00
7	35.414378	-97.548935	49389	Oklahoma	Monitoring Well		CK Partners Ltd. c/o Trust Env	SE	SE	NE	19	11N	03WI	Water Quality	15	0	0	Interpolation from PLSS	Tue, 11 Jan 2000 00:00:00
8	35.414378	-97.548935	49390	Oklahoma	Monitoring Well		CK Partners Ltd. c/o Trust Env	SE	SE	NE	19	11N	03WI	Water Quality	20	0	0	Interpolation from PLSS	Tue, 11 Jan 2000 00:00:00
9	35.407188	-97.542205	49567	Oklahoma	Monitoring Well		Station	SW	SE	SW	20	11N	03WI	Water Quality	30	20	0	Interpolation from PLSS	Thu, 20 Jan 2000 00:00:00
10	35.407188	-97.542205	51059	Oklahoma	Monitoring Well		EZMART	SW	SE	SW	20	11N	03WI	Water Quality	20	15	0	Interpolation from PLSS	Tue, 18 Apr 2000 00:00:00
11	35.405247	-97.533336	51075	Oklahoma	Monitoring Well		PDQ #3	NW	NE	NE	29	11N	03WI	Water Quality	17	8	0	Interpolation from PLSS	Fri, 21 Apr 2000 00:00:00
12	35.405247	-97.539986	57677	Oklahoma	Monitoring Well		PDDQ Grocery	NE	NE	NW	29	11N	03WI	Water Quality	15	4	0	Interpolation from PLSS	Wed, 29 Nov 2000 00:00:00
13	35.421585	-97.56446	56087	Oklahoma	Monitoring Well		S & K Quick Stop	SW	SW	SW	18	11N	03WI	Unsaturated Zone	10	0	0	Interpolation from PLSS	Sat, 22 Jul 2000 00:00:00
14	35.421585	-97.56446	56088	Oklahoma	Monitoring Well		S 7 K Quick Stop	SW	SW	SW	18	11N	03WI	Unsaturated Zone	5	0	0	Interpolation from PLSS	Sat, 22 Jul 2000 00:00:00
15	35.407188	-97.533336	62241	Oklahoma	Monitoring Well		Conoco c/o Clearwater Env.	SW	SE	SE	20	11N	03WI	Water Quality	14	6	0	Interpolation from PLSS	Tue, 12 Jun 2001 00:00:00
16	35.407188	-97.533336	60711	Oklahoma	Monitoring Well		PDQ ## Grocery c/o Clearwater	SW	SE	SE	20	11N	03WI	Water Quality	14	8	0	Interpolation from PLSS	Fri, 16 Feb 2001 00:00:00
17	35.407188	-97.533336	60713	Oklahoma	Monitoring Well		PDQ #3 Grocery c/o Clearwater	SW	SE	SE	20	11N	03WI	Water Quality	14	8	0	Interpolation from PLSS	Fri, 16 Feb 2001 00:00:00
18	35.407188	-97.533336	58563	Oklahoma	Monitoring Well		PDQ #3 Grocery c/o Clearwater	SW	SE	SE	20	11N	03WI	Water Quality	14	8	0	Interpolation from PLSS	Fri, 16 Feb 2001 00:00:00
19	35.405247	-97.53777	58564	Oklahoma	Monitoring Well		PDQ #3 Grocery c/o Clearwater	NW	NW	NE	29	11N	03WI	Water Quality	14	8	0	Interpolation from PLSS	Fri, 16 Feb 2001 00:00:00
20	35.407188	-97.533336	58565	Oklahoma	Monitoring Well		PDQ #3 Grocery c/o Clearwater	SW	SE	SE	20	11N	03WI	Water Quality	14	8	0	Interpolation from PLSS	Fri, 16 Feb 2001 00:00:00
21	35.407188	-97.542205	65929	Oklahoma	Monitoring Well		EZ Mart	SW	SE	SW	20	11N	03WI	Water Quality	20	12	0	Interpolation from PLSS	Mon, 1 Oct 2001 00:00:00

22	35.427006	-97.56446	71454	Oklahoma	Monitoring Well		Earl Birdwell	NW	NW	SW	18	11N	03WI	Water Quality	35	24	0	Interpolation from PLSS	Tue, 21 May 2002 00:00:00
23	35.405264	-97.564497	81636	Oklahoma	Monitoring Well		Conoco-Phillips	NW	NW	NW	30	11N	03WI	Site Assessment	0	0	0	Mathematical conversion program	
24	35.405264	-97.564497	81637	Oklahoma	Monitoring Well		Conoco-Phillips	NW	NW	NW	30	11N	03WI	Site Assessment	0	0	0	Mathematical conversion program	
25	35.407149	-97.564457	87114	Oklahoma	Monitoring Well		Conoco-Phillips	SW	SW	SW	19	11N	03WI	Site Assessment	0	0	0	Mathematical conversion program	

More Records Zoom to these records

1 mile radius

Monitoring Wells

Rec	Latitude	Longitude	Well ID	County	Well Type	Permit Number	Well Owner	Quarter 1	Quarter 2	Quarter 3	Section	Township	Range	Use Class	Total Depth	First Water	Approximate Yield	Lat/Lon Method	Construction Date
26	35.405264	-97.564497	88879	Oklahoma	Monitoring Well		Sinclair Oil Corporation	NW	NW	NW	30	11N	03WI	Water Quality	0	0	0	Mathematical conversion program	Mon, 26 Jul 2004 00:00:00
27	35.40687	-97.54716	91158	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	30	9	0	Mathematical conversion program	Tue, 26 Oct 2004 00:00:00
28	35.407188	-97.54664	91159	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	25	0	0	Mathematical conversion program	Tue, 26 Oct 2004 00:00:00
29	35.40635	-97.54718	91153	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	30	0	0	Mathematical conversion program	Thu, 28 Oct 2004 00:00:00
30	35.40636	-97.54763	91154	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	30	0	0	Mathematical conversion program	Thu, 28 Oct 2004 00:00:00
31	35.40687	-97.54716	91156	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	25	0	0	Mathematical conversion program	Wed, 27 Oct 2004 00:00:00
32	35.40687	-97.54716	91157	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	30	0	0	Mathematical conversion program	Wed, 27 Oct 2004 00:00:00
33	35.405247	-97.54442	92962	Oklahoma	Monitoring Well		EZ MART- OPES	NE	NW	NW	29	11N	03WI	Site Assessment	30	0	0	Mathematical conversion program	Wed, 30 Mar 2005 00:00:00
34	35.4065833	-97.5472333	93283	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	25	0	0	Mathematical conversion program	
35	35.407188	-97.54664	93284	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	18	0	0	Mathematical conversion program	
36	35.407188	-97.54664	93285	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	21	0	0	Mathematical conversion program	
37	35.407188	-97.54664	93286	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	20	0	0	Mathematical conversion program	
38	35.407188	-97.54664	93287	Oklahoma	Monitoring Well		Former Sinclair/ CH Guernsey	SW	SW	SW	20	11N	03WI	Site Assessment	23	0	0	Mathematical conversion program	
39	35.4167667	-97.54775	94627	Oklahoma	Monitoring Well		Ram, Inc.	NW	SW	NW	20	11N	03WI	Site Assessment	20	0	0	Mathematical conversion program	Fri, 10 Jun 2005 00:00:00
40	35.4167667	-97.54775	94628	Oklahoma	Monitoring Well		Ram, Inc.	NW	SW	NW	20	11N	03WI	Site Assessment	20	11	0	Mathematical conversion program	Fri, 10 Jun 2005 00:00:00
41	35.4165167	-97.5476667	94629	Oklahoma	Monitoring Well		Ram, Inc.	NW	SW	NW	20	11N	03WI	Site Assessment	20	11	0	Mathematical conversion program	Fri, 10 Jun 2005 00:00:00
42	35.4166167	-97.5477333	94630	Oklahoma	Monitoring Well		Ram, Inc.	NW	SW	NW	20	11N	03WI	Site Assessment	25	11	0	Mathematical conversion program	Fri, 10 Jun 2005 00:00:00
43	35.4167833	-97.5477833	97456	Oklahoma	Monitoring Well		Ram, Inc.	NE	SE	NE	20	11N	03WI	Site Assessment	17.5	0	0	Mathematical conversion program	
44	35.4166167	-97.5478	97458	Oklahoma	Monitoring Well		Ram, Inc.	NE	SE	NE	20	11N	03WI	Site Assessment	15	0	0	Mathematical conversion program	
45	35.4165333	-97.5478	97459	Oklahoma	Monitoring Well		Ram, Inc.	NE	SE	NE	20	11N	03WI	Site Assessment	20	0	0	Mathematical conversion program	
46	35.4165167	-97.5477333	97460	Oklahoma	Monitoring Well		Ram, Inc.	NW	SW	NW	20	11N	03WI	Site Assessment	20	0	0	Mathematical conversion program	
47	35.4166833	-97.5476667	97461	Oklahoma	Monitoring Well		Ram, Inc.	NW	SW	NW	20	11N	03WI	Site Assessment	15	0	0	Mathematical conversion program	
48	35.4166833	-97.5476667	97462	Oklahoma	Monitoring Well		Ram, Inc.	NW	SW	NW	20	11N	03WI	Site Assessment	15	0	0	Mathematical conversion program	
49	35.406101	-97.5342899	102549	Oklahoma	Monitoring Well		PDQ #3	NW	NE	NE	29	11N	03WI	Site Assessment	25	0	0	Mathematical conversion program	Fri, 16 Jun 2006 00:00:00
50	35.4270167	-97.5658333	106834	Oklahoma	Monitoring Well		Vuong Quoc Chinh	NE	NE	SE	13	11N	04WI	Site Assessment	20	8	0	Mathematical conversion program	Wed, 24 Jan 2007 00:00:00

Previous 25 Records More Records **Zoom to these records**

1 mile radius

Monitoring Wells

Rec	Latitude	Longitude	Well ID	County	Well Type	Permit Number	Well Owner	Quarter 1	Quarter 2	Quarter 3	Section	Township	Range	Use Class	Total Depth	First Water	Approximate Yield	Lat/Lon Method	Construction Date
51	35.4270167	-97.5658	108523	Oklahoma	Monitoring Well		Vuong Quoc Chinh	NE	NE	SE	13	11N	04WI	Site Assessment	20	0	0	Mathematical conversion program	
52	35.4207	-97.55467	117594	Oklahoma	Monitoring Well		LDL Investment Group, LLC	NW	NW	NE	19	11N	03WI	Site Assessment	25	0	0	Mathematical conversion program	Tue, 10 Jun 2008 00:00:00
53	35.407188	-97.537771	119086	Oklahoma	Monitoring Well		Dang Nguyen	SW	SW	SE	20	11N	03WI	Site Assessment	13	0	0	Mathematical conversion program	
54	35.42067	-97.55472	120657	Oklahoma	Monitoring Well		LDL Investment Group, LLC	NW	NW	NE	19	11N	03WI	Site Assessment	25	0	0	Mathematical conversion program	Mon, 8 Dec 2008 00:00:00
55	35.405247	-97.533336	118950	Oklahoma	Monitoring Well		Dang Nguyen	NW	NE	NE	29	11N	03WI	Site Assessment	13	0	0	Mathematical conversion program	
56	35.405247	-97.533336	118809	Oklahoma	Monitoring Well		Dang Nguyen	NW	NE	NE	29	11N	03WI	Site Assessment	15	0	0	Mathematical conversion program	
57	35.405247	-97.533336	118810	Oklahoma	Monitoring Well		Dang Nguyen	NW	NE	NE	29	11N	03WI	Site Assessment	20	0	0	Mathematical conversion program	
58	35.405247	-97.533336	118811	Oklahoma	Monitoring Well		Dang Nguyen	NW	NE	NE	29	11N	03WI	Site Assessment	17	0	0	Mathematical conversion program	
59	35.405247	-97.533336	118816	Oklahoma	Monitoring Well		Dang Nguyen	NW	NE	NE	29	11N	03WI	Site Assessment	13	0	0	Mathematical conversion program	
60	35.405247	-97.533336	118817	Oklahoma	Monitoring Well		Dang Nguyen	NW	NE	NE	29	11N	03WI	Site Assessment	19	0	0	Mathematical conversion program	
61	35.405247	-97.533336	118818	Oklahoma	Monitoring Well		Dang Nguyen	NW	NE	NE	29	11N	03WI	Site Assessment	13	0	0	Mathematical conversion program	
62	35.405247	-97.533336	118819	Oklahoma	Monitoring Well		Dang Nguyen	NW	NE	NE	29	11N	03WI	Site Assessment	15	0	0	Mathematical conversion program	
63	35.419799	-97.555588	120752	Oklahoma	Monitoring Well		LDL Investment Group, LLC	NW	NW	NE	19	11N	03WI	Site Assessment	25	0	0	Mathematical conversion program	Mon, 8 Dec 2008 00:00:00
64	35.42176	-97.5656	124030	Oklahoma	Monitoring Well		S & K Quick Stop	SE	SE	SE	18	11N	03WI	Site Assessment	50	0	0	Mathematical conversion program	Wed, 6 May 2009 00:00:00
65	35.42176	-97.5656	124031	Oklahoma	Monitoring Well		S & K Quick Stop	SE	SE	SE	18	11N	03WI	Site Assessment	35	0	0	Mathematical conversion program	Wed, 6 May 2009 00:00:00
66	35.42176	-97.5656	128079	Oklahoma	Monitoring Well		S & K Quickstop	SE	SE	SE	18	11N	03WI	Site Assessment	35	0	0	Mathematical conversion program	Wed, 6 May 2009 00:00:00

Previous 25 Records Zoom to these records

SANBORN FIRE INSURANCE MAP

YELLOW COLOR IS OMITTED IN DESIGNATING FRAME AND VENEERED RESIDENTIAL BUILDINGS IN KEEPING WITH CURRENT MAPPING PRACTICE.

427

428

S. W. 35TH ST.

S. W. GRAND BLV.D.

S. W. 38TH ST.

S. W. 39TH ST.

S. W. 40TH ST.

S. W. 41ST ST.

S. W. 42ND ST.

BROCK PARK

BROCK PARK (NOT INCLUDED IN REPLAT)

REPLAT OF BLKS. 1, 2 & 8 BYER'S PARK ADD'N

BYER'S PARK ADD'N

YOUNGS PL.

YOUNGS PLAT AMENDED BLKS. 2, 3 & 4

MOORES' PL. BLKS. 5, 6 & 7

BARNES PL. ADD'N

S. AGNEW AV.

S. YOUNGS AV.

S. BARNES AV.

S. PENNSYLVANIA AV.

NOT NAMED

IMPASSABLE

437

434

Copyright 1955 by the Sanborn Map Co.

AIR EMISSIONS

Mallory, Heather

From: Taber, Holly
Sent: Tuesday, October 26, 2010 4:12 PM
To: Mallory, Heather
Subject: RE: Permitted Air facility- question
Attachments: rptInvTrends.pdf

The facility is INTEGRIS SOUTHWEST MEDICAL CTR. I attached the emissions inventory for 2008 and 2009. It appears that they are permit exempt because they don't have a permit. Let me know if you need any other information.

Holly Taber
Environmental Programs Specialist
Department of Environmental Quality
Air Quality Division
405.702.4107
holly.taber@deq.ok.gov

From: Mallory, Heather
Sent: Tuesday, October 26, 2010 1:07 PM
To: Taber, Holly
Subject: Permitted Air facility- question

I looked up a permitted Air Quality facility on the dataviewer and would like some more information on the facility. If you aren't the person that deals with this, feel free to forward my email to the correct person.

The facility ID is 836 and the address is 4401 S Western OKC, OK. I'm interested in what type of emissions that this facility emits. I'm writing a phase I and need this as background information for the report.

Thanks,

Heather Mallory
DEQ Land Protection Division
P.O. Box 1677 Oklahoma City, OK 73101
Office: (405) 702-5135
Fax: (405) 702-5101
heather.mallory@deq.ok.gov

****Please note that my office number has changed****

AIR EMISSIONS INVENTORY TRENDS

Air Quality Division, Dept. of Environmental Quality, PO Box 1677, OKC, OK 73101-1677, (405) 702-4100

Company Name: INTEGRIS SOUTHWEST MEDICAL CTR

836 4401 S WESTERN

Inventory Year	Pollutant	Amount (Tons)	CAS
2008			
	* Carbon Monoxide	2.292	630080
	* Nitrogen Oxides - NOx	3.831	
	* PM-10 (All Particulate Matter <10 microns)	0.231	
	* PM-2.5 (All Particulate Matter <2.5 microns)	0.148	
	* Sulfur Oxides - SOx	0.06	
	* Volatile Organics (non-HAP)	0.191	
	Ethylene oxide	0.008	75218
2009			
	* Carbon Monoxide	3.981	630080
	* Nitrogen Oxides - NOx	5.568	
	* PM-10 (All Particulate Matter <10 microns)	0.381	
	* PM-2.5 (All Particulate Matter <2.5 microns)	0.307	
	* Sulfur Oxides - SOx	0.067	
	* Volatile Organics (non-HAP)	0.296	
	Ethylene oxide	0.006	75218

RCRA NOTIFIERS LISTING

RCRA NOTIFIERS LISTING

Source: USEPA RCRAInfo Database

State of: **OKLAHOMA**

EPA-ID	FACILITY NAME	LOCATION ADDRESS	CITY	ZIP	COUNTY/ PARISH	GEN	SGEN	TRAN	OPER TSDF	OWN	OPR	LAND	RECEIVED DATE
OKD056938806	C & D VALVE MFG CO INC	201 NW 67TH ST	OKLAHOMA CITY	73116	OKLAHOMA	3				P			11/07/89
Contact: BILL BEVERS		Mailing Addrs: 201 NW 67TH ST, OKLAHOMA CITY, OK 73116								Phone: 4058435621			
OKD981609621	C & K AUTO SERVICE	208 SW 7TH ST	OKLAHOMA CITY	73109	OKLAHOMA		7			P			10/01/86
Contact: CHARLES KING		Mailing Addrs: 208 SW 7TH ST, OKLAHOMA CITY, OK 73109								Phone: 4052392213			
OKD987097557	C & K AUTO SVC	204 SW 7TH	OKLAHOMA CITY	73109	OKLAHOMA		7			P			01/10/97
Contact: KELLY KING		Mailing Addrs: 204 SW 7TH, OKLAHOMA CITY, OK 73109								Phone: 4052392213			
OKD981592447	C L BOYD	4220 W RENO	OKLAHOMA CITY	73107	OKLAHOMA		6			P			08/22/86
Contact: ELIZABETH HENSON		Mailing Addrs: PO BOX 26427, OKLAHOMA CITY, OK 73126								Phone: 4059428000			
OKD981913494	CABLE VOLKSWAGEN	5600 NW 39TH EXPRESSWAY	OKLAHOMA CITY	73122	OKLAHOMA	2				P		P	03/31/97
Contact: ENVIRONMENTAL CONTACT		Mailing Addrs: 5600 NW 39TH EXPRESSWAY, OKLAHOMA CITY, OK 73122								Phone: 4057870433			
OKD987085388	CALIBER COS	3817 NW EXPRESSWAY	OKLAHOMA CITY	73112	OKLAHOMA		6			P			09/02/10
Contact: SUSIE KING		Mailing Addrs: 3817 NW EXPRESSWAY, OKLAHOMA CITY, OK 73112								Phone: 4059483276			
OKR000003301	CALIFORNIA DOLLAR 75 CLEANERS	9222 N PENN	OKLAHOMA CITY	73132	OKLAHOMA	2				P	P	P	11/17/08
Contact: SCOTT A MOSS		Mailing Addrs: 9222 N PENN, OKLAHOMA CITY, OK 73132								Phone: 4058792020			
OKD020733416	CAMCO COILED TUBING SERVICES	2704 S MERIDIAN	OKLAHOMA CITY	73108	OKLAHOMA		7			P		P	01/14/97
Contact: DALE EDEN		Mailing Addrs: 2704 S MERIDIAN, OKLAHOMA CITY, OK 73108								Phone: 4052368883			
OKD981147598	CAMELOT CLNRS & LNDRY	6722 S WESTERN	OKLAHOMA CITY	73130	OKLAHOMA	3				P			11/18/85
Contact: JOHN-CALVIN WILLIAMS		Mailing Addrs: 6722 S WESTERN, OKLAHOMA CITY, OK 73139								Phone: 4056310666			
OKD980748487	CAMERON COMPRESSION SERVICES	2101 SE 18TH ST	OKLAHOMA CITY	73129	OKLAHOMA	2				P	P	P	06/19/06
Contact: JOHN H GWINUP		Mailing Addrs: 2101 SE 18TH ST, OKLAHOMA CITY, OK 73129								Phone: 4056195037			
OKD987082138	CAMERON DRILLING SYSTEMS	4341 SW 33RD	OKLAHOMA CITY	73119	OKLAHOMA	2				C	P	P	06/04/07
Contact: MIKE O JACKSON		Mailing Addrs: 4341 SW 33RD, OKLAHOMA CITY, OK 73119								Phone: 4058313136			
OKD007197858	CAMERON IRON WORKS INC	PO BOX 94816	OKLAHOMA CITY	73109	OKLAHOMA		6			P			08/18/80
Contact: HENRY-N-JR GREGORY		Mailing Addrs: PO BOX 94816, OKLAHOMA CITY, OK 73109								Phone: 7139393711			
OKR000023416	CANARY WELLHEAD	1820 S MISSOURI	OKLAHOMA CITY	73129	OKLAHOMA	3	5			P	P	P	03/21/08
Contact: LYNN BLEVINS		Mailing Addrs: PO BOX 96382, OKLAHOMA CITY, OK 73143								Phone: 4056702806			
OKR000003533	CAPITAL CLEANERS AND LAUNDRY	3925A N LINCOLN BLVD	OKLAHOMA CITY	73105	OKLAHOMA		7			P		P	05/04/06
Contact: JONATHAN ADEDAPO		Mailing Addrs: 3925A N LINCOLN BLVD, OKLAHOMA CITY, OK 73105								Phone: 4055252020			
OKR000003061	CAPITOL HILL TYPEWRITER	4301 S PENN	OKLAHOMA CITY	73119	OKLAHOMA		8			P		P	05/01/98
Contact: DUANE BAYS		Mailing Addrs: 4301 S PENN, OKLAHOMA CITY, OK 73119								Phone: 4056861005			
OKD007195092	CAPITOL PAINT MANUFACTURING CO	722 SW 23 ST	OKLAHOMA CITY	73143	OKLAHOMA	2				P			08/18/80
Contact: STANTON BALLEW		Mailing Addrs: BOX 95186, OKLAHOMA CITY, OK 73143								Phone: 4056343383			
OKR000017913	CAPITOL STEEL & IRON,LLC	1726 S AGNEW	OKLAHOMA CITY	73108	OKLAHOMA	2				P	P	P	06/14/10
Contact: GEARY D WHALEY		Mailing Addrs: 1726 S AGNEW, OKLAHOMA CITY, OK 73108								Phone: 4055126122			

Report run on: August 26, 2010 1:53 PM
Report Title: 06h_notifiers_list_v5.rdf

RCRA NOTIFIERS LISTING

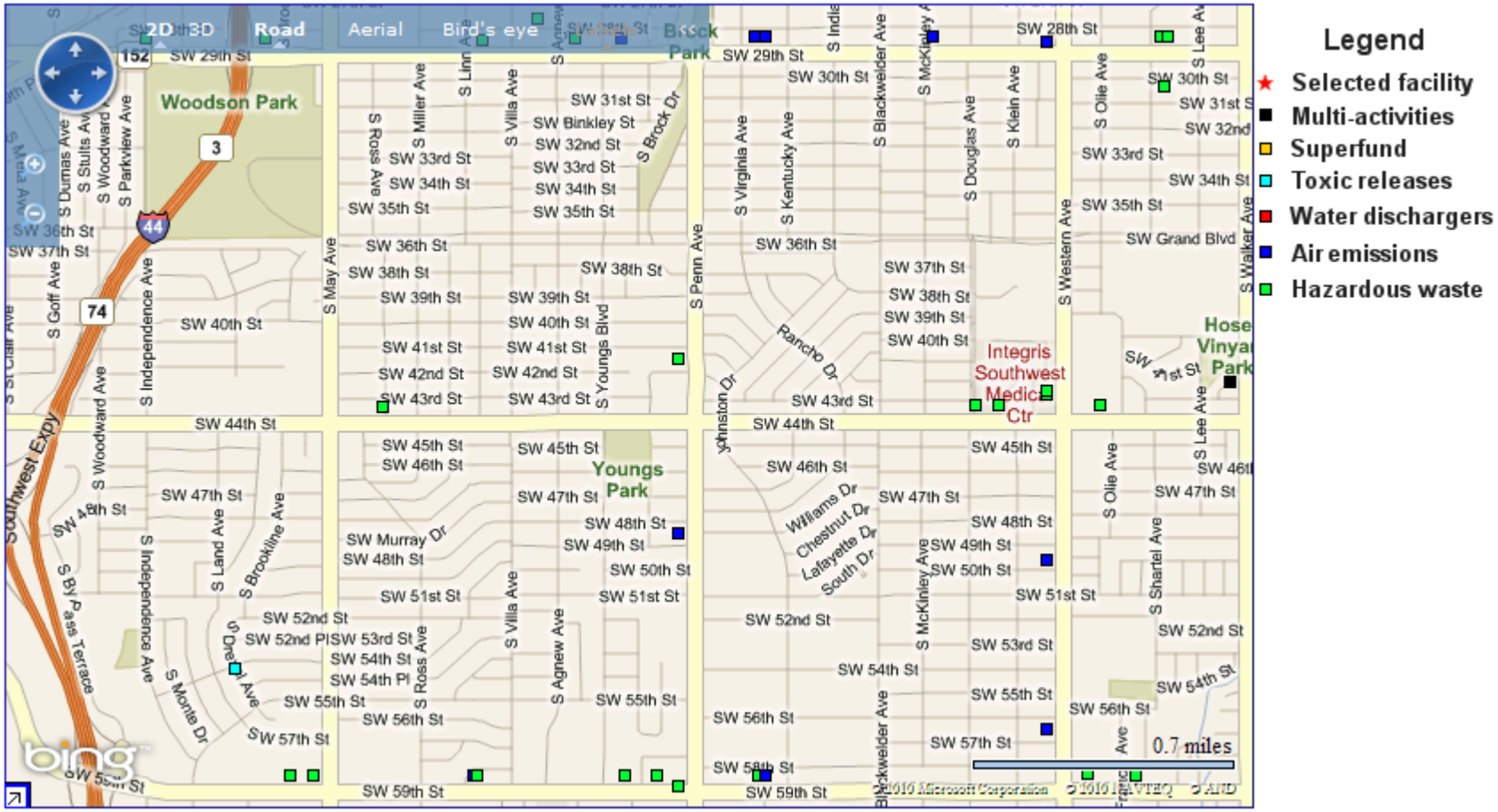
Source: USEPA RCRAInfo Database

Column Descriptions

Column	Value	Description
GEN - Generator Status	1	Large Quantity Generator
	2	Small Quantity Generator
	3	Conditionally Exempt Small Quantity Generator
SGEN - State Waste Generator Code	4	One Time Generator
	5	Periodic Generator
	6	No Longer Generating, Still in Business
	7	No Longer Generating, Out of Business
	8	Never Generated Hazardous Waste - Verified
	9	Transporter
	N	No separately defined State status
TRAN - Hazardous Waste Transporter	Y	Hazardous Waste Transporter
OPER TSDF - Operating Treatment/Storage/Disposal Facility		
	L	Land Disposal Facility
	I	Incinerator
	B	Burner/Boiler
	S	Storage Facility
	T	Treatment Facility
OWN - Owner Type OPR - Operator Type (Though different in meaning, the value of codes are the same) Land- Land Type		
	C	County
	D	District
	F	Federal
	I	Indian
	M	Municipal
	O	Other
	P	Private
	S	State
RECEIVED DATE		Receipt Date of most current RCRA Site ID Form

Depending on User Selection Criteria, all of the above Values may not appear on this report.

RCRA INFO FACILITY LOCATION MAP

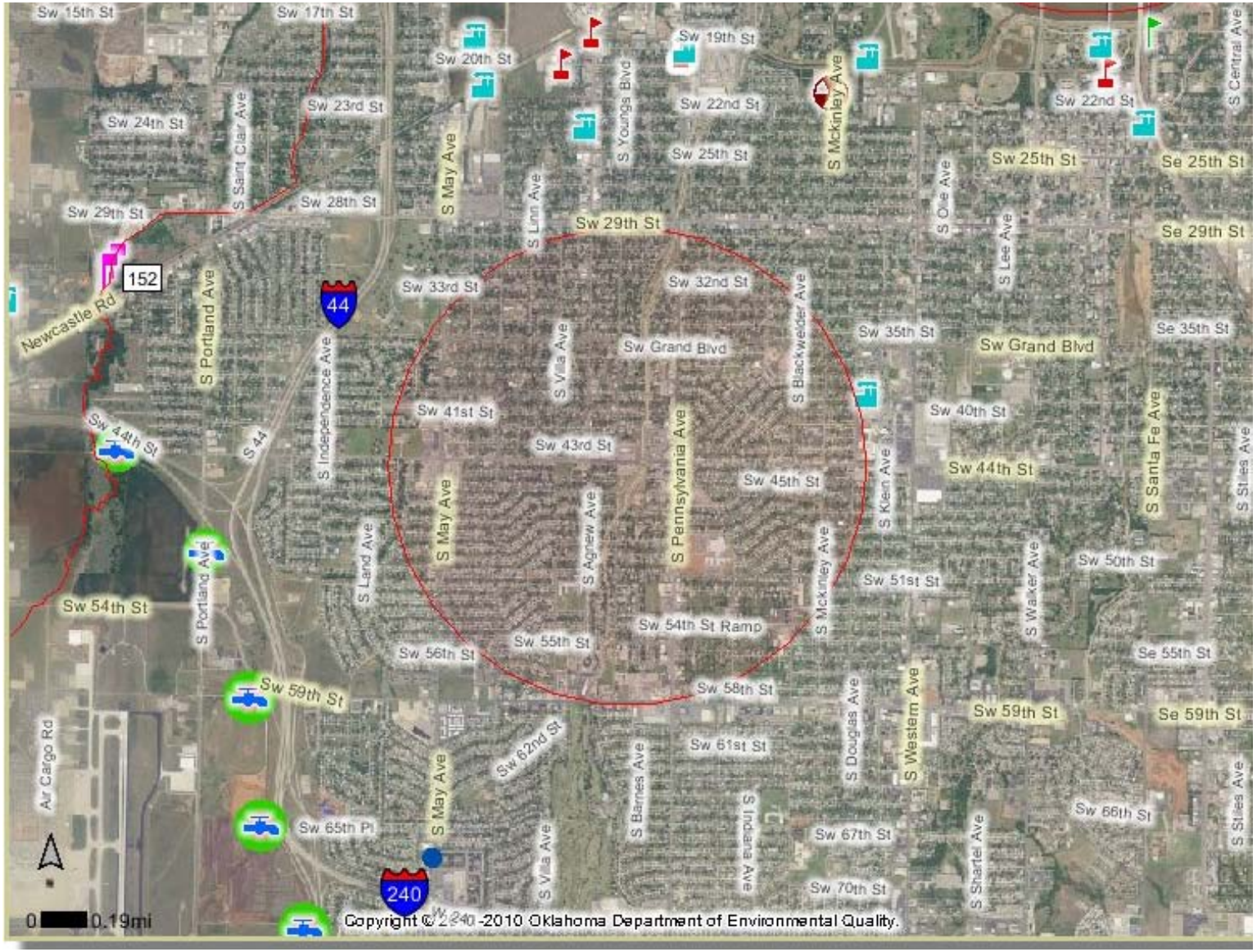


Legend

- Selected facility
- Multi-activities
- Superfund
- Toxic releases
- Water dischargers
- Air emissions
- Hazardous waste

EPA Facility Location Information (RCRA Info)

1 MILE RADIUS MAP



1 mile radius around Armory

Explanation of 1mile radius map

Table of Contents

CAFO
Total Retention Facilities
Wellhead Protection Areas (WHPAs)
PWS Wells
Sensitive Waters and Watersheds for the OKR10 Construction Storm Water General Permit
PWS Surface Water Intakes
PDES Discharges
Land Application Sites
Draft 2010 303D
Toxic Release Inventory
Air Quality Permitted Facilities
Voluntary Cleanup Program Sites
Treatment Storage / Disposal
Superfund Sites
Large Quantity Generators
Active Municipal Landfills

CAFO back to top

Click ID to Zoom	POLARID	LICNUMBER1	COUNTY	SECTION	TWPNUM	TWPDIR	RNGNUM	RNGDIR	MERIDIAN	SUB1	SUB2	SUB3	SUB4	SUB5	SUB6	LOCATIONID	EPANO

No results found

Total Retention Facilities back to top

Click ID to Zoom	FACILITY	FACNO	OWRB	INDUST_ID	AUTH_NUM	COUNTY	FAC_TYPE	FAC_ADD	FAC_CITY	FAC_ST	FAC_ZIP	FAC_PH	OWN_NA	OWN_ADD	OWN_CITY	O

No results found

Wellhead Protection Areas (WHPAs) back to top

Click ID to Zoom	SOURCE_IND	ZONE	area	len

No results found

PWS Wells back to top

Click ID to Zoom	SYSTEM	PWSID	SOUR_NAME	SOUR_TYPE	SOUR__ID	SOURCE	POP	SERVICES	COUNTY	AVAILABILI	AQUIFER	WELL_DEPTH	STATUS	FAC_ADD	FAC_CI

No results found

Sensitive Waters and Watersheds for the OKR10 Construction Storm Water General Permit back to top

Click ID to Zoom	HUC11	NAME	area	len

No results found

PWS Surface Water Intakes back to top

Click ID to Zoom	SYSTEM	PWSID	SOURCE_NA	SOURCE_TY	SOURCE_ID	SOURCE	POP_SERVED	SEVICES	COUNTY	AVAILABILI	STATUS	FAC_ADD	FAC_CITY	FAC_ST	FA

No results found

PDES Discharges back to top

Click ID to Zoom	id	facility_n	permit_num	facility_i	outfall_id	outfall_st	outfall__1	loc_method	loc_accura	loc_datum_	lat	lon	permit_exp	area	len

No results found

Land Application Sites back to top

Click ID to Zoom	FACILITY	ID	SITE	COUNTY	CRD_METHOD	CRD_CONFID	LATDD3	LONDD3	DD3_XYDAT	area	len

No results found

Draft 2010 303D back to top

Click

ID to Zoom	OBJECTID_1	Shape_Leng	WBID_1	Name_1	Size_	Unit	NH3	Arsenic	Barium	Cadmium	Macro	Chl_a	Chloride	Chlorpyrif	Chromium	Color	Copper	DDT	Di

No results found

Toxic Release Inventory back to top

Click ID to Zoom	FORM_TYPE	TITLE_OF_CERTIFYING_OFFICIAL	NAME_OF_CERTIFYING_OFFICIAL	TRIFID	FACILITY_NAME	FACILITY_STREET	FACILITY_CITY	FACILITY_COUN

No results found

Air Quality Permitted Facilities back to top

Click ID to Zoom	FAC_NAME	FAC_ID	STATUS	RECORD_YR	COUNTY	FAC_ADD	FAC_CITY	FAC_ST	FAC_ZIP	FAC_DIR	FAC_PH	CONT_FN	CONT_LN	CONT_PH	FAC_PERMI

No results found

Voluntary Cleanup Program Sites back to top

Click ID to Zoom	SITE_NAME	CITY	COUNTY	LAT	LONG	ID	area	len

No results found

Treatment Storage / Disposal back to top

Click ID to Zoom	FACILITY	FAC_ID	FAC_TYPE	STATUS	FAC_STR	FAC_CITY	FAC_ST	FAC_ZIP	COUNTY	OWNER	OWN_STR	OWN_CITY	OWN_ST	OWN_ZIP	O_PHONE	OW_

No results found

Superfund Sites back to top

Click ID to Zoom	NPL_SITE	CRD_METHOD	CRD_CONFID	LATDD3	LONDD3	DD3_XYDAT	area	len

No results found

Large Quantity Generators back to top

Click ID to Zoom	HANDLER	EPA_HAND	COUNTY	FAC_TYPE	FAC_STATUS	FAC_ADD	FAC_CITY	FAC_STATE	FAC_ZIP	OW_NAME	OW_STREET	OW_CITY	OW_STATE	OW_Z

No results found

Active Municipal Landfills back to top

Click ID to Zoom	FACILITY	PERMIT_	COUNTY	FAC_TYPE	STATUS	PERM_DATE	FAC_ADD	FAC_ADD2	FAC_CITY	FAC_ST	FAC_ZIP	OWNER	OWN_ADD	OWN_CITY	OWN_S

No results found

LEAKING UNDERGROUND STORAGE TANKS

TRUST ENVIRONMENTAL SERVICES, LLC

RECEIVED
LUST TRUST FUND
AUG 1 4 1995
OKLAHOMA CORPORATION COMMISSION

August 11, 1995

Mr. Neil Garrett
Oklahoma Corporation Commission
Fuel Division, UST Department
Oklahoma City, Oklahoma 73105

Certified Mail, Return Receipt Requested
Article No. Z 143 283 902

Re: Addendum to Remediation Plan, OAC 165:25-3-77, Former Circle K Store No. 1279, 5201 South Pennsylvania Avenue, Oklahoma City, Oklahoma
Trust Project No. 204-719-03
OCC Facility No. 55-03567
OCC Case No. 064-1063

Dear Mr. Garrett:

A remediation plan for the subject site was submitted in April, 1995, along with the Investigation for Soil and Groundwater Cleanup Report. The remediation plan consisted of digging contaminated soil in the vicinity of the underground storage tank (UST) pit and hauling the soil to a State-approved landfill. The remediation of the groundwater contamination was not adequately addressed. 40'x63'x15' = 1400 yd^3

It is our intent to pump any water already in the pit, and flowing into the pit, into holding tanks and then haul it off for proper disposal. Once the remediation is completed, Trust will conduct quarterly sampling for 2 quarters to verify that groundwater contamination is decreasing or is lower than Category II cleanup levels. If, after six months, the contamination levels have not declined noticeably, we will prepare a Risk Assessment for closure.

If you have any questions, please give us a call.

Sincerely yours,
Trust Environmental Services, LLC

Harold W. Hanke

Harold W. Hanke, CPG
Certified UST Consultant No. 0002
Project Manager/Hydrogeologist

Enclosures

cc: Mr. Alex A. Garcia, CK Partners, Ltd.

2227 W. Lindsey, Suite 1500 • Norman, OK 73070 • 405/360-2600 • Fax 405/360-4577

TRUST ENVIRONMENTAL SERVICES, LLC

RECEIVED
LUST TRUST FUND
APR 26 1995
OKLAHOMA CORPORATION COMMISSION

April 24, 1995

Mr. Neil Garrett
Oklahoma Corporation Commission
Fuel Division, UST Department
Jim Thorpe Building, Room 238
Oklahoma City, Oklahoma 73105

Re: Underground Storage Tank Investigations for Soil and Groundwater Cleanup Report, Remediation Plan and Public Participation; Former Circle K No. 1279, 5201 South Pennsylvania Avenue, Oklahoma City, Oklahoma
Trust Project No. 204-719-02
Facility ID No. 55-03567
OCC Case No. 064-1063

Dear Mr. Garrett:

Enclosed is a copy of the above-mentioned report. If you have any questions, please give us a call.

Sincerely yours,
Trust Environmental Services, LLC

Harold W. Hanke

Harold W. Hanke, CPG
Certified UST Consultant No. 0002
Project Manager/Hydrogeologist

/ns

Enclosure

cc: Mr. Alex Garcia, CK Partners, Ltd.

2227 W. Lindsey, Suite 1500 • Norman, OK 73070 • 405/360-2600 • Fax 405/360-4577

RECEIVED
LUST TRUST FUND

APR 2 6 1995

OKLAHOMA CORPORATION
COMMISSION

UNDERGROUND STORAGE TANK INVESTIGATIONS FOR SOIL AND GROUNDWATER CLEANUP REPORT, REMEDIATION PLAN AND PUBLIC PARTICIPATION

OCC CASE NO. - 064-1063
OCC FACILITY ID NO. 55-03567

FORMER CIRCLE K STORE NO. 1279
5201 SOUTH PENNSYLVANIA AVE.
OKLAHOMA CITY, OKLAHOMA

SUBMITTED BY:
TRUST ENVIRONMENTAL SERVICES, LLC

APRIL, 1995

CERTIFIED UST CONSULTANT VERIFICATION

I hereby verify that I have reviewed this ISCG Report, Interim Remediation Plan and Public Participation Notification. Being familiar with the provisions of OAC 165:25-3-76, 165:25-3-77 and 165:25-3-78, I further verify that these reports have been prepared, under my supervision, according to the provisions of the regulations and appropriate guidance documents.

SIGNATURE:	Harold W. Hanke
NAME:	HAROLD W.HANKE
CERTIFICATION NO:	0002
DATE:	4-24-95

TABLE OF CONTENTS

SECTION		PAGE
	CHECK LISTS	iv
I	EXECUTIVE SUMMARY	I-1
II	SITE HISTORY	II-1
III	SITE TOPOGRAPHY	III-1
IV	SITE CONDITIONS	IV-1
	Site Description	IV-1
	Soil Conditions	IV-1
	Groundwater Conditions	IV-3
	Extent of the Investigation	IV-12
V	DEVIATIONS FROM PROTOCOL	V-1
VI	FREE PRODUCT EVALUATION AND SUBSURFACE UTILITIES	VI-1
VII	ENVIRONMENTAL IMPACT EVALUATION	VII-1
VIII	CONCLUSIONS	VIII-1
IX	REMEDIATION PLAN	IX-1
	General	IX-1
	Scope of Work - Remediation Plan	IX-1
	Phase I - Excavation	IX-1
	Phase II - Monitoring	IX-3
X	PUBLIC NOTIFICATION	X-1

LIST OF FIGURES

FIGURE		PAGE
1	Site Location/Topographic Map	III-2
2	Facility Map	III-3
3	Cross-Section A-A'	IV-2
4	Geological Map	IV-4

LIST OF FIGURES (Continued)

FIGURE		PAGE
5	Benzene Concentrations in Soil	IV-5
6	Total Petroleum Hydrocarbon Concentrations in Soil	IV-6
7	Potentiometric Surface Map	IV-9
8	Benzene Concentrations in Groundwater	IV-10
9	Total Petroleum Hydrocarbon Concentrations in Groundwater	IV-11
10	Groundwater Supply Well Location Map	IX-2

LIST OF TABLES

TABLE		PAGE
I	Monitoring Well Gauging Data	IV-8

LIST OF APPENDICES

APPENDIX	
A	Previous Report Summaries
B	OCC Correspondence
C	Field Notes
D/E	Soil Boring Logs/Well Construction Diagrams
F	Soil Organic Vapor Measurements
G	Laboratory Analytical Data Sheets/Chain-of-Custody Forms
H	Comparison of Sample Analytical Results with Category Cleanup Levels
I	Hydraulic Conductivity
J	Protocols
K	References
L	Limitations of the Investigation
M	Proof of Publication

SUGGESTED CHECK LIST FOR:

INVESTIGATIONS FOR SOIL AND GROUNDWATER CLEANUP (ISGC)
OAC 165:25-3-76

THE COMPLETE REPORT IS DUE ACCORDING TO THE SCHEDULE
SET BY THE OKLAHOMA CORPORATION COMMISSION

SITE LOCATION

Case Number 064- 1063
Facility Number 55-03567

Facility Name: Former Circle K No. 1279
Address: 5201 S. Pennsylvania Avenue
City: Oklahoma City, Oklahoma

Owner/Operator Name: CK Partners, Ltd., c/o AG Real Estate Svcs.
Address: 8740 N. Kendall Drive, Suite 20
City, State, Zip: Miami, FL, 33176

		Page # of Report	Y	N
I.	Table of Contents (2 page maximum)	ii	[X]	[ ]
	Executive Summary	I-1	[X]	[ ]
	Introduction	I-1	[X]	[ ]
II.	Site History (1 page maximum)	II-1	[X]	[ ]
	Summary of OAC 165:25-3-72 through 3-75	II-1	[X]	[ ]
III.	Topographic map of site and surrounding area	III-2	[X]	[ ]
	Geologic map of site and surrounding area	IV-4	[X]	[ ]
	Area map and site location map	III-2	[X]	[ ]
IV.	Site map	III-3	[X]	[ ]
	Discussion of site hydrogeology	IV-3	[X]	[ ]
	Discussion of full extent of contamination	IV-12	[X]	[ ]
	Soil contamination plume map(s)	IV-5&6	[X]	[ ]
	Groundwater contamination plume map(s)	IV-10&11	[X]	[ ]
	Groundwater table map(s)	IV-9	[X]	[ ]
V.	Discussion of deviations from protocols	V-1	[X]	[ ]
VI.	Was contamination found in any utility line?	VI-1	[X]	[ ]
	A. Did you answer all questions in OAC 165:25-3-75	NA	[ ]	[ ]
	B. Is free product removal continuing at this time?	NA	[ ]	[ ]
	C. If free product removal is continuing, is a schedule given for the next free product removal report?	NA	[ ]	[ ]

Page 1 of 2

	Page # of Report	Y / N
VII. Environmental Impact Evaluation	VII-1	[X] []
VIII. Conclusions		
What is the full extent of the contamination?	VII-1	[X] []
Is the actual or potential impact of contamination on site structures or wells evaluated?	VII-1	[X] []
Is the material presented adequate to develop a Remediation Plan under OAC 165:25-3-77?	_____	[] []
IX. Appendices		
A. Previous report summaries	APP A	[X] []
B. OCC Correspondence	APP B	[X] []
C. Field notes	APP C	[X] []
D. Soil boring/test pit logs	APP D/E	[X] []
E. Well construction diagrams	APP D/E	[X] []
F. Soil sample field screening measurements	APP F	[X] []
G. Laboratory analytical data sheets and chains of custody	APP G	[X] []
H. comparison of sample analytical results with category clean-up levels	APP H	[X] []
I. Hydraulic conductivity test data	APP I	[X] []
J. Protocols (cite documents, manuals, etc. only) for:		
1. Soil sampling, including sample screening protocol(s)	APP J	[X] []
2. Monitoring well construction	APP J	[X] []
3. Groundwater sampling	APP J	[X] []
4. Hydraulic conductivity	APP J	[X] []
5. Analytical sampling	APP J	[X] []
6. Other	APP J	[X] []
K. References	APP J	[X] []

OCC Staff use _____ ____/____/____

I. EXECUTIVE SUMMARY

Trust Environmental Services, LLC (Trust), at the request of CK Partners, Ltd., has conducted subsurface investigations at the Former Circle K Store No. 1279, located at 5201 South Pennsylvania Avenue, Oklahoma City, Oklahoma.

The purpose of this investigation was to determine if native soils and groundwater had been impacted by a confirmed hydrocarbon release reported on March 4, 1994. The notification resulted from a site check conducted by Trust on March 2, 1994. A soil sample obtained during the site check had concentrations of benzene, toluene, ethylbenzene, xylene (BTEX) and total petroleum hydrocarbon (TPH) above Oklahoma Corporation Commission (OCC) action levels. Based on the soil sample analytical results, the OCC required an Initial Site Characterization (ISC) under OCC Rule OAC 165:25-3-74. Trust performed the ISC by drilling three soil borings and obtaining a water sample to complete sufficient field investigations to prepare the ISC report. Based on information gathered in preparation of the ISC report, the site was classified as a Category II site for cleanup levels. Benzene and TPH concentrations in the groundwater sample obtained from soil boring SB-2 were above Category II cleanup levels.

Trust has drilled a total of 13 soil borings during the investigations to delineate the vertical and horizontal extent of the petroleum-hydrocarbon contamination in the soil and groundwater. Nine of these soil borings were converted to groundwater monitoring wells. The investigation indicates the petroleum-hydrocarbon contamination in soil and groundwater has been defined. It appears soil and groundwater contamination above Category II cleanup levels does not extend off-site. Apparent groundwater flow is to the northwest.

Based on data collected to date, it appears that the most likely source for the contamination is contaminated backfill in the former tank pit. When the representative of Gerald's Donuts, a former tenant of the building, was interviewed, she stated that the "gasoline" smell was very strong after a rainy period. The concrete cover over the old tank pit is cracked in several places. It is possible that when the loose soil and backfill became saturated by

infiltrating water, the "bathtub" spilled over and caused the shallow contamination in the soil. In monitoring well MW-3, a 4- to 6-inch sandy zone was noted at a depth of 12 feet. A similar zone was also noted in SB-2. It is very likely that the sandy zone is exposed in the sidewall or bottom of the pit and is acting as a conduit for the movement of the contaminated water out of the pit. The former underground storage tanks (USTs) were removed from the ground in 1987. it appears the former backfill was placed back into the pit and no soil samples were obtained for laboratory analyses.

Soil and groundwater remediation will be required to reduce petroleum contamination below Category II cleanup levels. We believe the most effective method of remediation will be the removal of the contaminated soil by excavation, removal of contaminated groundwater from the excavation, and replacement of the soil and clean backfill.

This report is written to address the vertical and areal extent of contamination in accordance with OAC 165:25-3-76. We have also attached a Remediation Plan and Public Participation plan in satisfaction of OAC 165:25-3-77 and OAC 165:25-3-78.

II. SITE HISTORY

The OCC was notified of a confirmed hydrocarbon release on March 4, 1994. The notification resulted from a site check conducted by Trust personnel on March 2, 1994.

Prior to drilling the soil boring for the site check, a Trust employee interviewed a representative of the former lessee, Gerald's Donuts. She stated that every time it rained, there were heavy gasoline fumes in the building. She also stated that repair crews had mentioned encountering fumes in utility excavations adjacent to the subject property. She further mentioned that the site had been an APCO service station prior to its reconstruction as a Circle K convenience store.

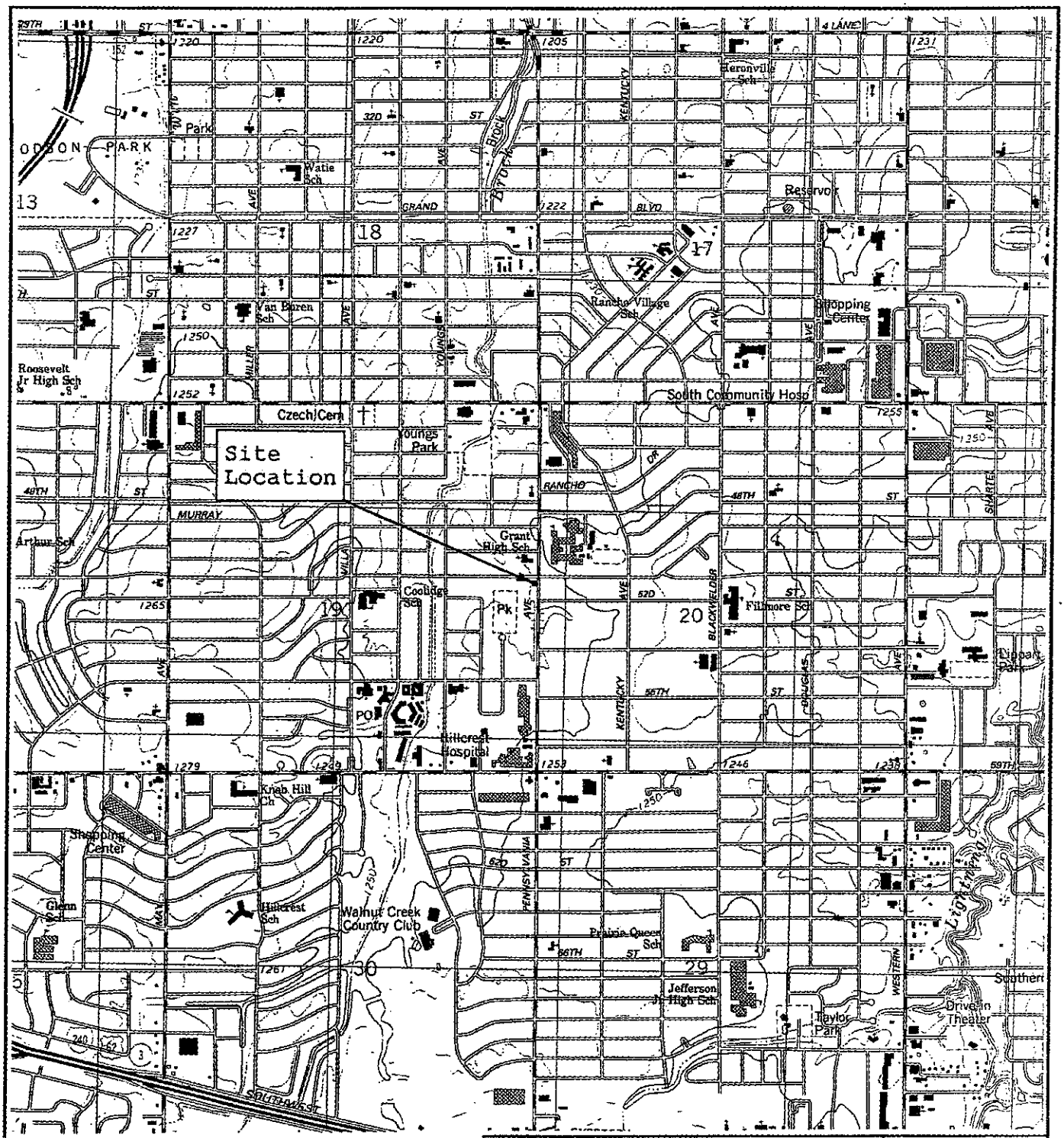
According to records obtained by Trust, three underground storage tanks, formerly containing gasoline, were removed in March, 1987. The removed USTs, their respective contents and capacities are summarized below:

Tank	Capacity	Content
T-1	10,000	Gasoline
T-2	10,000	Gasoline
T-3	10,000	Gasoline

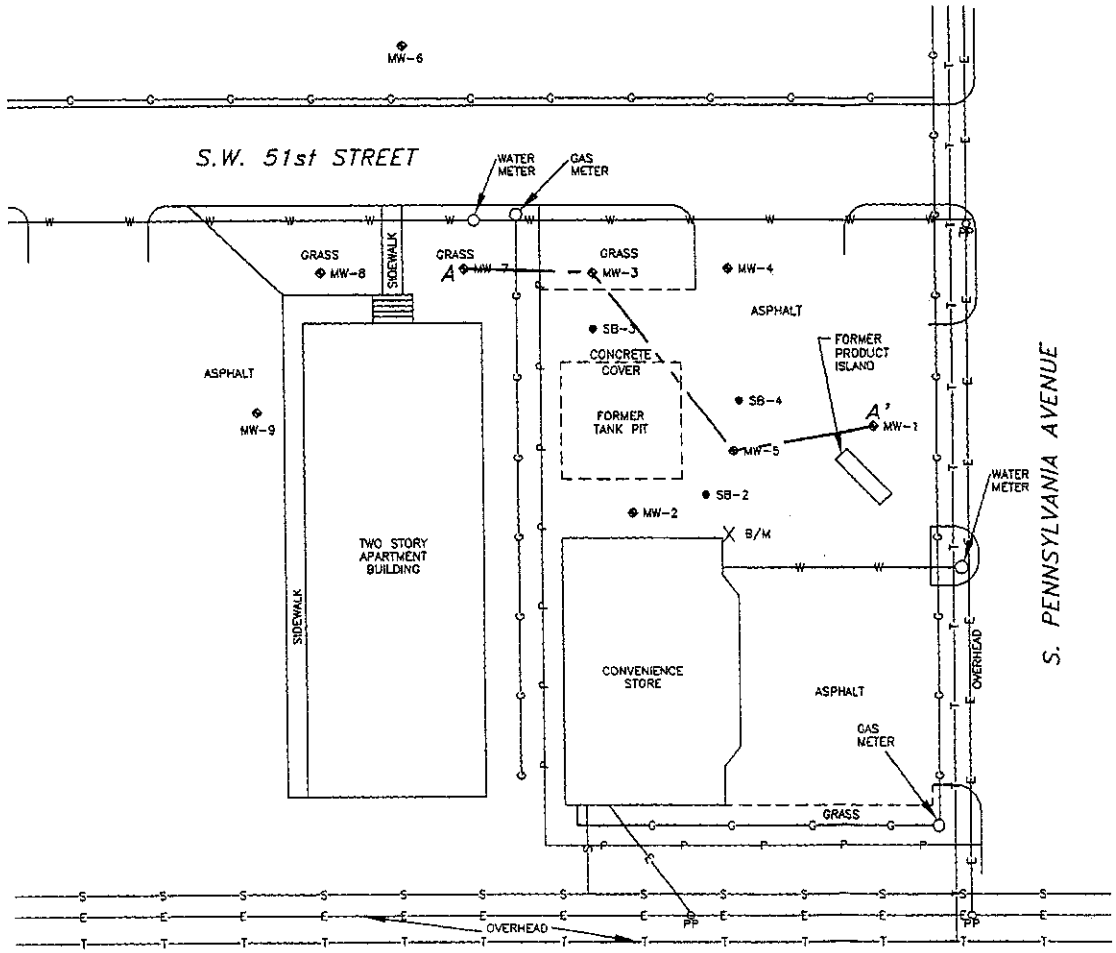
III. SITE TOPOGRAPHY

The former Circle K Store No. 1279 is located in the SE/4, SE/4, NE/4 Section 19, T11N-R3W of the Indian Meridian, Oklahoma County, Oklahoma (see Figure 1). The physical location is the southwest corner of Southwest 51st Street and Pennsylvania Avenue.

The Subject Property is currently occupied by a one-story building (see Figure 2). The building has been used both as a convenience store and as a donut shop. The surrounding area is mixed residential and commercial. Surface topography slopes to the northwest.



Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/94
	DESIGNED:
	CHECKED:
SITE LOCATION MAP	APPROVED:
	DRAWN: COG
	PROJ.: 204-719
TRUST Environmental Services, LLC	Figure 1



Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/95
	DESIGNED:
	CHECKED:
FACILITY MAP	APPROVED:
	DRAWN: JMB
	PROJ.: 204-719
TRUST Environmental Services, LLC	Figure 2

IV. SITE CONDITIONS

Site Description

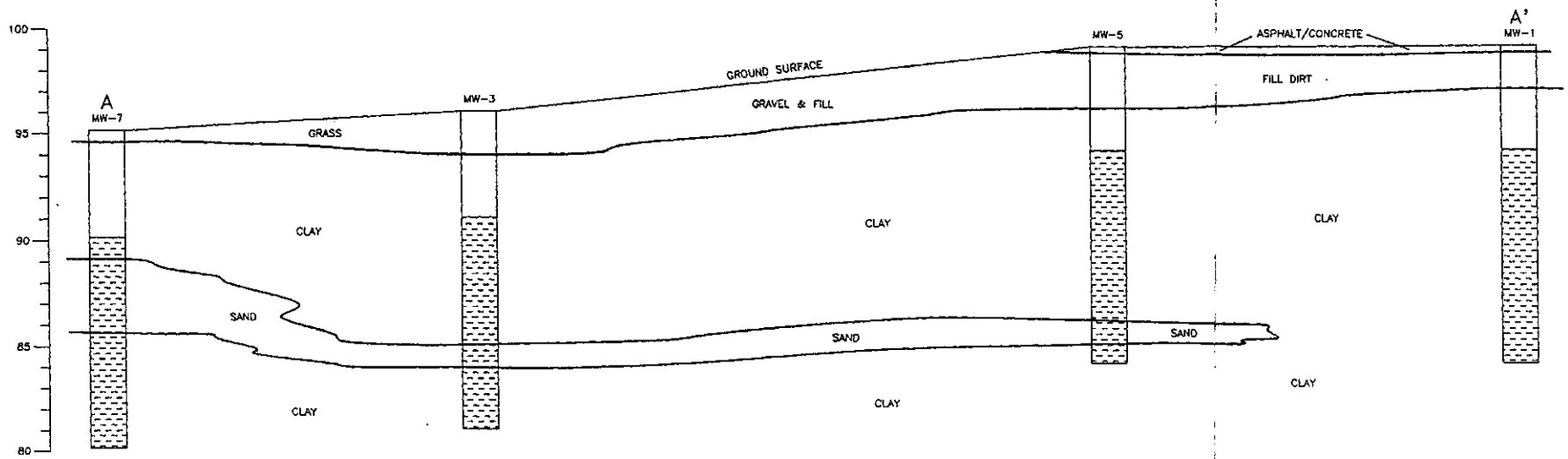
The Subject Property is located in south Oklahoma City on the southwest corner of Southwest 51st Street and South Pennsylvania Avenue. The surrounding population is mixed residential and commercial. The Subject Property is bounded on the north by Southwest 51st Street and on the east by South Pennsylvania Avenue. Adjoining the Subject Property to the west is a two-story apartment house. The land adjoining to the south is occupied by a one-story office building which formerly was used for doctors' offices. A gasoline station is located across Pennsylvania to the east. A car wash facility occupies the corner due north of the Subject Property. U.S. Grant High School is located one-half block north on the east side of Pennsylvania.

Soil Conditions

Trust has drilled a total of 13 borings, 9 of which have been completed as groundwater monitoring wells. The location of each boring and groundwater monitoring well is indicated on the facility map (see Figure 2).

The site area lies on soils classified as part of the Renfrow-Vernon-Bethany Association. This association consists of deep and shallow, loamy and clayey soils on uplands. These soils are mainly near level to sloping, but a few areas are moderately steep. For detailed discussion of the soils present, see ISC, Trust Environmental Services, LLC, April, 1994.

The soils in the tank pit area consist of red-brown or gray clay to 12 - 14 feet. A fine-grained, gray sand was encountered at approximately 13 feet, followed by a red-brown, hard, dry clay to total depth drilled. The maximum depth of investigation was 20 feet. Groundwater was encountered at approximately 12 feet in MW-3, but the water zone was not readily apparent in most wells. Figure 3 represents cross-section A-A', which was prepared with east-west orientation to present the various lithologies and their vertical and horizontal extent.



HORIZONTAL SCALE

0 10' 20'

VERTICAL SCALE: 2X HORIZONTAL SCALE
BOREHOLES ARE EXAGGERATED 5X

Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/95
	DESIGNED:
	CHECKED:
CROSS SECTION A–A'	APPROVED:
	DRAWN: JMB
	PROJ.: 204-722
TRUST Environmental Services, LLC	Figure 3

According to the Hydrologic Atlas No. 4 (Bingham and Moore, 1975), the area surrounding the site is underlain by the Salt Plains Formation which consists of red-brown blocky shale and orange-brown siltstone (refer to Figure 4).

As the borings were advanced, samples were taken at 5-foot intervals with a continuous sampling device. A portion of the soil sample was placed in an air-tight plastic bag and the lithology was recorded. Lithology logs are presented in Appendix E. Duplicate soil samples were placed in jars and stored on ice.

The soil samples in the air-tight plastic bags were allowed to equilibrate for approximately 20 minutes and then screened for relative organic vapor concentrations using an organic vapor meter. Organic vapor readings are presented in Appendix F. The sample from each soil boring corresponding to the highest organic vapor reading was kept on ice until submitted to Oilab, in Oklahoma City, Oklahoma, for chemical analyses. The intervals selected for laboratory chemical analyses are presented in the lithologic logs and Appendix H. The soil samples were analyzed for concentrations of BTEX using Environmental Protection Agency (EPA) Method 8020 and for TPH using Modified EPA Method 8015 (Gasoline Range Organics). A chain-of-custody form and the laboratory reports are presented in Appendix G. Figure 5 is a presentation of benzene concentrations in soil. Figure 6 is a presentation of TPH concentrations in soil.

Groundwater Conditions

Monitoring wells MW-1 through MW-9 were completed by installing 2-inch diameter, 0.020-inch, slotted PVC screen, flush-threaded to 2-inch diameter PVC casing. A gravel pack, consisting of 10-20 mesh silica sand, was placed around the well screen and brought to a depth of at least 1 foot above the top of the screen. A bentonite seal was placed on top of the gravel pack and the remainder of the annular space was filled with a bentonite grout. A locking cap and a flush-mounted manhole cover was used to complete the wells.

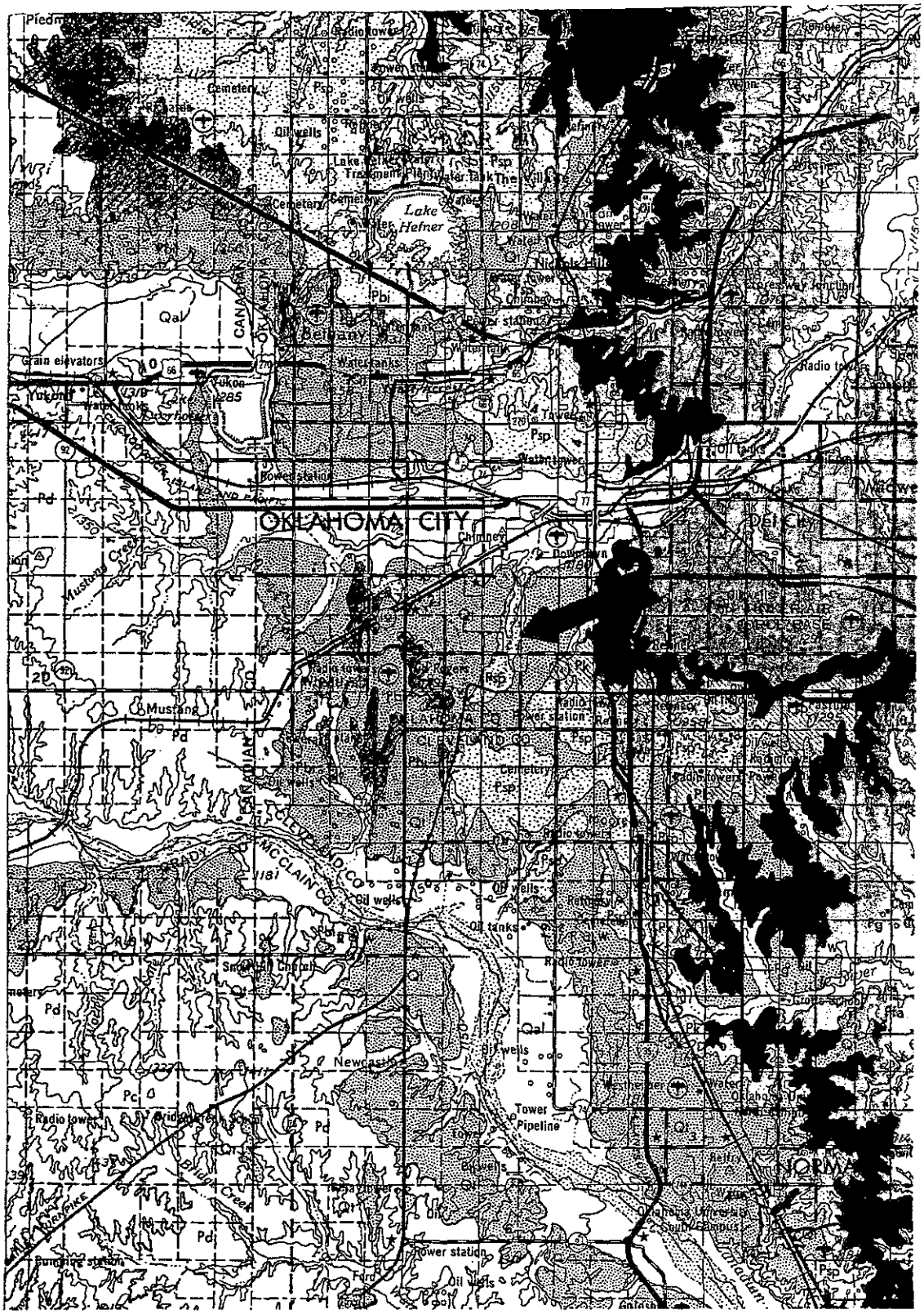
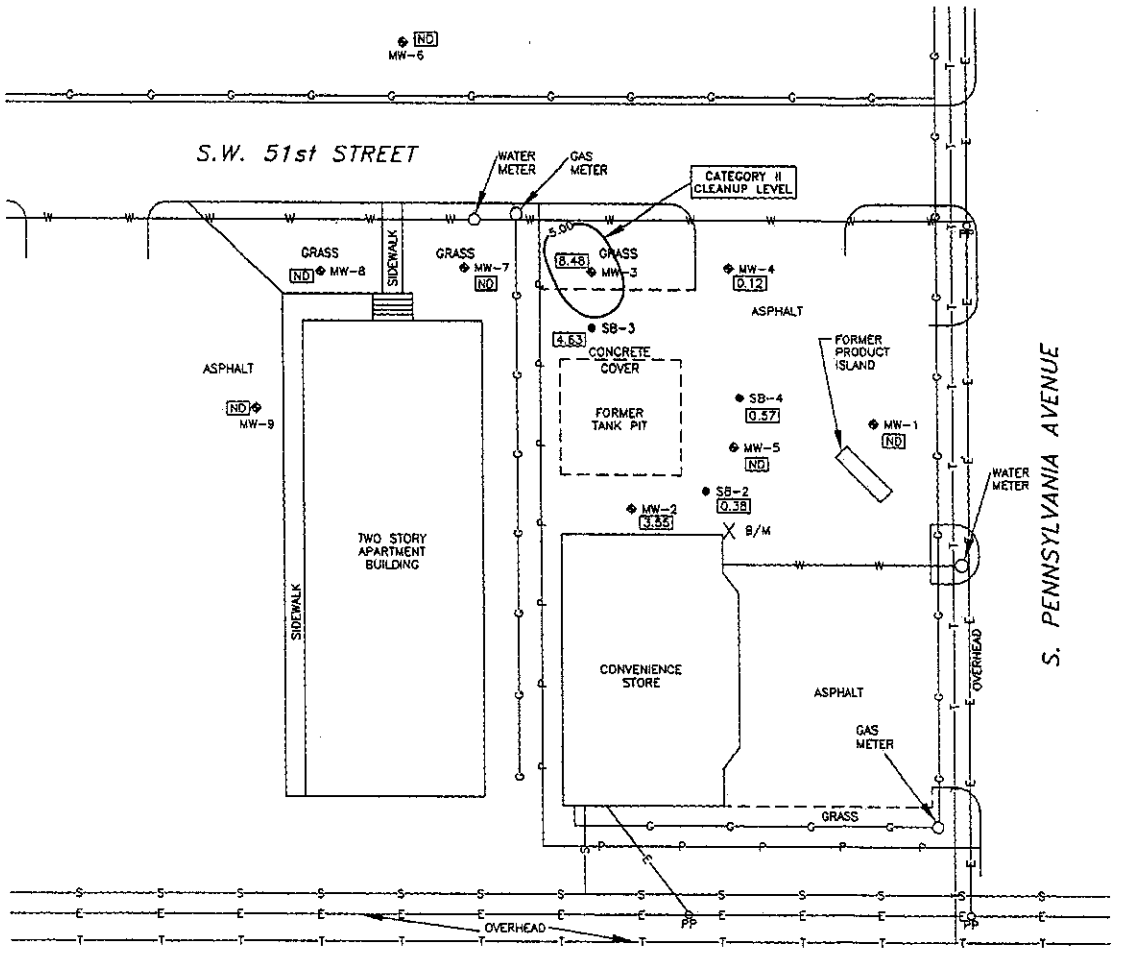
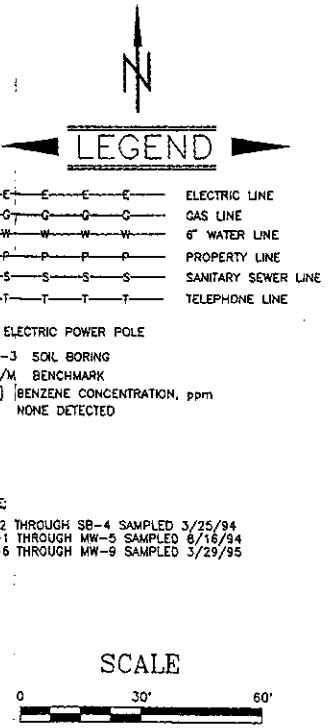
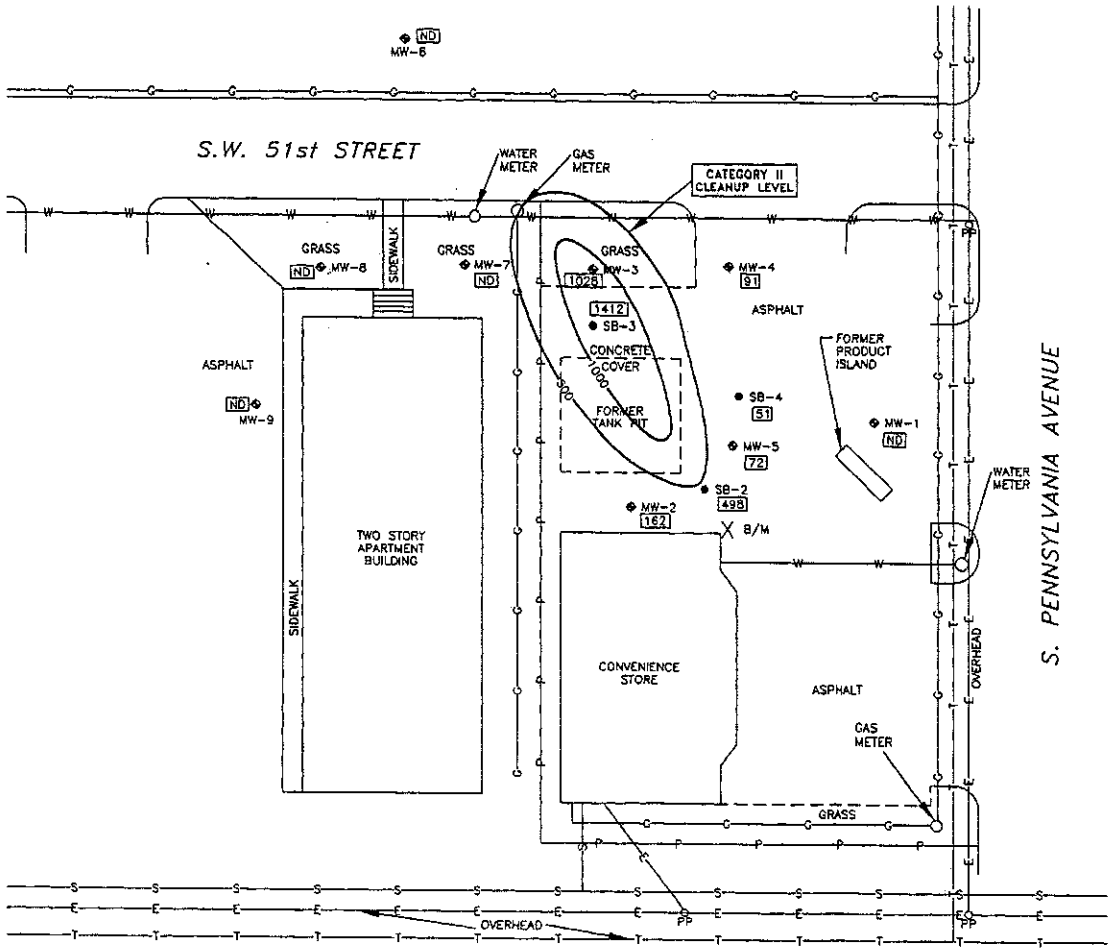


Figure 4. Geological Map





Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/95
BENZENE CONCENTRATIONS IN SOIL SAMPLES, (ppm)	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: JMB
	PROJ.: 204-719
TRUST Environmental Services, LLC	Figure 5



LEGEND

- ELECTRIC LINE
- GAS LINE
- 6" WATER LINE
- PROPERTY LINE
- SANITARY SEWER LINE
- TELEPHONE LINE
- PP ELECTRIC POWER POLE
- ● SB-3 SOIL BORING
- X B/M BENCHMARK
- 162 TPH CONCENTRATION, ppm
- ND NONE DETECTED

NOTE:

SB-2 THROUGH SB-4 SAMPLED 3/25/94
MW-1 THROUGH MW-5 SAMPLED 8/16/94
MW-6 THROUGH MW-9 SAMPLED 3/29/95

SCALE

0 30' 60'

Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/95
TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN SOIL SAMPLES, (ppm)	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: JMB
	PROJ.: 204-719
TRUST Environmental Services, LLC	Figure 6

The monitoring wells were developed by surging and bailing until the well produced water which was relatively free of fine sediment. The wells were allowed to equilibrate for more than a 24-hour period and were then gauged with an oil/water interface gauging probe. The wells were also surveyed to determine elevations relative to an arbitrary bench mark, which is marked ABM on the facility map.

The gauging data is presented in Table I. Figure 7 is a presentation of the potentiometric surface for April 13, 1995. No free product has been discovered to date at this facility.

Groundwater flow direction is to the northwest with a gradient of 0.0349 ft/ft. Hydraulic conductivity (K) was calculated from data obtained during performance of a rising-head slug test. The slug test consisted of bailing down a 2-inch monitoring well (MW-3) and measuring the rate of recovery to static water level. Measurements were made using a pressure transducer and a data logger. Calculations for hydraulic conductivity were made using formulas from Bouwer and Rice, (1989). Based on data acquired from MW-3, hydraulic conductivity ranges from a minimum of 0.018 ft/day to a maximum of 0.023 ft/day. Velocity (V) of groundwater movement in the vicinity of MW-3 is calculated to be 0.0016 ft/day. The raw data and graphs are presented in Appendix I.

The monitoring wells were sampled by first bailing three wellbore volumes of groundwater or until dry; allowing the well to recover for a period of time prior to obtaining a groundwater sample. The groundwater samples were stored on ice and submitted to Oilab, Inc. of Oklahoma City for BTEX and TPH analyses.

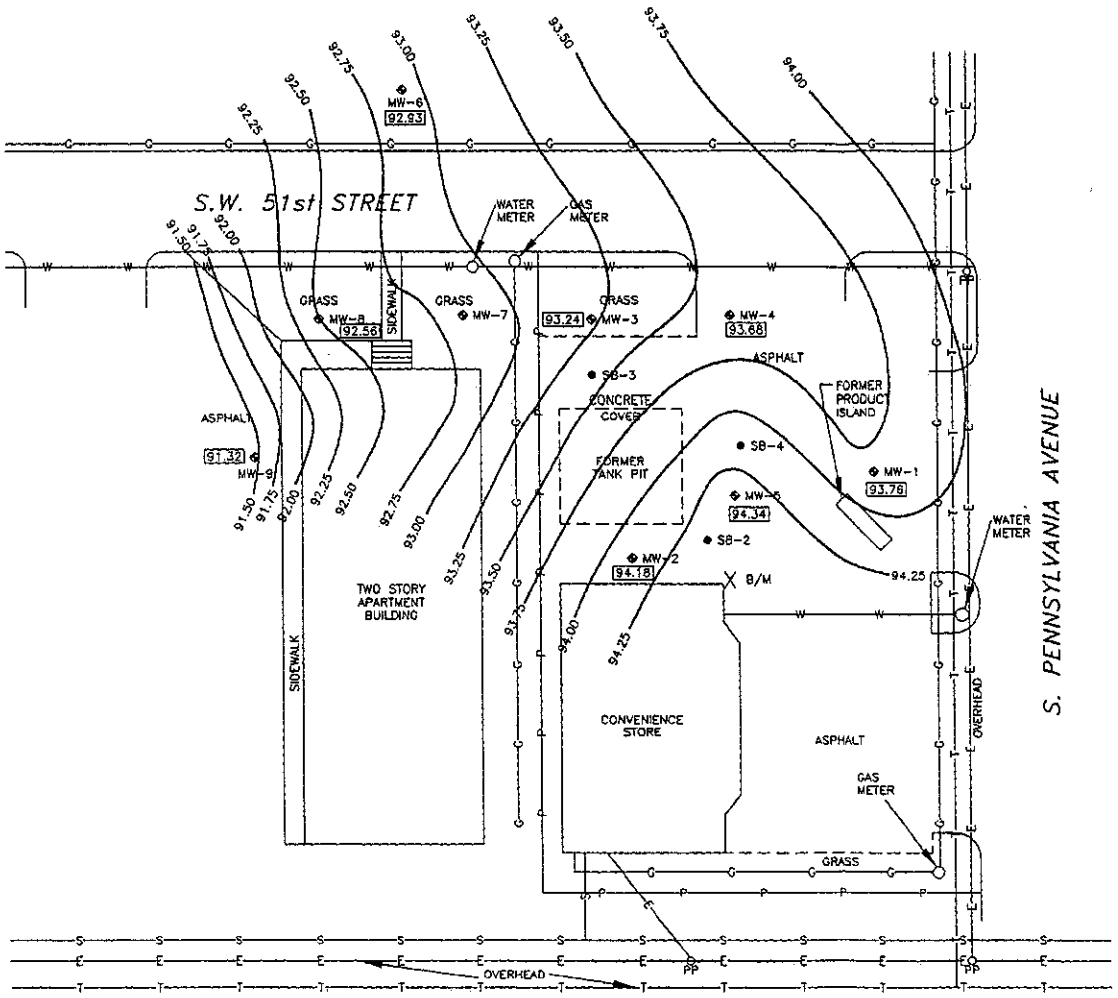
Groundwater sample analytical results are summarized in Appendix H; laboratory reports may be referenced in Appendix G. EPA Method 8020 was used for BTEX analyses and EPA Modified Method 8015 (Gasoline Range Organics) was used for TPH analyses. Figure 8 is a presentation of benzene concentrations in groundwater. Figure 9 is a presentation of TPH concentrations in groundwater.

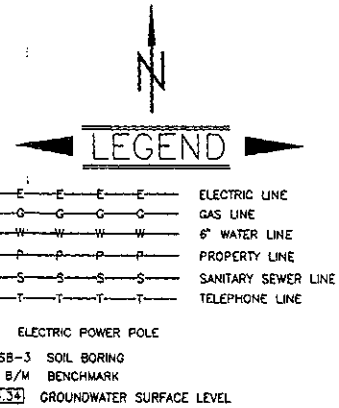
TABLE I

MONITORING WELL GAUGING DATA
Former Circle K Store No. 1279, Oklahoma City, Oklahoma

Well	Elevation (TOC)	9-2-94		4-13-95	
		DTW	PE	DTW	PE
MW-1	99.45	6.17		5.69	93.76
MW-2	99.39	8.89		5.21	94.18
MW-3	96.08	3.89		2.84	93.24
MW-4	97.41	4.84		3.73	93.68
MW-5	99.31	6.29		4.97	94.34
MW-6	96.50			3.57	92.93
MW-7	94.94			10.84	84.10*
MW-8	94.24			1.68	92.56
MW-9	94.67			3.35	91.32

TOC - Top of Casing
DTW - Depth to Water
PE - Potentiometric Elevation
* -

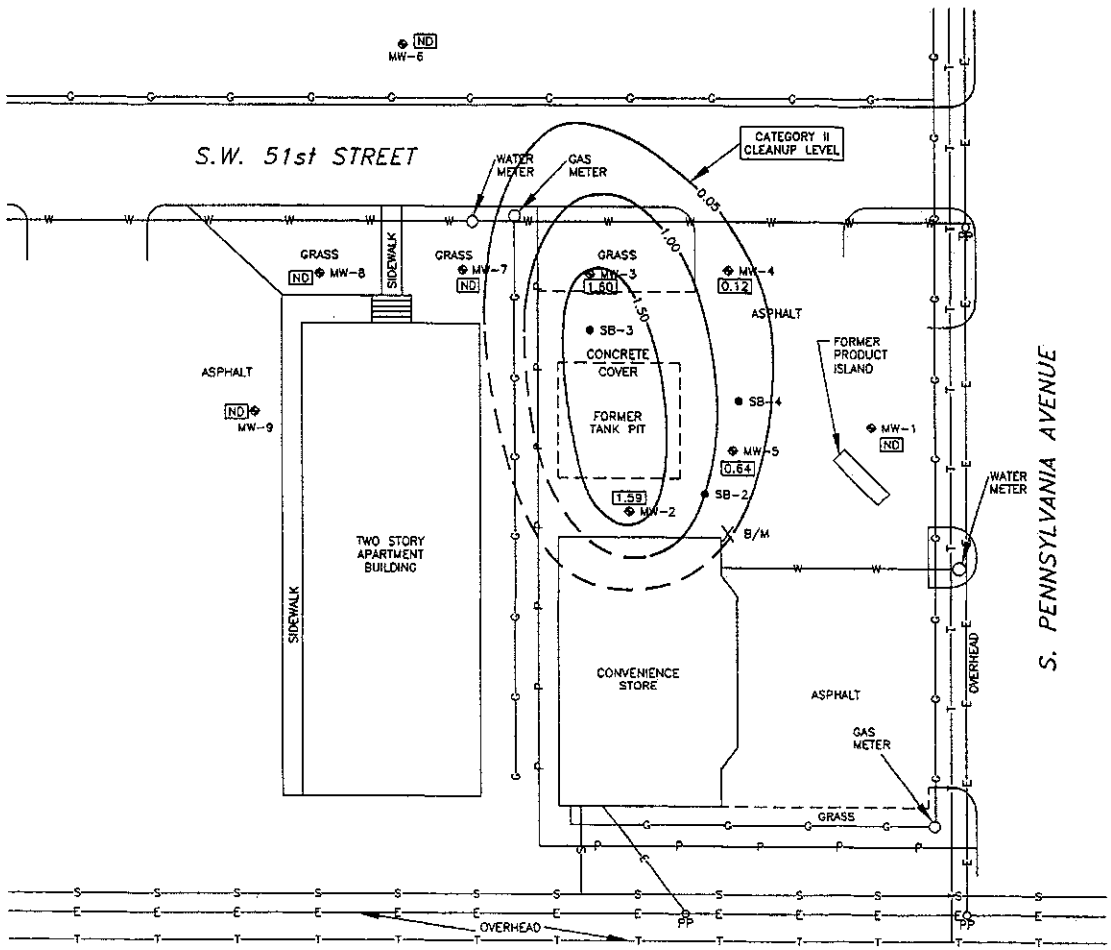




SCALE

0 30' 60'

Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/95
GROUNDWATER SURFACE MAP (4/13/95)	DESIGNED:
	CHECKED:
	APPROVED: PAC
	DRAWN: JMB
	PROJ.: 204-719
TRUST Environmental Services, LLC	Figure 7



LEGEND

- ELECTRIC LINE
- GAS LINE
- 6" WATER LINE
- PROPERTY LINE
- SANITARY SEWER LINE
- TELEPHONE LINE
- PP ELECTRIC POWER POLE
- SB-3 SOIL BORING
- B/M BENCHMARK
- 1.59 BENZENE CONCENTRATION, ppm
- ND NONE DETECTED

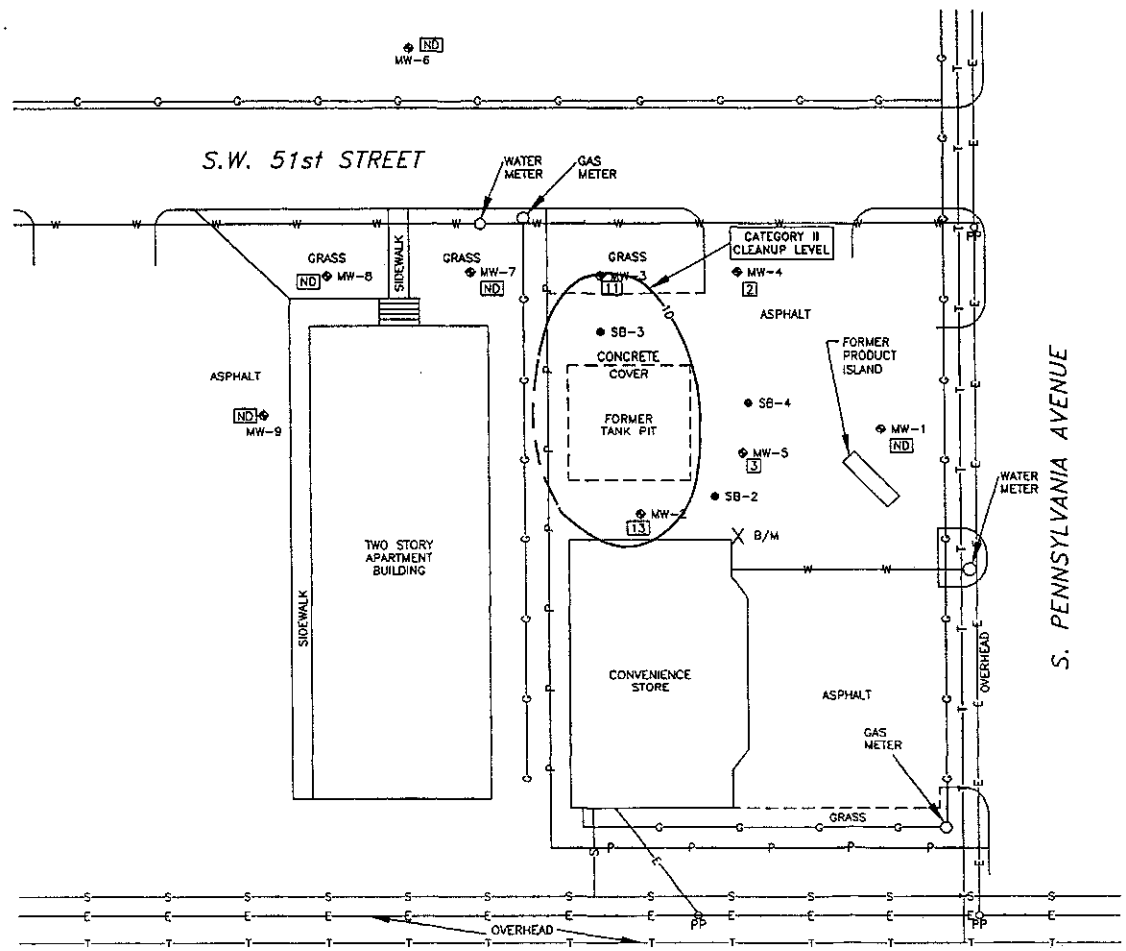
NOTE:

MW-1 THROUGH MW-5 SAMPLED 9/2/95
MW-6 THROUGH MW-9 SAMPLED 4/5/95 & 4/13/95

SCALE

0 30' 60'

Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/95
BENZENE CONCENTRATIONS IN GROUNDWATER, (ppm)	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: JMB
	PROJ.: 204-719
TRUST Environmental Services, LLC	Figure 8



LEGEND

- ELECTRIC LINE
- GAS LINE
- 6" WATER LINE
- PROPERTY LINE
- SANITARY SEWER LINE
- TELEPHONE LINE
- ELECTRIC POWER POLE
- SB-3 SOIL BORING
- B/M, BENCHMARK
- 162 TPH CONCENTRATION, ppm
- ND NONE DETECTED

NOTE:

MW-1 THROUGH MW-5 SAMPLED 9/2/95
MW-6 THROUGH MW-9 SAMPLED 4/5/95 & 4/13/95

SCALE

0 30' 60'

Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/95
TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUNDWATER, (ppm)	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: JMB
	PROJ.: 204-719
TRUST Environmental Services, LLC	Figure 9

Extent of the Investigation

Trust has drilled a total of 13 soil borings during the investigations to satisfy OAC 165:25-3-3, 165:25-3-74 and 165:25-3-76. Nine of these soil borings were converted to groundwater monitoring wells. Soil and groundwater sample analytical results obtained from the soil borings and monitoring wells indicate the areal and vertical extent of the hydrocarbon plume has been delineated on-site.

V. DEVIATIONS FROM PROTOCOL

There were no deviations from standard protocols during this investigation.

VI. FREE PRODUCT EVALUATION AND SUBSURFACE UTILITIES

The monitoring wells were periodically gauged with an oil/water interface gauging probe to determine the presence of free product and depth to water. No measurable thickness of free product was ever indicated during any of the gauging events in this investigation.

Subsurface utilities can serve as a conduit for the migration of petroleum hydrocarbon. The location of the subsurface utilities are presented on the facility map (refer to Figure 4).

Underground utilities such as water and natural gas lines are located downgradient from the tank pit and may have served as conduits for migration of the petroleum contamination in soil and groundwater. A direct investigation of the backfill for the water line trench extending east to west along the south side of Southwest 51st Street has not been made.

Telephone cables, plus sanitary and storm sewers are located up-gradient and some distance away from the tank pit.

VII. ENVIRONMENTAL IMPACT EVALUATION

Soil borings and groundwater monitoring wells have delineated the petroleum-hydrocarbon contamination in the soil and groundwater. Benzene and TPH concentrations in a soil sample obtained from monitoring well MW-3 exceed Category II cleanup levels. TPH concentrations in a soil sample obtained from soil boring SB-3 exceed Category II cleanup levels. The concentration of benzene and TPH in groundwater samples obtained from monitoring wells MW-2 and MW-3 exceeded Category II cleanup levels. The concentration of benzene in groundwater samples obtained from monitoring wells MW-4 and MW-5 exceeded Category II cleanup levels. Concentrations of BTEX and TPH in soil and groundwater were below Category II cleanup levels in all other borings and wells. The contamination appears to be defined on site.

A search of water well records maintained and provided by the Oklahoma Water Resources Board (OWRB) indicated no groundwater supply wells located within 1 mile of the site. There may be, however, additional wells not registered with the OWRB within the area.

The petroleum-hydrocarbon contamination in the groundwater is found at an approximate depth of 13 feet. There have been no complaints of odors from the nearby apartment building.

VIII. CONCLUSIONS

The following conclusions may be drawn from the results obtained after completion of drilling and groundwater monitoring well installations:

- The soil borings and monitoring wells have delineated the extent of soil and groundwater contamination on the site.
- Native soil impacted above Category II cleanup levels is found in the vicinity of MW-2 and MW-3. Groundwater impacted above Category II cleanup levels is found in monitoring wells MW-2, MW-3, MW-4, and MW-5.
- Soil and groundwater contamination above Category II cleanup levels appears to be confined to the tank pit area and does ~~not~~ extend off-site.
- Movement of the groundwater contamination appears to be toward the northwest at a rate of 0.0016 ft/day.
- It appears that the most likely source for the contamination is contaminated backfill in the former tank pit.
- Soil and groundwater remediation will be required to reduce petroleum contamination to below Category II cleanup levels.
- Excavation of the contaminated soil and removal of contaminated groundwater is recommended as the most efficient and cost-effective remediation technique.

IX. REMEDIATION PLAN

GENERAL

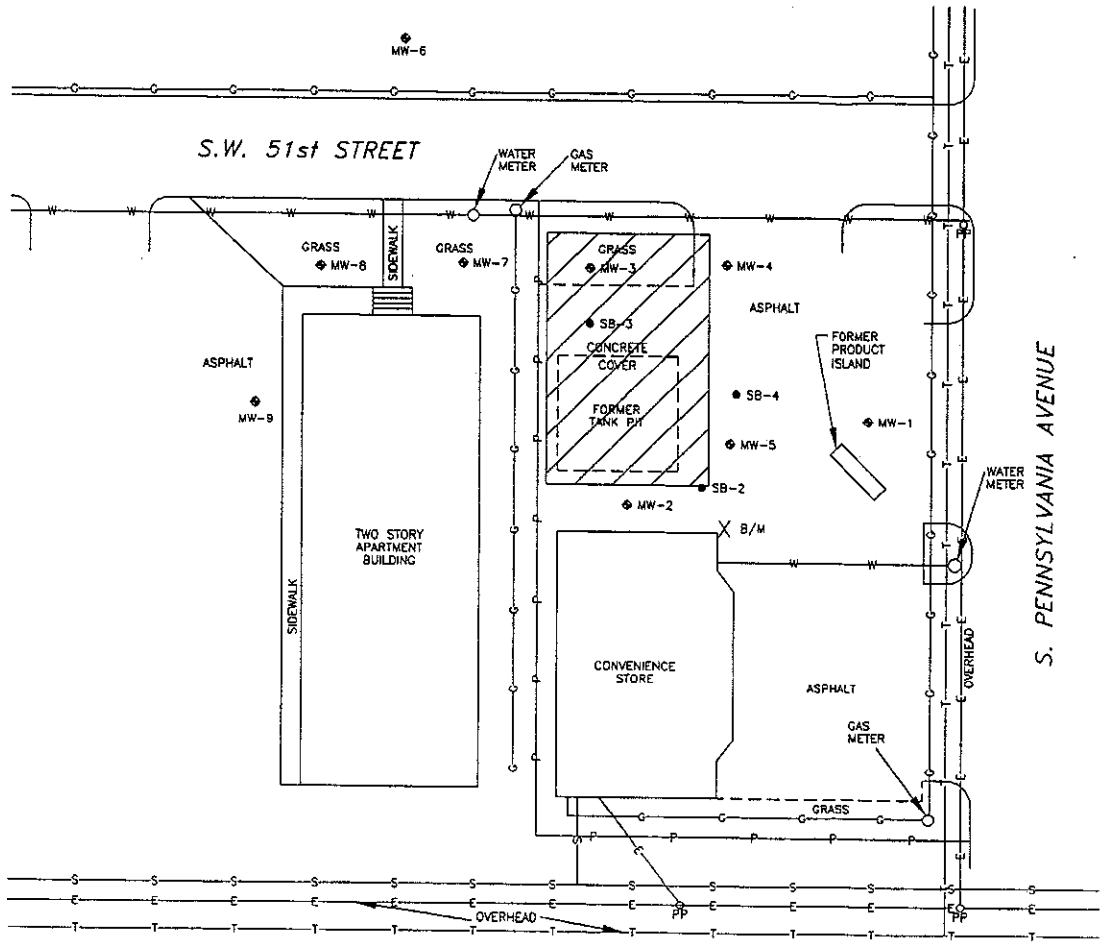
Nine groundwater monitoring wells were installed and tested to delineate the areal and vertical extent of hydrocarbon-impacted soil and groundwater above Category II cleanup levels. Results of the investigation indicate a limited areal and vertical extent centered around the former UST pit. Based on the limited areal and vertical extent of hydrocarbon-impacted soil, excavation of contaminated soil is deemed a viable remediation technique to remove the source of hydrocarbon contamination. Groundwater will be pumped from the open pit during excavation activities and hauled to a petroleum wastewater recycling facility for disposal.

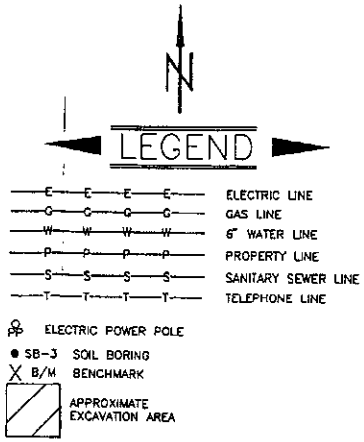
SCOPE OF WORK-REMEDIATION PLAN

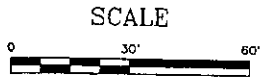
Phase I - Excavation

This Remediation Plan addresses removal of contaminated native soil and groundwater to obtain closure of the OCC case. The area identified in Figure 10 will be excavated to an approximate depth of 15 feet below ground surface. Water confined in the excavation will be pumped into a holding tank and hauled to a petroleum wastewater recycling facility for disposal. All excavated material will be hauled to a landfill approved by the Oklahoma Department of Environmental Quality (ODEQ) to accept petroleum-contaminated soil. Native soil samples from the excavation bottom and sidewalls will be placed in air-tight plastic bags. The soil samples will be allowed to equilibrate for 20 minutes before being screened for hydrocarbon vapors. If any of the organic vapor readings indicated elevated concentrations, the area where the sample was collected will be excavated. Excavation will continue until all petroleum-contaminated soil above cleanup levels has been excavated. A soil sample will be collected from the area containing the highest organic vapor readings once overexcavation has been completed and submitted to a laboratory for analysis of BTEX and TPH.

Once excavation is completed, the pit will be backfilled with clean material, the material will be compacted and the area will be resurfaced.







Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/95
PROPOSED EXCAVATION MAP	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: JMB
	PROJ.: 204-719
TRUST Environmental Services, LLC	Figure 10

Phase II - Monitoring

All existing monitoring wells will then be regauged and sampled for concentrations of BTEX and TPH. If concentrations of BTEX and TPH are below Category II cleanup levels, case closure will be requested.

A report summarizing field activities and results will be prepared and submitted to the OCC. Any additional work or closure of the case will be recommended at that time.

X. PUBLIC NOTIFICATION

In accordance with Oklahoma Corporation Commission (OCC) underground storage tank (UST) Rule 165:25-3-78, CK Partners, Ltd. of Ft. Lauderdale, Florida, is providing public notice that a groundwater remediation project will be performed at the former Circle K Convenience Store No. 1279 located at 5201 South Pennsylvania Ave., Oklahoma City, Oklahoma. CK Partners, Ltd. has contracted with Trust Environmental Services, LLC to design and install the remediation system. A Remediation Plan has been prepared and submitted to the OCC. The Remediation Plan may be viewed by contacting the OCC, Storage Tank Department, Jim Thorpe Building, Oklahoma City, Oklahoma, (405) 521-3107, or Trust Environmental Services, LLC, 2227 West Lindsey, Suite 1500, Norman, Oklahoma, (405) 360-2600, referencing the above site and Case No. 064-1063.

See Appendix M for Proof of Publication.

APPENDIX A

PREVIOUS REPORT SUMMARIES

APPENDIX A

PREVIOUS REPORTS

"Underground Storage Tank Initial Site Characterization and Corrective Action Plan, Former Circle K Store No. 1279, 5201 South Pennsylvania, Oklahoma City, Oklahoma", Trust Environmental Services, LLC, April, 1994.

"Site Status and Work Plan for Additional Investigation, Former Circle K Store No. 1279, 5201 South Pennsylvania, Oklahoma City, Oklahoma", Trust Environmental Services, LLC, September, 1994

APPENDIX B

OCC CORRESPONDENCE

BOB ANTHONY
Commissioner

CODY L. GRAVES
Commissioner

J. C. WATTS, JR
Commissioner

OKLAHOMA

CORPORATION COMMISSION

JUN 29 1994

Tana Walker, Manager
Fuel Storage Dept.

JIM THORPE BUILDING (405) 521-3107

OKLAHOMA CITY, OKLAHOMA 73105

June 27, 1994

Case #064-1063
Facility #55-03567

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 095 500 030

NOTICE: YOU HAVE UNTIL OCTOBER 24, 1994 TO COMPLETE RULE OAC 165:25-3-76, OAC 165:25-3-77 AND OAC 165:25-3-78.

Mr. Alex Garcia
I.R.E. Real Estate Fund
PO Box 5408
Ft. Lauderdale, FL 33310

RE: Confirmed release of product from Underground Storage Tank System located at:

5201 S. Penn
Oklahoma City, OK

Dear Mr. Garcia:

The Oklahoma Corporation Commission (OCC) has reviewed and approved the Initial Site Characterization Report (ISCR) and the Corrective Action Plan (CAP) for this case. This site is presently considered a Category II site by the Commission, under OAC 165:25-3-74.1(b).

The OCC is requiring you to submit the above referenced OAC 165:25-3-76 (Contaminate Plume Delineation), OAC 165:25-3-77 (Remediation Plan), and OAC 165:25-3-78 evidence to the OCC Fuel Storage Department on or before **October 24, 1994.**

Effective January 1, 1994 all sampling, investigation, remediation, or any other activity must be supervised by a certified UST consultant. Failure to have a certified UST consultant supervising activities will result in enforcement action seeking fines and rejection of all submitted reports.

The Oklahoma Petroleum Storage Tank Release Indemnity Program identifies reimbursement allowed by OAC 165:27. Approvals made by the UST/AST Regulatory Program does not constitute approvals for reimbursement from the Indemnity Program. For reimbursement guidance, please contact the Indemnity Program at 405/521-4683.

If you do not respond promptly and appropriately, State responses may be initiated and you will be held responsible for all costs incurred by the State. Failure to submit the required reports and evidence by the date cited above will activate enforcement procedures seeking fines. If you have any questions regarding your responsibilities, contact us at (405)521-3107, between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Please reference the appropriate Commission case number and facility number on all correspondence.

Sincerely,

Randy D. Minyen, CPG #1424
Senior Oil & Gas Specialist

RDM:rfp

cc: Mr. Harold Hanke
✓ TRUST Environmental Services, LLC
PO Box 1588
Norman, OK 73070-1588

Indemnity Fund

(064-1063)

BOB ANTHONY
Commissioner

CODY L. GRAVES
Commissioner

J. C. WATTS, JR
Commissioner

OKLAHOMA

CORPORATION COMMISSION

Tana Walker, Manager

JIM THORPE BUILDING (405) 521-3107

OCT 25 1994

Fuel Storage Dept.

OKLAHOMA CITY, OKLAHOMA 73105

October 24, 1994

Case ID# 064-1063
Facility ID# 55-03567

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 045 065 228

Mr. Alex Garcia
I.R.E Real Estate Fund
PO Box 5403
Ft. Lauderdale, FL 33310

RE: Extension of time for completing Rule OAC 165:25-3-76, 165:25-3-77, and 165:25-3-78 for site located at:

Former Circle K Store #1279
5201 S. Pennsylvania
Oklahoma City, OK

Dear Mr. Garcia:

The Oklahoma Corporation Commission (OCC) has reviewed Trust Environmental Services' October 3, 1994 request to extend the due date for the above referenced reports to February 24, 1995. These reports were originally due on October 24, 1994. Your request for an extension of time is approved.

If you do not respond promptly and appropriately, State response may be initiated and you will be held responsible for all costs incurred by the State. Penalties may also be assessed.

Effective January 1, 1994 all sampling, investigation, remediation, or any other activity must be supervised by a certified UST consultant. Failure to have a certified UST consultant supervising activities will result in enforcement action seeking fines and rejection of all submitted reports.

If you have any questions regarding your responsibilities, contact us at the Oklahoma Corporation Commission - AST/UST Program at (405)521-3107, between 8:00 a.m. and 4:30 p.m. (Central Time) Monday through Friday.

Reference the appropriate OCC Case and Facility numbers on all correspondence.

Sincerely,

Neil R. Garrett

Neil R. Garrett
Senior Environmental Specialist

NRG:rfp

cc: Mr. Harold Hanke
Trust Environmental Services
2227 W. Lindsey Street, Suite 1500
Norman, OK 73069

(064-1063)

BOB ANTHONY
Commissioner

OKLAHOMA

CODY L. GRAVES
Chairman

ED APPLE
Commissioner

FEB 23 1995

CORPORATION COMMISSION

Tana Walker, Manager

JIM THORPE BUILDING (405) 521-3107

Fuel Storage Dept.

OKLAHOMA CITY, OKLAHOMA 73105

February 22, 1995

Case ID# 064-1063
Facility ID# 55-03567

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 066 162 565

Mr. Alex Garcia
CK Partners, Ltd.
PO Box 5403
Ft. Lauderdale, FL 33310

RE: Extension of time for completing Rules OAC 165:25-3-76, 3-77, and 3-78 for site located at:

Former Circle K Store #1279
5201 S. Pennsylvania
Oklahoma City, OK

Dear Mr. Garcia:

The Oklahoma Corporation Commission (OCC) has reviewed Trust Environmental's February 17, 1995 request to extend the due date for the above referenced reports to April 24, 1995. These reports were originally due on February 24, 1995. Your request for an extension of time is approved.

If you do not respond promptly and appropriately, State response may be initiated and you will be held responsible for all costs incurred by the State. Penalties may also be assessed.

Effective January 1, 1994 all sampling, investigation, remediation, or any other activity must be supervised by a certified UST consultant. Failure to have a certified UST consultant supervising activities will result in enforcement action seeking fines and rejection of all submitted reports.

If you have any questions, contact the Fuel Storage Department at (405)522-5270, between 8:00 A.M. and 4:30 P.M. Monday through Friday. Please reference the appropriate OCC Facility Number and Case Number on all correspondence.

Sincerely,

Neil R. Garrett

Neil R. Garrett
Senior Environmental Specialist

NRG:dks

cc: Mr. Harold Hanke
Trust Environmental Services
2227 W. Lindsey Street, Suite 1500
Norman, OK 73069

(064-1063)

TRUST ENVIRONMENTAL SERVICES, LLC

December 12, 1997

RECEIVED
LUST TRUST FUND
DEC 1 5 1997
OKLAHOMA CORPORATION COMMISSION

Mr. Neil Garrett
Senior Environmental Specialist
Oklahoma Corporation Commission
Fuel Division, Storage Tank Department
Jim Thorpe Building, Room 238
Oklahoma City, Oklahoma 73105

Certified Mail, Return Receipt Requested
Article No. P 216 843 450

Re: Request for Case Closure, Former Circle K Store #1279, 5201 S. Pennsylvania, Oklahoma City, Oklahoma
Trust Project No.: 204-719
Facility ID No. 55-03567
OCC Case No. 064-1063

Dear Mr. Garrett:

In accordance with OAC 165:25-3-79, Trust Environmental Services, Inc., (Trust), on behalf of CK Partners, Ltd., hereby requests closure of Oklahoma Corporation Commission (OCC) Case No. 064-1063 at the facility referenced above. Considering results of investigations conducted at the site, plus soil and groundwater sample analytical results obtained from the site, Trust recommends that case closure be approved.

Background

In March 1987, three 10, 000-gallon underground storage tanks were removed from the basin at this site. The contaminated backfill, however, was not removed. This contaminated material provided a source for chemicals of concern (COC) which migrated into the surrounding media including native soil and groundwater. In October 1995, the contaminated backfill, as well as surrounding impacted native soil, were excavated and removed from the site. The excavated area was backfilled with clean material and compacted. Quarterly monitoring commenced on December 12, 1995 and has continued to date. For the most recent data, please refer to the Quarterly Monitoring Report submitted December 2, 1997. An ORBCA Tier 1/1-A Summary Report was submitted to the OCC in December 1996. A Tier 2 analysis was not conducted due to continually decreasing COC concentrations that have remained below Tier 1-A modified

2227 West Lindsey • Suite 1500 • Norman, Oklahoma 73069 • 405/360-2600 • Fax 405/360-4577

RBSLs since June 1996. This continual decline in concentrations is most like due to biodegradation of the COCs. It does not appear that contaminates are moving off-site, as groundwater samples obtained from several down-gradient monitoring wells (MW-6, MW-7, MW-8, and MW-9) have consistently reported extremely low or no detectable levels of COCs. Please refer to the enclosed figures that depict the site and the location of all monitoring wells. Graphs and tables of benzene and TPH concentrations over time are also included.

Notice of Public Participation is not required at this site as there are no monitoring wells with COC concentrations above Tier 1-A established modified RBSLs. Upon receiving OCC approval for case closure, Trust will schedule the plugging of all monitoring wells and the removal of related surface equipment. This work will be scheduled within 3 weeks of closure approval. It will be performed in accordance with OWRB requirements and will be supervised by an OCC Certified UST Consultant.

Please contact me at (405) 360-2600 should you have any questions or require additional information.

Sincerely yours,

Harold W. Hanke

Harold W. Hanke, CPG
Project Manager/Hydrogeologist
Certified UST Consultant No. 0002

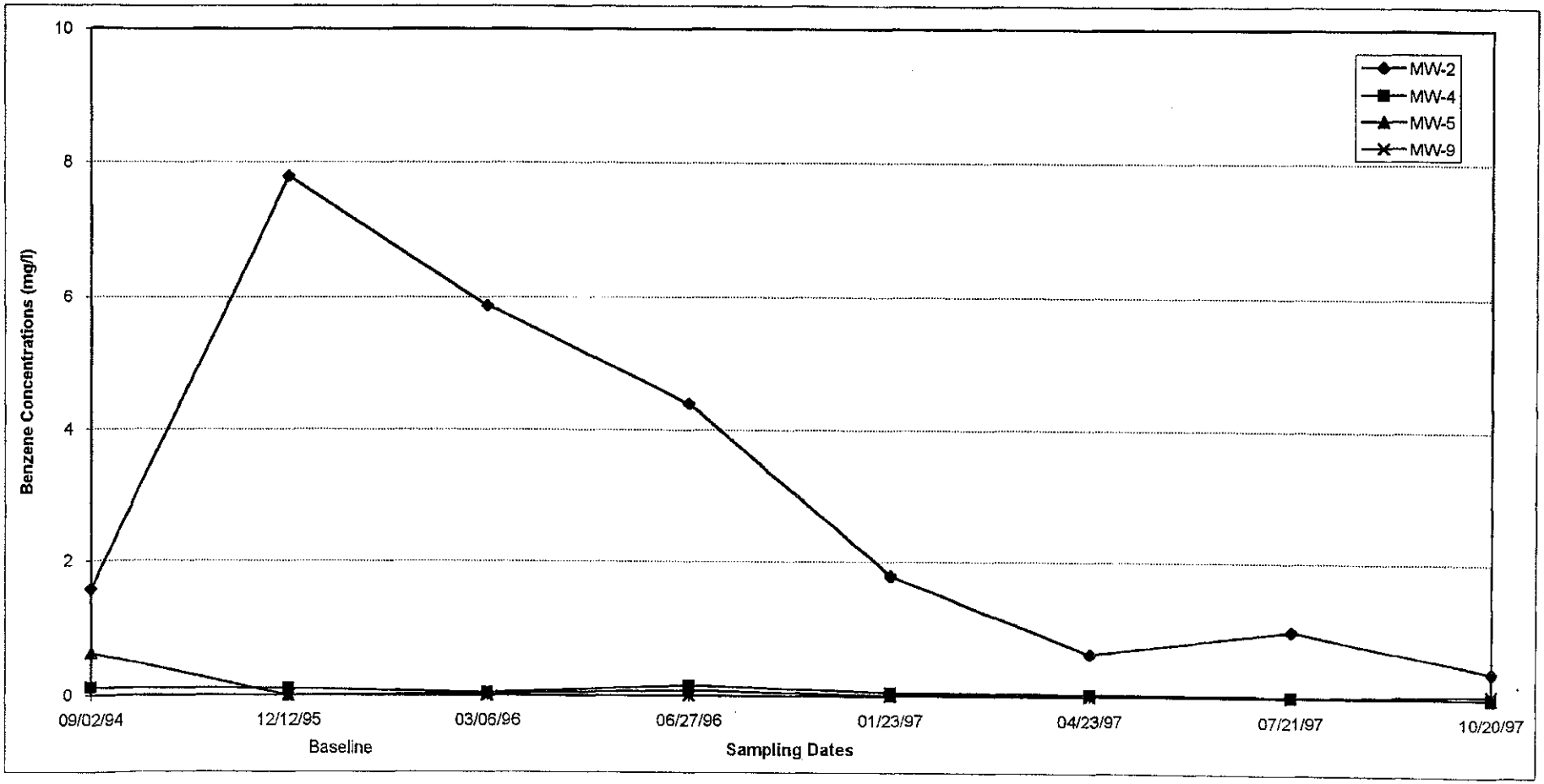
/ns

cc: Mr. Glen Gilbert, CK Partners, Ltd.

FORMER CIRCLE K STORE NO. 1279

Benzene Concentrations (mg/l) vs. Time

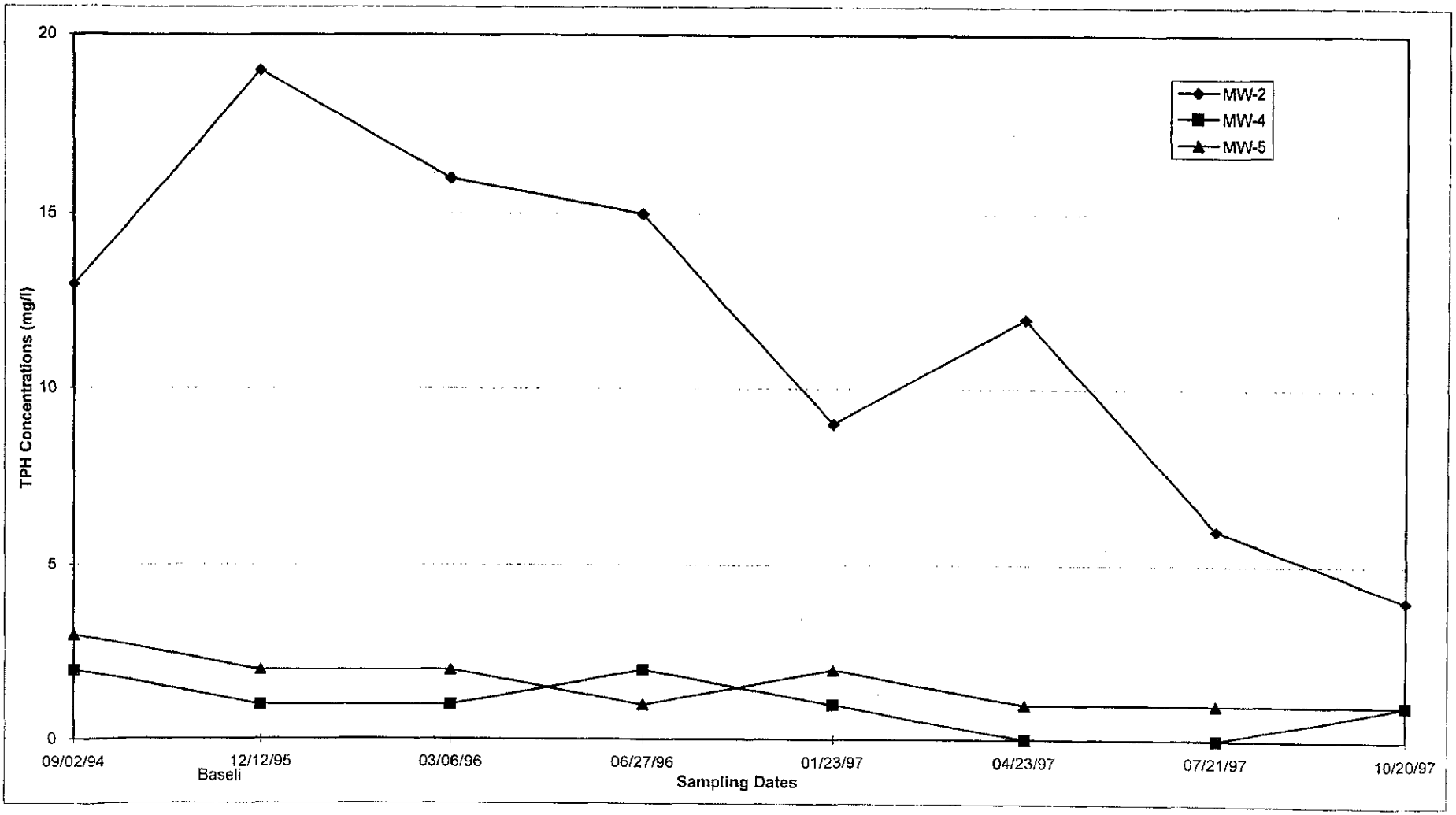
	09/02/94	12/12/95	03/06/96	06/27/96	01/23/97	04/23/97	07/21/97	10/20/97
MW-2	1.59	7.79	5.87	4.39	1.8	0.64	0.995	0.398
MW-4	0.12	0.11	0.05	0.16	0.054	0.031	0.0101	0
MW-5	0.64	0.001	0.03	0.082	0.0103	0.035	0.0131	0
MW-9		0	0	0.011	0	0	0	0.0568

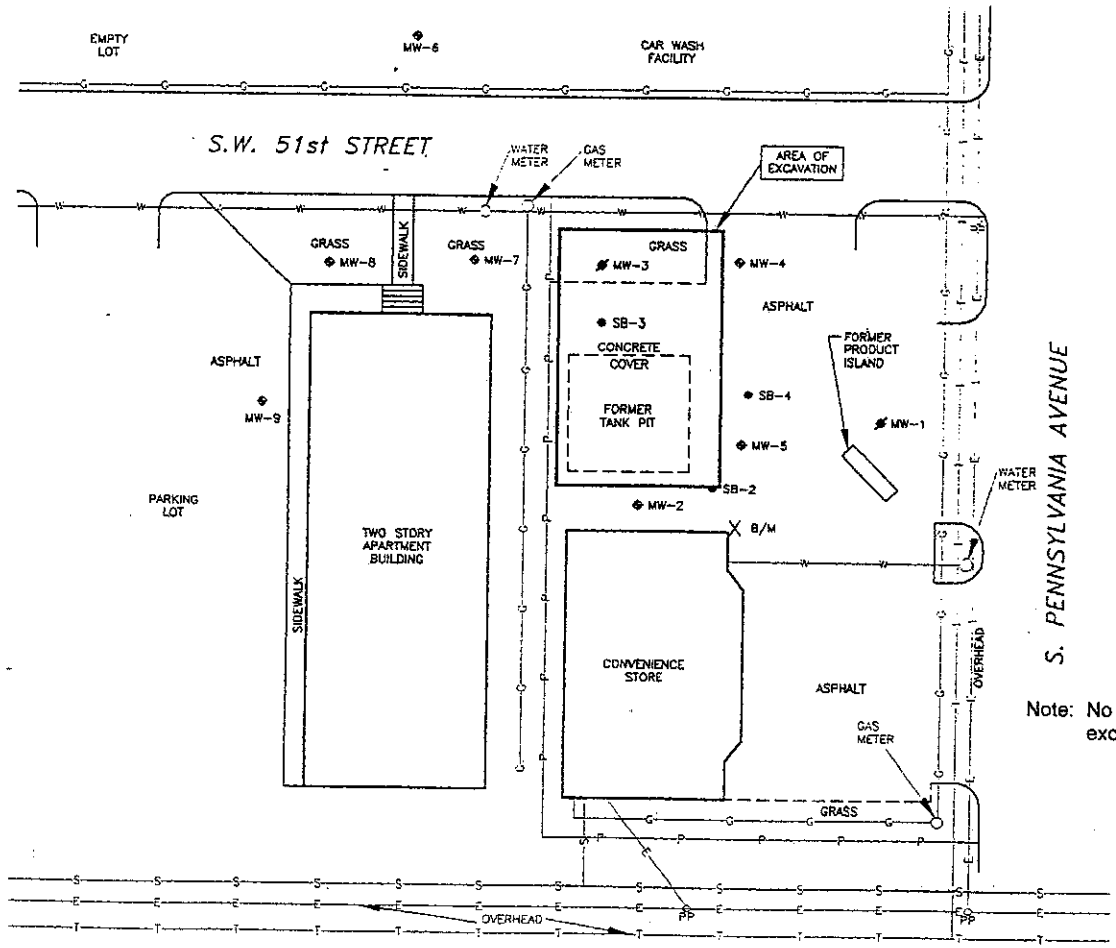


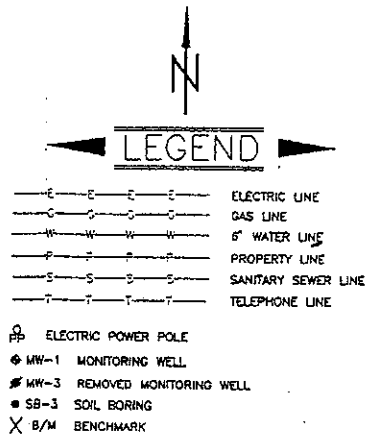
FORMER CIRCLE K STORE NO. 1279

TPH Concentrations (mg/l) vs. Time

	09/02/94	12/12/95	03/06/96	06/27/96	01/23/97	04/23/97	07/21/97	10/20/97
MW-2	13	19	16	15	9	12	6	4
MW-4	2	1	1	2	1	0	0	1
MW-5	3	2	2	1	2	1	1	1





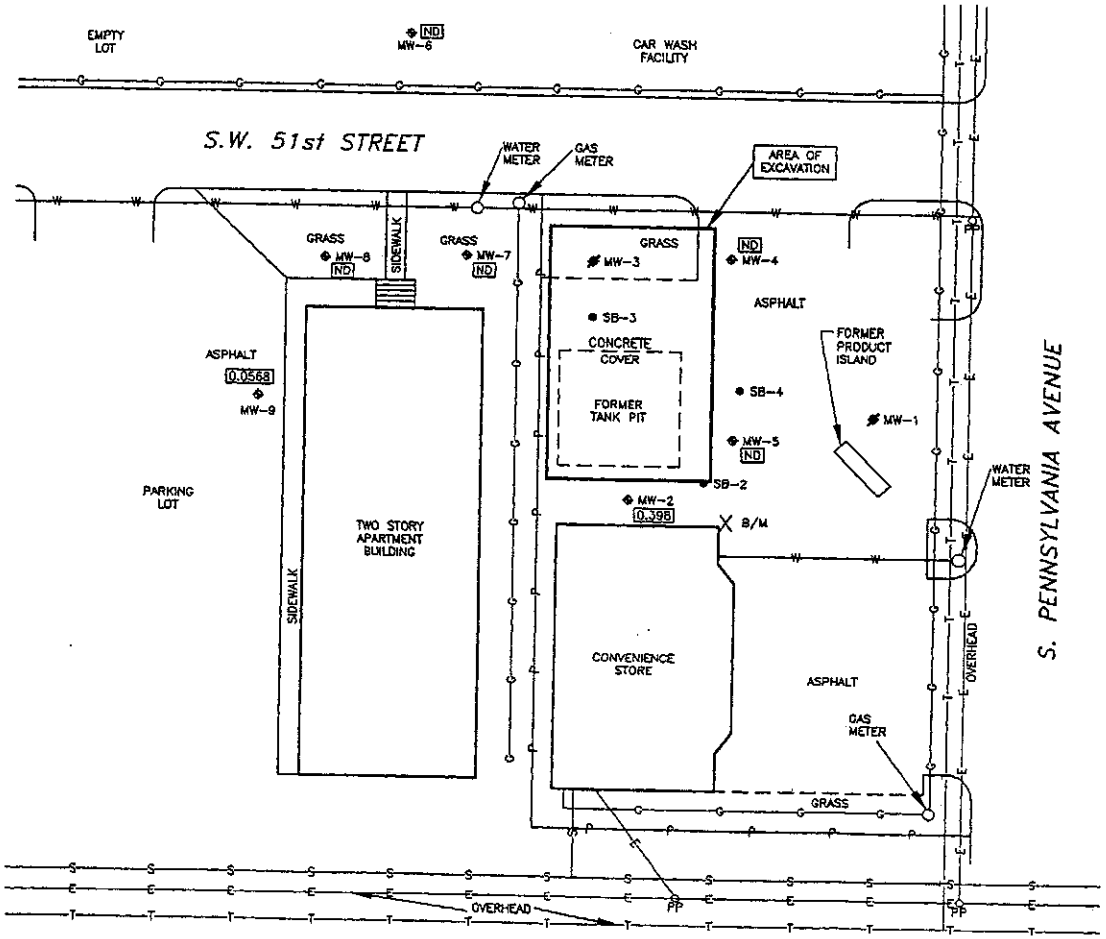


Note: No on-site COC concentrations exceed modified RBSLs

SCALE

0 30' 60'

Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 4/97
	DESIGNED:
	CHECKED:
SITE MAP	APPROVED:
	DRAWN: TKS
	PROJ.: 204-719
TRUST ENVIRONMENTAL SERVICES, LLC	Figure 1



LEGEND

- ELECTRIC LINE
- GAS LINE
- 6" WATER LINE
- PROPERTY LINE
- SANITARY SEWER LINE
- TELEPHONE LINE
- PP ELECTRIC POWER POLE
- MW-1 MONITORING WELL
- MW-3 REMOVED MONITORING WELL
- SB-3 SOIL BORING
- B/M BENCHMARK
- 0.398 BENZENE CONCENTRATION, mg/l
- ND NONE DETECTED

NOTE
ALL CONCENTRATIONS ARE BELOW TIER 1A MODIFIED RBSLS

SCALE
0 30' 60'

Former Circle K Store #1279 Oklahoma City, Oklahoma	DATE: 11/97
BENZENE CONCENTRATIONS IN GROUNDWATER, (mg/l) (10/20/97)	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: TKS
	PROJ.: 204-719
TRUST ENVIRONMENTAL SERVICES, LLC	Figure 2

BOB ANTHONY
Commissioner

ED APPLE
Commissioner

DENISE A. BODE
Commissioner

OKLAHOMA CORPORATION COMMISSION
PETROLEUM STORAGE TANK DIVISION
(405) 521-4683 FAX: (405) 521-4945

JIM THORPE BUILDING, RM 238 • PO BOX 52000-2000 • OKLAHOMA CITY, OK 73152-2000

April 13, 2000

Case ID #064-1063
Facility ID #55-03567
Final Closure

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 228 592 292

Mr. Glen Gilbert
CK Partners
C/IRE Real Estate Fund
P.O. Box 5403
Ft. Lauderdale, Florida 33310-5403

RE: Closure by Risk Based Corrective Action (ORBCA) for site located at:

Former Circle K Store #1279
5201 South Pennsylvania
Oklahoma City, Oklahoma

Dear Mr. Gilbert:

Based upon review of the Final Closure report submitted by your consultant on April 10, 2000, all closure requirements for the above referenced case have been satisfied. Accordingly, this case now considered **closed**.

As you are aware, should any Chemicals of Concern levels be discovered in the future to exceed those determined appropriate for this site, the case will be reopened according to OCC Rules and Regulations.

If you have any questions, please contact the Fuel Storage Department at (405) 522-1444 between 8:00 a.m. and 4:30 p.m. Monday through Friday. Please reference the appropriate OCC Facility Number and Case Number on all correspondence.

Sincerely

Salim Douglah
Project Environmental Analyst

SD:tm

cc: See Back

cc: Trust Environmental Services, LLC
Attn: Ms. Do[illegible] Crouch
2227 West Lindsey, Suite 1500
Oklahoma City, Oklahoma 73118

Darla Wollitz, Gwyn Smith, IF, Tech and Claim Files

Z 228 592 292

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, April 1995

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
mr. GLEN GILBERT
CK PARTNERS
C/IRE Real Estate Fund
P.O. Box 5403
Ft. Lauderdale, Florida
33310-5403

2. Article Number *(Copy from service label)*
2 228 592 292

FAL. 55-03567
CASE 064-1063

COMPLETE THIS SECTION ON DELIVERY

A. Received by *(Please Print Clearly)* B. Date of Delivery
[illegible]

C. Signature
[illegible] ☐ Agent ☐ Addressee

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

U.S. POSTAL SERVICE FT. LAUDERDALE SECTION APR 18 2000

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

BOB ANTHONY
Commissioner

ED APPLE
Commissioner

DENISE A. BODE
Commissioner

OKLAHOMA CORPORATION COMMISSION
PETROLEUM STORAGE TANK DIVISION
(405) 521-4683 FAX: (405) 521-4945

JIM THORPE BLDG, ROOM 238 • P.O. BOX 52000-2000 • OKLAHOMA CITY, OKLAHOMA 73152-2000

November 19, 1998

Case ID# 064-1782
Facility ID# 55-03571

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 437 090 889

44 Quick Mart
Attn: Mr. Tony Doa
4500 S. Pennsylvania
Oklahoma City, Oklahoma 73119

RE: Closure by Risk Based Corrective Action (ORBCA) for site located at:

44 Quick Mart
4500 S. Pennsylvania
Oklahoma City, Oklahoma

Dear Mr. Doa:

Based upon the Oklahoma Risk Based Corrective Action (ORBCA) methodology, the data indicates the highest Chemicals of Concern (C.O.C.) levels in the soil and groundwater at this site are below modified Risk Based Screening Levels (RBSLs) and pose no threat to human health, safety or the environment and is appropriate for LUST case closure. Your Final Closure Report is approved. Your request for closure of this site is approved.

As you are aware, should any Chemical of Concern levels be discovered in the future to exceed those determined appropriate for this site, the case will need to be re-opened according to OCC UST Rules and Regulations.

If you have any questions, please contact the Petroleum Storage Tank Division at (405) 522-1447 between 8:00 a.m. and 4:30 p.m. Monday through Friday. Please reference the appropriate OCC Facility Number and Case Number on all correspondence.

Sincerely,

Joe Bruns

Joe Bruns
Project Environmental Analyst

cc: see back

JB:raw

cc:

Clearwater Environmental
Attn: Mr. Thomas Felder
P.O. Box 720066
Norman, Oklahoma 73070-4050

Les Vap

Copies to Technical and IF Claim Files

Z 437 090 889

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

1782)

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

11/19

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
44 Quick Mart
Attn: Mr. Tony Doa
4500 S. Penn.
Okla. City, OK 73119

4a. Article Number
Z437 090 889

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*
X

8. Addressee's Address *(Only if requested and fee is paid)*
064-1782

Thank you for using Return Receipt Service.

PS Form 3811, December 1994 102595-98-B-0229 Domestic Return Receipt

RECEIVED
LUST TRUST FUND
JUL 21 1997
OKLAHOMA CORPORATION
COMMISSION

OKLAHOMA RISK BASED CORRECTIVE ACTION REPORT TIER 1/1A

44 Quick Mart

4500 South Pennsylvania Avenue
Oklahoma City, Oklahoma

OCC Case I.D.# 064-1782
Facility I.D.# 55-03571

CLEARWATER ENVIRONMENTAL SERVICES, INC.

July 21, 1997

Mr. Neil Garrett
Oklahoma Corporation Commission
Fuel Storage Department, Room 247
Jim Thorpe Building
PO Box 52000-2000
Oklahoma City, Oklahoma 73152-2000

Re: ORBCA Tier 1/Tier 1A Report
44 Quick Mart, 4500 S. Pennsylvania Ave., Oklahoma City, Oklahoma
OCC Case # 064-1782
Facility # 55-03571

Dear Mr. Garrett:

Please find enclosed the "ORBCA Tier 1/1A Report" for the above referenced case. Please call with any questions that you may have. Thank you for your time and consideration of this matter.

Sincerely,

Thomas R. Felder

Thomas R. Felder
Senior Hydrologist

/trf

cc: Mr. Tung Dao, 44 Quick Mart
File

P.O. Box 720066
Norman, Oklahoma 73070-4050

Telephone: (405) 364-8298
Telecopier: (405) 364-8299

Limitations of the Assessment

This assessment has been prepared in accordance with generally accepted engineering and hydrogeologic principles. The standard level of care exercised by others of our profession has been exercised. Conclusions and recommendations asserted within this report are based upon results generated by ORBCA software provided by the Oklahoma Corporation Commission at the time of the preparation of the report. Clearwater Environmental makes no guarantees as to the accuracy or reliability of the software used for this report or the results obtained thereof.

Conclusions and recommendations asserted within this report are based upon a limited amount of data collected from specific soil borings and monitoring wells at a specific time, and are not applicable to conditions elsewhere. Also, conclusions and recommendations are based upon information available at the time of the assessment and do not consider unforeseeable circumstances.

Therefore, the results of this report may not be completely definitive of all risk. Clearwater Environmental is not responsible for conclusions drawn by others.

It should be noted that the preferred method to achieving case closure is always clean-up of the released contaminates. However, complete clean-up of some sites may not be economically or technically feasible. While Clearwater recognizes the economical merits of risk assessment, Clearwater does not endorse this method for protection of the environment or the client's legal liability.

Additionally, funding of many UST cases within the State of Oklahoma can only be accomplished through reimbursement by the OCC Indemnity Fund. The Indemnity Fund has indicated that the Fund will only reimburse for the costs to assess the risks at a UST site unless the assessment indicates actual remediation is required. In many cases, closure may be required by the Fund and the OCC. Since the release remains in the soil and/or groundwater, closure by this means does not necessarily relieve the owner of future liability associated with the release. Furthermore, should the Indemnity Fund be dissolved as is now required at the end of 1999, the UST owner may have no financial recourse if the case is re-activated at a later date.

44 Quick Mart

4500 South Pennsylvania Avenue
Oklahoma City, Oklahoma

OKLAHOMA RISK BASED CORRECTIVE ACTION REPORT TIER 1/1A

OCC Case I.D.# 064-1782
Facility I.D.# 55-03571

Submitted by Clearwater Environmental
July 21, 1997

ORBCA SUMMARY REPORT	Worksheet ES-1
LUST ID: 064-1782	FACILITY ID: S5-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

EXECUTIVE SUMMARY

OCC CASE NUMBER:	*064-1782*		
OCC FACILITY NUMBER:	*55-03571*		
PRIORITIZATION INDEX NUMBER:	*4.4*		
FACILITY NAME AND ADDRESS:	*44 Quick Mart, 4500 S. Pennsylvania, Oklahoma City, Oklahoma Co.*		
FACILITY LOCATION DESCRIPTION:	*Southeast corner of SW 44th St. & Pennsylvania*		
STATUS OF FACILITY:	☑ ACTIVE	☐ INACTIVE	
GROUND SURFACE CONDITION:	*Concrete with no staining & few cracks*		
ESTIMATED VOLUME RELEASED:	*None known*		
IS NATIVE SOIL IMPACTED ON-SITE:	☑ YES	☐ NO	☐ UNKNOWN
IS NATIVE SOIL IMPACTED OFF-SITE:	☐ YES	☑ NO	☐ UNKNOWN
IS GROUNDWATER IMPACTED ON-SITE:	☑ YES	☐ NO	☐ UNKNOWN
IS GROUNDWATER IMPACTED OFF-SITE:	☐ YES	☑ NO	☐ UNKNOWN
HAS THE SOURCE OF THE RELEASE BEEN IDENTIFIED:	☐ YES	☐ NO	☑ UNKNOWN
HAS FREE PRODUCT ASSOCIATED WITH THIS RELEASE BEEN FOUND:	☐ YES	☑ NO	☐ UNKNOWN
HAS SURFACE WATER BEEN IMPACTED BY THIS RELEASE:	☐ YES	☑ NO	☐ UNKNOWN
SHALLOWEST DEPTH TO GROUNDWATER ENCOUNTERED:	*4.28'*		
AVERAGE DEPTH TO GROUNDWATER:	*7'*		
HAS A DRINKING WATER SUPPLY BEEN IMPACTED BY THIS RELEASE:	☐ YES	☑ NO	☐ UNKNOWN

RECOMMENDATIONS

- ☐ CLOSURE UNDER TIER 1
- ☑ CLOSURE UNDER TIER 1-A
- ☐ REMEDIATE AND CLOSE UNDER TIER 1 OR TIER 1-A
- ☐ GO TO TIER 2
- ☐ REMEDIATE AND CLOSE UNDER TIER 2
- ☐ GO TO TIER 3
- ☐ REMEDIATE AND CLOSE UNDER TIER 3
- ☐ MONITOR FOR CLOSURE THROUGH NATURAL ATTENUATION

EXPLANATION OF RECOMMENDATIONS

Based on the results of the Tier 1 and Tier 1A risk assessment, the apparent release at the 44 Quick Mart does not pose a threat to the area and closure under Tier 1A is recommended.

ORBCA SUMMARY REPORT	Worksheet ES-2
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

EXECUTIVE SUMMARY

1	**Current land use of the site if no longer an active UST/AST facility::**
	This site is an active UST facility.
2	**Soil stratigraphy and analytical data summary:**
	Soil lithology at the site consists mostly of clay. Silty clay can be found from the surface to a depth of three feet with another layer of clay underneath extending to nine feet. From nine to 15 feet, the primary constituent is shaley clay followed by a layer of poorly graded clayey sand. From 17 to 24 feet below the surface is a layer of shale. Samples were taken from four monitoring wells and four soil borings in the area. Laboratory analysis of the soil samples found the highest benzene concentration to be 0.193 mg/kg collected from SB-2 in 1996. No detectable concentrations of BTEX were found in the four monitoring wells..
3	**Groundwater data summary:**
	The average depth to groundwater was found to be about seven feet below the surface. The nearest known water wells are located one mile north and one mile south of the site. Analytical data from groundwater samples found the highest benzene concentration in SB-4 at 0.16 mg/L. Laboratory analysis of samples collected from the monitoring wells on March 24, 1997 detected a concentration of 0.018 mg/L of benzene in MW-3.

ORBCA SUMMARY REPORT	Worksheet ES-3
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

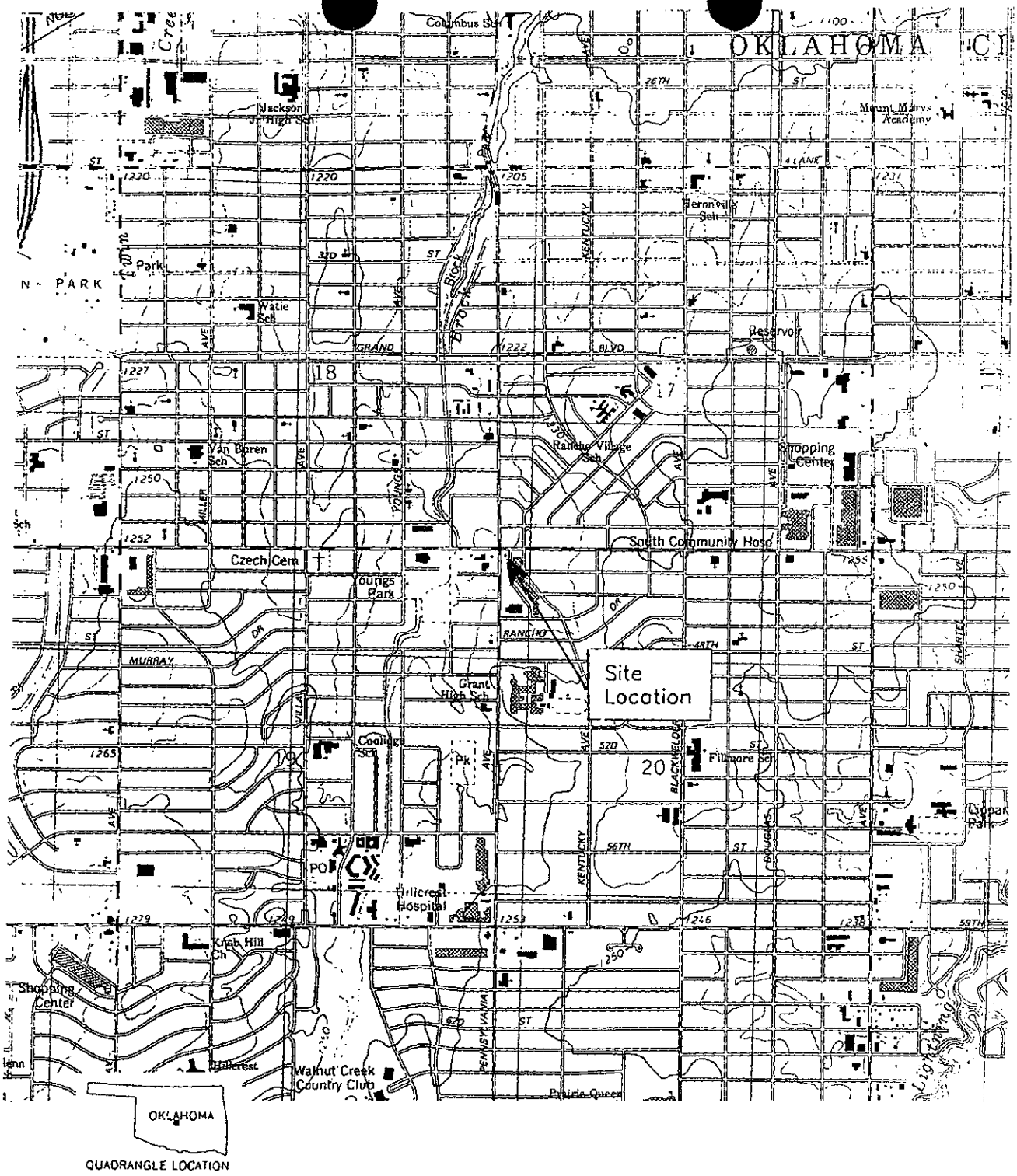
EXECUTIVE SUMMARY

4 **Risk assessment analysis:**

Tier 1 and Tier 1A analyses were performed for both current and future exposure conditions. Under current conditions, commercial workers were evaluated for indoor inhalation of vapors. Residents, commercial workers, and construction workers were evaluated for future conditions. For a resident, the exposure pathways evaluated were indoor inhalation and ingestion of groundwater via a future water well 300 feet east of the site. These exposure pathways were also evaluated for a commercial worker via a future on-site water well. Construction workers were evaluated for inhalation, ingestion, and dermal contact. The maximum on-site COC concentrations were within acceptable risk-based screening levels for all pathways evaluated under both current and future exposure conditions.

5 **Overall recommendations of risk assessment:**

Based on the results of the Tier 1 and Tier 1A analyses, no existing concentrations of chemicals of concern at this site exceed risk-based screening levels generated in the Tier 1 and Tier 1A report. Therefore, case closure is recommended.



OKLAHOMA CITY, OKLA.

NE/4 OKLAHOMA CITY 15' QUADRANGLE

35097-D5-TF-024

1986

2000 0 2000

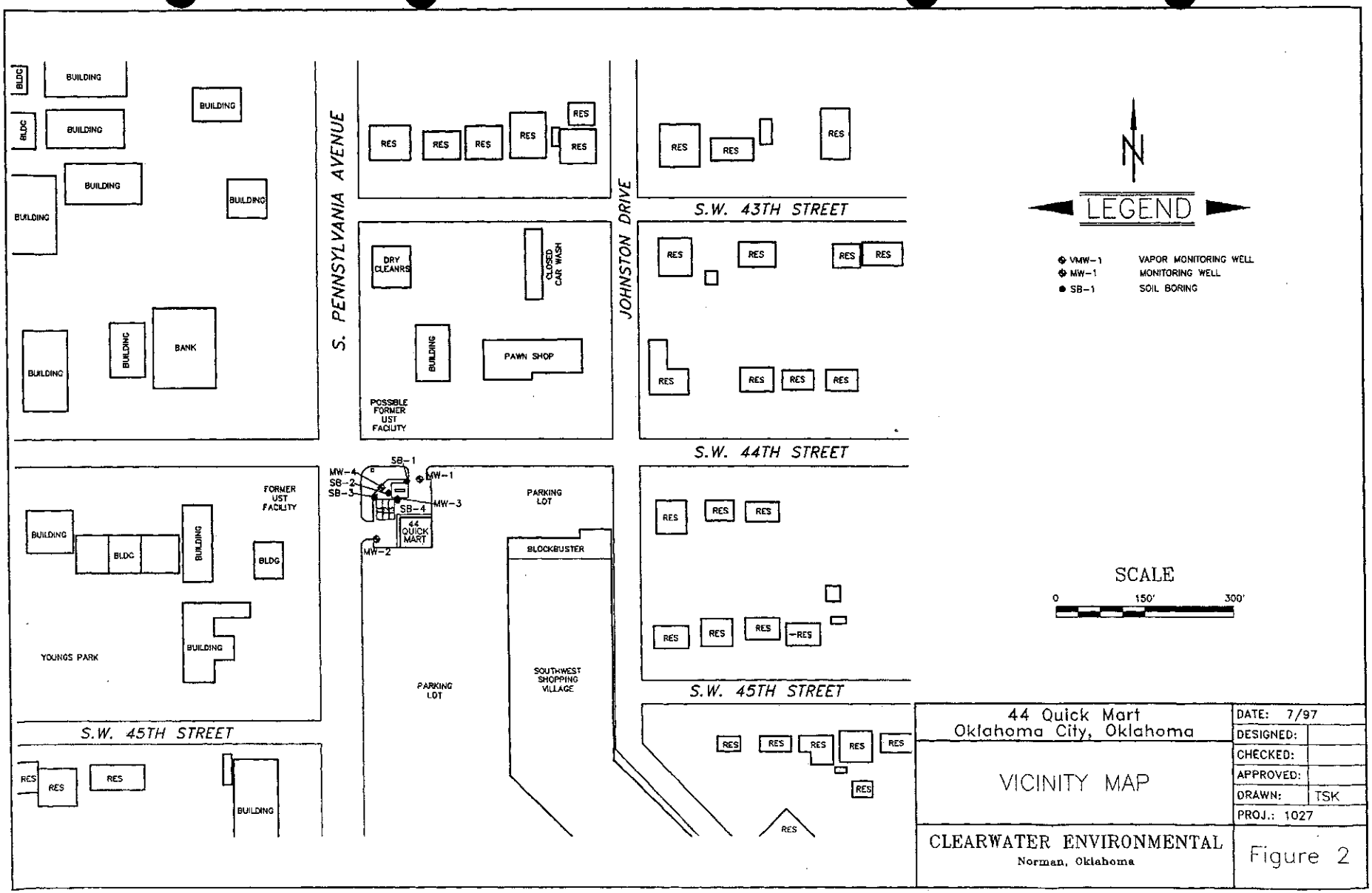
SCALE 1:240,000

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

44 Quick Mart Oklahoma City, Oklahoma	DATE: 6/97
REGIONAL TOPOGRAPHIC MAP	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: COG
	PROJ.: 1027
CLEARWATER ENVIRONMENTAL Norman, Oklahoma	Figure 1



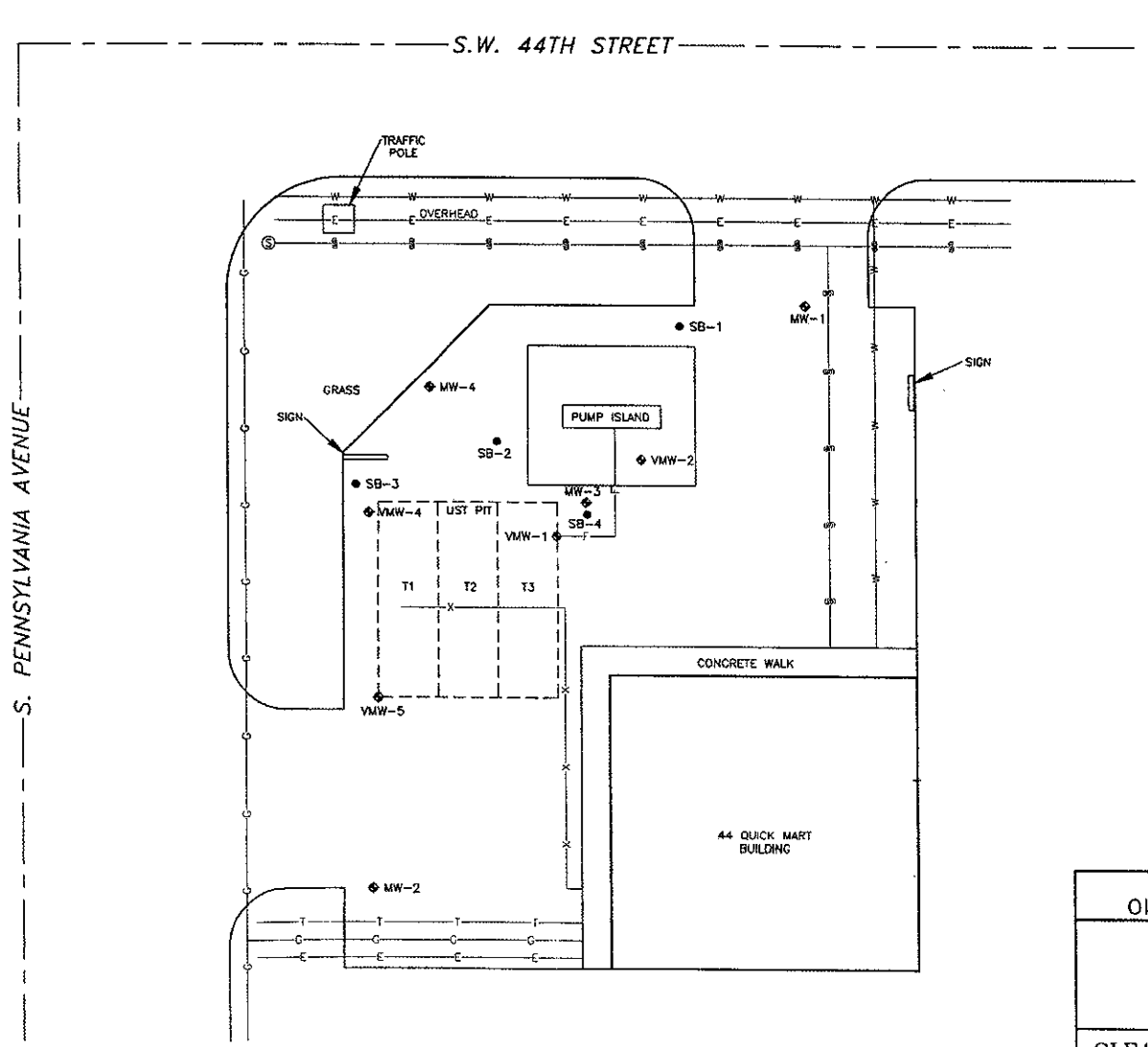
44 Quick Mart
Oklahoma City, Oklahoma

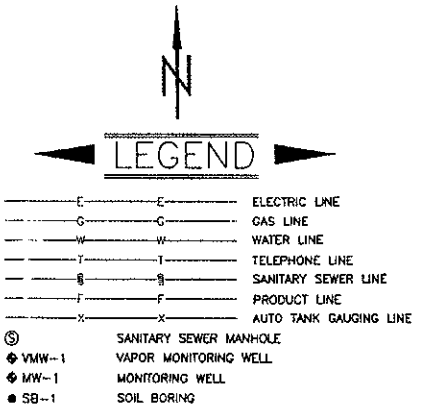
VICINITY MAP

CLEARWATER ENVIRONMENTAL
Norman, Oklahoma

DATE:	7/97
DESIGNED:	
CHECKED:	
APPROVED:	
DRAWN:	TSK
PROJ.:	1027

Figure 2

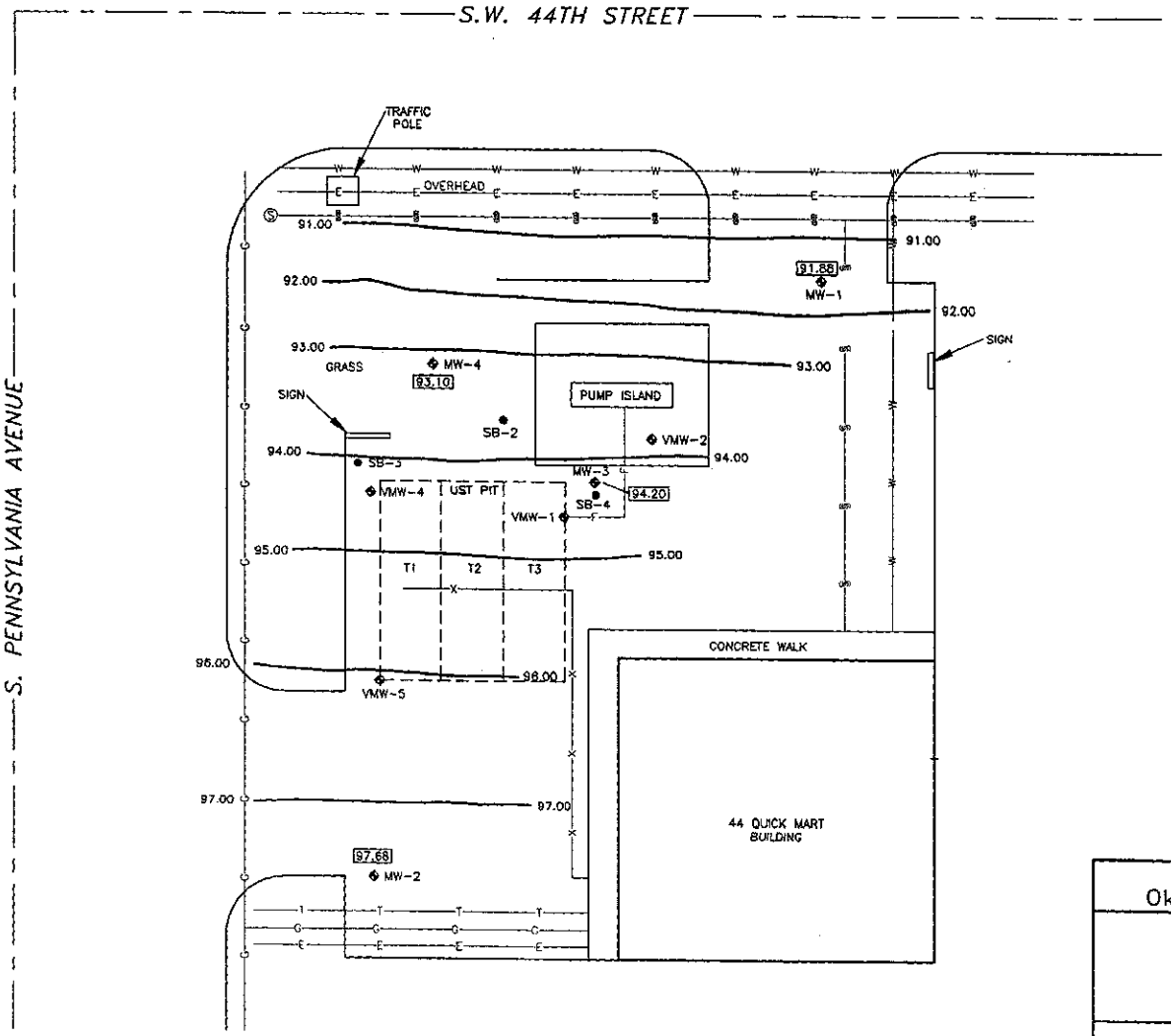


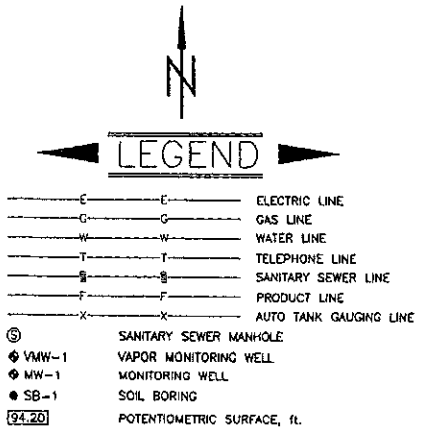


SCALE

0 20' 40'

44 Quick Mart Oklahoma City, Oklahoma	DATE: 7/97
	DESIGNED:
	CHECKED:
SITE MAP	APPROVED:
	DRAWN: TSK
	PROJ.: 1027
CLEARWATER ENVIRONMENTAL Norman, Oklahoma	Figure 3





SCALE

0 20' 40'

44 Quick Mart Oklahoma City, Oklahoma	DATE: 7/97
POTENTIOMETRIC SURFACE MAP (3/3/97)	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: TSK
	PROJ.: 1027
CLEARWATER ENVIRONMENTAL Norman, Oklahoma	Figure 4

ORBCA SUMMARY REPORT			Worksheet #1
LUST ID:	064-1782	FACILITY ID:	55-03571
Date Form Completed:	07/08/97	Form Completed by:	Bob Felder

FACILITY INFORMATION

Prioritization Index No.:	*4.4*
Facility Name:	*44 Quick Mart*
Facility Address:	*4500 S. Pennsylvania*
Facility City:	*Oklahoma City*
Facility County:	*Oklahoma Co.*
Facility Location Description:	*Southeast corner of SW 44th St. & Pennsylvania*
Facility Owner/Phone No.:	*Tung Dao and Nhung Ta (405) 685-9737*
Owner Address:	*4500 S. Pennsylvania*
Owner City/State/Zip:	*Oklahoma City, OK 73119*
Facility Operator/Phone No.:	*Tung Dao and Nhung Ta (405) 685-9737*
Facility Latitude/Longitude:	
Legal Location:	*NW NW NW Sec. 20-T11N-R3W, Oklahoma Co.*

List Previous names of this facility

1. *Friendly Food Store*
2.
3.

List Previous Owner(s) of this Facility with Address(es)

1. *Huong P. T. Nguyen & Hung Viet Ho*
2.
3.

Has this site ever had an emergency response? ☐ YES ☑ NO

If yes, then was it: ☐ State Lead ☐ Owner/Operator Lead (Discuss under Additional notes, below)

I certify that all work has been conducted under my supervision and in accordance with the underground Storage Tank Rules and that I am aware that my misrepresentation of any of the information submitted herein is a violation of OAC 165:25-3-90.

Thomas R Felder	7/10/97	70	12/31/97
Certified UST Consultant	Date Signed	Certification No.	Expiration Date

Thomas R. Felder (Print Name)

Clearwater Environmental (Company Name)

By signature below, I certify that I have reviewed this report for completeness

Tung Dao	*Tung Dao*	7/8/97
Responsible Party Signature	Responsible Party (Printed Name)	Date

Additional Notes:

Check One:

☑ Form UST 374-1, Page 1 ☐ Form UST 376, Page 1

☑ Tier 1 ☐ Tier 2 ☐ Tier 3

ORBCA SUMMARY REPORT	Worksheet #2
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

SITE DESCRIPTION

Site Status

- [x] Operating,
- [ ] Permanently or Temporarily out of Service. From _____ to _____
- [ ] Abandoned in _____

Ground Surface Conditions:

- [x] Paved — % area paved: *95* — Material: *Concrete*
- Degree of cracking: [x] Minimal [ ] Low [ ] Moderate [ ] High
- [ ] Unpaved

Utilities:

Types and Depths of utilities:

- [ ] Conduit
- [x] Potential Conduit
- [x] Sanitary Sewer: Depth: *12'* Flow Direction: *West*
- [x] Storm Sewer: Depth: *6'-8'* Flow Direction: *East*
- [x] Electric Line: Depth: *OH*
- [x] Telephone Line: Depth: *2'-3'*
- [x] Gas line: Depth: *3'*
- [x] Water Line: Depth: *4'-5'*

	Yes	No	Dates
Have the utilities been inspected	[ ]	[x]	
Uncovered	[ ]	[x]	

Immediate (within 500 feet) Land Use (at a minimum, state whether residential or non-residential)

Attach appropriate maps

North: *Vacant Endurance Auto Parts & Nuway Cleaners beyond; residential ~400' north.*

Northeast: *Cash America Pawn Shop & vacant car wash beyond; residential ~350' northeast.*

Northwest: *First Enterprise Bank & office bldg. beyond.*

South: *Grant Square Shopping Center parking lot.*

Southeast: *Grant Square Shopping Center (retail businesses); residential beyond.*

Southwest: *Baggett Pharmacy/McInnis Clinic & B. F. Goodrich Tire Store; residential beyond.*

West: *Moffatt Family Dentistry (former UST facility) & other retail businesses beyond.*

East: *Blockbuster Video Store; residential ~300' beyond.*

Surface Drainage: Direction(s) *Northeast* Grade (ft/ft): *0.02*

Drainage Discharge:				
Stream	[ ] YES	[x] NO	If YES, name:	
Lake	[ ] YES	[x] NO	If YES, name:	
Controlled Inlet/Outlet	[ ] YES	[x] NO	If YES, name the waterbody:	
Groundwater recharge/discharge area	[ ] YES	[x] NO	If YES, name the aquifer:	

Additional Notes:

Check One:

- [x] Form UST 374-1, Page 2
- [ ] Form UST 376, Page 2
- [x] Tier 1
- [ ] Tier 2
- [ ] Tier 3

ORBCA SUMMARY REPORT **Worksheet #3**

LUST ID: 064-1782	**FACILITY ID: 55-03571**
Date Form Completed: 08-Jul-97	**Form Completed by: Bob Felder**

UNDERGROUND STORAGE TANK TYPE

If the UST is active, check "YES" and if inactive, check "NO". Provide the installation date if the UST is active and the excavation date if the UST is inactive. A site map denoting Tank Number(s) is required.

Tank Number(s)	Product	Tank Registration ID Number	Capacity	Active	Installation Date	Removal Date	Closure in place Date	Temporary out of use Date
UST # 1	*Regular*	*Unknown*	*10,000*	☑ YES ☐ NO	*1986*			
UST # 2	*Prem Unleaded*	*Unknown*	*10,000*	☑ YES ☐ NO	*1986*			
UST # 3	*Super Unleaded*	*Unknown*	*10,000*	☑ YES ☐ NO	*1986*			
				☐ YES ☐ NO				
				☐ YES ☐ NO				
				☐ YES ☐ NO				
				☐ YES ☐ NO				
				☐ YES ☐ NO				
				☐ YES ☐ NO				
				☐ YES ☐ NO				
				☐ YES ☐ NO				
				☐ YES ☐ NO				
				☐ YES ☐ NO				

Additional Notes:

Check One:

☑ Form UST 374-1, Page 3 ☐ Form UST 376, Page 3

☑ Tier 1 ☐ Tier 2 ☐ Tier 3

ORBCA SUMMARY REPORT	Worksheet #4
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

LAND USE SUMMARY

The purpose of this worksheet is to identify existing and reasonable beneficial uses for land.

CURRENT LAND USE	Current	Prior	COMMENTS
			Immediate area is primarily commercial.
Residential	☑	☑	
Non-residential	☑	☑	
Sensitive/special	☐	☐	
Other	☐	☐	

Distance and direction to the nearest residence (feet): *300' East*

Distance and direction to any environmentally sensitive area (feet) within a 1/2 mile (Define in Notes):

None known.

Distance and direction to the nearest school, hospital, day care, retirement home, etc., (feet) (specify facility):

Oak Tree Learning Center (Day Care) about three blocks (~1200') south.

Distance and direction to the nearest commercial/industrial site (feet) (specify):

Blockbuster Video Store about 50' east.

Notes:

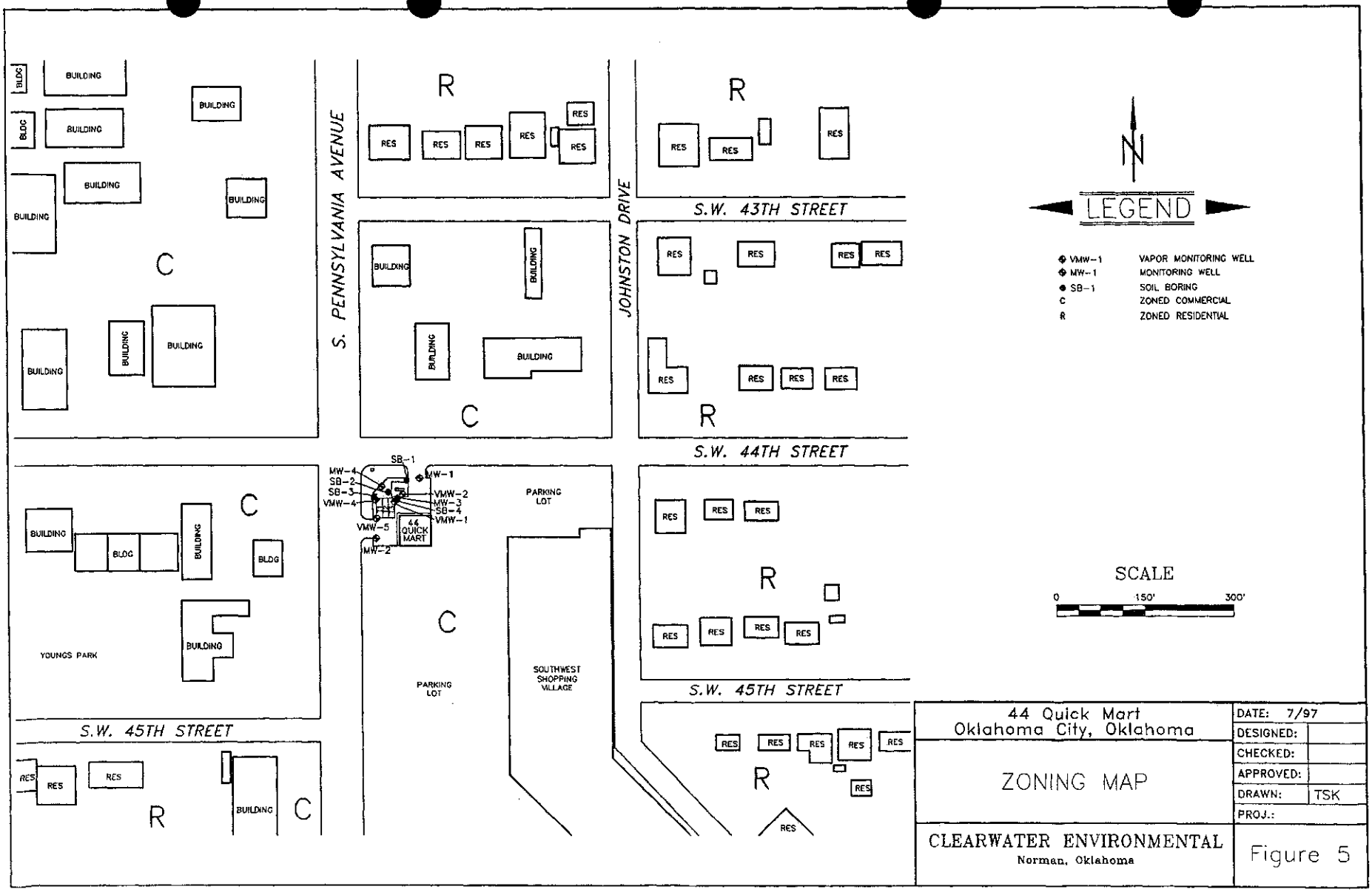
FUTURE LAND USE	Potential	COMMENTS
		The site is at the intersection of SW44th & Penn.
		Site will likely remain commercial in future.
Residential	☐	
Non-residential	☑	
Sensitive/special	☐	
Other	☐	

Notes:

Check One:

☑ Form UST 374-1, Page 4 ☐ Form UST 376, Page 4

☑ Tier 1 ☐ Tier 2 ☐ Tier 3



44 Quick Mart Oklahoma City, Oklahoma	DATE: 7/97
	DESIGNED:
	CHECKED:
ZONING MAP	APPROVED:
	DRAWN: TSK
	PROJ.:
CLEARWATER ENVIRONMENTAL Norman, Oklahoma	Figure 5

ORBCA SUMMARY REPORT	Worksheet #5
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

CHRONOLOGY OF EVENTS

Date	Instructions: Describe potential sources and spill events, including location type and estimated volume of materials stored or released, time and duration of release, and affected media (soil, groundwater, etc.). Describe monitoring well installation, soil boring activities, and slug tests. Discuss past corrective action efforts as appropriate.
05/01/96	*Professional Engineering Services conducted a real estate Phase II site assessment which indicated a possible release of hydrocarbon at the site. This was reported to the OCC.*
08/01/96 to 09/28/96	*OCC ordered a site check to be performed. Down to Earth Environmental drilled and sampled four borings. SB-4 was completed as a temporary monitoring well and later sampled for groundwater (reportedly after heavy rain). Groundwater from SB-4 was reported to have 0.160 ppm benzene and 13 ppm TPH. The initial abatement, site check, and CAP report was submitted to the OCC on 9/5/96. The OCC activated case 064-1782 based on the data presented in the report. An initial site characterization report was prepared and submitted to the OCC on 9/28/96.*
10/01/96 to 03/15/97	*The OCC required 44 Quick Mart to install four monitoring wells and prepare an ORBCA report in accordance with the new regulations. Clearwater Environmental installed and sampled four wells for this purpose. All samples collected contained no detectable concentrations of chemicals of concern.*
03/16/97 to 07/08/97	*The OCC required that groundwater from monitoring well MW-3 be resampled and the sample be analyzed by Environmental Analysts, Ltd. This laboratory reported a minimal concentration of benzene in the MW-3 sample. These results were incorporated into the ORBCA report presented herein.*

Check One:

- [x] Form UST 374-1, Page 5
- [ ] Form UST 376, Page 5
- [x] Tier 1
- [ ] Tier 2
- [ ] Tier 3

ORBCA SUMMARY REPORT	Worksheet #6
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

RELEASE CHARACTERIZATION

Release discovered during/by:

- ☐ UST Removal
- ☐ Release Detection Equipment
- ☑ Property Transaction
- ☐ Inventory Control
- ☐ System Tightness Testing
- ☐ Citizen Complaint
- ☐ Spill Incident
- ☐ Unknown
- ☐ Other (specify)
- ☐ Closure in Place

Pumping Mechanism

- ☑ Pressure
- ☐ Suction
- ☐ Unknown

Sources of Release(s):

- ☐ Spills/overfills
- ☐ Piping
- ☐ Dispenser
- ☐ Tank
- ☐ Other (specify)
- ☑ Unknown

Substance Released (check all that apply)

- ☑ Gasoline
- ☐ Diesel
- ☐ Used Oil
- ☐ AV Gas
- ☐ Jet Fuel
- ☐ Hydraulic Fluid
- ☐ Other

Has the source of release been identified?	☐ YES	☑ NO		
Has the release been eliminated?	☑ YES	☐ NO		
Is groundwater impacted?	☑ On-site	☐ Off-site	☐ Unknown	☐ NO
Is surface water impacted?	☐ On-site	☐ Off-site	☐ Unknown	☑ NO
Is native soil impacted?	☑ On-site	☐ Off-site	☐ Unknown	☐ NO

Dissolved phase extent:

Has NAPL been found at this site? ☐ YES ☑ NO

If YES, does NAPL extend off-site? ☐ YES ☐ NO

If YES, denote greatest thickness (to the nearest 1/100 foot):

If YES, has Free Product removal been initiated? ☐ YES ☐ NO

If NO, cite reason:

Details of the Release(s)

Date Discovered	Location	Quantity
8/29/96	*Northeast of UST pit.*	*Unknown*

Notes: *Down-to-Earth Environmental sampled groundwater from a temporarily cased boring (SB-4). The owner reported that this temporary well was not completely sealed at the surface and was sampled after a heavy rain. Clearwater placed well MW-3 a few feet from boring SB-4. No groundwater was observed in the well for over two weeks. Groundwater finally entered the well, was purged, and sampled. Very low concentrations of COCs were found in the sample.*

(Attach additional sheets if necessary)

Check One:

- ☑ Form UST 374-1, Page 6
- ☑ Tier 1
- ☐ Form UST 376, Page 6
- ☐ Tier 2
- ☐ Tier 3

ORBCA SUMMARY REPORT	Worksheet #7
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

UST/PIPING REMOVAL CHARACTERIZATION

NOTE: A separate Worksheet # 7 must be filled out for each UST/AST system removal

Date of removal: *NA*

Excavated Soil Tank No.: _____ Capacity(ies): _____

Date: _____ Quantity: _____

Details of Excavated Soil

	Date	Quantity	Location
☐ Stockpiled on-site			
☐ Disposed off-site*			
☐ Used (as fill material...) on-site			
☐ Used as road base*			
☐ Soil farm*			

Confirmatory soil samples collected after excavation in native soil ☐ YES ☐ NO

Include the data in Worksheet # 10

Sampling of excavated soil ☐ YES ☐ NO

Include the data in Worksheet # 10 only if disposed on-site

Groundwater sampling during excavation ☐ YES ☐ NO

Include the data in Worksheet # 11

Status of excavation:

- ☐ Open with water
- ☐ Open/dry
- ☐ Barricaded
- ☐ Backfilled
  - ☐ with excavated soil ☐ with clean fill
    - ☐ Pervious cover ☐ Impervious cover
- ☐ Other

NOTE: A SITE MAP, TO SCALE, DEPICTING SAMPLING LOCATIONS AND ANY USTs, AST's, PIPING RUNS, AND DISPENSER ISLANDS IS REQUIRED

Depth BGS to base of UST pit: _____

Was UST pit over-excavated? ☐ YES ☐ NO

If YES, cite dimensions (in feet) and give direction(s): _____

Was piping trench over-excavated? ☐ YES ☐ NO

If YES, cite dimensions (in feet) and give direction(s): _____

Additional Notes:

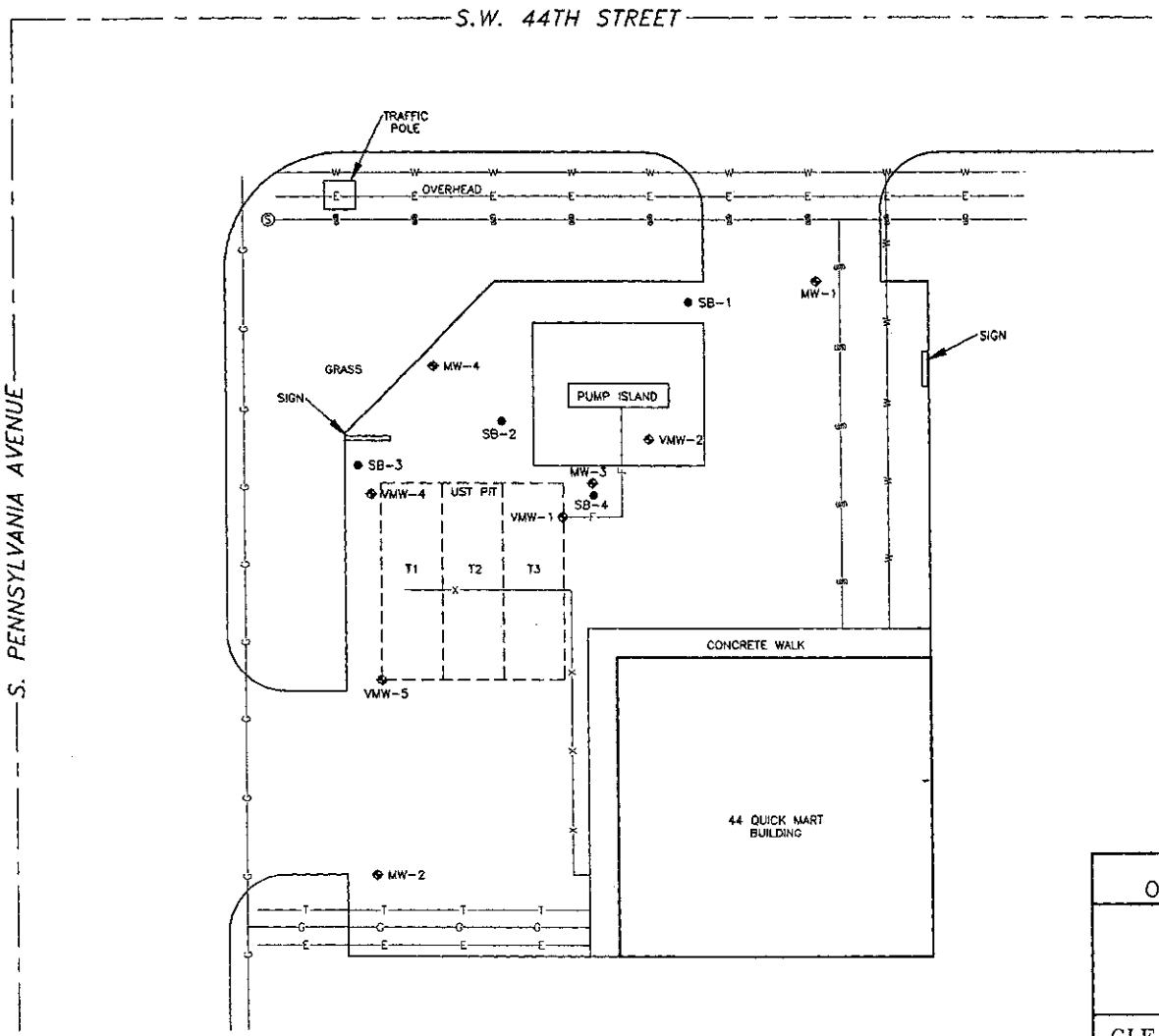
*** Provide as attachments all copies of letters, permits, ect., for off-site removal.**

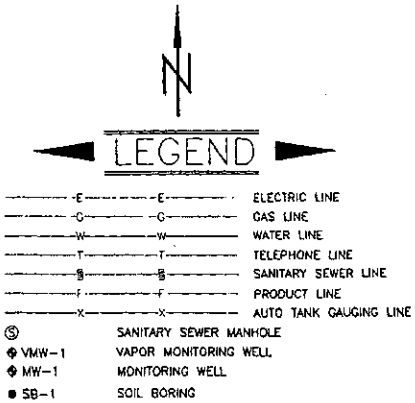
Check One:

☑ Form UST 374-1, Page 7 ☐ Form UST 376, Page 7

☑ Tier 1 ☐ Tier 2 ☐ Tier 3

[1 of]





SCALE

0 20' 40'

44 Quick Mart Oklahoma City, Oklahoma	DATE: 7/97
	DESIGNED:
	CHECKED:
FACILITY MAP	APPROVED:
	DRAWN: TSK
	PROJ.: 1027
CLEARWATER ENVIRONMENTAL Norman, Oklahoma	Figure 6

ORBCA SUMMARY REPORT	Worksheet #8
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

SITE STRATIGRAPHY AND HYDROGEOLOGY

Groundwater impacted by release: ☑ YES ☐ NO ☐ Groundwater not encountered to depth of _____ feet BGS

Stratigraphy

Depth	Unified Soil Classification	Type of Soil
0' to 3'	*CL*	*Silty Clay, brown*
3' to 9'	*CL*	*Clay, red-brown*
9' to 15.5'	*CL*	*Shaley Clay, red-brown*
15.5' to 17.5'	*SC*	*Clayey Sand, red-brown, very fine to fine, poorly graded.*
17.5' to 24.5'		*Shale, red-brown, with sandstone layer @ 21.25' to 21.75'.*

Predominant Soil Type: *Clay*

Depth	Type of Bedrock & Geologic Formation (Give rock properties & features - e.g., orientation of fractures)
17.5' to 24.5'	*Shale*

Predominant Type: *Shale*

Average depth at which groundwater was first encountered (ft.):	*7'*	☐ Estimated	☑ Measured
Shallowest depth to water table/piezometer (ft.):	*4.28'*	☐ Estimated	☑ Measured
Flow Direction (*Attach contour map*):	*north-northeast*	☐ Estimated	☑ Measured
Hydraulic Gradient (i) [ft./ft.]:	*0.04*	☐ Estimated	☑ Measured
Estimated Porosity (θ) [cm^3/cm^3]:	*0.368*	☐ Estimated	☑ Measured
Water Content [cm^3/cm^3]:	*0.36*	☐ Estimated	☑ Measured
Dry Bulk Density [g/cm^3]:	*1.73*	☐ Estimated	☑ Measured
Hydraulic Conductivity (K) [ft./day]	*4.82E-05*	☐ Estimated	☑ Measured

Hydraulic Conductivity test method :

☐ grain size/sieve analysis ☐ slug test ☐ pump test, period (hours):

☑ other (specify) *Laboratory Analysis by ASTM D5084*

Flow Velocity [ft/day] (Ki/θ): *5.24E-06*

Is this a perched aquifer? ☐ YES ☑ NO

Is the first groundwater encountered confined? ☐ YES ☑ NO

Groundwater level fluctuations (± ft.) (cite greatest known): *Unknown*

Aquifer name: *Unknown*

Estimated aquifer volume (if known) (cu. ft.): *Unknown*

Annual precipitation, 30-yr avg. (in/yr): *32*

Identify any hydrogeologically sensitive areas that are either in, or within 1 mile of the COC's plume:

Garber Sandstone

Additional Notes:

Check One:

☑ Form UST 374-1, Page 8 ☐ Form UST 376, Page 8

☑ Tier 1 ☐ Tier 2 ☐ Tier 3

MW-1

CLIENT: 44 Quick Mart
PROJECT NO.: 1027
DATE DRILLED: 1-29-97

SITE: 44 Quick Mart
LOCATION: Northeast Corner of Property

DRILLING COMPANY: Evergreen Environmental Drilling
RIG:
BOREHOLE: 8"

LOGGED BY: Bob Felder
DRILLING METHOD: Hollow Stem Auger
FLUID:

SAMPLING PROCEDURE: Continuous Core
SAMPLING INTERVAL: 5'
TOTAL DEPTH: 14.5'

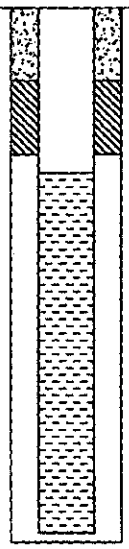
	TYPE	INTERVAL	MATERIAL	JOINT LENGTH	DIAMETER
CASING:	Blank	0' to 4.5'	PVC	4.5'	2"
SCREEN:	0.020" Slot	4.5' to 14.25'	PVC	9.75'	2"
GROUT:	Portland	0' to 2'		AMOUNT:	
SEAL:	Bentonite	2' to 4'			
FILTER PACK:	Sand	4' to 14.5'			

DEVELOPMENT:

NOTES: Hit Sever Line (Building) on First Boring Attempt, Made Repairs

ELEVATIONS: G.L. T.O.C. RISER HT.

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	GROUNDWATER/ PRODUCT LEVEL	ANALYTICAL SAMPLE INTERVAL	ORGANIC VAPOR READINGS (ppm)
			0'-1' CONCRETE & FILL			
			1'-2' SILTY CLAY: Red-brown			220
		CL	2'-3.5' SILT: Dark brown, some clay			
2.5		ML	3.5'-7' CLAY: Red-brown, wet @ 6.5'			0
5		CL				0
			7'-9' SILTY CLAY: Red-brown, with gravel, moist	▽		0
7.5		CL				
			9'-10' SANDY CLAY: Red-brown, with coarse sand and gravel @ 9.75'- 10', very wet @ 10'			0
		CL				80
10			10'-14.5' SHALEY CLAY/SHALE: Red-brown, wet layer @ 13.5'			0
12.5		CL				0
			T.D.=14.5'			
15						
17.5						
20						

MW-2

CLIENT: 44 Quick Mart
PROJECT NO.: 1027
DATE DRILLED: 1-29-97

SITE: 44 Quick Mart
LOCATION: Southwest Corner of Property

DRILLING COMPANY: Evergreen Environmental Drilling
RIG:
BOREHOLE: 8"

LOGGED BY: Bob Felder
DRILLING METHOD: Hollow Stem Auger
FLUID:

SAMPLING PROCEDURE: Continuous Core
SAMPLING INTERVAL: 5'
TOTAL DEPTH: 14.5'

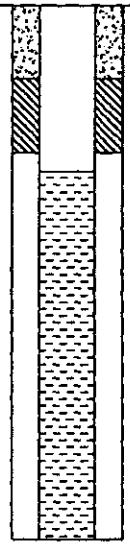
	TYPE	INTERVAL	MATERIAL	JOINT LENGTH	DIAMETER
CASING:	Blank	0' to 4.5'	PVC	4.5'	2"
SCREEN:	0.020" Slot	4.5' to 14.5'	PVC	10'	2"
GROUT:	Portland	0' to 2'		AMOUNT:	
SEAL:	Bentonite	2' to 4'			
FILTER PACK:	Sand	4' to 14.5'			

DEVELOPMENT:

NOTES:

ELEVATIONS: G.L. T.O.C. RISER HT.

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	GROUNDWATER/ PRODUCT LEVEL	ANALYTICAL SAMPLE INTERVAL	ORGANIC VAPOR READINGS (ppm)
			0'-1' CONCRETE			
		CL	1'-2' CLAY: Red-brown			120
			2'-3' SILTY CLAY: Dark brown			
2.5		CL	3'-7' SILTY CLAY: Brown, (shelby tube @ 4.5' to 6')			0
5		CL				60
			7'-13' SILTY CLAY: Red-brown, damp, wet @ 11', (shelby tube @ 9.5' to 11')			0
7.5						
						0
10		CL		▽		0
12.5			13'-14' CLAYEY SHALE: Red-brown, core barrel plugged off @ 12.5' T.D.=14'			
15						
17.5						
20						

MW-3

CLIENT: 44 Quick Mart

PROJECT NO.: 1027

DATE DRILLED: 1-30-97

SITE: 44 Quick Mart

LOCATION: 2'North of SB-4

DRILLING COMPANY: Evergreen Environmental Drilling

RIG:

BOREHOLE: 8"

LOGGED BY: Bob Felder

DRILLING METHOD: Hollow Stem Auger

FLUID:

SAMPLING PROCEDURE: Continuous Core

SAMPLING INTERVAL: 5'

TOTAL DEPTH: 19.5'

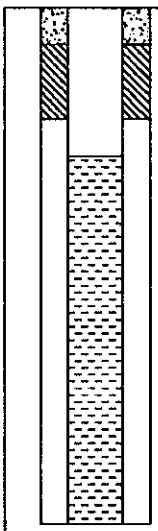
	TYPE	INTERVAL	MATERIAL	JOINT LENGTH	DIAMETER
CASING:	Blank	0' to 4'	PVC	4'	2"
SCREEN:	0.020" Slot	4' to 14'	PVC	10'	2"
GROUT:	Portland	0' to 1'		AMOUNT:	
SEAL:	Bentonite	1' to 3'			
FILTER PACK:	Sand	3' to 14'			

DEVELOPMENT:

NOTES: Plugged Core Barrel @ 14' to 19.5'

ELEVATIONS: G.L. T.O.C. RISER HT.

WELL CONSTRUCTION



DEPTH (FT.)	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	GROUNDWATER/ PRODUCT LEVEL	ANALYTICAL SAMPLE INTERVAL	ORGANIC VAPOR READINGS (ppm)
		0'-1' CONCRETE & FILL 1'-3' CLAY: Red-brown			40
2.5	CL	3'-4' SILTY CLAY: Dark brown			320
	CL	4'-9' CLAY: Dark brown, wet @ 8'			220
5					320
	CL		▽		
7.5					280
		9'-10' CLAY: Red-brown with interbedded gray sand			0
10	CL	10'-19.5' SHALEY CLAY/SHALE: Red-brown, with 1" layer for gray sandstone @ 15'			0
12.5					0
15	CL				0
17.5					0
20		T.D.=19.5'			0

MW-4

CLIENT: 44 Quick Mart
PROJECT NO.: 1027
DATE DRILLED: 1-30-97

SITE: 44 Quick Mart
LOCATION: Northwest Corner of Property

DRILLING COMPANY: Evergreen Environmental Drilling
RIG:
BOREHOLE: 8"

LOGGED BY: Bob Felder
DRILLING METHOD: Hollow Stem Auger
FLUID:

SAMPLING PROCEDURE: Continuous Core
SAMPLING INTERVAL: 5'
TOTAL DEPTH: 24.5

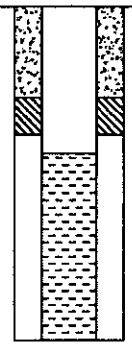
	TYPE	INTERVAL	MATERIAL	JOINT LENGTH	DIAMETER
CASING:	Blank	0' to 8'	PVC	8'	2"
SCREEN:	0.020" Slot	8' to 18'	PVC	10'	2"
GROUT:	Portland	0' to 5'		AMOUNT:	
SEAL:	Bentonite	5' to 7'			
FILTER PACK:	Sand	7' to 18'			

DEVELOPMENT:

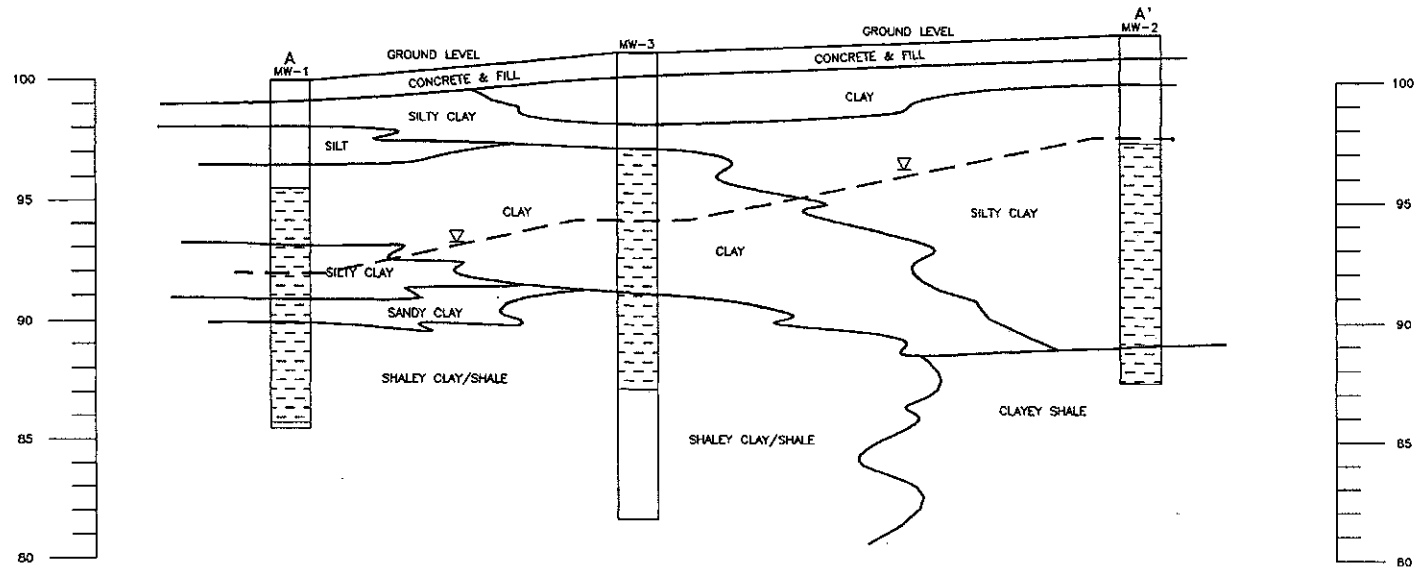
NOTES: Core Barrel Plugged @ 1', no Samples 0'-4.5'; Plugged Again @ 4.5', no Sample, Sampled off Auger; Got Sample @ 9'-12' w/Core Barrel; no Sample 12'-14.5'

ELEVATIONS: G.L. T.O.C. RISER HT.

WELL CONSTRUCTION



DEPTH (FT.)	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	GROUNDWATER/ PRODUCT LEVEL	ANALYTICAL SAMPLE INTERVAL	ORGANIC VAPOR READINGS (ppm)
	CL	0'-1' CONCRETE & FILL			
	CL	1'-2' SILTY CLAY: Red-brown			
		2'-3' SILTY CLAY: Dark brown			
		3'-9' CLAY: Red-brown			
5	CL				80
					40
		9'-12' SHALEY CLAY: Red-brown			100
10	CL				0
		12'-12.25' SILTSTONE: Gray (no sample @ 12' to 14.5')			0
		12.25'-15.5' SHALEY CLAY			
	CL				
15	SC	15.5'-16.5' CLAYEY SAND: Red-brown, very fine to fine grained, poorly graded			0
	SP	16.5'-17.5' SAND/SANDSTONE: Red-brown, very fine to fine grained, poorly graded, moist			0
		17.5'-21.25' SHALE: Red-brown			
20		21.25'-21.5' SANDSTONE: Red-brown, very fine to fine grained, poorly graded			0
		21.5'-21.75' SANDSTONE: Gray, very fine to fine grained, poorly graded			
25		21.75'-24.5' SHALE			
		T.D.=24.5'			
30					
35					
40					



HORIZONTAL
SCALE
0 20' 40'

VERTICAL SCALE: 4X HORIZONTAL SCALE
BOREHOLES ARE EXAGGERATED 10X

44 Quick Mart Holdenville, Oklahoma	DATE: 7/97
	DESIGNED:
	CHECKED:
CROSS SECTION (A–A')	APPROVED:
	DRAWN: TSK
	PROJ.: 1027
CLEARWATER ENVIRONMENTAL Norman, Oklahoma	Figure 7

STANDARD TESTING
AND ENGINEERING COMPANY

CORPORATE OFFICE and CENTRAL LABORATORY
3400 N. LINCOLN, OKLAHOMA CITY, OK 73105 (405) 528-0541

Area Offices

9200 KING ARTHUR DRIVE	DALLAS, TX 75247	(214) 631-4372
902 TRAILS WEST LOOP	ENID, OK 73703	(405) 237-3130
900 S.E. SECOND	LAWTON, OK 73501	(405) 353-0872
5806 S. 129 EAST AVE.	TULSA, OK 74134	(918) 459-2700

Acct. No:	2CL94 File No: CL94-3		
Report Date:	2/12/97	Date Sampled:	1/29/97
Project:	44 Quick Mart / 1027	Sampled By:	Bob Felder
Location:	MW 2 4.5'-6'	By Order Of:	Client
Arch./Engr:		Order No:	
Contractor:	Clearwater Environmental	Quantity Represented:	One Sample
REPORT:	DRY BULK DENSITY, MOISTURE CONTENT SPECIFIC GRAVITY, POROSITY, AND ORGANIC MATTER	LAB NO:	S-6301
Specification:		Test Method:	ASTM D2216, D2937, D854, D2974

TEST RESULTS

Sample ID	MW 2 4.5'-6'
Natural Moisture Content, %	20.7
Dry Bulk Density, lbs./cu. ft	107.7
Specific Gravity	2.73
Porosity, %	36.8
Organic Matter, %	1.17
Soil Description	Brown Silty Clay

Charge: Clearwater Environmental
Orig. & 1 same
1-cc Laboratory

Respectfully submitted,
STANDARD TESTING AND ENGINEERING CO.

LICENSED PROFESSIONAL ENGINEER
ROBERT EUGENE WHIDDON
10226
OKLAHOMA

Robert E. Whiddon, P.E.

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OBSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS, OR PROCEDURES, NOR DO THEY REPRESENT AN ON GOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE NOT TO BE REPRODUCED WITHOUT SPECIFIC WRITTEN PERMISSION

STANDARD TESTING AND ENGINEERING COMPANY

3400 N. Lincoln Blvd., Oklahoma City, OK 73105

Acct No.: CL 94

REPORT Measurement of Hydraulic Conductivity Date January 29, 1997

Project *44 Quick Mart /1027 Specification ASTM D5084

Location MW-2, 4.5'-6.0' Quantity Represented Brown Silty Clay

Architect/Engineer Sampled by Tommy Jones

Contractor Clearwater Environmental by Order of Thomas R. Felder

Reported To Clearwater Environmental Date February 24, 1997

TEST RESULTS

Project Number: S-6301A

* Corrected 2-26-97

Sample ID:	4.5'-6.0'	
Sample Prep:	Undisturbed	
	Initial	Final
Moisture Content (%):	20.43	21.28
Sample Diameter (cm):	7.14	7.15
Sample Height (cm):	4.01	4.04
Dry Unit Wt. (pcf):	110.0	108.9
Type of Permeant :	Deaired Water	
Magnitude of Backpressure (psi):	50	
Max. Eff. Consolidation Stress (psi):	10	
Min. Eff. Consolidation Stress (psi):	5	
Hydraulic Gradient:	87.7	
Degree of Saturation (%):	98.5	
Average Hydraulic Conductivity (cm/s):	4.2×10^{-08}	

Respectfully Submitted,
STANDARD TESTING AND ENGINEERING CO.
(Original Signed By)

Richard W. Mudd, P.E.

STANDARD TESTING
AND ENGINEERING COMPANY

CORPORATE OFFICE and CENTRAL LABORATORY
3400 N. LINCOLN, OKLAHOMA CITY, OK 73105 (405) 528-0541

Area Offices

9200 KING ARTHUR DRIVE	DALLAS, TX 75247	(214) 631-4372
902 TRAILS WEST LOOP	ENID, OK 73703	(405) 237-3130
900 S.E. SECOND	LAWTON, OK 73501	(405) 353-0872
5806 S. 129 EAST AVE.	TULSA, OK 74134	(918) 459-2700

Acct. No:	2CL94 File No: CL94-3		
Report Date:	2/12/97	Date Sampled:	1/29/97
Project:	44 Quick Mart / 1027	Sampled By:	Bob Felder
Location:	MW 2 9.5'-11'	By Order Of:	Client
Arch./Engr:		Order No:	
Contractor:	Clearwater Environmental	Quantity Represented:	One Sample
REPORT:	DRY BULK DENSITY, MOISTURE CONTENT SPECIFIC GRAVITY, POROSITY, AND ORGANIC MATTER	LAB NO:	S-6302
Specification:		Test Method:	ASTM D2216, D2937, D854, D2974

TEST RESULTS

Sample ID	MW 2 9.5'-11'
Natural Moisture Content, %	19.1
Dry Bulk Density, lbs./cu. ft	110.9
Specific Gravity	2.74
Porosity, %	35.1
Organic Matter, %	1.14
Soil Description	Reddish Brown Silty Shale

Charge: Clearwater Environmental
Orig. & 1 same
1-cc Laboratory

Respectfully submitted,
STANDARD TESTING AND ENGINEERING CO.

REGISTERED PROFESSIONAL ENGINEER
ROBERT EUGENE WHIDDON
10208
OKLAHOMA

Robert E. Whiddon, P.E.

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OBSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS, OR PROCEDURES. NOR DO THEY REPRESENT AN ON GOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE NOT TO BE REPRODUCED WITHOUT SPECIFIC WRITTEN PERMISSION

STANDARD TESTING
AND ENGINEERING COMPANY

3400 N. Lincoln Blvd., Oklahoma City, OK 73105

Acct No.: CL 94

REPORT Measurement of Hydraulic Conductivity Date January 29, 1997

Project *44 Quick Mart /1027 Specification ASTM D5084

Location MW-2, 9.5'-11.0' Quantity Represented Reddish Brown Silty Shale

Architect/Engineer Sampled by Tommy Jones

Contractor Clearwater Environmental by Order of Thomas R. Felder

Reported To Clearwater Environmental Date February 24, 1997

TEST RESULTS

Project Number: S-6302A

* Corrected 2-26-97

Sample ID:	9.5'-11.0'	
Sample Prep:	Undisturbed	
	Initial	Final
Moisture Content (%):	23.08	24.94
Sample Diameter (cm):	7.10	7.10
Sample Height (cm):	4.90	4.88
Dry Unit Wt. (pcf):	102.5	102.9
Type of Permeant :	Deaired Water	
Magnitude of Backpressure (psi):	50	
Max. Eff. Consolidation Stress (psi):	10	
Min. Eff. Consolidation Stress (psi):	5	
Hydraulic Gradient:	71.8	
Degree of Saturation (%):	100.0	
Average Hydraulic Conductivity (cm/s):	1.7×10^{-08}	

Respectfully Submitted,
STANDARD TESTING AND ENGINEERING CO.
(Original Signed By)

REGISTERED PROFESSIONAL ENGINEER
RICHARD W. MUDD
12507
OKLAHOMA

Richard W. Mudd, P.E.

CHAIN OF CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

CLEARWATER ENVIRONMENTAL SERVICES, INC.

P.O. Box 720066
Norman, Oklahoma 73070-4050
Telephone: 405-364-8298
Facsimile: 405-364-8299

Project Name/No. 44 Quick Mart / 6027
Project Location
Samplers' Name Bob Felder
Signature Thomas R. Felder
Laboratory Standard Testing

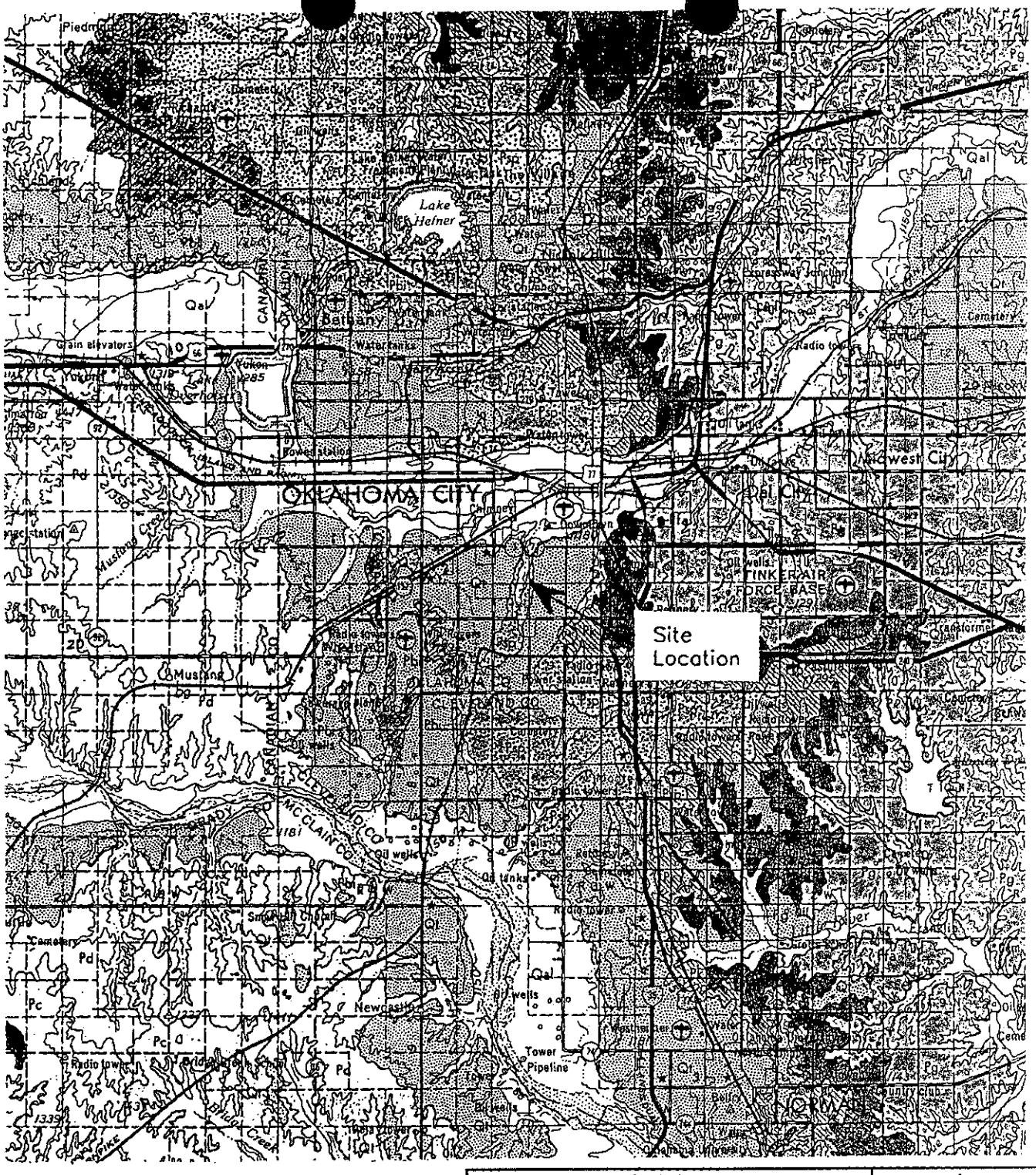
SEND ANALYSES TO: Thomas R. "Bob" Felder

ANALYSIS REQUESTED

SAMPLE ID	DATE	TIME	SAMPLE LOCATION, MEDIA, TYPE, DESCRIPTION	BTEX	TPH — GAS	TPH — DIESEL	NAPHTHALENE	TOTAL LEAD	Porosity	Density	Moisture Cont.	Organic Matter	Hydr. Conductivity	NO. OF CONTAINERS	Remarks
MW-2	1/29/97	2:00	Soil - Shelby Tube 4½-6						✓	✓	✓	✓	✓	1	56301
↓	↓	2:20	" " " 9½-11						✓	✓	✓	✓	✓	1	56302
								Total Number of Containers:						2	

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:
			Thomas R. Felder	1/30/97 200	Tommy R Sore
Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received for Lab by:
			Tommy R Sore	1/30/97 3:00	[illegible] 1/30/97

Shipment to Laboratory: Agent Person Shipping:



RECONNAISSANCE OF THE WATER RESOURCES OF THE OKLAHOMA CITY QUADRANGLE CENTRAL OKLAHOMA

BY ROY H. BINGHAM AND ROBERT L. MOORE 1975

5 0 5

CONTOUR INTERVAL 100 FEET WITH SUPPLEMENTARY CONTOURS AT 50 FOOT INTERVALS DATUM: MEAN SEA LEVEL

N

44 Quick Mart Oklahoma City, Oklahoma	DATE: 7/97
	DESIGNED:
	CHECKED:
	APPROVED:
REGIONAL GEOLOGICAL MAP	DRAWN: COG
	PROJ.: 1024
CLEARWATER ENVIRONMENTAL Norman, Oklahoma	Figure 8

ORBCA SUMMARY REPORT	Worksheet #9
LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

WATER USE

The purpose of this worksheet is to identify existing and reasonable beneficial uses for groundwater, and surface water.

NOTE: Denote all wells within 1/2 mile radius of the site on Topographic Map

GROUNDWATER RESOURCES	Current	Potential	COMMENTS
			No water wells known in the immediate area.
Domestic supply	☐	☑	*However, Oklahoma City does not restrict*
Public/Municipal Supply	☐	☐	*the installation of water wells within city limits*
Industrial Supply	☐	☐	*so future water wells are possible.*
Agriculture	☐	☐	
Other (Define in Notes)	☐	☐	
Within Wellhead Protection Area	☐	☐	

Likelihood of use of groundwater for domestic supply in future

☐ Low ☐ Medium ☐ High ☑ None/Extremely unlikely

Water Quality (If known, Please specify units))

TDS: _____ Specific Conductance: _____ Chlorides: _____

Hardness: _____ Nitrates: _____ Iron: _____

Sulfates: _____ Pesticides (specify): _____

Other (specify): _____

Notes:

SURFACE WATER RESOURCES (If relevant)	Current	Potential	COMMENTS
			Not relevant.
Domestic supply	☐	☐	
Public/Municipal Supply	☐	☐	
Recreational	☐	☐	
Other	☐	☐	

Likelihood of use of surface water for domestic supply in future

☐ Low ☐ Medium ☐ High ☑ None/Extremely unlikely

If a stream is, or may potentially be, impacted by COC's, does the stream have:

☐ Intermittent water flow ☐ Continuous water flow

Notes:

Check One:

☑ Form UST 374-1, Page 9 ☐ Form UST 376, Page 9

☑ Tier 1 ☐ Tier 2 ☐ Tier 3

ORBCA SUMMARY REPORT — **Worksheet #10**

LUST ID: 064-1782	FACILITY ID: 55-03571
Date Form Completed: 08-Jul-97	Form Completed by: Bob Felder

ANALYTICAL DATA SUMMARY FOR SOIL

Chemical levels detected during soil borings, and UST/piping removal activity

MW No./Sample Location	Sampling Date	Sample Depth [ft.]	Benzene [mg/kg]	Toluene [mg/kg]	Ethylbenzene [mg/kg]	Xylene [mg/kg]	Naphthalene [mg/kg]	TPH/GRO [mg/kg]	TPH/DRO [mg/kg]	OTHERS
MW-1	*1/29/97*	*2'*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*		
MW-1	*1/29/97*	*6'*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*		
MW-2	*1/29/97*	*2'*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*		
MW-3	*1/30/97*	*6'*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*		
MW-3	*1/30/97*	*8'*	*ND*	*ND*	*ND*	*ND*	*ND*	*84*		
MW-4	*1/30/97*	*9'*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*		
SB-1	*5/17/96*	*5'*	*<0.005*	*<0.005*	*<0.005*	*<0.005*		*1.01*		
SB-2	*5/17/96*	*10'*	*0.193*	*0.086*	*0.751*	*3.87*		*39.8*		
SB-3	*5/17/96*	*10'*	*<0.005*	*<0.005*	*<0.005*	*<0.005*		*0.325*		
SB-4	*8/28/96*		*ND*	*ND*	*0.25*	*3.39*		*52*		
		NUMBER OF DETECTION(S)	1	1	2	2	--	5	--	--
		AVERAGE	0.193	0.086	0.501	3.630	--	35.427	--	--
		STD. DEVIATION	--	--	0.354	0.339	--	35.601	--	--
		MAXIMUM	0.193	0.086	0.751	3.870	--	84.000	--	--

NOTE:

Provide any laboratory analytical datasheets not previously submitted to the OCC

ND and NO OVA values are ignored for calculating the average and standard deviations.

Check One:

- [x] Form UST 374-1, Page 10
- [ ] Form UST 376, Page 10
- [x] Tier 1
- [ ] Tier 2
- [ ] Tier 3

File:
Lab Data
44 QM

LABORATORY REPORT NO. 81763

February 3, 1997

Clearwater Environmental
Project No. 1027
44 Quick Mart

Sampled January 1997

Analyses of 6 Soil samples for BTEX, TPH & Naphthalene:

MW-1 @ 2'
MW-1 @ 6'
MW-2 @ 2'
MW-3 @ 6'
MW-3 @ 8'
MW-4 @ 9'

1 - Bob Felder - Norman, Ok

Oilab

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81763

FEBRUARY 3, 1997

	CLEARWATER ENVIRONMENTAL
PROJECT NUMBER	1027
PROJECT INFORMATION	44 QUICK MART
SAMPLE I.D.	MW-1 @ 2'
LAB SAMPLE I.D.	8650S 1
TYPE OF SAMPLE	SOIL
SAMPLED BY	BOB FELDER
DATE SAMPLED	JANUARY 29, 1997
TIME SAMPLED	10:05 AM
DATE RECEIVED	JANUARY 30, 1997
DATE RUN	JANUARY 31, 1997

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	5 ug/kg	BENZENE		ND
8020	5 ug/kg	TOLUENE		ND
8020	5 ug/kg	ETHYL BENZENE		ND
8020	5 ug/kg	XYLENE		ND
8020		SURROGATE (Trifluorotoluene) RECOVERY %		101
8015 M	1 mg/kg	Volatile TPH (Gasoline Range Organics)		ND
8020-M	1 ug/kg	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/kg Milligrams per Kilogram, equivalent to parts per million.
ug/kg Micrograms per Kilogram, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Certified by:

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81763

FEBRUARY 3, 1997

	CLEARWATER ENVIRONMENTAL
PROJECT NUMBER	1027
PROJECT INFORMATION	44 QUICK MART
SAMPLE I.D.	MW-1 @ 6'
LAB SAMPLE I.D.	8650S 2
TYPE OF SAMPLE	SOIL
SAMPLED BY	BOB FELDER
DATE SAMPLED	JANUARY 29, 1997
TIME SAMPLED	10:20 AM
DATE RECEIVED	JANUARY 30, 1997
DATE RUN	JANUARY 31, 1997

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	5 ug/kg	BENZENE		ND
8020	5 ug/kg	TOLUENE		ND
8020	5 ug/kg	ETHYL BENZENE		ND
8020	5 ug/kg	XYLENE		ND
8020		SURROGATE (Trifluorotoluene) RECOVERY %		101
8015 M	1 mg/kg	Volatile TPH (Gasoline Range Organics)		ND
8020-M	1 ug/kg	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/kg Milligrams per Kilogram, equivalent to parts per million.
ug/kg Micrograms per Kilogram, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Certified by:

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81763

FEBRUARY 3, 1997

PROJECT NUMBER	CLEARWATER ENVIRONMENTAL
PROJECT INFORMATION	1027
SAMPLE I.D.	44 QUICK MART
LAB SAMPLE I.D.	MW-2 @ 2'
TYPE OF SAMPLE	8650S 3
SAMPLED BY	SOIL
DATE SAMPLED	BOB FELDER
TIME SAMPLED	JANUARY 29, 1997
DATE RECEIVED	1:55 PM
DATE RUN	JANUARY 30, 1997
	JANUARY 31, 1997

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	5 ug/kg	BENZENE		ND
8020	5 ug/kg	TOLUENE		ND
8020	5 ug/kg	ETHYL BENZENE		ND
8020	5 ug/kg	XYLENE		ND
8020		SURROGATE (Trifluorotoluene) RECOVERY %		97
8015 M	1 mg/kg	Volatile TPH (Gasoline Range Organics)		ND
8020-M	1 ug/kg	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/kg Milligrams per Kilogram, equivalent to parts per million.
ug/kg Micrograms per Kilogram, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Certified by:

Oilab

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81763

FEBRUARY 3, 1997

	CLEARWATER ENVIRONMENTAL
PROJECT NUMBER	1027
PROJECT INFORMATION	44 QUICK MART
SAMPLE I.D.	MW-3 @ 6'
LAB SAMPLE I.D.	8650S 4
TYPE OF SAMPLE	SOIL
SAMPLED BY	BOB FELDER
DATE SAMPLED	JANUARY 30, 1997
TIME SAMPLED	12:20 PM
DATE RECEIVED	JANUARY 30, 1997
DATE RUN	JANUARY 31, 1997

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	5 ug/kg	BENZENE		ND
8020	5 ug/kg	TOLUENE		ND
8020	5 ug/kg	ETHYL BENZENE		ND
8020	5 ug/kg	XYLENE		ND
8020		SURROGATE (Trifluorotoluene) RECOVERY %		98
8015 M	1 mg/kg	Volatile TPH (Gasoline Range Organics)		ND
8020-M	1 ug/kg	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/kg Milligrams per Kilogram, equivalent to parts per million.
ug/kg Micrograms per Kilogram, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Certified by

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81763

FEBRUARY 3, 1997

	CLEARWATER ENVIRONMENTAL
PROJECT NUMBER	1027
PROJECT INFORMATION	44 QUICK MART
SAMPLE I.D.	MW-3 @ 8'
LAB SAMPLE I.D.	8650S 5
TYPE OF SAMPLE	SOIL
SAMPLED BY	BOB FELDER
DATE SAMPLED	JANUARY 30, 1997
TIME SAMPLED	12:20 PM
DATE RECEIVED	JANUARY 30, 1997
DATE RUN	JANUARY 31, 1997

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	5 ug/kg	BENZENE		ND
8020	5 ug/kg	TOLUENE		ND
8020	5 ug/kg	ETHYL BENZENE		ND
8020	5 ug/kg	XYLENE		ND
8020		SURROGATE (Trifluorotoluene) RECOVERY %		98
8015 M	1 mg/kg	Volatile TPH (Gasoline Range Organics)		84
8020-M	1 ug/kg	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/kg Milligrams per Kilogram, equivalent to parts per million.
ug/kg Micrograms per Kilogram, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Certified by:

Oilab

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81763

FEBRUARY 3, 1997

	CLEARWATER ENVIRONMENTAL
PROJECT NUMBER	1027
PROJECT INFORMATION	44 QUICK MART
SAMPLE I.D.	MW-4
LAB SAMPLE I.D.	8650S 6
TYPE OF SAMPLE	SOIL
SAMPLED BY	BOB FELDER
DATE SAMPLED	JANUARY 30, 1997
TIME SAMPLED	10:15 AM
DATE RECEIVED	JANUARY 30, 1997
DATE RUN	JANUARY 31, 1997

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	5 ug/kg	BENZENE		ND
8020	5 ug/kg	TOLUENE		ND
8020	5 ug/kg	ETHYL BENZENE		ND
8020	5 ug/kg	XYLENE		ND
8020		SURROGATE (Trifluorotoluene) RECOVERY %		101
8015 M	1 mg/kg	Volatile TPH (Gasoline Range Organics)		ND
8020-M	1 ug/kg	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/kg Milligrams per Kilogram, equivalent to parts per million.
ug/kg Micrograms per Kilogram, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Certified by:

CHAIN OF CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

CLEARWATER ENVIRONMENTAL SERVICES, INC.

P.O. Box 720066
Norman, Oklahoma 73070-4050
Telephone: 405-364-8298
Facsimile : 405-364-8299

Project Name/No. 44 Quick Mart / 1027
Project Location
Samplers' Name Bob Felder
Signature Thomas R Felder
Laboratory Oilab

SEND ANALYSES TO: Thomas R. "Bob" Felder

ANALYSIS REQUESTED

SAMPLE ID	DATE	TIME	SAMPLE LOCATION, MEDIA, TYPE, DESCRIPTION	BTEX	TPH — GAS	TPH — DIESEL	NAPHTHALENE	TOTAL LEAD	PHENOLS	TOC	pH			NO. OF CONTAINERS	Remarks
MW-1	1/29/97	10:05	Soil 2'	✓	✓		✓							1	
MW-1	↓	10:20	6'	✓	✓		✓							1	
MW-2		1:55	2'	✓	✓		✓							1	
~~MW-2~~		~~2:15~~	~~8'~~												
MW-3	1/30/97	12:20	6'	✓	✓		✓							1	
MW-3	↓	12:20	8'	✓	✓		✓							1	
MW-4	↓	10:15	9'	✓	✓		✓							1	

Total Number of Containers: 6

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:
			Thomas R Felder	1/30/97 / 2:00	Tommy R Sore
Relinquished by:	**Date/Time**	**Received by:**	**Relinquished by:**	**Date/Time**	**Received for Lab by:**
			Tommy R Sore	1/31/97 2:50	[illegible]

Method of Shipment to Laboratory: Agent Person Shipping:

Oilab
Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 80212

SEPTEMBER 4, 1996

	DOWN-TO-EARTH ENVIRONMENTAL
PROJECT NUMBER	96005
PROJECT INFORMATION	44 QUICK MART
SAMPLE I.D.	SB-4 S-4
LAB SAMPLE I.D.	7999S 1
TYPE OF SAMPLE	SOIL
SAMPLED BY	DENISE COPE
DATE SAMPLED	AUGUST 28, 1996
TIME SAMPLED	3:40 PM
DATE RECEIVED	AUGUST 28, 1996
DATE RUN	SEPTEMBER 4, 1996

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	5 ug/kg	BENZENE		ND
8020	5 ug/kg	TOLUENE		ND
8020	5 ug/kg	ETHYL BENZENE		250
8020	5 ug/kg	XYLENE		3,390
8020		SURROGATE (Trifluorotoluene) RECOVERY %		101
8015 M	1 mg/kg	Volati e TPH (Gasoline Range Organics)		52
		QA/QC		
		LAB BLANK		ND

mg/kg Milligrams per Kilogram, equivalent to parts per million.
ug/kg Micrograms per Kilogram, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Glenn E Spear

Certified by:

PETROLEUM LABORATORY
GAS ENGINEERING
AND
ENVIRONMENTAL SERVICES

OILAB, INC.

401 N.E. 46
OKLAHOMA OK 73105-3338
BUS. (405) 528-8255
FAX: (405) 528-8632

CHAIN OF CUSTODY

SERVICE REQUESTED: ☐ 24 Hour (Price x 2) ☐ 48 Hour (Price x 1.5) ● Normal Turnaround

COMPANY NAME: Down-To-Earth Environmental Service

PROJECT NO.: 96005

PROJECT NAME: 44 Quick Mart

SAMPLERS: (Signature) Denise P. Cope

LOG NO.:

SAMPLE TYPE: Soil

ANALYSIS REQUESTED

STATION NUMBER	DATE	TIME	STATION LOCATION	BTEX-Gas	TPH-Gas								NO. OF CONT.	COND. OF SAMPLE	REMARKS
	8/28/96	3:40pm	SB-4 S-4	✓	✓								One	good	iced

REPORT TO: Denise Cope

INVOICE TO: Denise P. Cope
Down-To-Earth Environmental Service
1702 Funda St
El Reno, OK 73036-1984

TOTAL NUMBERS OF CONTAINERS: one

PERSERVATION METHOD USED
ICED X
OTHER

RELINQUISHED BY:	DATE	TIME	RECEIVED FOR LAB BY:	DATE	TIME	RUN BY:
Denise Cope	8/28/96	5:00pm	Terry Quante	8/28/96	5:02pm	

METHOD OF SHIPMENT:

SHIPPED BY:

COURIER: (Signature)

DISPOSED BY: DATE TIME METHOD:

RECEIVED BY: (Signature of Agent)

Environmental Analysts, Ltd.

1007 North University Blvd. • Norman, Oklahoma 73069 • (405) 573-0563

Client Name.....:	Professional Engineering Services, Inc.		
Client Contact Person.....:		Log Number.....:	519
Address.....:	210 East Main Suite 218	Log Opening Date.....:	17-May-96
		EAL Contract Number.....	8
City.....:	Norman	Client PO Number.....:	96-717
State.....:	OK 73069	Client Other Number.....:	Friendly Food Store
Telephone.....:	405-321-8060	FAX.....:	405-321-8119

Sample Description: Friendly Food Store, SB-1 (05'), Soil

Laboratory Data:		***Field Data:***	
Laboratory Sample Number...:	2047	Client Sample Number.....:	SB-1 (05')
Logged In By.....:	Rick Beckenhauer	Sample Matrix.....:	Soil
Sample Receipt Date.....:	5/17/96 1:15:00 PM	Sampling Date And Time.....:	5/17/96
Method Of Sample Receipt....:	Brought In By Client	Sampled By.....:	Candace Palmer
Sample Condition.....:	Intact	Sampling Location.....:	Friendly Food Store
Chain Of Custody.....:	Yes	City/State.....:	Oklahoma City, OK
Chain Of Custody Number.....:		County.....:	Oklahoma
Custody Seals.....:	No		
Seal Condition.....:			

Laboratory Report

BTEX

Method Reference.....: SW 846-8020
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/17/96
QA/QC Batch No.....: 410

CAS Number	Component Name	Results	Units	BDL
71-43-2	Benzene	< 0.005	ppm	☑
108-88-3	Toluene	< 0.005	ppm	☑
100-41-4	Ethylbenzene	< 0.005	ppm	☑
1330-20-7	Xylenes (Mixed Isomers)	< 0.005	ppm	☑

Total Petroleum Hydrocarbons (GRO)

Method Reference.....: SW-846 8015 (Modified)
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/17/96
QA/QC Batch No.....: 411

CAS Number	Component Name	Results	Units	BDL
NA	TPH (Gasoline Range Organics)	1.01	ppm	[ ]

Environmental Analysts, Ltd.

1007 North University Blvd. • Norman, Oklahoma 73069 • (405) 573-0563

Client Name.....: **Professional Engineering Services, Inc.**

Client Contact Person.....:		Log Number.....:	519
Address.....:	210 East Main Suite 218	Log Opening Date.....:	17-May-96
		EAL Contract Number.....:	8
City.....:	Norman	Client PO Number.....:	96-717
State.....:	OK 73069	Client Other Number.....:	Friendly Food Store
Telephone.....:	405-321-0060	FAX.....:	405-321-6119

Sample Description: **Friendly Food Store, SB-2 (10'), Soil**

Laboratory Data:		***Field Data:***	
Laboratory Sample Number...:	2040	Client Sample Number.....:	SB-2 (10')
Logged In By.....:	Rick Beckenhauer	Sample Matrix.....:	Soil
Sample Receipt Date.....:	5/17/96 1:15:00 PM	Sampling Date And Time.....:	5/17/96
Method Of Sample Receipt....:	Brought In By Client	Sampled By.....:	Candace Palmer
Sample Condition.....:	Intact	Sampling Location.....:	Friendly Food Store
Chain Of Custody.....:	Yes	City/State.....:	Oklahoma City, OK
Chain Of Custody Number.....:		County.....:	Oklahoma
Custody Seals.....:	No		
Seal Condition.....:			

Laboratory Report

BTEX

Method Reference.....: SW 846-8020
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/17/96
QA/QC Batch No.....: 410

CAS Number	Component Name	Results	Units	BDL
71-43-2	Benzene	.193	ppm	[ ]
108-88-3	Toluene	.086	ppm	[ ]
100-41-4	Ethylbenzene	.751	ppm	[ ]
1330-20-7	Xylenes [Mixed Isomers]	3.87	ppm	[ ]

Total Petroleum Hydrocarbons [GRO]

Method Reference.....: SW-846 8015 [Modified]
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/17/96
QA/QC Batch No.....: 411

CAS Number	Component Name	Results	Units	BDL
NA	TPH [Gasoline Range Organics]	39.8	ppm	[ ]

Environmental Analysts, Ltd.

1007 North University Blvd. • Norman, Oklahoma 73069 • (405) 573-0663

Client Name.....:	Professional Engineering Services, Inc.		
Client Contact Person.....:		Log Number.....	519
Address.....:	210 East Main Suite 216	Log Opening Date.....:	17-May-96
		EAL Contract Number.....:	5
City.....:	Norman	Client PO Number.....	96-717
State.....:	OK 73069	Client Other Number.....:	Friendly Food Store
Telephone.....:	405-321-8060	FAX.....:	405-321-8119

Sample Description: Friendly Food Store, SB-3 (10'), Soil

Laboratory Data:		***Field Data:***	
Laboratory Sample Number....:	2049	Client Sample Number.....:	SB-3 (10')
Logged In By.....:	Rick Beckenhauer	Sample Matrix.....:	Soil
Sample Receipt Date.....:	5/17/96 1:15:00 PM	Sampling Date And Time.....:	5/17/96
Method Of Sample Receipt....:	Brought In By Client	Sampled By.....:	Candace Palmer
Sample Condition.....:	Intact	Sampling Location.....:	Friendly Food Store
Chain Of Custody.....:	Yes	City/State.....:	Oklahoma City, OK
Chain Of Custody Number.....:		County.....:	Oklahoma
Custody Seals.....:	No		
Seal Condition.....:			

Laboratory Report

BTEX

Method Reference.....: SW 846-8020
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/17/96
QA/QC Batch No.....: 410

CAS Number	Component Name	Results	Units	BDL
71-43-2	Benzene	< 0.005	ppm	✓
108-88-3	Toluene	< 0.005	ppm	✓
100-41-4	Ethylbenzene	< 0.005	ppm	✓
1330-20-7	Xylenes (Mixed Isomers)	< 0.005	ppm	✓

Total Petroleum Hydrocarbons (GRO)

Method Reference.....: SW-846 8015 (Modified)
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/17/96
QA/QC Batch No.....: 411

CAS Number	Component Name	Results	Units	BDL
NA	TPH (Gasoline Range Organics)	.325	ppm	[illegible]

ORBCA SUMMARY REPORT | **Worksheet #11-A**

LUST ID: 064-1782 | **FACILITY ID:** 55-03571

Date Form Completed: 08-Jul-97 | **Form Completed by:** Bob Felder

ANALYTICAL DATA SUMMARY FOR GROUNDWATER - SINGLE SAMPLING EVENTS

Chemical levels detected during groundwater sampling

MW No./Sample Location	Installation Date	Screen Interval	No. of Measurements	Sampling Date	Water Level below TOC	Benzene [mg/l] MCL=0.005	Toluene [mg/l] MCL=1.0	Ethylbenzene [mg/l] MCL=0.7	Xylene [mg/l] MCL=10	Naphthalene [mg/l]	TPH/GRO [mg/l]	TPH/DRO [mg/l]
MW-1	*1/29/97*	*4.5' - 14.5'*	*1*	*2/4/97*	*8.12*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	
MW-2	*1/29/97*	*4.5' - 14.5'*	*1*	*2/4/97*	*4.28*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	
MW-3	*1/30/97*	*4' - 14'*	*1*	*3/24/97*	*6.99*	*0.018*	*<0.002*	*0.003*	*0.002*	*0.008*	*11.3*	
MW-4	*1/30/97*	*8' - 18'*	*1*	*2/4/97*	*7.55*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	
SB-1			*1*	*5/21/96*		*<0.002*	*<0.002*	*<0.002*	*<0.002*		*0.129*	
SB-2 "A"			*1*	*5/17/96*		*0.082*	*0.199*	*0.015*	*0.234*		*1.97*	
SB-4			*1*	*8/29/96*		*0.16*	*0.01*	*0.2*	*0.39*		*13*	
				NUMBER OF DETECTION(S)	4	3	2	3	3	1	4	--
				AVERAGE	6.735	0.087	0.105	0.073	0.209	0.008	6.600	--
				STD. DEVIATION	1.700	0.071	0.134	0.110	0.195	--	6.490	--
				MAXIMUM	8.120	0.160	0.199	0.200	0.390	0.008	13.000	--

NOTE:

Provide any laboratory analytical datasheets not previously submitted to the OCC

ND and NS values are ignored for calculating the average and standard deviations.

Check One:

- [x] Form UST 374-1, Page 11
- [ ] Form UST 376, Page 11
- [x] Tier 1
- [ ] Tier 2
- [ ] Tier 3

[1 of 1]

ORBCA SUMMARY REPORT — **Worksheet #11-B**

LUST ID: 064-1782 | **FACILITY ID: 55-03571**

Date Form Completed: 08-Jul-97 | **Form Completed by: Bob Felder**

ANALYTICAL DATA SUMMARY FOR GROUNDWATER - MULTIPLE SAMPLING EVENTS

Instructions: *Indicate type and concentrations of hazardous constituents detected in groundwater. Provide statistical data (maximum value, range, and mean) on detectable concentrations only.*

Do not include non-detects from outside of source zone.

Monitoring Well #		1	2	3	4	5	6	7	8	9	10	11	12
Screen Interval (feet below TOC)			*NA*										
Water Level (feet below TOC)													
Installation Date (MM/YY)													
Number of Measurements													
Benzene	Detects												
MCL = 0.005 mg/l	Maximum												
	Range (mg/l)												
	Mean (mg/l)												
	Recent Trend												
Toluene	Detects												
MCL = 1.0 mg/l	Maximum												
	Range (mg/l)												
	Mean (mg/l)												
	Recent Trend												
Ethylbenzene	Detects												
MCL = 0.7 mg/l	Maximum												
	Range (mg/l)												
	Mean (mg/l)												
	Recent Trend												
Xylenes	Detects												
MCL = 10 mg/l	Maximum												
	Range (mg/l)												
	Mean (mg/l)												
	Recent Trend												

NOTE: Provide any laboratory analytical datasheets not previously submitted to the OCC

Check One:

- [x] Form UST 374-1, Page 11
- [ ] Form UST 376, Page 11
- [x] Tier 1
- [ ] Tier 2
- [ ] Tier 3

[1 of]

ISOTEK, L.L.C.

LABORATORY SERVICES
4901 West Reno, Suite 175, Oklahoma City, OK 73127-6320
(405) 948-8880 FAX: (405) 948-6015

O.D.E.Q. Certification No. 9522

March 5, 1997

Laboratory Report No. 9700282

CLEARWATER ENVIRONMENTAL SERVICES, INC.
P. O. BOX 720066
NORMAN, OKLAHOMA 73070-4050

PROJECT NAME:	44 QUICK MART
PROJECT NO.:	NONE
SAMPLE I.D.:	MW-3
TYPE SAMPLE:	WATER
DATE SAMPLED:	MARCH 4, 1997
DATE RECEIVED:	MARCH 4, 1997
DATE ANALYZED:	MARCH 4, 1997
TIME ANALYZED:	15:48 BY RANDY KITSMILLER

EPA METHOD	DETECTION LIMITS	PARAMETER	SAMPLE RESULTS
8020	.2 ug/l	BENZENE	ND
8020	.2 ug/l	TOLUENE	ND
8020	.2 ug/l	ETHYLBENZENE	ND
8020	.2 ug/l	TOTAL XYLENES	ND
8020 M	.2 ug/l	NAPHTHALENE	ND
8020		SURROGATE (Trifluorotoluene) RECOVERY%	101.8 %
8015 M	1 mg/l	Volatile TPH (Gasoline Range Organics)	3 mg/l

mg/l	Milligrams per Liter, equivalent to parts per million.
ug/l	Micrograms per Liter, equivalent to parts per billion.
ND	None Detected above stated detection limits.

Unless ISOTEK receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Randy Kitsmiller
Certified By:

9700282.DOC

CHAIN OF CUSTODY AND ANALYSIS REQUEST

Page ___ of ___

ENVIRONMENTAL SERVICES, INC.

Project Name/No. 44 Quick Mart
Project Location
Samplers' Name Tommy Jones
Signature Tommy R Jones
Laboratory Isotech

P.O. Box 720066
Norman, Oklahoma 73070-4050
Telephone: 405-364-8298
Facsimile: 405-364-8299

SEND ANALYSES TO: Thomas R. "Bob" Felder

ANALYSIS REQUESTED

SAMPLE ID	DATE	TIME	SAMPLE LOCATION, MEDIA, TYPE, DESCRIPTION	BTEX	TPH — GAS	TPH — DIESEL	NAPTHALENE	TOTAL LEAD	PHENOLS	TOC	pH			# OF CONTAINERS	Remarks
MW-3	3-4-97	11:10		✓	✓		✓							2	
			Total Number of Containers:											2	

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:
Relinquished by:	Date/Time	Received by:	Relinquished by: Tommy R Jones	3/4/97 11:28	Received for Lab by: Randy Kitsmiller

Method of Shipment to Laboratory: Agent Person Shipping:

LABORATORY REPORT NO. 81804

February 5, 1997

Clearwater Environmemtal
44 Quick Mart

Sampled February 4, 1997

Analyses of 3 water samples for BTEX, TPH-GRO and Naphthalene

MW-1
MW-2
MW-4

1 - Bob Felder - Norman

Oilab

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81804

FEBRUARY 5, 1997

PROJECT INFORMATION	CLEARWATER ENVIRONMENTAL
SAMPLE I.D.	44 QUICK MART
LAB SAMPLE I.D.	MW-1
TYPE OF SAMPLE	8656S 1
SAMPLED BY	WATER
DATE SAMPLED	TOMMY JONES
TIME SAMPLED	FEBRUARY 4, 1997
DATE RECEIVED	9:45 AM
DATE RUN	FEBRUARY 4, 1997
	FEBRUARY 4, 1997

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	0.2 ug/l	BENZENE		ND
8020	0.2 ug/l	TOLUENE		ND
8020	0.2 ug/l	ETHYL BENZENE		ND
8020	0.2 ug/l	XYLENE		ND
		SURROGATE (Trifluorotoluene) RECOVERY %		105
8015-M	1 mg/l	Volatile TPH (Gasoline Range Organics)		ND
8020-M	1 ug/l	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/l Milligrams per Liter, equivalent to parts per million.
ug/l Micrograms per Liter, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Certified by: Randy Kitsmiller

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81804

FEBRUARY 5, 1997

	CLEARWATER ENVIRONMENTAL
	44 QUICK MART
PROJECT INFORMATION	MW-2
SAMPLE I.D.	8656S 2
LAB SAMPLE I.D.	WATER
TYPE OF SAMPLE	TOMMY JONES
SAMPLED BY	FEBRUARY 4, 1997
DATE SAMPLED	9:50 AM
TIME SAMPLED	FEBRUARY 4, 1997
DATE RECEIVED	FEBRUARY 4, 1997
DATE RUN	

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	0.2 ug/l	BENZENE		ND
8020	0.2 ug/l	TOLUENE		ND
8020	0.2 ug/l	ETHYL BENZENE		ND
8020	0.2 ug/l	XYLENE		ND
		SURROGATE (Trifluorotoluene) RECOVERY %		100
8015-M	1 mg/l	Volatile TPH (Gasoline Range Organics)		ND
8020-M	1 ug/l	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/l Milligrams per Liter, equivalent to parts per million.
ug/l Micrograms per Liter, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Randy Kitamilles

Certified by:

Petroleum Laboratory
Gas Engineering
and Environmental Services
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 81804

FEBRUARY 5, 1997

PROJECT INFORMATION	CLEARWATER ENVIRONMENTAL
SAMPLE I.D.	44 QUICK MART
LAB SAMPLE I.D.	MW-4
TYPE OF SAMPLE	8656S 3
SAMPLED BY	WATER
DATE SAMPLED	TOMMY JONES
TIME SAMPLED	FEBRUARY 4, 1997
DATE RECEIVED	9:55 AM
DATE RUN	FEBRUARY 4, 1997
	FEBRUARY 4, 1997

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	0.2 ug/l	BENZENE		ND
8020	0.2 ug/l	TOLUENE		ND
8020	0.2 ug/l	ETHYL BENZENE		ND
8020	0.2 ug/l	XYLENE		ND
		SURROGATE (Trifluorotoluene) RECOVERY %		102
8015-M	1 mg/l	Volatile TPH (Gasoline Range Organics)		ND
8020-M	1 ug/l	Naphthalene		ND
		QA/QC		
		LAB BLANK		ND

mg/l Milligrams per Liter, equivalent to parts per million.
ug/l Micrograms per Liter, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Certified by: Randy Kitamilla

CHAIN OF CUSTODY AND ANALYSIS REQUEST

Page ___ of ___

CLEARWATER ENVIRONMENTAL SERVICES, INC.

Project Name/No. 44 Quick Mart
Project Location
Samplers' Name Tommy Jones
Signature Tommy R Jones
Laboratory O.lab

P.O. Box 720066
Norman, Oklahoma 73070-4050
Telephone: 405-364-8298
Facsimile : 405-364-8299

SEND ANALYSES TO: Thomas R. "Bob" Felder

SAMPLE #	DATE	TIME	SAMPLE LOCATION, MEDIA, TYPE, DESCRIPTION	BTEX	TPH — GAS	TPH — DIESEL	NAPTHALENE	TOTAL LEAD	PHENOLS	TOC	pH			NO. OF CONTAINERS	Remarks
m-1	2-4-97	9:45		✓	✓		✓							2	
m-2		9:50		✓	✓		✓							2	
m-4		9:55		✓	✓		✓							2	
													Total Number of Containers:	6	

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:
Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received for Lab by:
			Tommy R Jones	2-4-97 10:25	D. Atta

Method of Shipment to Laboratory: Agent Person Shipping:

Environmental Analysts, Ltd.

1007 North University Blvd. • Norman, Oklahoma 73069 • (405) 573-0563

Client Name.....: **Clearwater Environmental Services, Inc.**

Client Contact Person.....:	Thomas Felder	Log Number.....:	882
Address.....:	P.O. Box 720066	Log Opening Date.....:	24-Mar-97
		EAL Contract Number.....:	15
City.....:	Norman	Client PO Number.....:	None
State.....:	OK 73072-0066	Client Other Number.....:	44 Quick Mart
Telephone.....:	405-364-8298	FAX.....:	405-364-8299

Sample Description: **44 Quick Mart, MW-3, Water**

Laboratory Data:		***Field Data:***	
Laboratory Sample Number...:	3582	Client Sample Number.....:	MW-3
Logged In By.....:	Rick Beckenhauer	Sample Matrix.....:	Water
Sample Receipt Date.....:	3/24/97 4:32:00 PM	Sampling Date And Time.....:	3/24/97 2:10:00 PM
Method Of Sample Receipt....:	Brought In By Client	Sampled By.....:	Bob Felder
Sample Condition.....:	Intact	Sampling Location.....:	44 Quick Mart
Chain Of Custody.....:	Yes	City/State.....:	
Chain Of Custody Number.....:		County.....:	
Custody Seals.....:	No		
Seal Condition.....:			

Laboratory Report

BTEX + Napthalene

Method Reference.....: SW 846-8020 [Modified]
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 3/25/97
QA/QC Batch No.....: 737

CAS Number	Component Name	Results	Units	BDL
71-43-2	Benzene	17.5	ug/L	☐
108-88-3	Toluene	< 2	ug/L	☑
100-41-4	Ethylbenzene	3.51	ug/L	☐
1330-20-7	Xylenes [Mixed Isomers]	2.15	ug/L	☐
91-20-3	Napthalene	8.51	ug/L	☐

Total Petroleum Hydrocarbons [GRO]

Method Reference.....: SW-846 8015 [Modified]
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 3/25/97
QA/QC Batch No.....: 738

CAS Number	Component Name	Results	Units	BDL
NA	TPH [Gasoline Range Organics]	11.3	mg/L	☐

Environmental Analysts, Ltd.
1007 North University Blvd. • Norman, Oklahoma 73069 • (405) 573-0563

Client Name.....: Clearwater Environmental Services, Inc.
Client Contact Person.....: Thomas Felder
Address.....: P.O. Box 720066
City,State and Zip.....: Norman, OK 73072

Log (Job) Number.....: 882
Opening Date.....: 24-Mar-97
Client Project or Other Number....: 44 Quick Mart

The Following Samples Are Assigned To This Job

EAL Sample No	Client Sample Number	Sample Description	Sample Matrix	QA/QC Batch Number	Parameter Name
3582	MW-3	44 Quick Mart, MW-3, Water	Water	737	BTEX + Napthalene
3582	MW-3	44 Quick Mart, MW-3, Water	Water	738	Total Petroleum Hydrocarbons [GRO]

Laboratory QA/QC Report

		Accuracy Data				Precision Data		
QA/QC Batch Number	Parameter	Sample Value	Spike Value	Sample + Spike	Percent Recovery	Initial Samp. Val.	Duplicate Value	Difference
737	BTEX + Napthalene							
	Benzene	0	100	99.64	99.64%	99.64	97.63	2.01
	Toluene	0	100	98.35	98.35%	98.35	98.04	0.31
	Ethylbenzene	0	100	99.7	99.70%	99.7	98.07	1.63
	Xylenes [Mixed Isomers]	0	300	293	97.67%	293	297	-4.00
	Napthalene	0	100	101	101.00%	101	97.37	3.63
738	Total Petroleum Hydrocarbons [GRO]							
	TPH [Gasoline Range Organics]	0	1000	1004	100.40%	1004	929	75.00

CHAIN OF CUSTODY
AND ANALYSIS REQUEST

Page 1 of 1

CLEARWATER ENVIRONMENTAL SERVICES, INC.

P.O. Box 720066
Norman, Oklahoma 73070-4050
Telephone: 405-364-8298
Facsimile : 405-364-8299

Project Name/No. 44 Quick Mart
Project Location
Samplers' Name Bob Felder
Signature Thomas R Felder
Laboratory Environmental Analysts, Ltd

SEND ANALYSES TO: Thomas R. "Bob" Felder

ANALYSIS REQUESTED

SAMPLE NO.	DATE	TIME	SAMPLE LOCATION, MEDIA, TYPE, DESCRIPTION	BTEX	TPH — GAS	TPH — DIESEL	NAPTHALENE	TOTAL LEAD	PHENOLS	TOC	pH			NO. OF CONTAINERS	Remarks
MW-3	3/24/97	2:10	Water	✓	✓		✓							2	882/35821
Total Number of Containers:														2	

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received for Lab by:
			Thomas R Felder	3/24/97 4:33 pm	[illegible]

Method of Shipment to Laboratory: Agent Person Shipping:

Petroleum Laboratory
Gas Engineering
and Environmental Service
401 N.E. 46th, Oklahoma City, OK 73105-3338
(405) 528-8255

Laboratory Certification No. 8306

LABORATORY REPORT NO. 80236

SEPTEMBER 4, 1996

	DOWN-TO-EARTH ENVIRONMENTAL
PROJECT NUMBER	96006
PROJECT INFORMATION	44 QUICK MART
SAMPLE I.D.	SB-4
LAB SAMPLE I.D.	8013S 1
TYPE OF SAMPLE	WATER
SAMPLED BY	DENISE COPE
DATE SAMPLED	AUGUST 29, 1996
TIME SAMPLED	4:44 PM
DATE RECEIVED	AUGUST 30, 1996
DATE RUN	SEPTEMBER 3, 1996

EPA METHOD	DETECTION LIMITS	PARAMETER	REGULATED LIMITS*	SAMPLE RESULTS
8020	0.2 ug/l	BENZENE		160
8020	0.2 ug/l	TOLUENE		10.1
8020	0.2 ug/l	ETHYL BENZENE		200
8020	0.2 ug/l	XYLENES		390
		SURROGATE (Trifluorotoluene) RECOVERY %		100
8015-M	1 mg/l	Volatile TPH (Gasoline Range Organics)		13
		QA/QC		
		LAB BLANK		ND

mg/l Milligrams per Liter, equivalent to parts per million.
ug/l Micrograms per Liter, equivalent to parts per billion.
ND None Detected above stated detection limits.

* EPA Regulated Limits -- Check with Local Authorities for variations.

Second Column Verification run on request only! Unless OILAB receives prior notification, all sample material not consumed in analysis will be retained for a period of 30 days before disposal.

Randy Kitamilleri

Certified by:

PETROLEUM LABORATORY
GAS ENGINEERING
AND
ENVIRONMENTAL SERVICES

OILAB, INC.

OKLAHOMA OK 73105-3338
BUS. (405) 528-8255
FAX: (405) 528-8632

CHAIN OF CUSTODY

SERVICE REQUESTED: ☐ 24 Hour (Price x 2) ☐ 48 Hour (Price x 1.5) ☒ Normal Turnaround

COMPANY NAME: Down-To-Earth Environmental Services

PROJECT NO.: 96006

PROJECT NAME: 44 Quick Mart

SAMPLERS: (Signature)

LOG NO.

SAMPLE TYPE: Water

ANALYSIS REQUESTED

STATION NUMBER	DATE	TIME	STATION LOCATION	BTEX (GRO)	TPH (GRO)							NO. OF CONT.	COND. OF SAMPLE	REMARKS
	8/29/96	4:44 pm	SB-4	✓	✓							Two	Good	Iced-23 hours

REPORT TO: Denise P. Cope

INVOICE TO: Down-To-Earth Environmental Services
1702 Funda St.
El Reno, OK 73036

TOTAL NUMBERS OF CONTAINERS: Two

PERSERVATION METHOD USED
ICED X
OTHER

RELINQUISHED BY:	DATE	TIME	RECEIVED FOR LAB BY:	DATE	TIME	RUN BY:
Denise Cope	8/30/96	3:49 pm				

METHOD OF SHIPMENT: | SHIPPED BY: | COURIER: (Signature)

DISPOSED BY:	DATE	TIME	METHOD:	RECEIVED BY: (Signature of Agent)

Environmental Analysts, Ltd.

1007 North University Blvd. • Norman, Oklahoma 73069 • (405) 573-0563

Client Name.....: Professional Engineering Services, Inc.

Client Contact Person.....:		Log Number.....:	523
Address.....:	210 East Main Suite 218	Log Opening Date.....:	21-May-96
		EAL Contract Number.....:	8
City.....:	Norman	Client PO Number.....:	96-759
State.....:	OK 73069	Client Other Number.....:	Friendly Food Store
Telephone.....:	405-321-8060	FAX.....	405-321-8119

Sample Description: Friendly Food Store, SB-1, Water

Laboratory Data:		***Field Data:***	
Laboratory Sample Number...:	2078	Client Sample Number.....:	SB-1
Logged In By.....:	Rick Beckenhauer	Sample Matrix.....:	Water
Sample Receipt Date.....:	5/21/96 11:00.00 A	Sampling Date And Time.....:	5/21/96 10:15:00 AM
Method Of Sample Receipt....:	Brought In By Client	Sampled By.....:	Greg Feuerborn
Sample Condition.....:	Intact	Sampling Location.....:	Friendly Food Store
Chain Of Custody.....:	Yes	City/State.....:	Oklahoma City, OK
Chain Of Custody Number.....:		County.....	Oklahoma
Custody Seals.....:	No		
Seal Condition.....:			

Laboratory Report

BTEX

Method Reference.....: SW 846-8020
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/21/96
QA/QC Batch No.....: 416

CAS Number	Component Name	Results	Units	BDL
71-43-2	Benzene	< 0.002	ppm	☑
108-88-3	Toluene	< 0.002	ppm	☑
100-41-4	Ethylbenzene	< 0.002	ppm	☑
1330-20-7	Xylenes (Mixed Isomers)	< 0.002	ppm	☑

Total Petroleum Hydrocarbons (GRO)

Method Reference.....: SW-846 8015 (Modified)
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/21/96
QA/QC Batch No.....: 417

CAS Number	Component Name	Results	Units	BDL
NA	TPH (Gasoline Range Organics)	.129	ppm	☐

Environmental Analysts, Ltd.

1007 North University Blvd. • Norman, Oklahoma 73069 • (405) 573-0563

Client Name.....:	Professional Engineering Services, Inc.		
Client Contact Person.....:		Log Number.....:	521
Address.....:	210 East Main Suite 218	Log Opening Date.....:	17-May-96
		EAL Contract Number.....:	8
City.....:	Norman	Client PO Number.....:	96-741
State.....:	OK 73069	Client Other Number.....:	Friendly Food Store
Telephone.....:	405-321-8060	FAX.....:	405-321-8119

Sample Description: Friendly Food Store, SB-2 "A", Water

Laboratory Data:		***Field Data:***	
Laboratory Sample Number...:	2060	Client Sample Number.....:	SB-2 "A"
Logged In By.....:	Rick Beckenhauer	Sample Matrix.....:	Water
Sample Receipt Date.....:	5/17/96 1:15:00 PM	Sampling Date And Time.....:	5/17/96
Method Of Sample Receipt....:	Brought In By Client	Sampled By.....:	Candace Palmer
Sample Condition.....:	Intact	Sampling Location.....:	Friendly Food Store
Chain Of Custody.....:	Yes	City/State.....:	Oklahoma City, OK
Chain Of Custody Number.....:		County.....:	Oklahoma
Custody Seals.....:	No		
Seal Condition.....:			

Laboratory Report

BTEX

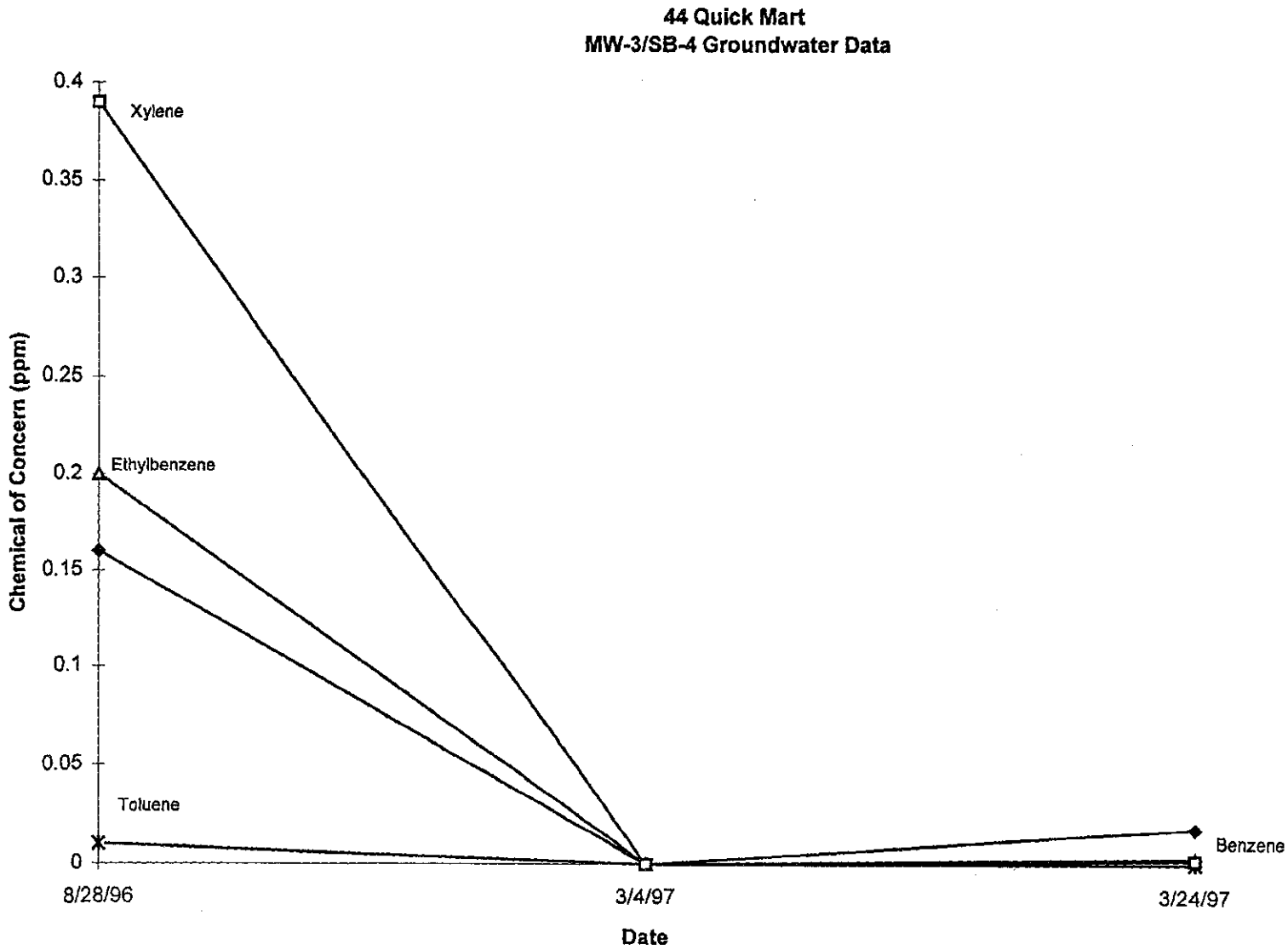
Method Reference.....: SW 846-8020
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/17/96
QA/QC Batch No.....: 410

CAS Number	Component Name	Results	Units	BDL
71-43-2	Benzene	.082	ppm	[illegible]
108-88-3	Toluene	.199	ppm	[illegible]
100-41-4	Ethylbenzene	.015	ppm	[illegible]
1330-20-7	Xylenes [Mixed Isomers]	.234	ppm	[illegible]

Total Petroleum Hydrocarbons [GRO]

Method Reference.....: SW-846 8015 [Modified]
Analyst.....: Beckenhauer, Rick
Analysis Date.....: 5/17/96
QA/QC Batch No.....: 411

CAS Number	Component Name	Results	Units	BDL
NA	TPH [Gasoline Range Organics]	1.97	ppm	[illegible]


44 Quick Mart
MW-3/SB-4 Groundwater Data
Chemical of Concern (ppm)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Xylene
Ethylbenzene
Toluene
Benzene
8/28/96
3/4/97
3/24/97
Date

BOB ANTHONY
Commissioner

ED APPLE
Commissioner

DENISE A. BODE
Commissioner

OKLAHOMA CORPORATION COMMISSION
PETROLEUM STORAGE TANK DIVISION
(405) 521-4683 FAX: (405) 521-4945

JIM THORPE BLDG, ROOM 238 • P.O. BOX 52000-2000 • OKLAHOMA CITY, OKLAHOMA 73152-2000

November 19, 1998

Case ID# 064-1782
Facility ID# 55-03571

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 437 090 889

44 Quick Mart
Attn: Mr. Tony Doa
4500 S. Pennsylvania
Oklahoma City, Oklahoma 73119

RE: Closure by Risk Based Corrective Action (ORBCA) for site located at:

44 Quick Mart
4500 S. Pennsylvania
Oklahoma City, Oklahoma

Dear Mr. Doa:

Based upon the Oklahoma Risk Based Corrective Action (ORBCA) methodology, the data indicates the highest Chemicals of Concern (C.O.C.) levels in the soil and groundwater at this site are below modified Risk Based Screening Levels (RBSLs) and pose no threat to human health, safety or the environment and is appropriate for LUST case closure. Your Final Closure Report is **approved**. Your request for closure of this site is **approved**.

As you are aware, should any Chemical of Concern levels be discovered in the future to exceed those determined appropriate for this site, the case will need to be reopened according to OCC UST Rules and Regulations.

If you have any questions, please contact the Petroleum Storage Tank Division at (405) 522-1447 between 8:00 a.m. and 4:30 p.m. Monday through Friday. Please reference the appropriate OCC Facility Number and Case Number on all correspondence.

Sincerely,

Joe Bruns

Joe Bruns
Project Environmental Analyst

cc: see back

JB:raw

cc:

Clearwater Environmental
Attn: Mr. Thomas Felder
P.O. Box 720066
Norman, Oklahoma 73070-4050

Les Vap

Copies to Technical and IF Claim Files

Z 437 090 889

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

1782)

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

11/19

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
44 Quick Mart
Attn: Mr. Tony Doa
4500 S. Penn.
Okla. City, OK 73119

4a. Article Number
Z437 090 889

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*

6. Signature: *(Addressee or Agent)*
X

8. Addressee's Address *(Only if requested and fee is paid)*
064-1782

Thank you for using Return Receipt Service.

PS Form 3811, December 1994 102595-98-B-0229 Domestic Return Receipt

MAGED 3/27/2006

Tech

BOB ANTHONY
Commissioner

DENISE A. BODE
Commissioner

JEFF CLOUD
Commissioner

OKLAHOMA CORPORATION COMMISSION
PETROLEUM STORAGE TANK DIVISION
(405) 521-4683 FAX: (405) 521-4945

JIM THORPE BUILDING, RM 238 • PO BOX 52000-2000 • OKLAHOMA CITY, OK 73152-2000

March 9, 2006

Case ID # 064-2081
Facility ID # 55-04351
Final Closure

Ram, Inc.
Attn: Mr. Jim Farris, Manager
100 S. 6th St.
McAlester, OK 74502

RE: Final Closure of case located at:

Super Saver #17
4836 S. Pennsylvania Ave.
Oklahoma City, OK

Dear Mr. Farris:

Based upon the review of the Oklahoma Risk-Based Corrective Action Report, this case is closed. If in the future, levels of Chemical of Concern are discovered to exceed those determined appropriate for this site, the case can be reopened. A copy of this letter is being sent to your consultant.

If you have any questions, please discuss this with your consultant or call me at (405) 522-5266 between 8:00 a.m. and 4:30 p.m. Monday through Friday. Please reference the appropriate OCC Facility Number and Case Number on all correspondence.

Sincerely:

Neil R. Garrett

Neil R. Garrett
Project Environmental Analyst Supervisor

NRG/nb

CC: W-S Environmental Services, Inc.
Attn: Mr. Joe Drummond
P.O. Box 3396
McAlester, OK 74502

Mr. Nasim Banu
4836 S. Pennsylvania Ave.
Oklahoma City, OK 73119

IMAGED 8/22/2005

W-S Environmental Services, Inc.
PO Box 3396
McAlester, OK 74502

Date: August 15, 2005

Terry Tate
OCC/PSTD
PO Box 52000
Oklahoma City, OK 73152-2000

Subject: UST Case 064-2081 – Facility ID # 55-04351
ORBCA Report

Dear Mr. Tate,

W-S Environmental Services, Inc. (W-S) on behalf of RAM, Inc. would like to submit the Oklahoma Risk Based Corrective Action (ORBCA) Report for Super Saver # 17 (AKA – Penn Quick Stop) located at 4836 South Pennsylvania in Oklahoma City, OK.

The report contains all of the elements associated with the guidance and preparation of the report.

If you have any questions concerning this report you can reach me at my cell phone number at (918) 231-2413. I can also be reached by e-mail at Joe.Drummond@att.net.

Sincerely,

Joe D. Drummond, CHMM, REP
(918) 885-6333 or (918) 231-2413 cell

Cc: Ram Penn Super Saver # 17 File

RECEIVED
PETROLEUM STORAGE
TANK DIVISION
2005 AUG 16 AM 9:33

MAGED 8/22/2005

W-S ENVIRONMENTAL SERVICES, INC.

approved 8-17-05 TRT

ORBCA TIER 1-A REPORT
OAC 165:25

RAM, INC SUPER SAVER # 17
4836 S. PENNSYLVANIA
OKLAHOMA CITY, OK

FACILITY # 5504351
OCC CASE 064-2081

SEPTEMBER 15, 2005

P.O. Box 3396 * McAlester, Oklahoma 74502 * (918) 429-3605

MAGED 8/22/2005

W-S ENVIRONMENTAL SERVICES, INC.

ORBCA TIER 1-A REPORT
OAC 165:25

RAM, INC SUPER SAVER # 17
4836 S. PENNSYLVANIA
OKLAHOMA CITY, OK

FACILITY # 5504351
OCC CASE 064-2081

SEPTEMBER 15, 2005

P.O. Box 3396 * McAlester, Oklahoma 74502 * (918) 429-3605

IMAGED 8/22/2005

Table of Contents

1	ORBCA REPORT
2	CONCLUSIONS AND RECOMMENDATIONS
3	MAPS AND FIGURES
4	GROUNDWATER ELEVATION/ANALYTICAL DATA TABLES
5	SOIL BORING/MONITORING WELL LOGS
6	SITE PHYSICAL PROPERTIES
7	SOIL LABORATORY ANALYTICAL REPORTS
8	GROUNDWATER LABORATORY ANALYTICAL REPORTS

IMAGED 8/22/2005

OKLAHOMA CORPORATION COMMISSION
PETROLEUM STORAGE TANK DIVISION

ORBCA REPORT

PSTD Reviewer [signature] Approve [✓] Deny [ ] Date 8-15-05

1. FACILITY INFORMATION
   Case Number 064-2081
   Facility Number 55-04351

2. Facility Name: **Super Saver # 17**
   Facility Address: **4836 S. Penn**
   Facility City: **Oklahoma City**
   Facility County: **Oklahoma**

3. Facility Location Description: **Retail Gasoline Facility**
   Facility Latitude/Longitude: **35 25' 0.36"N/97 32' 51.90"W**
   Legal Location: **NW/4 Section 20, T11N, R3W, Oklahoma County, OK**

4. Facility Owner: **Ram, Inc.**
   Owner Phone No.: **918.423.3121**
   Owner Address: **PO Box 1850**
   Owner City/State/Zip: **McAlester, OK 74502**
   Facility Operator: **Ron Allford**
   Facility Phone No.: **918.423.3121**

5. CERTIFIED REMEDIATION CONSULTANT: **Joe D. Drummond**

I certify that all work has been done under my supervision and in a good and workmanlike fashion according to the workplan the Petroleum Storage Tank Division Purchase order approval.

[signature] — Licensed Remediation Consultant (ORBCA Certified)
August 15, 2005 — Date Signed
190 — License Number
Joe D. Drummond — (Print Name)
WS Environmental Services, Inc. — (Company Name)

MAGED 8/22/2005

TABLE OF CONTENTS

SECTION #1 – SITE HISTORY
SECTION #2 - SITE DESCRIPTION
SECTION #3 - LAND USE SUMMARY
SECTION #4 - CHRONOLOGY OF EVENTS
SECTION #5 - RELEASE CHARACTERIZATION
SECTION #6 – UST/AST/PIPING REMOVAL CHARACTERIZATION
SECTION #7 - SITE STRATIGRAPHY AND HYDROGEOLOGY
SECTION #8 - WATER USE
SECTION #9 - SITE CONCEPTUAL EXPOSURE SCENARIO
SECTION #10 - TIER1A.XLS INPUT/OUTPUT
SECTION #11 - CONCLUSIONS & RECOMMENDATIONS

REFERENCES & PROTOCOLS

MAPS
- Vicinity Map
- Site Map
- Point(s)-of-Exposure Map
- Land Use & Zoning Map
- Topographic Map
- Water Well Map
- Area Geologic Map
- UST/AST/Piping Removal Map (if required)
- Groundwater Gradient Map
- Impacted Soil Contour Map(s)
- Impacted Groundwater Contour Map(s)

TABLES & GRAPHS
- Groundwater Elevations
- Soil Analytical Data (Worksheet #10)
- Groundwater Analytical Data (Worksheet #11A)
- Time Vs. Concentration Graphs

FIGURES
- Cross-Sections
- Soil Boring Logs

APPENDIX
- Site Physical Properties Laboratory Reports
- Soil Laboratory Analytical Reports
- Groundwater Laboratory Analytical Reports
- Attachments (if required)

IMAGED 8/22/2005

SITE HISTORY

1. What is the current name of the business at this site?
   Penn Quick Stop

2. What does this business do?
   Convenience store and retail gasoline facility

3. List Previous Names of this Facility
   a. Super Saver # 17
   b.
   c.

4. List Previous Owner(s) of this Facility with Address(es)
   a.
   b.
   c.

5. Has this site ever had an emergency response? No

   If yes, when was it:? ☐ State Lead ☐ Owner/Operator Lead (Discuss below)

   Additional Notes:

6. STORAGE TANK TYPE

If the UST/AST is active, answer "Y" and if inactive, answer "N". Provide the installation date if the UST/AST is active and the excavation, out of use or closure date if the UST/AST is inactive. A site map denoting Tank Number(s) is required.

Tank No.	Product /Close	Capacity (gal)	Active (Y/N)	Installation Date	UST(U) AST(A)	Out of Use (O) (C)/Remove (R) Date (s)
1	Gas	10000	Y	1976	U	
2	Gas	10000	Y	1976	U	
3	Gas	1000	N	1981	U	O

IMAGED 8/22/2005

SITE DESCRIPTION

1. What is the status of the tank system?

☒ Operating
☐ Permanently or Temporarily out of Service. From to
☐ Abandoned in

2. What are the ground surface conditions? **Concrete with soil over USTs**

Paved **Yes** % area paved : **90** Material: **Concrete**

3. What are the types and depths of utilities?

Designate each utility as - Conduit (C), Potential Conduit (P) or Not a Potential Conduit (N)

P	Sanitary Sewer:	Depth: **14'**	Flow Direction: **N &E**	
N	Storm Sewer:	Depth:	Flow Direction:	
N	Electric Line	Depth: **OH**		
N	Telephone Line	Depth: **18 in**		
N	Gas line	Depth: **18 in**		
N	Water Line	Depth: **> 4'**	**Is the line material PVC?**	

	Yes	No	Dates
Have the utilities been inspected?	☐	☒	
Are the utilities uncovered?	☐	☒	

If unable to obtain depth to utility, explain why.

Show service lines and service line depths on site map.

4. What is the immediate (within 500 feet) Land Use? At a minimum, state whether residential or non-residential.

North:
Northeast: **Residential**
Northwest: **Non-residential**

South:
Southeast: **Non-residential**
Southwest: **Non-residential**

West: **Non-residential**

East: **Residential**

5. What is the direction of the surface drainage? Direction(s): **WNW** Grade (ft/ft): **10/400**

Where does the surface drainage discharge?

Stream **x** What is the name of the stream? **Tributary to Brock Creek**
Lake What is the name of the lake?
Groundwater recharge/discharge area **NO** What is the name of the aquifer?
Additional Notes: **The surface drainage is onto S. Penn and SW. 46th (no stream)**

IMAGED 8/22/2005

LAND USE SUMMARY

The purpose of this section is to identify existing and reasonable beneficial uses for land. All occupiable buildings should be identified by address number on every map.

1. What is the current land use?

	Current (Y/N)	Prior (Y/N)	COMMENTS
Residential	N	N	
Non-residential	Y	Y	
Sensitive/special	N	N	
Other			

Describe the current site use.

2. What is the distance and direction to the nearest residence (feet)?
The direction to the nearest residence is east and it is approximately 16 feet from the property line and approximately 25 feet from the UST system.

3. Locate and describe any occupied buildings with basements. Identify these buildings on the vicinity base map.
There are no occupied buildings with basements.

4. Describe the foundation of every occupiable building that might be situated over any shallow (less than 10 feet) impacted soil or groundwater. Assume a crack factor of 1% for residential homes and 0.1% for commercial buildings unless you can thoroughly describe why a different value should be used.
The building on site is clay with concrete slab.

5. What is the distance and direction to any environmentally sensitive area within a 1/2 mile? (Define in Notes) Include distance and direction(s) to any groundwater recharge and discharge areas.
Describe: There are no groundwater recharge areas within 1/2 mile.

6. What is the distance and direction to the nearest school, hospital, day care, retirement home, etc., (specify facility)?
Describe: The nearest school is Grant High School and the building is over 299 feet from the UST system.

7. What is the distance and direction to the nearest commercial/industrial site from the facility?
Describe: The nearest commercial building is 21 feet from the property line and approximately 45 feet from the dispensers to the north and is unoccupied.

8. Additional Notes: **A pharmacy is located approximately 132 feet to the west and daycare is located approximately 165 feet to the northwest of the property.**

9. What is the likely future land use for this site?

	Potential (Y/N)	COMMENTS
Residential	N	
Non-residential	Y	
Sensitive/special	N	
Other		

Additional Notes:

MAGED 8/22/2005

CHRONOLOGY OF EVENTS

1. Instructions: Describe potential sources and spill events, including location type and estimated volume of materials stored or released, time and duration of release, and affected media (soil, groundwater, etc.). Describe monitoring well installation, soil boring activities, and slug tests. Discuss past corrective action efforts as appropriate. Include any new historical owner/operators not previously identified in the Suspicion of Release Report or Initial Response and Abatement Report.

DATE(S) EVENT

1995 A suspicion of release was investigated by Ram, Inc. at the Super Saver # 17 in 1995. Inventory reconciliation and tightness testing accounted for all fuel. The results of the investigation confirmed that there had been no release.

8/27/97 A suspicion of release report was was taken by Neil Garrett with the Oklahoma Corporation Commission. The report stated that Trust Environmental reported that dissolved benzene levels were rising in the upgradient well for case 064-1150. Mr. Garrett prepared and sent a letter to Ram, Inc. directing them to investigate the suspicion of release in a letter dated 8/27/97.Monitor well was installed by Davis Drilling

3/24/98 Letter was prepared by William Redmond, PE requesting that the case be reviewed and remove the request of installation of the monitor wells.

4/28/98 One monitoring well was installed by Davis Environmental Drilling, L.L.C. in response to further investigation of the suspicion of release. Sampling of the well and letter written by William Redmond, P.E. on 6/9/98 confirmed that the TPH concentration required further work. The well was resampled and results of the sample analysis showed chemicals of concern were below action levels. OCC letter was sent on 5/29/98 to Ram, Inc. confirming release of regulated substance (Case 064-2081 Facility 55-04351). A letter was submitted to OCC by William Redmone, P.E. stating the chemicals of concern were below action levels. The OCC sent a letter on 6/30/98 denying the report submitted and directed the deficiencies be corrected.

12/16/03 A request for case closure was submitted by Ram, Inc. The OCC sent a letter on 10/15/04 to Ram, Inc. stating that the closure was not acted on by the OCC because the required work had not been performed.

12/04 W-S Environmental Services, Inc. was contacted by Ram, Inc. to investigate and remediate suspected or actual spills and releases at the Super Saver # 17.

6/10/05 Four monitor wells were installed. Soil and geotechnical samples were collected and submitted for analysis. The monitor wells were allowed to recover and were developed. The wells were sampled on 6/24/05 and the water was analyzed for BTEX and TPH (GRO). An addendum was submitted to the OCC with the soil and water analysis.

MAGED 8/22/2005

RELEASE CHARACTERIZATION

1. The release was discovered during/by:
   - ☐ UST/AST Removal
   - ☐ Release Detection Equipment
   - ☐ Inventory Control
   - ☒ Citizen Complaint
   - ☐ Unknown
   - ☐ Closure in Place
   - ☐ Property Transaction
   - ☐ System Tightness Testing
   - ☐ Spill Incident
   - ☐ Other (specify):

2. What is/was the pumping mechanism:
   ☒ Pressure ☐ Suction ☐ Unknown

3. Has the source of the release been identified? Yes ☐ No ☒

4. What is the source of the release?
   - ☐ Spills/overfills
   - ☐ Dispenser
   - ☒ Unknown
   - ☐ Piping
   - ☐ Tank
   - ☐ Other (specify):

5. What is the substance released?
   - ☒ Gasoline
   - ☐ Used Oil
   - ☐ Jet Fuel
   - ☐ Diesel
   - ☐ AV Gas
   - ☐ Other:

6. Has the release been stopped? Yes ☒ No ☐
   If the release has not been stopped why has it not been stopped?

7. Is the groundwater impacted? Yes ☒ No ☐
8. Is the surface water impacted? Yes ☐ No ☒
9. Is the native soil impacted? Yes ☒ No ☐

10. Has free product been found at this site? Yes ☐ No ☒

    If YES, does free product extend off-site?

    If YES, denote greatest thickness (to the nearest 1/100 foot):
    Maximum: Current:

    If YES, has free product removal been initiated? Method?

    If NO, cite reason:

    Give the details of the Release(s):

11. Date Discovered Location Quantity

12. Additional Notes:

IMAGED 8/22/2005

UST/AST/PIPING REMOVAL CHARACTERIZATION

NOTE: A separate Removal Characterization must be filled out for each UST/AST system removal.

1. What was the date of removal:? Tank No.: Capacity(ies):

2. Was the soil excavated? Yes ☐ No ☐

   If yes, give the

   Date: and Quantity:

3. Details of Excavated Soil:

	Date	Quantity	Location
Stockpiled on-site			
Disposed off-site*			
Used (as fill material...) on-site			
Used as road base*			
Soil farm*			

4. Were confirmatory soil samples collected after excavation from the native soil? Yes ☐ No ☐

5. Was the excavated soil sampled? Yes☐ No ☐

6. Was the groundwater sampled during excavation? Yes☐ No☐

7. What is the status of the excavation:?

   ☐Open with water
   ☐Open/dry
   ☐Barricaded
   ☐Backfilled
   - ☐with excavated soil ☐with clean fill
   - ☐Pervious cover ☐Impervious cover

   ☐ Other:

NOTE: A SITE MAP, TO SCALE, DEPICTING SAMPLING LOCATIONS AND ANY USTs, ASTs, PIPING RUNS, AND DISPENSER ISLANDS, IS REQUIRED

8. Depth to bottom of UST pit?

9. Was the UST pit over-excavated? Yes☐ No☐
   If YES, cite dimensions (in feet) and give direction(s):

10. Was the piping trench over-excavated? Yes☐ No☐
    If YES, cite dimensions (in feet) and give direction(s):

* Provide as attachments all copies of letters, permits, etc., for off-site removal.

11. Additional Notes:

MAGED 8/22/2005

SITE STRATIGRAPHY AND HYDROGEOLOGY

1. Was the groundwater impacted by release? Yes☒ No☐

   Groundwater was **not** encountered to a depth of **8.4** feet.

2. Describe the Stratigraphy by filling in below:

Unconsolidated:

Depth	Unified Soil Classification	General Description of Soil
1-3	**Cl**	**Red Brown Tight Clay w/sand**
3-8	**Cl**	**Red Lean Clay**

Predominant Soil Type: Vadose - **Clay** Saturated - **Clay**

Consolidated (Lithified):

Depth	Bedrock Type & Geologic Formation	Describe rock properties, features & fractures
8-25'	**Shale - Salt Plains**	**Block Shale and Siltstone**

Predominant Type: Vadose - **Shale** Saturated - **Shale/Siltstone**

3. What was the average depth at which groundwater was first encountered (ft.)? **12 ft**
4. What was the shallowest depth to water table/piezometer (ft.)? **8.42 ft**
5. What was the flow Direction? **Appears to be to the northwest**
6. What was the hydraulic Gradient (i) [ft./ft.]? **0.08**

		Vadose Zone	Saturated Zone
7.	What was the porosity (?) [cm3/cm3]?	**0.301**	**0.300**
8.	What was the water Content [cm3/cm3]?	**0.264**	**0.225**
9.	What was the dry Bulk Density [g/cm3]:?	**1.823**	**1.921**
10.	What was the hydraulic conductivity (K) [ft./day]:	**0.028**	**0.028**

11. What was the hydraulic conductivity test method?
    - ☒ grain size/sieve analysis
    - ☐ slug test
    - ☐ pump test, period (hours):
    - ☐ other (specify):

12. What is the Darcy Velocity (Ki):? **.0022**

13. Is this a perched aquifer? **Yes**
14. Is the first groundwater encountered confined? **NO**
15. Is this a confined aquifer? Unable to determine
16. What is the groundwater level fluctuation (± ft.) (Cite greatest known from 1 well): **Unknown**
17. What is the name of the aquifer? **Unnamed**
18. What is the annual precipitation, 30-yr avg. (in/yr.)? **34**

    Additional Notes:

IMAGED 8/22/2005

WATER USE

The section's purpose is to identify existing and reasonable beneficial uses for groundwater and surface water.
NOTE: Denote all wells within ½-mile radius of the site on Topographic Map

1. What are the uses of the groundwater resources? **(Salt Plains)**

	YES/NO Current	YES/NO Potential	COMMENTS (e.g. Distance from source to reception point)
Domestic Drinking	N	N	
Irrigation (Non-Agri.)	N	N	
Public/Municipal Supply	N	N	
Industrial Supply	N	N	
Agriculture	N	N	
Other (Define in Notes)			
Within Wellhead Protection Area	N	N	

2. What is the likelihood of use of this groundwater in the future? ☒ None/Extremely Unlikely ☐ Low ☐ Medium ☐ High

3. What is the water Quality (If known, Please specify units):

TDS:	**577 mg/l**	Specific Conductance:		Chlorides:	**40 mg/l**
Hardness:	**310 mg/l**	Nitrates:	**14 mg/l**	Iron:	
Sulfates:	**73 mg/l**	Pesticides (specify):		Other (specify):	

4. Is the site and surrounding properties supplied by a public/municipal/rural water district system? : **Yes, City of Oklahoma City public water.**

5. What are the uses of the surface water resources. Under comments list the OWRB classification.

	Current	Potential	COMMENTS
Domestic supply	**Yes**	**Yes**	**WWAC**
Public/Municipal Supply	No	**Yes**	**EWS**
Recreational	**Yes**	**Yes**	**PBCR**
Other			**WWAC**

6. What is the likelihood of the surface water being used in the future?
☐ None/Extremely unlikely ☒ Low ☐ Medium
☐ High

7. If a stream is, or may potentially be, impacted by COCs, does the stream have?
☒ Intermittent water flow ☐ Continuous water flow

8. Additional Notes:
Surface water resources OWRB classification for North Canadian River from Portland Ave. to Hwy 99. Water quality Data obtained from: Oklahoma Geological Survey, Hydrologic Atlas 4, Reconnaissance of the Water Resources of the Oklahoma City Quadrange, Central Oklahoma, Bingham and Moore, 1975.

IMAGED 8/22/2005

SITE CONCEPTUAL EXPOSURE SCENARIO - CURRENT CONDITIONS

1. Give reasons for including or excluding exposure pathways.

Potentially Exposed Receptor		Exposure Route, Medium, and Exposure Point	Justification for Inclusion or Exclusion of Pathways
Resident:			
Complete	**Not Complete**		
☐	☒	**Ingestion & dermal contact w/surficial soil**	**No residences underlain or impacted**
☐	☒	**Indoor inhalation of vapors from surficial soil**	**No residences underlain or impacted**
☐	☒	**Indoor inhalation of vapors from sub-surface soil**	**No residences underlain or impacted**
☐	☒	**Ingestion of shallow & deep groundwater**	**No residences underlain or impacted**
Commercial Worker:			
Complete	**Not Complete**		
☐	☒	**Ingestion & dermal contact w/surficial soil**	**No contamination at surface in work area**
☐	☒	**Indoor inhalation of vapors from surficial soil**	**No structures underlain by impacted soil or water**
☐	☒	**Indoor inhalation of vapors from sub-surface soil**	**No structures underlain by impacted soil or water**
☐	☒	**Ingestion of shallow & deep groundwater**	**No water wells threatened by contamination**
Construction Worker:			
Complete	**Not Complete**		
☐	☒	**Ingestion & dermal contact w/surficial soil**	**No Contamination at surface in work area**
☒	☐	**Dermal contact w/shallow groundwater**	**Shallow groundwater present at site**

IMAGED 8/22/2005

SITE CONCEPTUAL EXPOSURE SCENARIO - FUTURE CONDITIONS

1. Give reasons for including or excluding exposure pathways.

Potentially Exposed Receptor		Exposure Route, Medium, and Exposure Point	Justification for Inclusion or Exclusion of Pathways
Resident:			
Complete	Not Complete		
☐	☒	Ingestion & dermal contact w/surficial soil	Commercial property, no residences impacted
☐	☒	Indoor inhalation of vapors from surficial soil	Commercial property, no residences impacted
☐	☒	Indoor inhalation of vapors from sub-surface soil	Commercial property, no residences impacted
☐	☒	Ingestion of shallow & deep groundwater	Commercial property, no residences impacted
Commercial Worker:			
Complete	Not Complete		
☐	☒	Ingestion & dermal contact w/surficial soil	No contamination at surface in work area
☐	☒	Indoor inhalation of vapors from surficial soil	Potential construction of new building over impacted soil
☐	☒	Indoor inhalation of vapors from sub-surface soil	Sub-surface soil not impacted
☐	☒	Ingestion of shallow & deep groundwater	Shallow groundwater not suitable for public supply, Deep groundwater is not used for public supply in area of concern.
Construction Worker:			
Complete	Not Complete		
☐	☒	Ingestion & dermal contact w/surficial soil	No contamination at surface in area
☒	☐	Dermal contact w/shallow groundwater	Shallow groundwater present at site

MAGED 8/22/2005

TIER1A.XLS INPUT/OUTPUT

1. Insert at this point in the report all the input and output spreadsheets from the tier1a.xls file. If you need to make more than one run based on varying site conceptual exposure scenarios or fate and transport parameters, you need to clearly describe those scenarios or parameter changes and section off each run. If a fate and transport factor used is not the default, laboratory analysis or derived from direct field observation, then you need to describe below why you are justified in using that particular value.

IMAGED 8/22/2005

SITE CONCEPTUAL EXPOSURE SCENARIO				
Exposure Route, Medium and Exposure Point	RESIDENT CHILD	RESIDENT ADULT	COMMERCIAL WORKER	CONSTRUCTION WORKER*
Ingestion and Dermal contact with surficial soil	☐	☐	☐	☐
Indoor inhalation of vapors from surficial soil	☐	☐	☐	NA
Indoor inhalation of vapors from sub-surface soil	☐	☐	☐	NA
Ingestion of shallow & deep groundwater	☐	☐	☐	NA
Indoor inhalation of vapors from shallow groundwater	☐	☐	☐	NA
Dermal contact with shallow groundwater	NA	NA	NA	☑

*** For construction workers, the first pathway includes indoor inhalation of vapor emissions from sub-surface soils**

NA : Not Applicable

IMAGED 8/22/2005

EXPOSURE FACTORS				
	UNITS	VALUE USED	Default Value	SOURCE
Body Weight				
On/Off-site Resident (adult)	kg	70	70	Tier 1 Value
On/Off-site Resident (child)	kg	15	15	Tier 1 Value
On/Off-site Commercial Workers	kg	70	70	Tier 1 Value
Construction Worker	kg	70	70	Tier 1 Value
Exposure Duration				
On/Off-site Resident (adult)	yr	30	30	Tier 1 Value
On/Off-site Resident (child)	yr	6	6	Tier 1 Value
On/Off-site Commercial Workers	yr	25	25	Tier 1 Value
Construction Worker	yr	0.083	0.083	Tier 1 Value
Exposure Time for indoor inhalation, dermal contact, and soil ingestion				
On/Off-site Resident (adult)	hrs/day	16	16	Tier 1 Value
On/Off-site Resident (child)	hrs/day	16	16	Tier 1 Value
On/Off-site Commercial Workers	hrs/day	8	8	Tier 1 Value
Construction Worker	hrs/day	8	8	Tier 1 Value
Exposure Time for dermal contact with water				
Construction Worker	hrs/day	8	8	Tier 1 Value
Exposure Frequency				
On/Off-site Resident (adult and child)	days/yr	350	350	Tier 1 Value
On-site Commercial Worker	days/yr	250	250	Tier 1 Value
Construction Worker	days/yr	250	250	Tier 1 Value
Soil Ingestion rate				
On/Off-site Resident (adult)	mg/day	100	100	Tier 1 Value
On/Off-site Resident (child)	mg/day	200	200	Tier 1 Value
On/Off-site Commercial Worker	mg/day	50	50	Tier 1 Value
Construction Worker	mg/day	50	50	Tier 1 Value
Daily Indoor Inhalation Rate				
On/Off-site Resident (child)	m^3/hr	0.937	0.937	Tier 1 Value
On/Off-site Resident (adult)	m^3/hr	0.937	0.937	Tier 1 Value
On/Off-site Commercial Worker	m^3/hr	2	2	Tier 1 Value
Construction Workers	m^3/hr	2	2	Tier 1 Value
Daily Outdoor Inhalation Rate				
Construction Workers	m^3/hr	2	2	Tier 1 Value
Exposure Time for outdoor inhalation, dermal contact, and soil ingestion				
On/Off-site Resident (adult)	hrs/day	16	16	Tier 1 Value
On/Off-site Resident (child)	hrs/day	16	16	Tier 1 Value
On/Off-site Commercial Workers	hrs/day	8	8	Tier 1 Value
Construction Worker	hrs/day	8	8	Tier 1 Value
Daily Water Ingestion rate				
On/Off-site Resident (adult)	L/day	2	2	Tier 1 Value
On/Off-site Resident (child)	L/day	1	1	Tier 1 Value
On/Off-site Commercial Workers	L/day	1	1	Tier 1 Value
Construction Workers	L/day	1	1	Tier 1 Value
Skin surface area for dermal contact with soil				
On/Off-site Resident (adult)	cm^2	3160	3160	Tier 1 Value
On/Off-site Resident (child)	cm^2	3160	3160	Tier 1 Value
On/Off-site Commercial Workers	cm^2	3160	3160	Tier 1 Value
Construction Worker	cm^2	3160	3160	Tier 1 Value
Soil skin adherence factor	mg/cm^2	0.5	0.5	Tier 1 Value
Oral relative absorption factor	—	1	1	Tier 1 Value
Dermal relative absorption factor (volatiles)	—	0.5	0.5	Tier 1 Value
Dermal relative absorption factor (PAHs)	—	0.05	0.05	Tier 1 Value
Target Risk and Hazard Quotient				
Target Hazard Quotient (THQ)	—	1	THQ = 1 for both Current and Future Conditions	
Target Excess Individual Lifetime Cancer Risk (TR)	—	1.00E-06	TR = 10^{-6} for Current and 10^{-5} for Future Conditions	

IMAGED 8/22/2005

FATE AND TRANSPORT FACTORS

	UNITS	VALUE USED	Tier 1 (Default Values)	SOURCE
Source parameters				
Depth to groundwater	cm	256.6	304.8	Site Specific Value
Depth to surficial soil sources	cm	30.48	30.48	Tier 1 Value
Depth to subsurface soil sources	cm	304.8	304.8	Tier 1 Value
Building parameters				
Height of the indoor space (Building)				
On/Off-site Resident (adult and child)	cm	300	300	Tier 1 Value
On-site Commercial Worker	cm	300	300	Tier 1 Value
Construction Worker	cm	300	300	Tier 1 Value
Width of the indoor space (Building)	cm	1500	1500	Tier 1 Value
Length of the indoor space (Building)	cm	1500	1500	Tier 1 Value
Fraction of area exposed by cracks	–	0.01	0.01	Tier 1 Value
Enclosed space air exchange rate				
On/Off-site Resident (adult)	1/day	12	12	Tier 1 Value
On/Off-site Resident (child)	1/day	12	12	Tier 1 Value
On/Off-site Commercial Workers	1/day	18	18	Tier 1 Value
Construction Workers	1/day	12	12	Tier 1 Value
Averaging time for vapor flux				
On/Off-site Resident (adult)	sec	9.46E+08	9.46E+08	Tier 1 Value
On/Off-site Resident (child)	sec	1.89E+08	1.89E+08	Tier 1 Value
On/Off-site Commercial Workers	sec	7.88E+08	7.88E+08	Tier 1 Value
Construction Workers	sec	3.15E+07	3.15E+07	Tier 1 Value
Groundwater parameters				
Groundwater Darcy velocity	cm/year	2500	2500	Tier 1 Value
Groundwater mixing zone thickness	cm	200	200	Tier 1 Value
Soil parameters				
Total soil porosity	cc/cc	0.301	0.35	Site Specific Value
Volumetric water content in vadose zone soils	cc/cc	0.23	0.20	Site Specific Value
Volumetric air content in vadose zone soils	cc/cc	0.07	0.15	Site Specific Value
Soil bulk density	g/cc	1.823	1.7	Site Specific Value
Fraction organic carbon content in soil	g-C/g-soil	0.0022	0.01	Site Specific Value
Other parameters				
Particulate emission rate	g/cm^2-s	6.90E-09	6.90E-09	Tier 1 Value
Wind speed above ground surface in ambient mixing zone	cm/s	225	225	Tier 1 Value
Width of source parallel to wind direction	cm/yr	1500	1500	Tier 1 Value
Ambient air mixing zone height	cm	200	200	Tier 1 Value

MAGED 8/22/2005

CHEMICAL-SPECIFIC TOXICITY PARAMETERS

CHEMICAL	SLOPE FACTOR		REFERENCE DOSE	
	ORAL [1/(mg/kg-day)]	INHALATION [1/(mg/kg-day)]	ORAL [mg/kg-day]	INHALATION [mg/kg-day]
Benzene	0.029	0.029	NA	NA
Toluene	NA	NA	0.2	0.11
Ethylbenzene	NA	NA	0.1	0.29
Xylenes (mixed)	NA	NA	2	0.086
Naphthalene	NA	NA	0.04	0.003

Note: For dermal exposure, oral toxicity values were used.

CHEMICAL-SPECIFIC FATE AND TRANSPORT PARAMETERS

CHEMICAL	Koc [cm^3/g]	Kd [cm^3/g]	H [cc-H_2O/cc-air]	S [mg/l]	Dair [cm^2/s]	Dwater [cm^2/s]
Benzene	38.02	0.083643	0.22	1750	0.093	0.000011
Toluene	134.9	0.29678	0.26	535	0.085	0.0000094
Ethylbenzene	1288.25	2.83415	0.32	152	0.076	0.0000085
Xylenes (mixed)	239.88	0.527736	0.29	198	0.072	0.0000085
Naphthalene	1288.25	2.83415	0.049	31	0.072	0.0000094

Definition of Symbols

Koc : Organic carbon partition coefficient
Kd : Soil-water partition coefficient
H : Normalized Henry's constant
Note: Kd = Koc x foc (from Fate and Transport Input Table)

S : Solubility
Dair : Diffusion coefficient in air
Dwater : Diffusion coefficient in water

IMAGED 8/22/2005

Parameters required to calculate the allowable soil and groundwater concentration at the source for different distances to the exposure point

	UNITS	VALUE USED	Tier 1 (Default Values)	SOURCE
Other Parameters				
Distance from the source to the exposure point	feet	9		
Distance from the source to the compliance point	feet	300		
User specified *unsaturated zone DAF*		1	1	Tier 1 Value
Hydraulic gradient	feet/foot	0.08	0.1	Site Specific Value
Saturated hydraulic conductivity	feet/year	10.22	820.2	Site Specific Value
Infiltration Rate, County Name				
West Zone	cm/yr	7		
Source Parameters				
Source Width	cm	1500	1500	Tier 1 Value
Source Depth	cm	200	200	Tier 1 Value
Longitudinal dispersivity	feet	0.9	0.9	Tier 1 Value
Transverse dispersivity	feet	0.3	0.3	Tier 1 Value
Vertical dispersivity	feet	0.045	0.045	Tier 1 Value
Half Life				
Benzene	days	730.0		
Toluene	days	63.0		
Ethylbenzene	days	228.0		
Xylenes (mixed)	days	365.0		
Naphthalene	days	258.0		

IMAGED 8/22/2005

RECEPTOR-CONSTRUCTION WORKER
SURFICIAL SOILS
SOIL INGESTION, DERMAL CONTACT AND INHALATION OF VAPORS AND PARTICULATES

CHEMICAL	CHEMICAL CONCENTRATION IN SOIL [mg/kg]		TIER 1-A MODIFIED RBSLs [mg/kg]
	CARCINOGENIC EFFECTS	NONCARCINOGENIC EFFECTS	
Benzene	NC	N/A	NC
Toluene	N/A	NC	NC
Ethylbenzene	N/A	NC	NC
Xylenes (Mixed)	N/A	NC	NC
Naphthalene	N/A	NC	NC

N/A = Not Applicable
NC = Incomplete Pathway
* Indicates Tier 1-A modified RBSLs exceeded saturated soil concentration and hence saturated soil concentration is listed as Tier 1-A modified RBSLs

IMAGED 8/22/2005

RECEPTOR-CONSTRUCTION WORKER

DERMAL CONTACT WITH GROUNDWATER

CHEMICAL	CHEMICAL CONCENTRATION IN GROUNDWATER [mg/l]		TIER 1-A MODIFIED RBSLs [mg/l]
	CARCINOGENIC EFFECTS	NONCARCINOGENIC EFFECTS	
Benzene	5.576	N/A	5.576
Toluene	N/A	17.968	17.968
Ethylbenzene	N/A	5.463	5.463
Xylenes (Mixed)	N/A	101.068	101.068
Naphthalene	N/A	2.344	2.344

N/A = Not Applicable
NC = Incomplete Pathway
# Indicates Tier 1-A modified RBSLs exceeded saturated soil concentration and hence saturated soil concentration is listed as Tier 1-A modified RBSLs

IMAGED 8/22/2005

TIER 1-A MODIFIED RISK BASED SCREENING LEVELS - SUMMARY TABLE
CURRENT CONDITIONS RECEPTOR-CONSTRUCTION WORKER

CHEMICAL	Water Concentration	Soil Concentration
	Dermal Contact with Shallow groundwater [mg/l]	Ingestion and dermal contact with soil, and inhalation of vapor and particulates [mg/kg]
Benzene	5.576	NC
Toluene	17.968	NC
Ethylbenzene	5.463	NC
Xylenes (Mixed)	101.068	NC
Naphthalene	2.344	NC

NC = Incomplete Pathway

* Indicates Tier 1-A modified RBSLs exceeded saturated soil concentration and hence saturated soil concentration is listed as Tier 1-A modified RBSLs

\# Indicates Tier 1-A modified RBSLs exceeded pure component water solubility and hence water solubility is listed as Tier 1-A modified RBSLs

MAGED 8/22/2005

CONCLUSIONS AND RECOMMENDATIONS OF ORBCA ANALYSES

1. Write in the maximum chemical of concern (COC) concentrations compared with minimum modified Risk-Based Screening Levels (RBSLs) or site specific target levels (SSTL's) for all completed pathways. Comparisons should only be made with soil that still exists in the area or groundwater data that is no more than two years old.

Maximum Soil COC Concentration		Minimum Mod. RBSL/SSTL	Exceed/Not exceeded
Benzene	ND - 0 mg/Kg	NC mg/Kg	Not Exceeded
Toluene	0.02 mg/Kg	NC mg/Kg	Not exceeded
Ethylbenzene	0.2 mg/Kg	NC mg/Kg	Not exceeded
Xylenes	0.1 mg/Kg	NC mg/Kg	Not exceeded
Naphthalene	NS mg/Kg	NC mg/Kg	N/A

Max. Groundwater COC Concentration			
Benzene	0.2 mg/L	5.576 mg/L	Not exceeded
Toluene	0.003 mg/L	17.968 mg/L	Not exceeded
Ethylbenzene	0.003 mg/L	5.463 mg/L	Not exceeded
Xylenes	0.004 mg/L	101.068 mg/L	Not exceeded
Naphthalene	NS mg/L	2.344 mg/L	N/A

2. **CONCLUSIONS:**
One current and one future potential receptors were identified because of the shallow groundwater contamination. However, the maximum groundwater COC concentrations did not exceed minimum Modified RBSLs for either current or future scenarios.

3. **RECOMMENDATIONS:**
Closure under Tier 1-A

Recommendation

- ☒ Closure Under Tier 1-A
- ☐ Remediate and Close Under Tier 1-A
- ☐ Go To Tier 2
- ☐ Close Under Tier 2
- ☐ Remediate and close under Tier 2
- ☐ Go To Tier 3
- ☐ Remediate and close under Tier 3
- ☐ Monitor for Closure Through Natural Attenuation

IMAGED 8/22/2005

REFERENCES AND PROTOCOLS

Include a brief description of the protocol followed for the entire field and sampling activities related to this investigation. The protocols usually referenced oftentimes offer several acceptable methods of collecting certain data. Describe what particular method was used.

Environmental Protection Agency, Oklahoma Department of Environmental Quality, Oklahoma Water Resources Board, Oklahoma Corporation Commission, Oilab along with instrument manufacturers protocol was followed during field and sampling activities. Specifically OCC guidelines per UST Consultant training were used during the field sampling. Soil and water samples were analyzed by EPA Method 8021B for BTEX and 8015 Mod. for TPH(GRO). The soil boring data was collected using the photoionization detector and the results were presented in parts per million. The instrument was calibrated prior to and after sampling. The soil samples were collected using decontaminated sampling instruments, preserved, and chain-of-custody was followed during transportation to laboratory for analysis. The groundwater samples were collected using new bailers that was dedicated for each monitor well sampling, preserved, and chain-of-custody was followed during transportation to laboratory for analysis.

1. **OCC Risked Based Corrective Action, Version 2.1**
2. **Reconnaissance of the Water Resources of the Oklahoma City Quandrange for Central Oklahoma, USGS,**
3. **State of Oklahoma Storage Tank Regulations.**

MAGED 8/22/2005

TIER 1A/2/3 FATE AND TRANSPORT PARAMETERS

PARAMETER, Units	Tier 1	Tier 1A/2/3	Source
Source parameters			
Depth to groundwater, cm	304.8	256.6	Site Specific
Depth to surficial soil sources, cm	30.48		
Depth to subsurface soil sources, cm	304.8		
Thickness of vadose zone, cm	295		
Building parameters			
Height of the indoor space (Building)			
On/Off-site Resident (adult and child), cm	300		
On-site Commercial Worker, cm	300		
Construction Worker, cm	300		
Width of the indoor space (Building), cm	1500		
Length of the indoor space (Building), cm	1500		
Fraction of area exposed by cracks, Residential, %	1.0		
Commercial, %	0.1		
Enclosed space air exchange rate			
On/Off-site Resident (adult), 1/day	12		
On/Off-site Resident (child), 1/day	12		
On/Off-site Commercial Worker, 1/day	18		
Averaging time for vapor flux			
On/Off-site Resident (adult), sec	946080000		
On/Off-site Resident (child), sec	189216000		
On/Off-site Commercial Worker, sec	788400000		
Construction Worker, sec	31536000		
Groundwater parameters			
Groundwater Darcy velocity, cm/year	2500		
Groundwater mixing zone thickness (Source thickness), cm	200		
Source width parallel to flow direction, cm	1500		
Thickness of capillary fringe, cm	5		
Soil parameters			
Total soil porosity, cc/cc	0.35	0.301	Site Specific
Volumetric water content in vadose zone soils, cc/cc	0.2	0.23	Site Specific
Volumetric air content in vadose zone soils, cc/cc	0.15	0.07	Site Specific
Soil bulk density, g/cc	1.7	1.823	Site Specific
Fraction organic carbon content in soil , g-C/g-soil	0.01	.0022	Site Specific
Other parameters			
Particulate emission rate, g/cm2-s	6.9E-09		
Wind speed above ground surface in ambient mixing zone,cm/s	225		
Width of source parallel to wind direction, cm/yr.	2500		
Ambient air mixing zone height, cm	200		
Infiltration Rate (see Table 5-4)			
West Zone County, cm/yr.	7		
Central Zone County, cm/yr.	10		
East Zone County, cm/yr.	13		

Other parameter(s) specifically for Tier 1A/2/3

MAGED 8/22/2005

JUSTIFICATION FOR TIER 1A/2/3 FATE AND TRANSPORT PARAMETERS

Tier 1A/2/3 parameter: Depth to Groundwater
Justification: Average depth to groundwater was 13.6 feet.

Tier 1A/2/3 parameter: Moisture Content
Justification: Laboratory Analysis

Tier 1A/2/3 parameter: FOC
Justification: Laboratory Analysis

Tier 1A/2/3 parameter: Hydraulic Gradient
Justification: 0.08 ft/ft as determined from water table map

Tier 1A/2/3 parameter: Porosity
Justification: Laboratory Analysis

Tier 1A/2/3 parameter: Bulk Density
Justification: Laboratory Analysis

IMAGED 8/22/2005

RAM, INC. – Super Saver # 17 (Penn Quick Stop)

ANALYTICAL DATA SUMMARY FOR SOIL
Chemical levels detected during soil borings

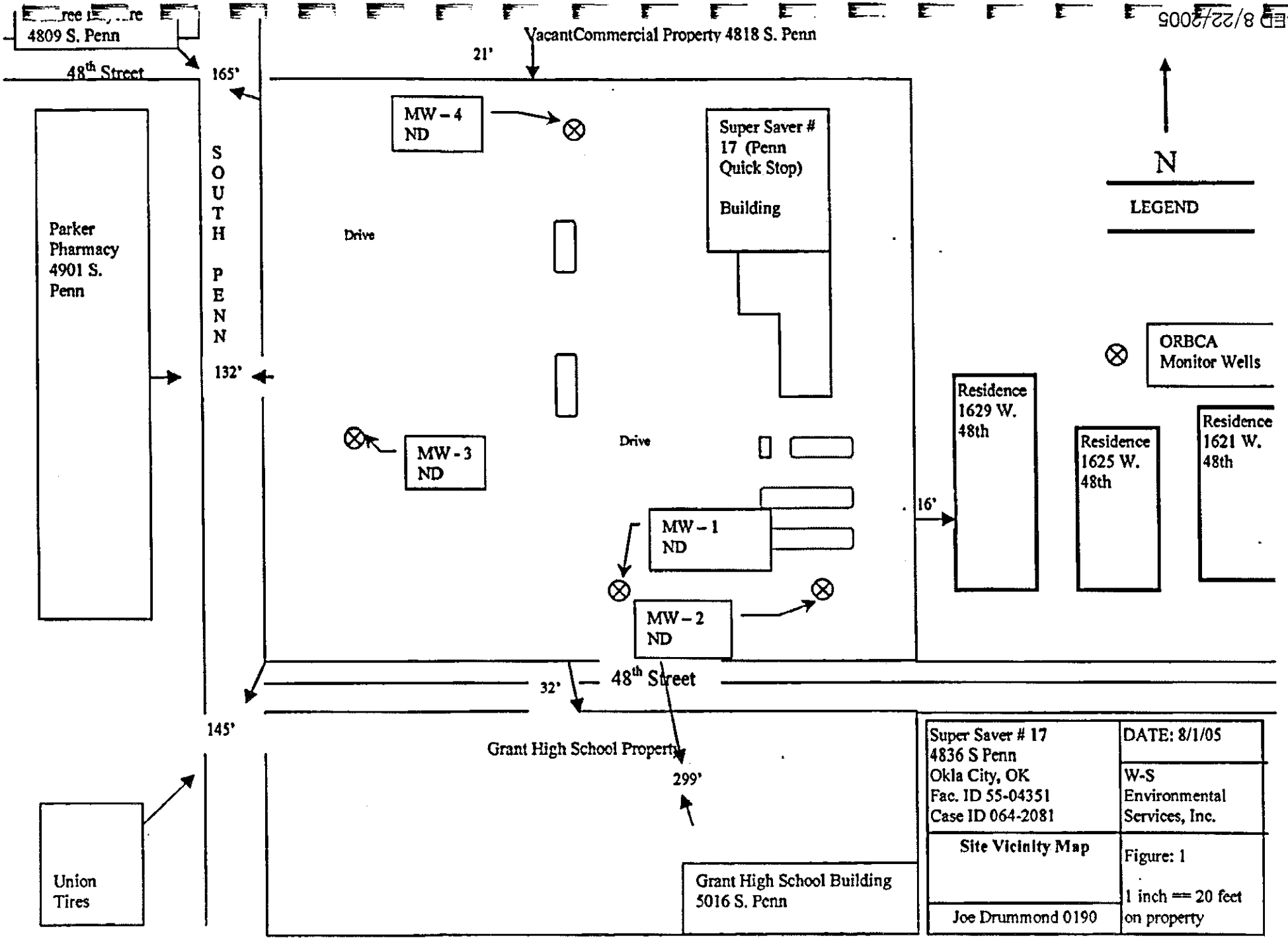
MW NO. Sample Location	Sampling Date	Sample Depth [ft.]	Benzene [mg/kg]	Toluene [mg/kg]	Ethyl-benzene [mg/kg]	Total Xylenes [mg/kg]	Naphthalene [mg/kg]	TPH-GRO [mg/kg]	TPH-DRO [mg/kg]	Other
MW1-1	6/10/05	4-4.5	ND	ND	ND	ND	NS	ND	NS	
MW1-2	6/10/05	11.5	ND	ND	ND	ND	NS	ND	NS	
MW2-1	6/10/05	4-4.5	ND	ND	ND	ND	NS	ND	NS	
MW2-2	6/10/05	19	ND	ND	ND	ND	NS	ND	NS	
MW3-1	6/10/05	3-3.5	ND	ND	ND	ND	NS	ND	NS	
MW3-2	6/10/05	11.5	ND	0.02	0.2	0.1	NS	16	NS	
MW4-1	6/10/05	3-3.5	ND	ND	ND	ND	NS	ND	NS	
MW4-2	6/10/05	9.5	ND	ND	ND	ND	NS	ND	NS	

IMAGED 8/22/2005

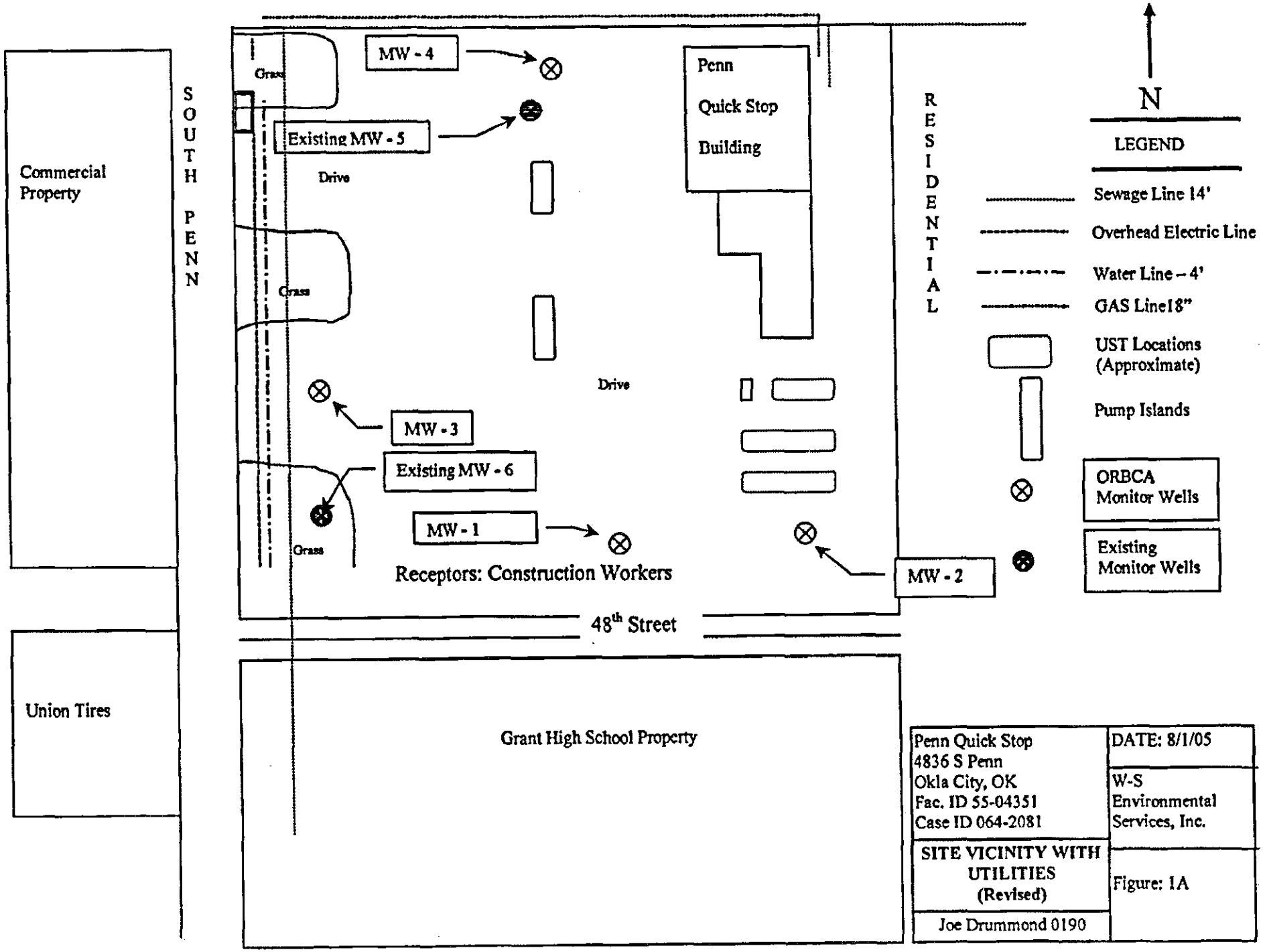
RAM, INC. – Super Saver # 17 (Penn Quick Stop)

ANALYTICAL DATA SUMMARY FOR GROUNDWATER – SINGLE SAMPLING EVENTS
Chemical levels detected during groundwater sampling

MW NO. Sample Location	Installation Date	Screen Interval [ft.]	Sampling Date	Water Level	Benzene [mg/l]	Toluene [mg/l]	Ethyl-benzene [mg/l]	Total Xylenes [mg/l]	Naphthalene [mg/l]	TPH-GRO [mg/.]	TPH-DRO [mg/l]
MW-1	6/10/05	5-15	6/24/05	12.99	0.002	ND	ND	ND	NS	0.09	NS
MW-2	6/10/05	5-15	6/24/05	9.26	0.2	0.002	0.003	0.004	NS	2	NS
MW-3	6/10/05	5-20	6/24/05	16.19	ND	ND	ND	ND	NS	2	NS
MW-4	6/10/05	5-17	6/24/05	15.99	0.002	0.003	ND	0.003	NS	0.1	NS


4809 S. Penn
48th Street
165'
21'
Vacant Commercial Property 4818 S. Penn
N
LEGEND
Parker Pharmacy 4901 S. Penn
SOUTH PENN
132'
MW - 4 ND
Super Saver # 17 (Penn Quick Stop) Building
Drive
Drive
MW - 3 ND
ORBCA Monitor Wells
Residence 1629 W. 48th
Residence 1625 W. 48th
Residence 1621 W. 48th
16'
MW - 1 ND
MW - 2 ND
32'
48th Street
145'
Grant High School Property
299'
Union Tires
Grant High School Building 5016 S. Penn
Super Saver # 17
4836 S Penn
Okla City, OK
Fac. ID 55-04351
Case ID 064-2081
DATE: 8/1/05
W-S Environmental Services, Inc.
Site Vicinity Map
Figure: 1
1 inch = 20 feet on property
Joe Drummond 0190

IMAGED 8/22/2005



Penn Quick Stop 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05
	W-S Environmental Services, Inc.
SITE VICINITY WITH UTILITIES (Revised)	Figure: 1A
Joe Drummond 0190	

IMAGED 8/22/2005

48th Street

SOUTH PENN

RAM, Inc.
Super Saver # 17 (Penn Quick Stop)

*** No Water Wells identified within 330 feet of Super Saver # 17.

Points of exposure could include deep construction trenches and deep groundwater for construction workers on the facility site.

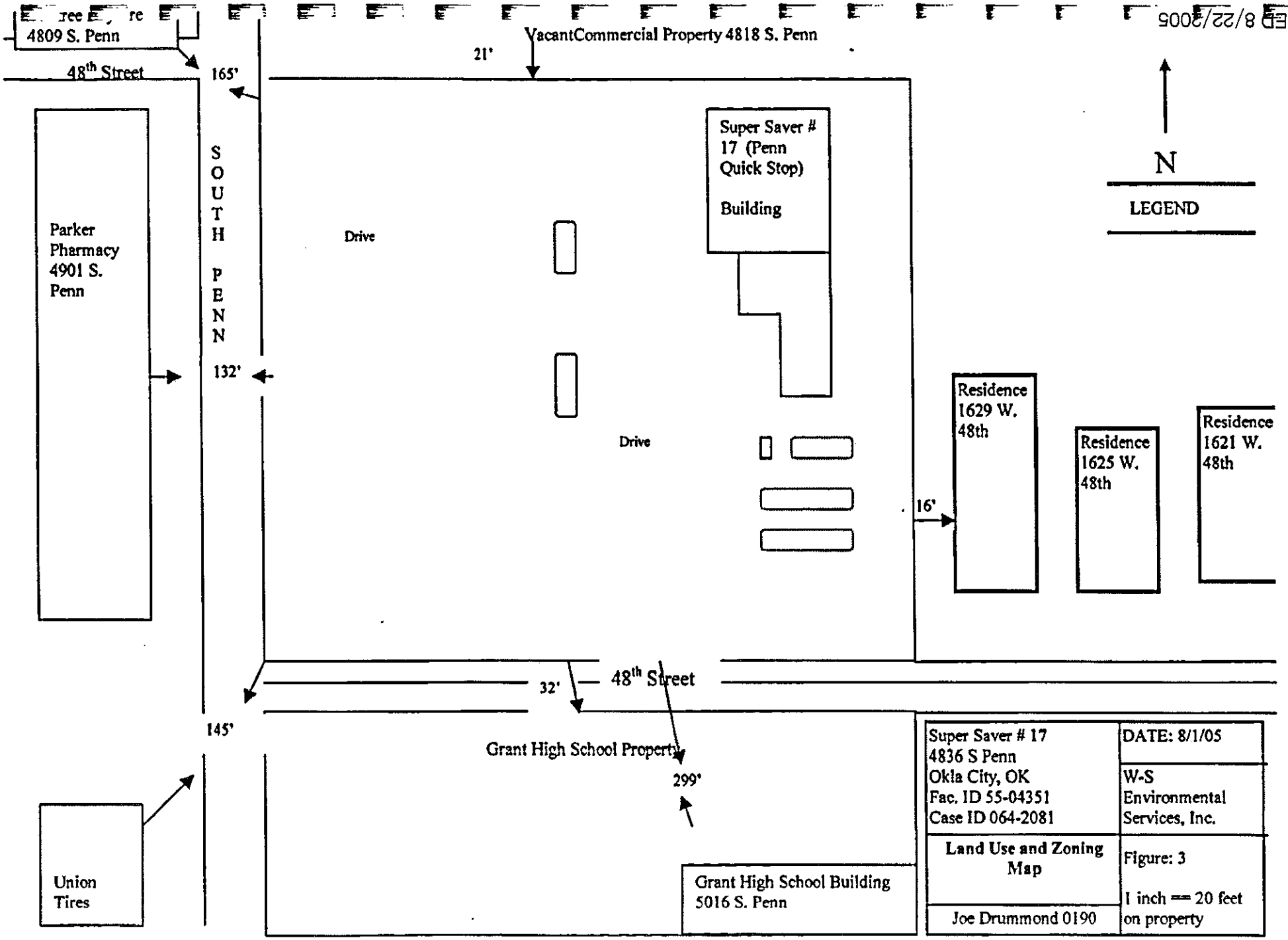
48th Street

N

LEGEND

Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
POINT OF EXPOSURE MAP	Figure: 2
Joe Drummond 0190	

IMAGED 8/22/2005



Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
Land Use and Zoning Map	Figure: 3 1 inch = 20 feet on property
Joe Drummond 0190	

MAGED 8/22/2005

Figure 4. Water Well Location Map Within One-Mile Radius
Ram, Inc. Super Saver #17
4836 South Pennsylvania Oklahoma City, Oklahoma.
W-S Environmental Services, Inc.
August 1, 2005
(No water wells located within one-mile radius)

IMAGED 8/22/2005

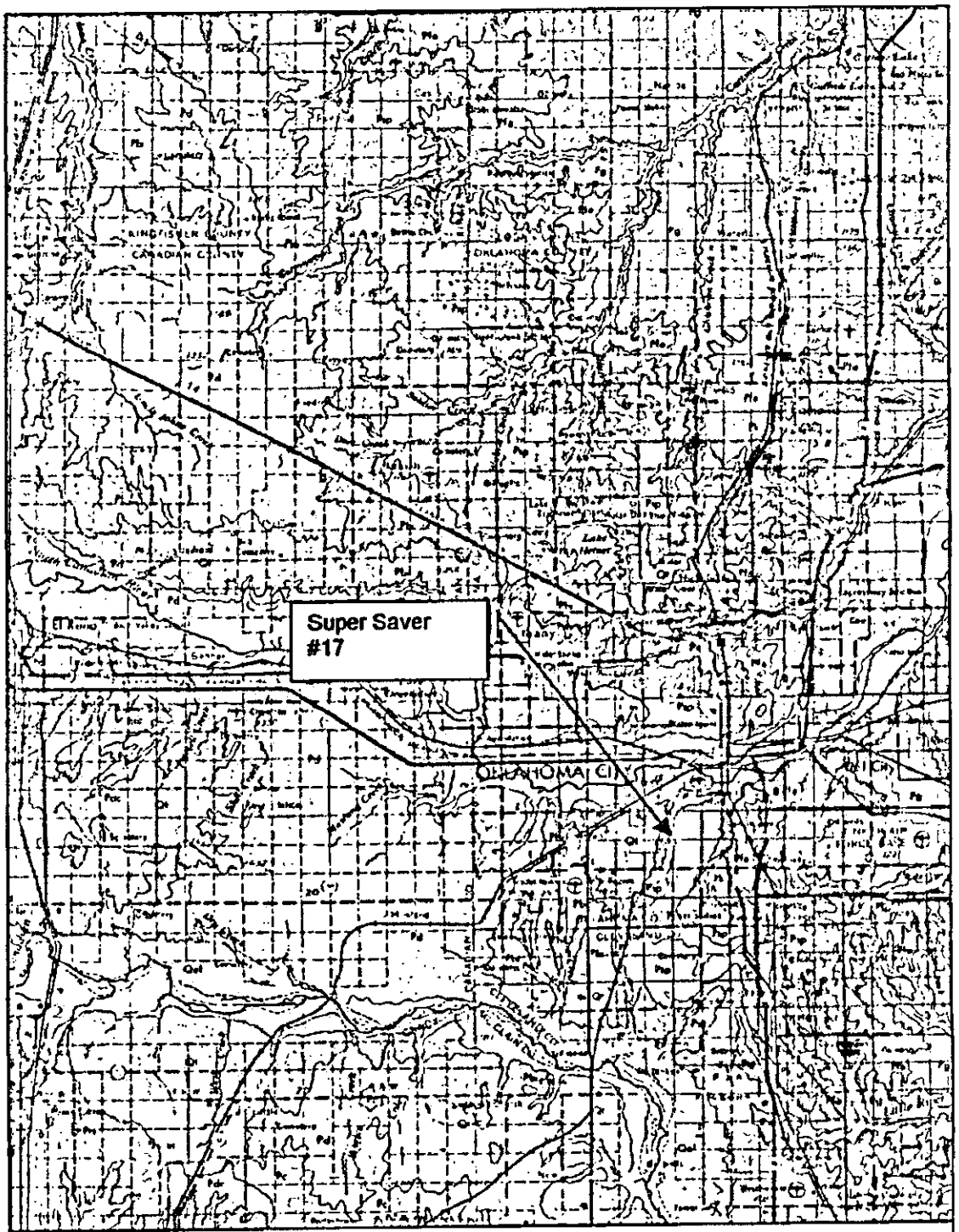


Figure 5. Geology Map for Super Saver #17 – South Penn, Oklahoma City, Oklahoma. Source USGS, Hydrologic Atlas 4, Reconnaissance of the Water Resources of the Oklahoma City Quadrangle, Central Oklahoma – Scale 1:250,000

IMAGED 8/22/2005

Hennessey Group

Salt Plains Formation

Red-brown blocky shale and orange-brown siltstone, grades southward into Purcell Sandstone in Norman area. Thickness, 200 feet.

Kingman Siltstone

Orange-brown to greenish-gray, even-bedded siltstones, with some fine-grained sandstone and red-brown shale; grades southward into Purcell Sandstone. Thickness, 20 feet.

Purcell Sandstone

Red-brown to maroon fine- to coarse-grained sandstone, mudstone conglomerate, and red-brown shale. Thickness, 150 feet.

Fairmont Shale

Red-brown blocky shale; grades into Garber Sandstone at base. Thickness, 80 feet at Oklahoma City, 110 feet near Purcell, and 120 feet near Kingfisher.

Garber Sandstone

Mostly orange-brown to red-brown fine-grained sandstone, irregularly bedded with red-brown shale and some chert and mudstone conglomerate. Thickness ranges from 150 feet in south to 400 feet or more in north. The Garber and underlying Wellington are major aquifers in Cleveland and Oklahoma Counties.

Wellington Formation

Red-brown shale and orange-brown fine-grained sandstone, containing much maroon mudstone conglomerate and chert conglomerate to south. Thickness ranges from about 150 feet in south to 500 feet in north.

Sumner Group

Cisco Group

Red-brown to gray shale and orange-brown fine-grained, crossbedded sandstone; grades southward into arkosic sandstone and conglomerate. Includes *Herington Limestone* at top in Payne County, *Neva Limestone* (0.2 to 1.2 feet thick) at base in Lincoln County, and *Hart Limestone* (4 to 10 feet thick) at base in Pottawatomie County. In Payne County, includes thin stringers of *Winfield Limestone*, Pwm (75 feet below top), *Fort Riley Limestone*, Pfr (245 feet below top), *Wreford Limestone*, Pwr (345 feet below top), and *Cottonwood Limestone*, Pc (525 feet below top). Thickness ranges from 300 feet in south to 600 feet in north.

Vanoss Group

Red-brown to gray shale and orange-brown fine-grained, crossbedded sandstone; grades southward into arkosic sandstone and conglomerate. Includes many thin limestone beds and shale units north of North Canadian River (descend-

Desmoinesian

ceous shale. Thickness ranges from 400 to 750

Wetumka Shale

Mainly sandy, silty, laminated shale 100 to 200

Calvin Sandstone

Medium-grained, thin-bedded to massive san silty shale. Thickness ranges from 230 to about

Senora Formation

Mainly fine-grained micaceous sandstone and s containing coal beds. Thickness ranges from a 950 feet.

Stuart Shale

Mostly laminated clay shale and minor amou sandstone. Thickness ranges from 80 to 180 feet

Thurman Sandstone

Mainly medium-grained, silty sandstone with glomerate at base. Only a few feet exposed in

Contact

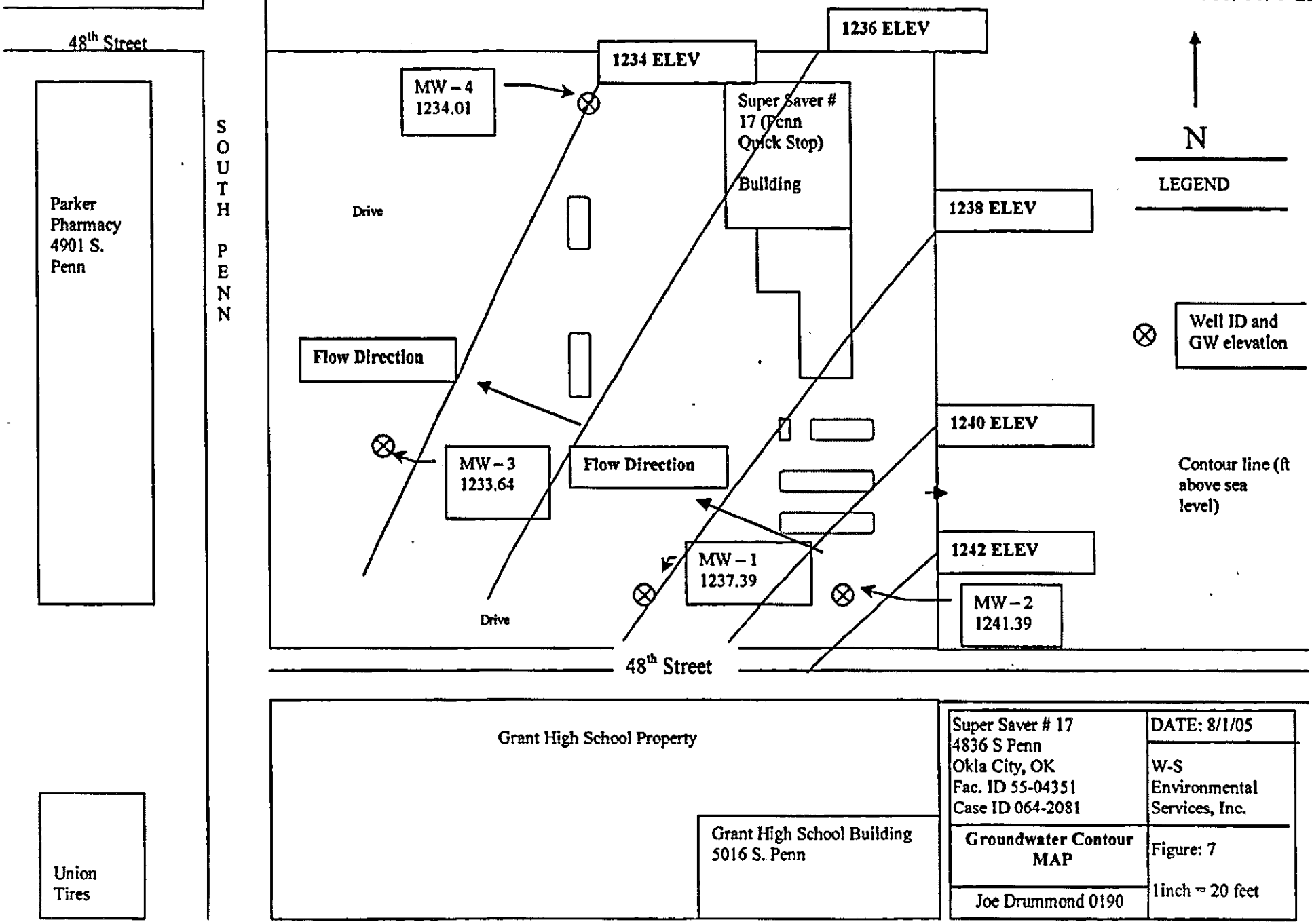
Fault, approximately located; dotted where co upthrown side; D, downthrown side.

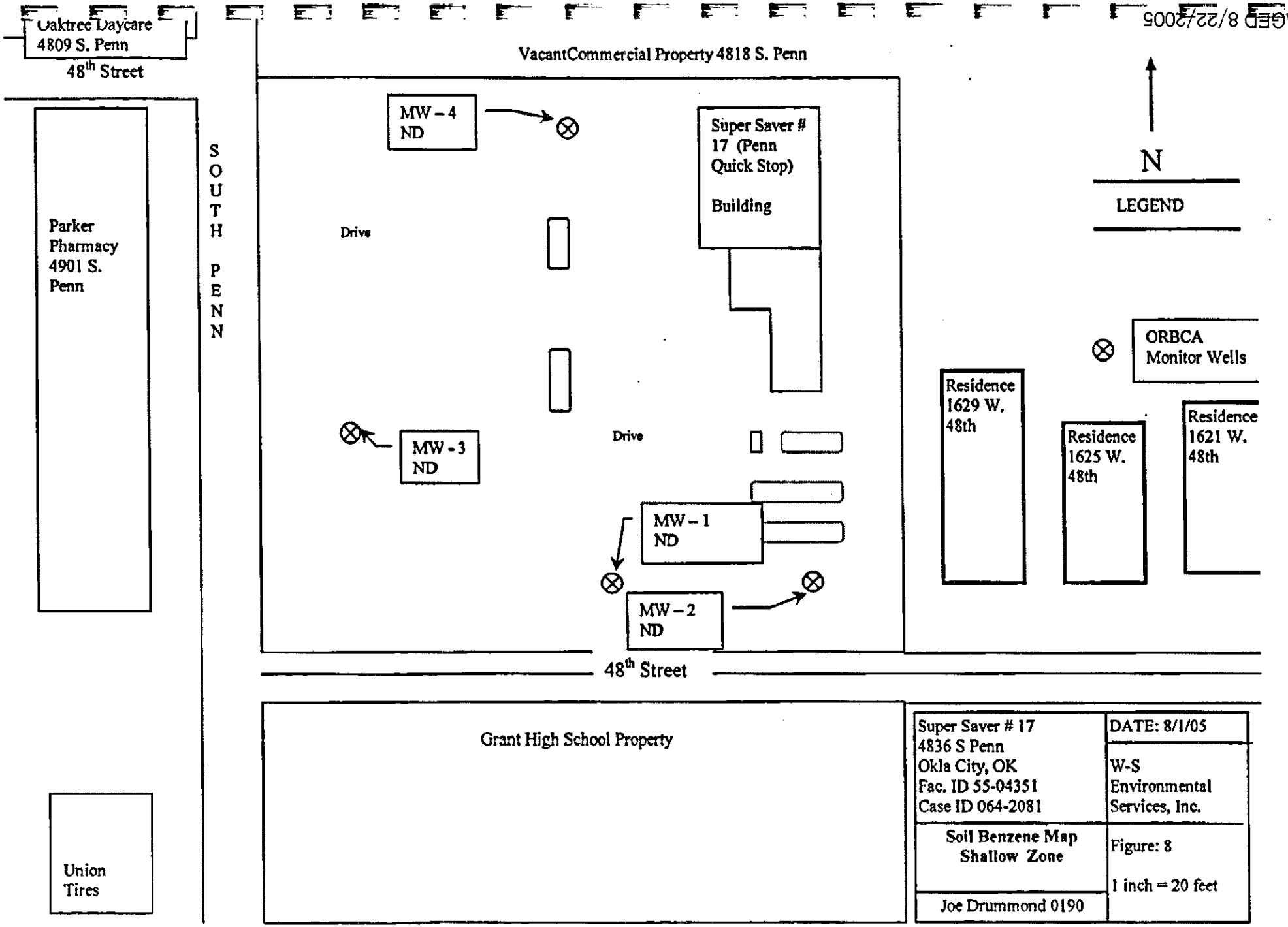
Figure 5B. Geologic Map Legend for Super Saver #17 – Oklahoma City, Oklahoma. USGS Hydrologic Atlas 4, Reconnaissance of the Water Resources of the Oklahoma City Quadrangle for Central Oklahoma – Scale 1:250,000

IMAGED 8/22/2005

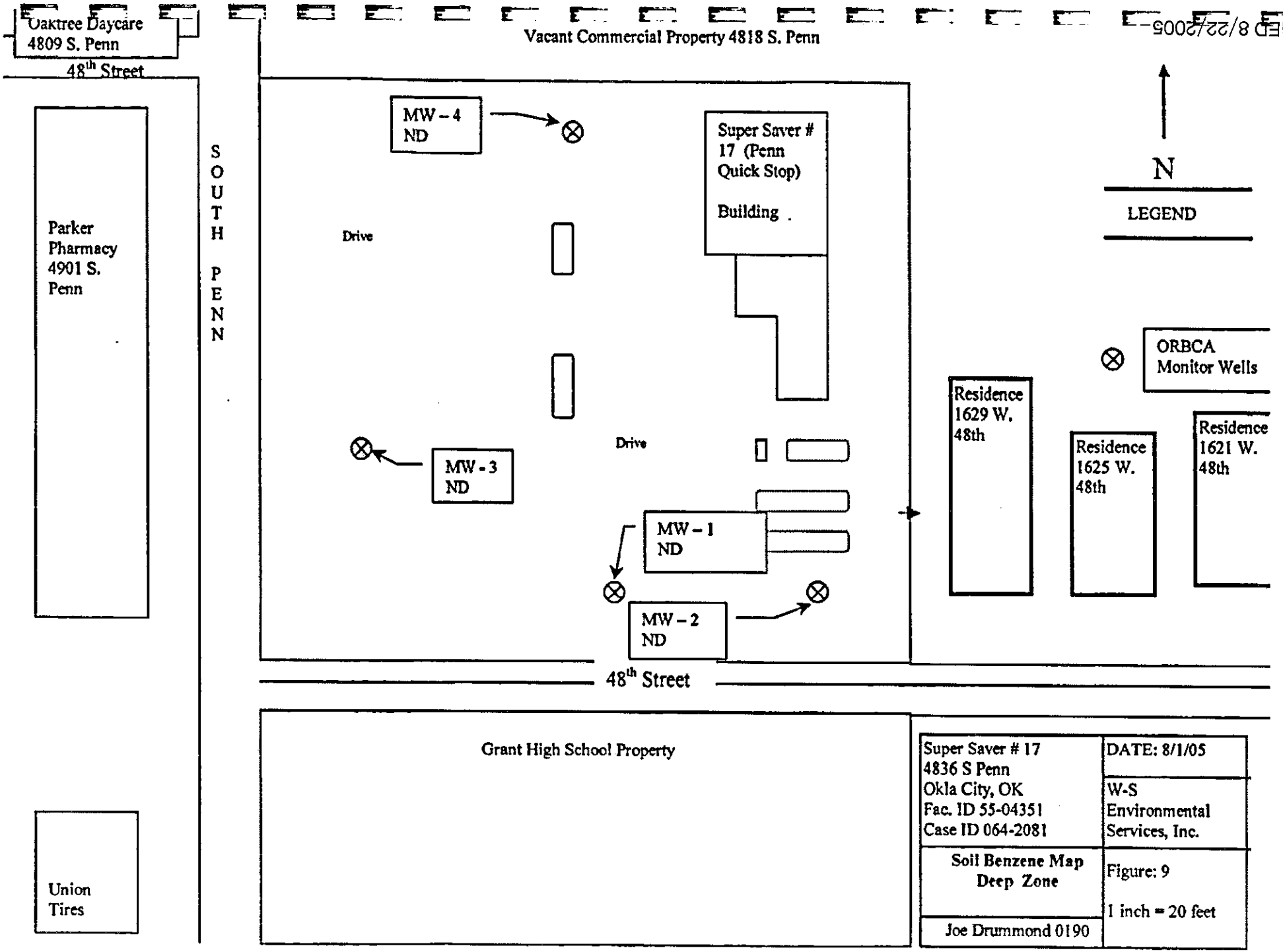
Figure 6. Topography Map for Super Saver #17 – South Penn, Oklahoma City, Oklahoma. Source USGS Topographic Map for Oklahoma City, Oklahoma – Scale 1:24,000

IMAGED 8/22/2005




Oaktree Daycare
4809 S. Penn
48th Street
VacantCommercial Property 4818 S. Penn
MW – 4
ND
Super Saver #
17 (Penn
Quick Stop)
Building
Drive
Parker
Pharmacy
4901 S.
Penn
SOUTH PENN
N
LEGEND
ORBCA
Monitor Wells
Residence
1629 W.
48th
Residence
1625 W.
48th
Residence
1621 W.
48th
MW - 3
ND
Drive
MW – 1
ND
MW – 2
ND
48th Street
Grant High School Property
Union
Tires
Super Saver # 17
4836 S Penn
Okla City, OK
Fac. ID 55-04351
Case ID 064-2081
DATE: 8/1/05
W-S
Environmental
Services, Inc.
Soil Benzene Map
Shallow Zone
Figure: 8
1 inch = 20 feet
Joe Drummond 0190

IMAGED 8/22/2005



IMAGED 8/22/2005

Oaktree Daycare
4809 S. Penn

VacantCommercial Property 4818 S. Penn

48th Street

Parker Pharmacy 4901 S. Penn

SOUTH PENN

MW - 4
ND

Super Saver # 17 (Penn Quick Stop)

Building

Drive

Drive

MW - 3
ND

MW - 1
ND

MW - 2
ND

N

LEGEND

ORBCA Monitor Wells

Residence 1629 W. 48th

Residence 1625 W. 48th

Residence 1621 W. 48th

48th Street

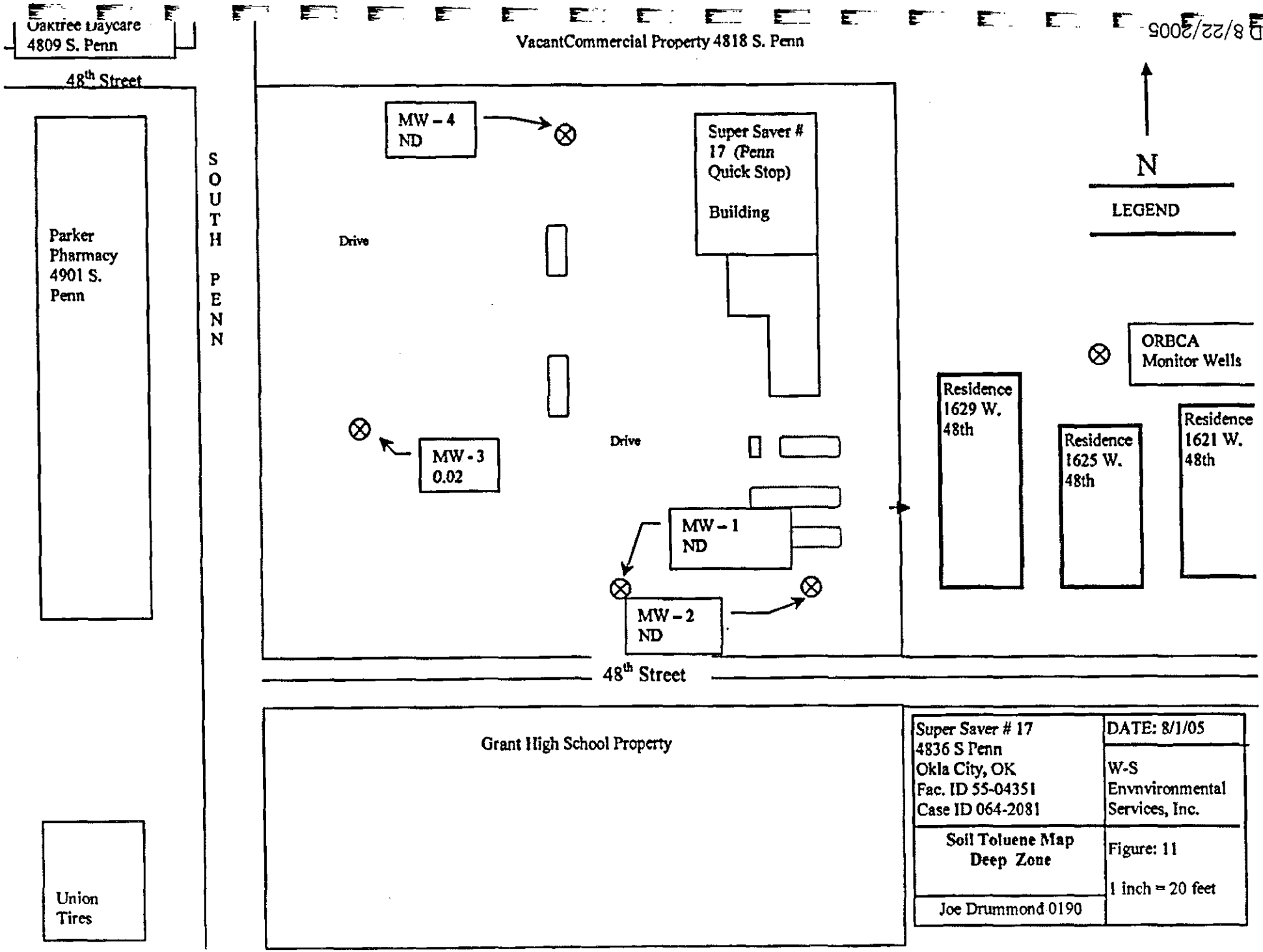
Grant High School Property

Grant High School Building
5016 S. Penn

Union Tires

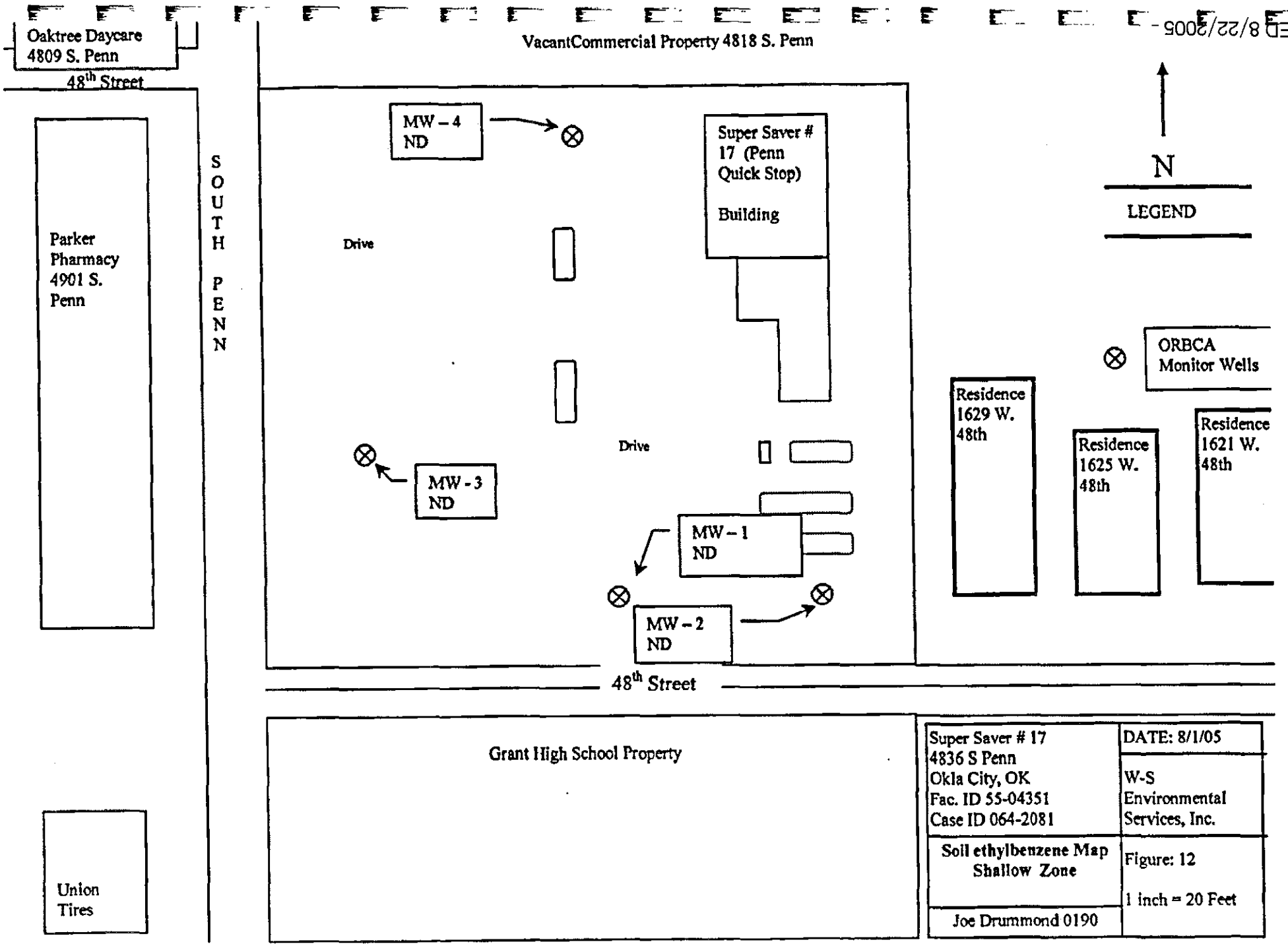
Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
Soil Toluene Map Shallow Zone	Figure: 10 1 inch = 20 feet
Joe Drummond 0190	

IMAGED 8/22/2005



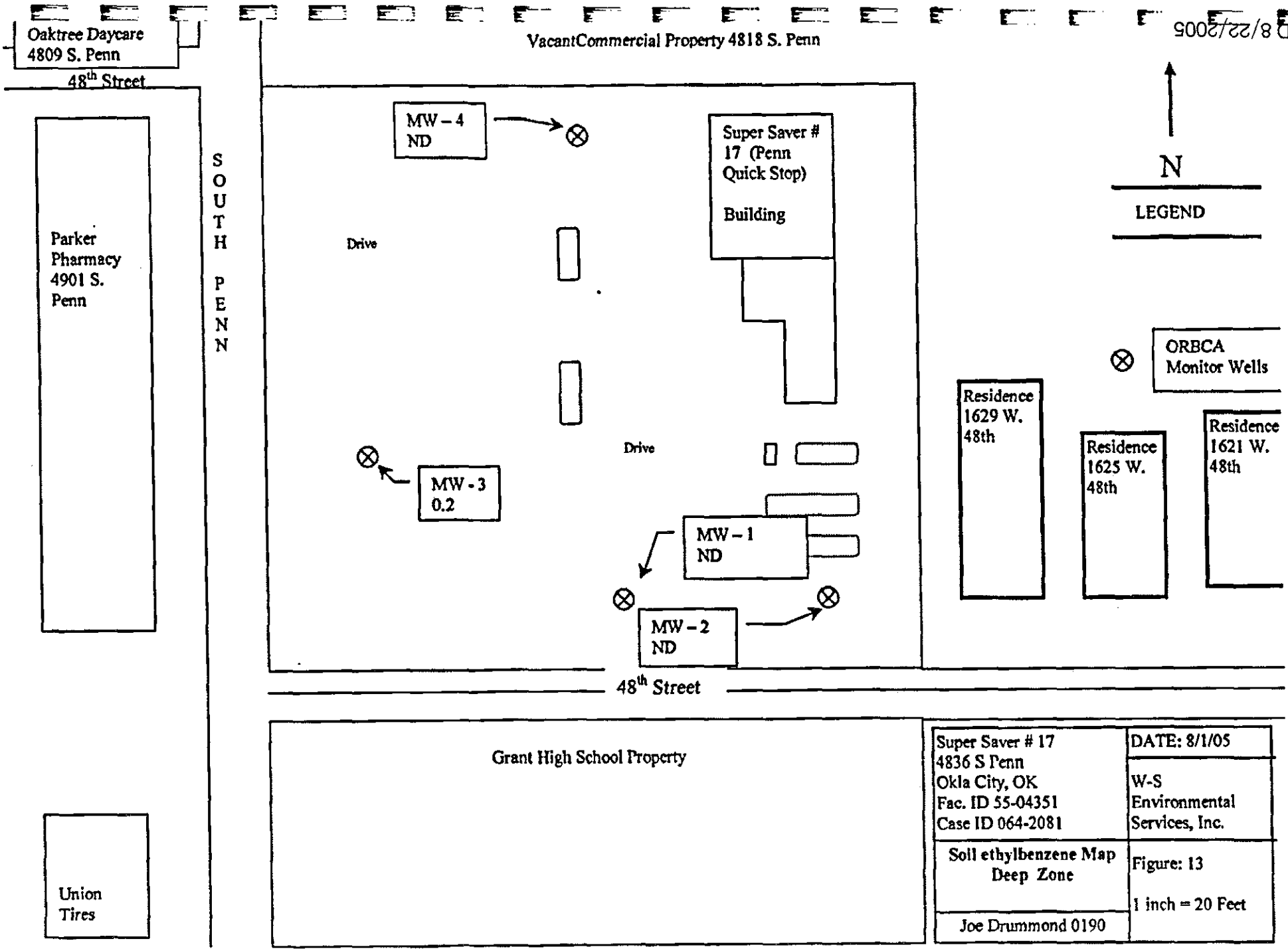
Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Envnvironmental Services, Inc.
Soil Toluene Map Deep Zone	Figure: 11 1 inch = 20 feet
Joe Drummond 0190	

MAGED 8/22/2005

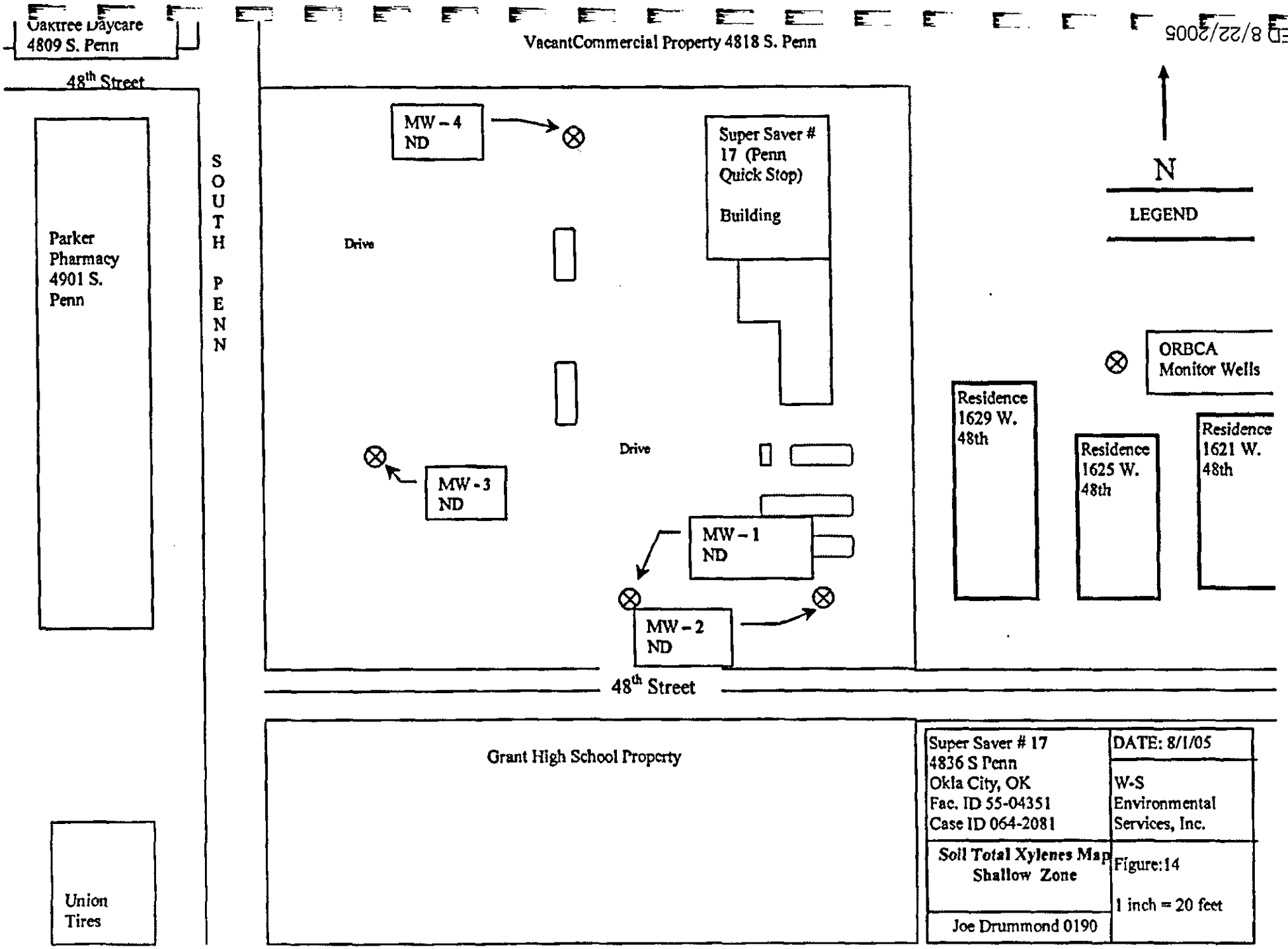


Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
Soil ethylbenzene Map Shallow Zone	Figure: 12 1 inch = 20 Feet
Joe Drummond 0190	

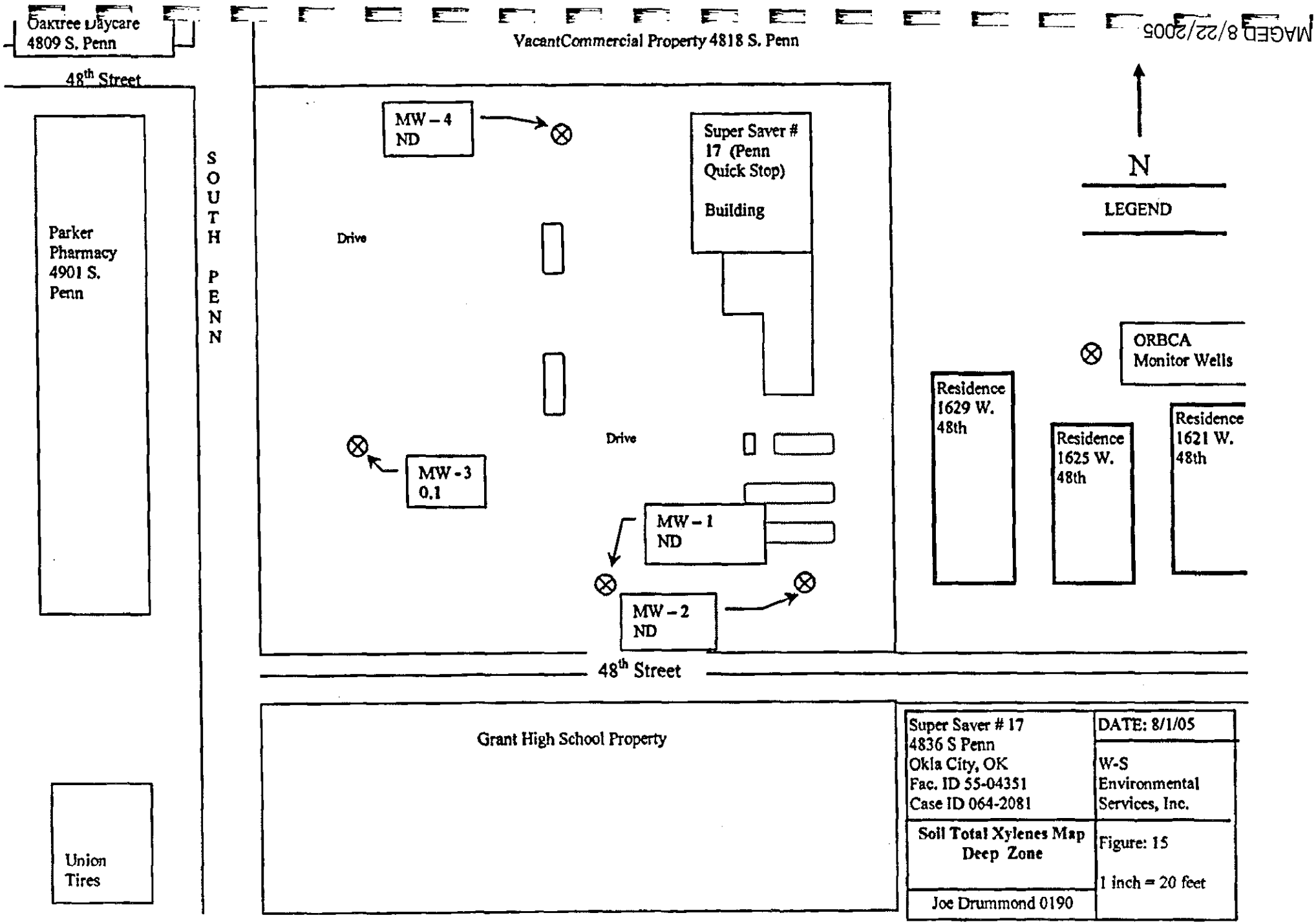
MAGED 8/22/2005



Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
Soil ethylbenzene Map Deep Zone	Figure: 13 1 inch = 20 Feet
Joe Drummond 0190	

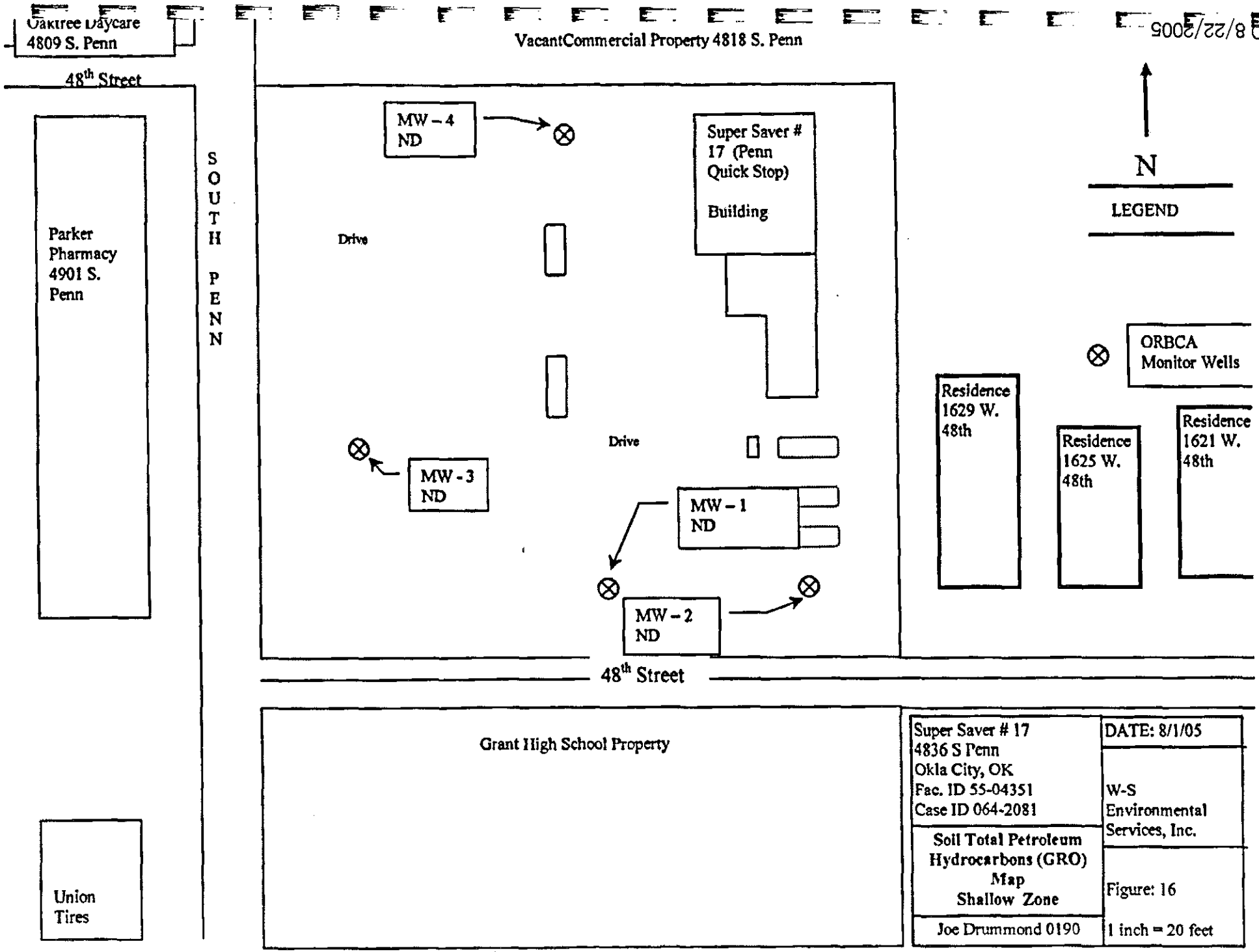


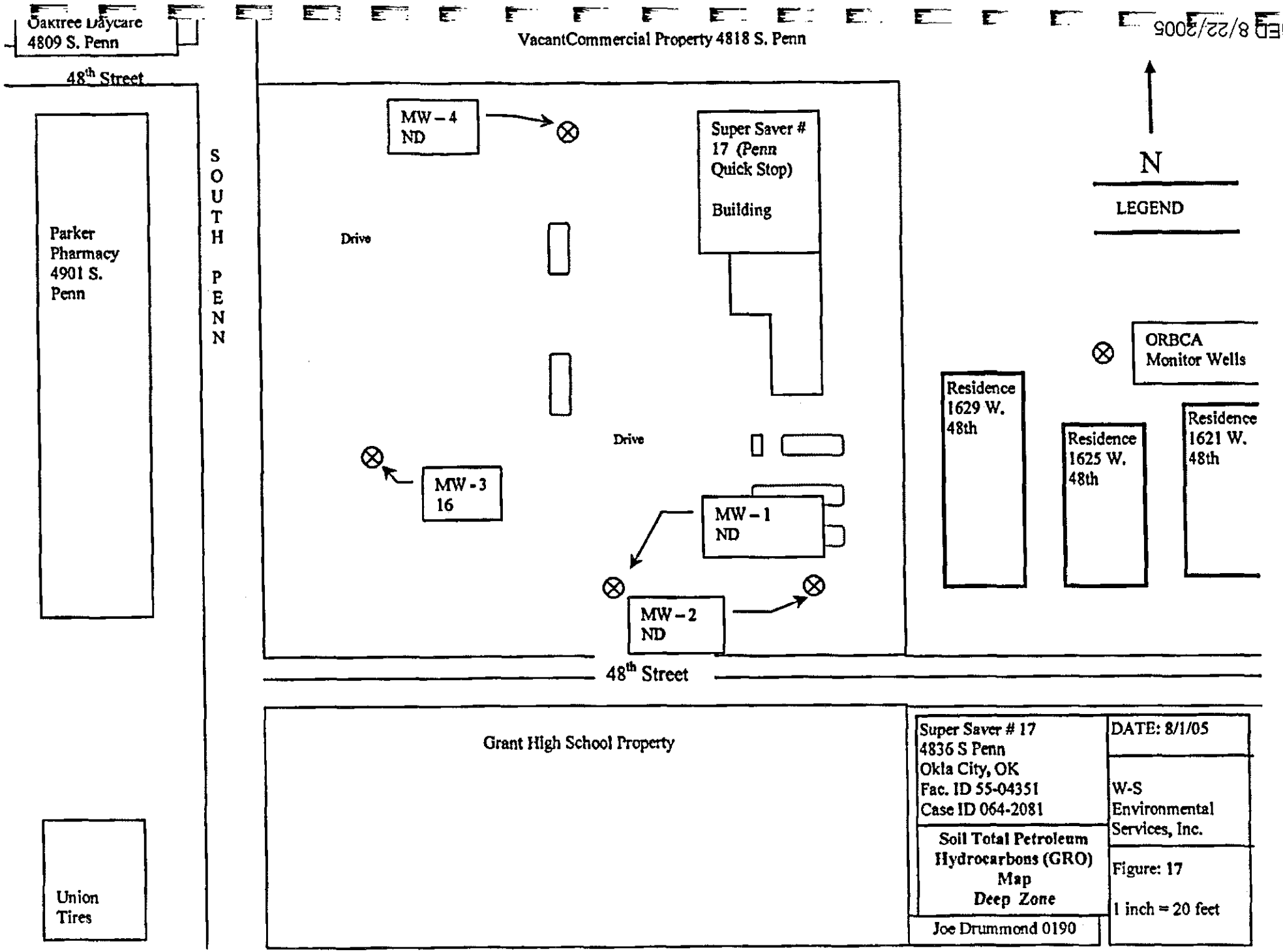
MAGED 8/22/2005



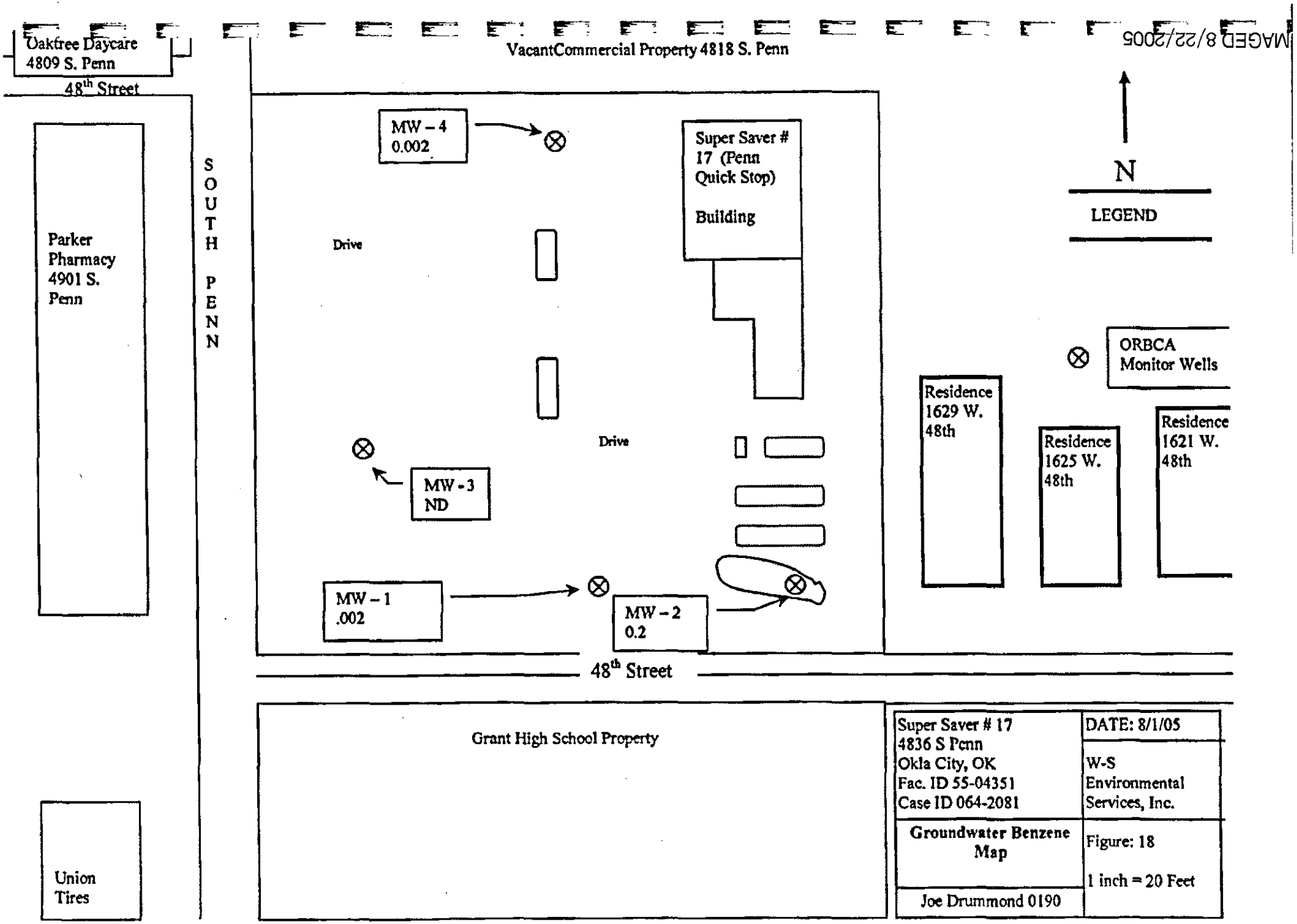
MAGED 8/22/2005

MAGED 8/22/2005



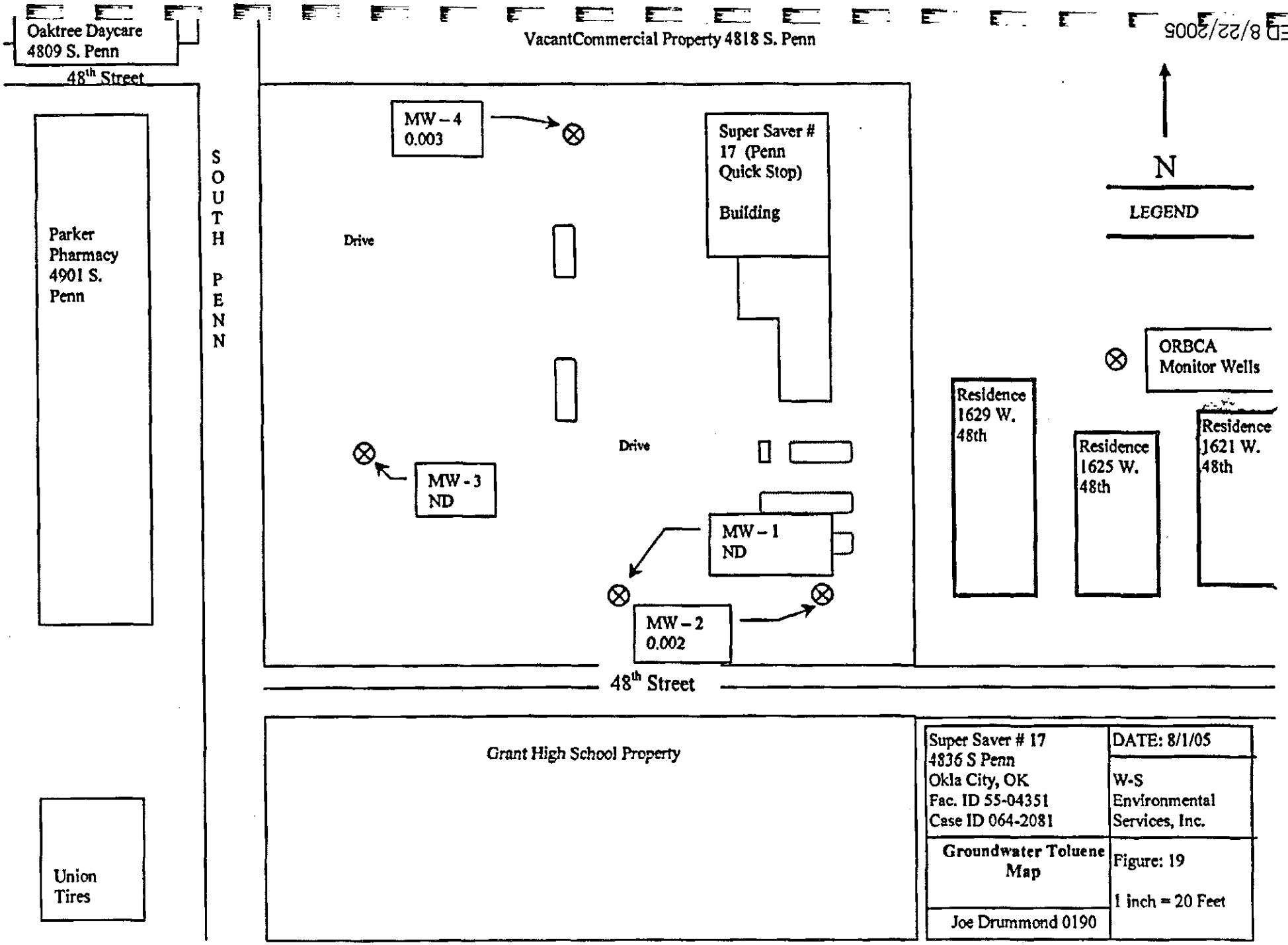


MAGED 8/22/2005



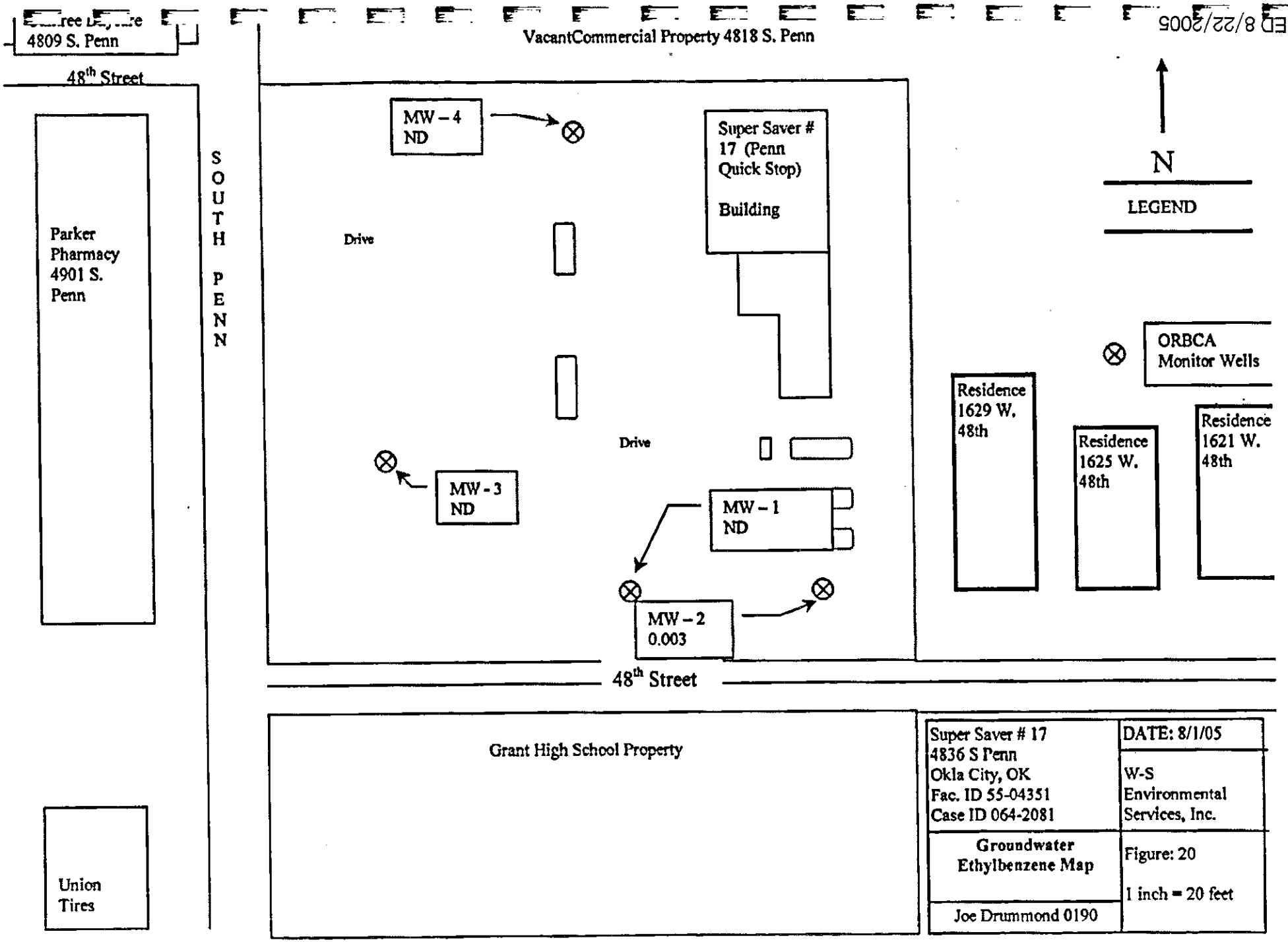
IMAGED 8/22/2005

MAGED 8/22/2005



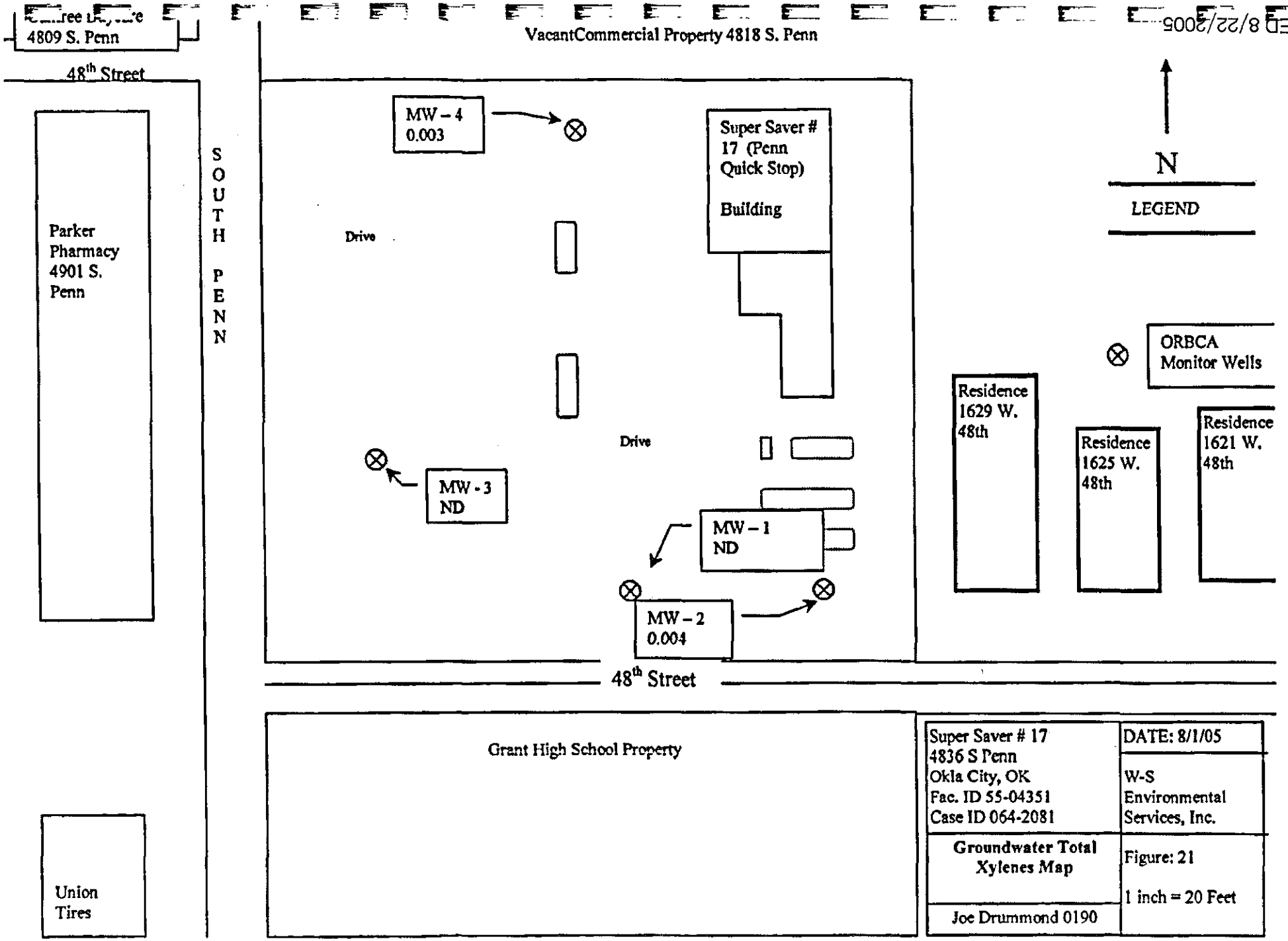
Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
Groundwater Toluene Map	Figure: 19 1 inch = 20 Feet
Joe Drummond 0190	

IMAGED 8/22/2005

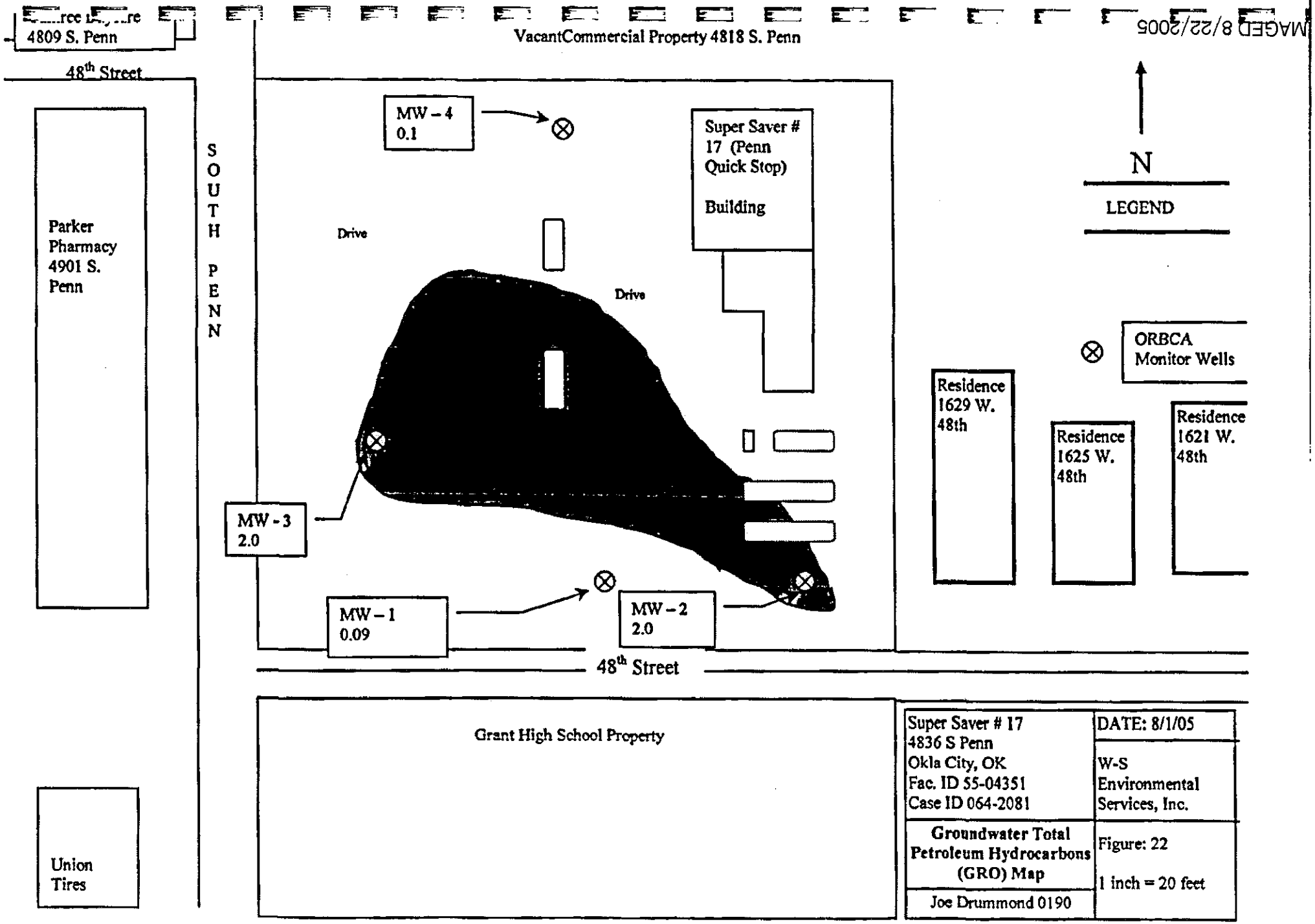


Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
Groundwater Ethylbenzene Map	Figure: 20 1 inch = 20 feet
Joe Drummond 0190	

IMAGED 8/22/2005



Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
Groundwater Total Xylenes Map	Figure: 21 1 inch = 20 Feet
Joe Drummond 0190	


4809 S. Penn
VacantCommercial Property 4818 S. Penn
48th Street
Parker Pharmacy 4901 S. Penn
SOUTH PENN
MW – 4 0.1
Super Saver # 17 (Penn Quick Stop) Building
Drive
Drive
N
LEGEND
ORBCA Monitor Wells
Residence 1629 W. 48th
Residence 1625 W. 48th
Residence 1621 W. 48th
MW - 3 2.0
MW – 1 0.09
MW – 2 2.0
48th Street
Grant High School Property
Union Tires
Super Saver # 17
4836 S Penn
Okla City, OK
Fac. ID 55-04351
Case ID 064-2081
DATE: 8/1/05
W-S Environmental Services, Inc.
Groundwater Total Petroleum Hydrocarbons (GRO) Map
Figure: 22
1 inch = 20 feet
Joe Drummond 0190

IMAGED 8/22/2005

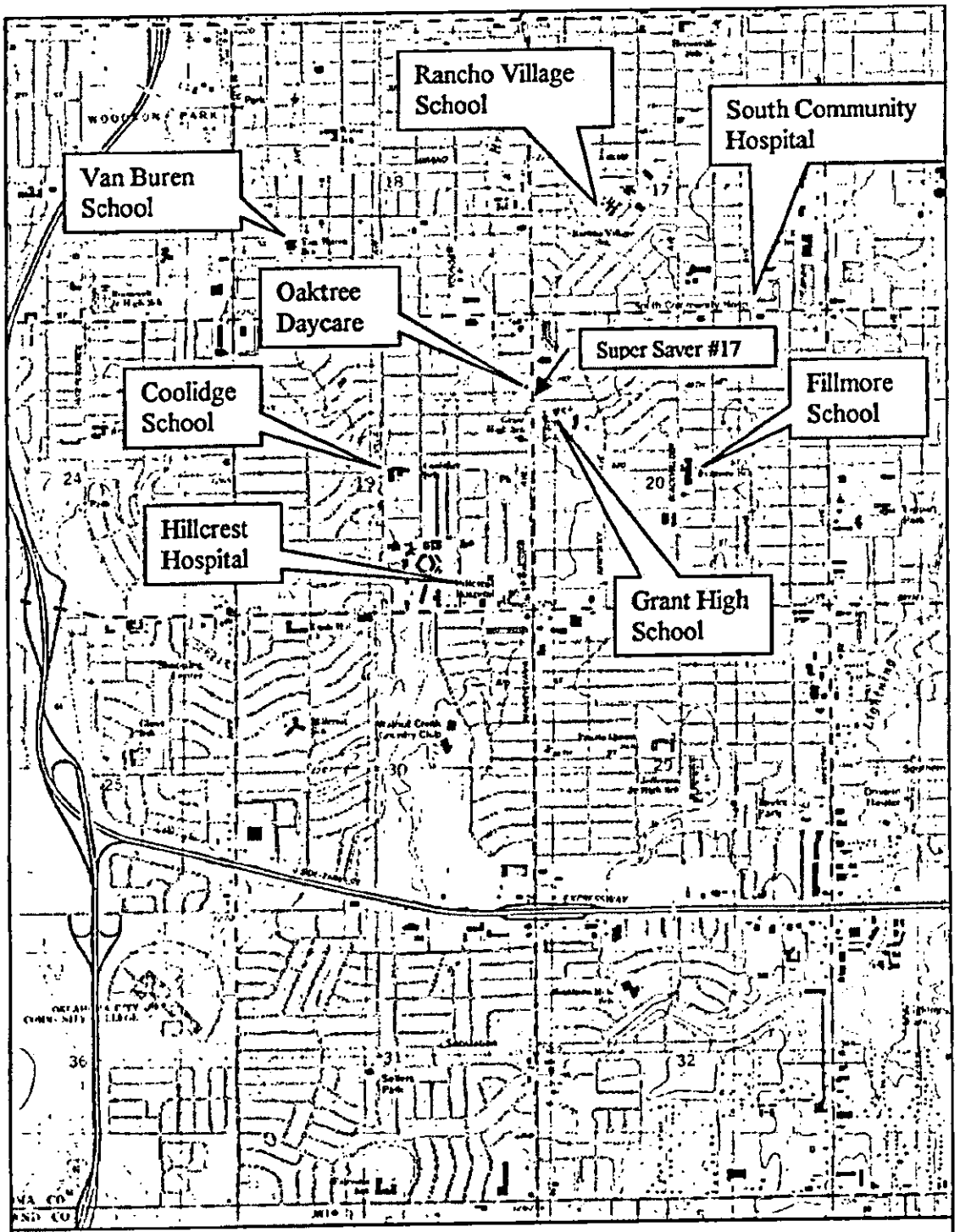
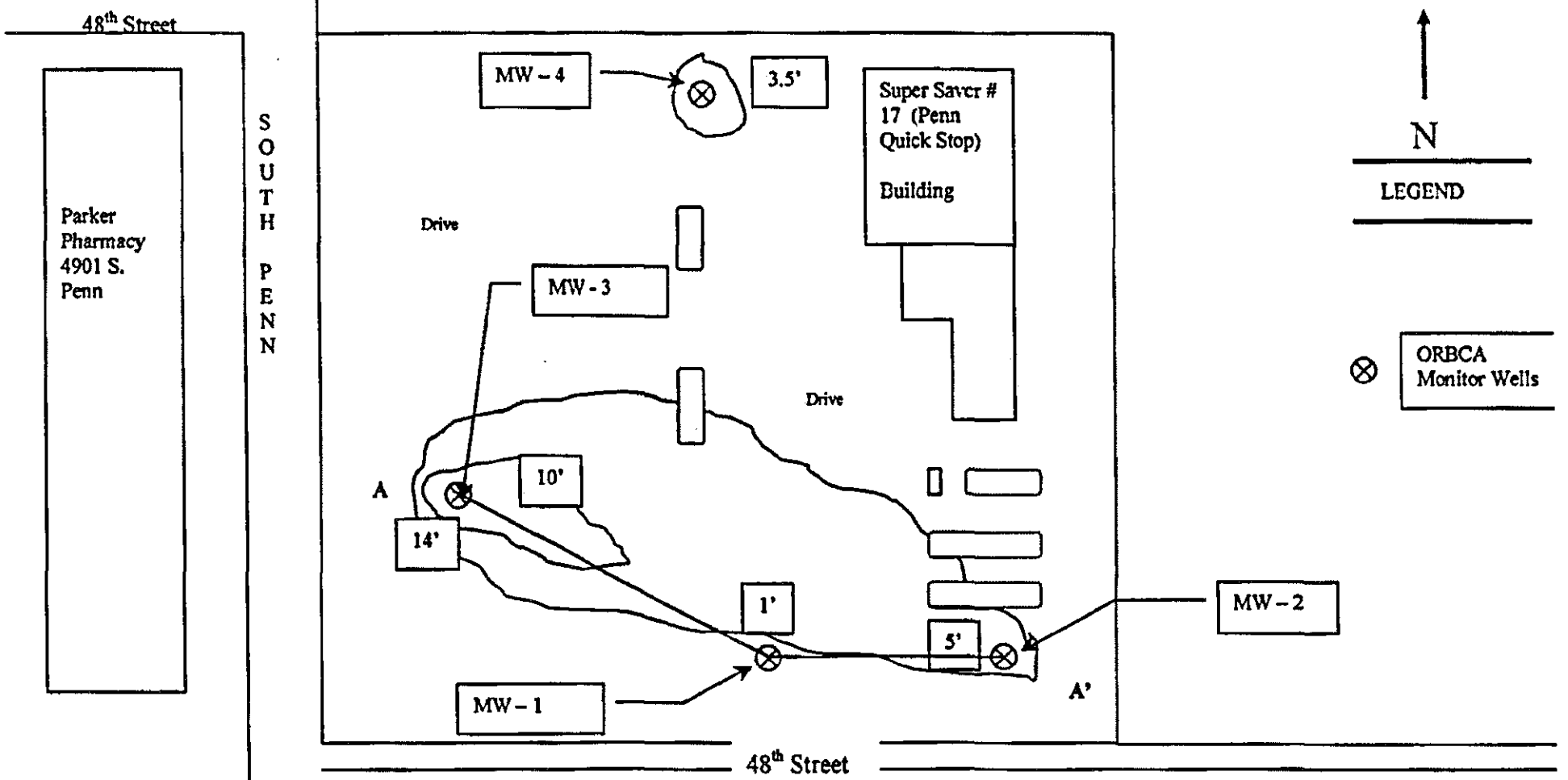


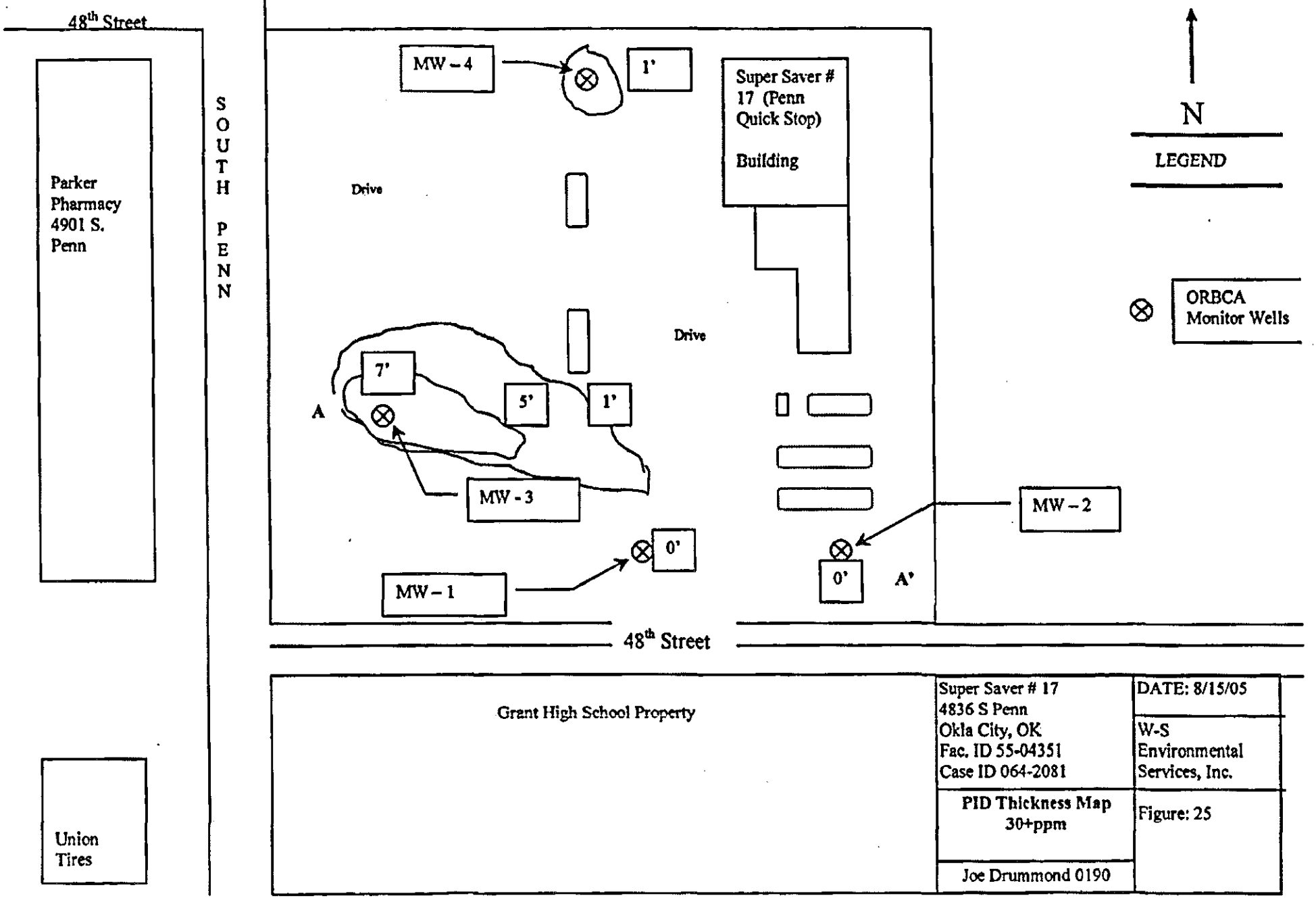
Figure 23. Special Facility Map Within One-Mile Radius
Super Saver #17 – 4836 S. Pennsylvania, Oklahoma City, Oklahoma.
W-S Environmental Services, Inc.
August 1, 2005 – Scale 1:24,000

IMAGED 8/22/2005



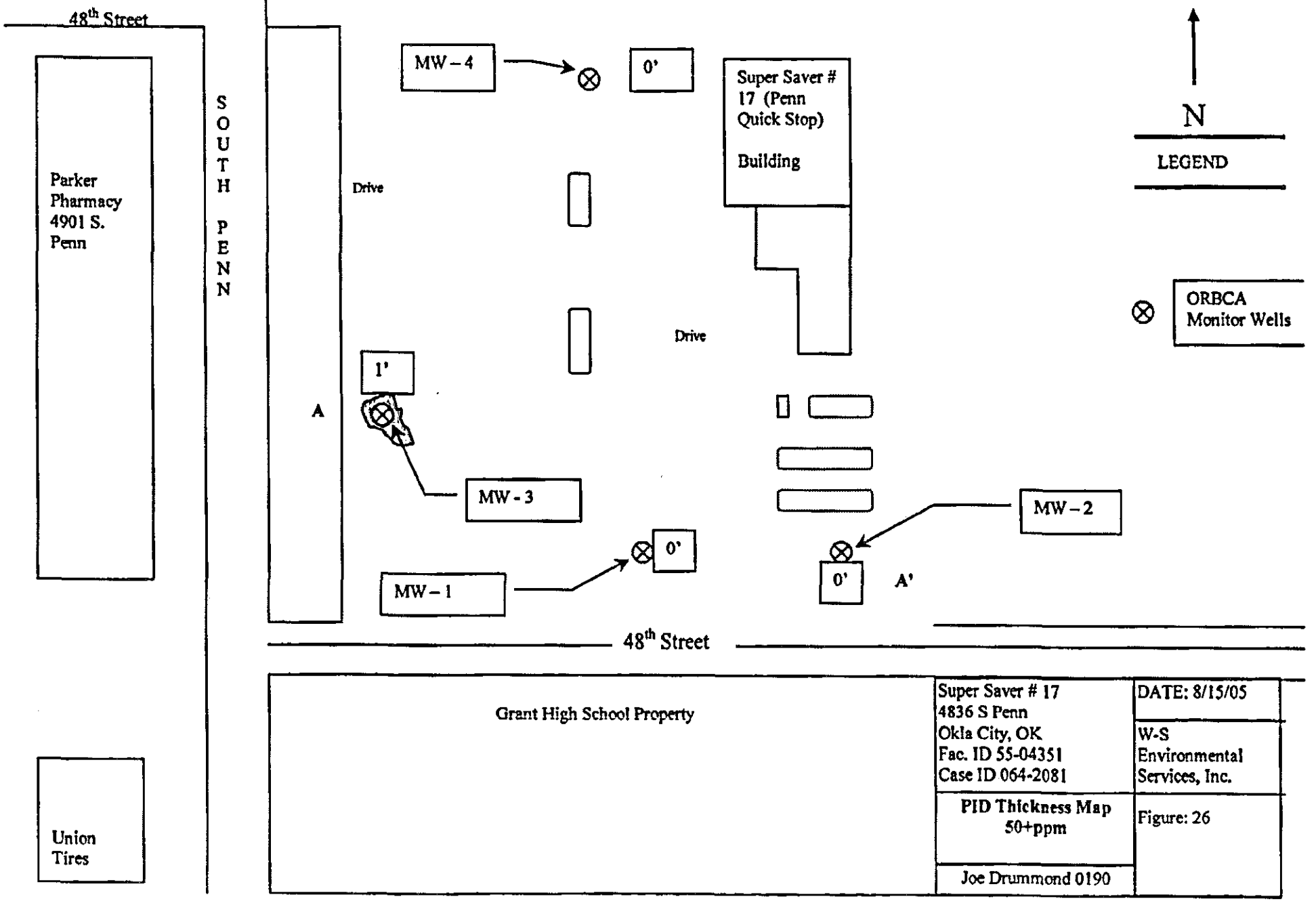
Grant High School Property	Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/15/05 W-S Environmental Services, Inc.
	PID Thickness Map 10+ppm	Figure: 24
	Joe Drummond 0190	

IMAGED 8/22/2005

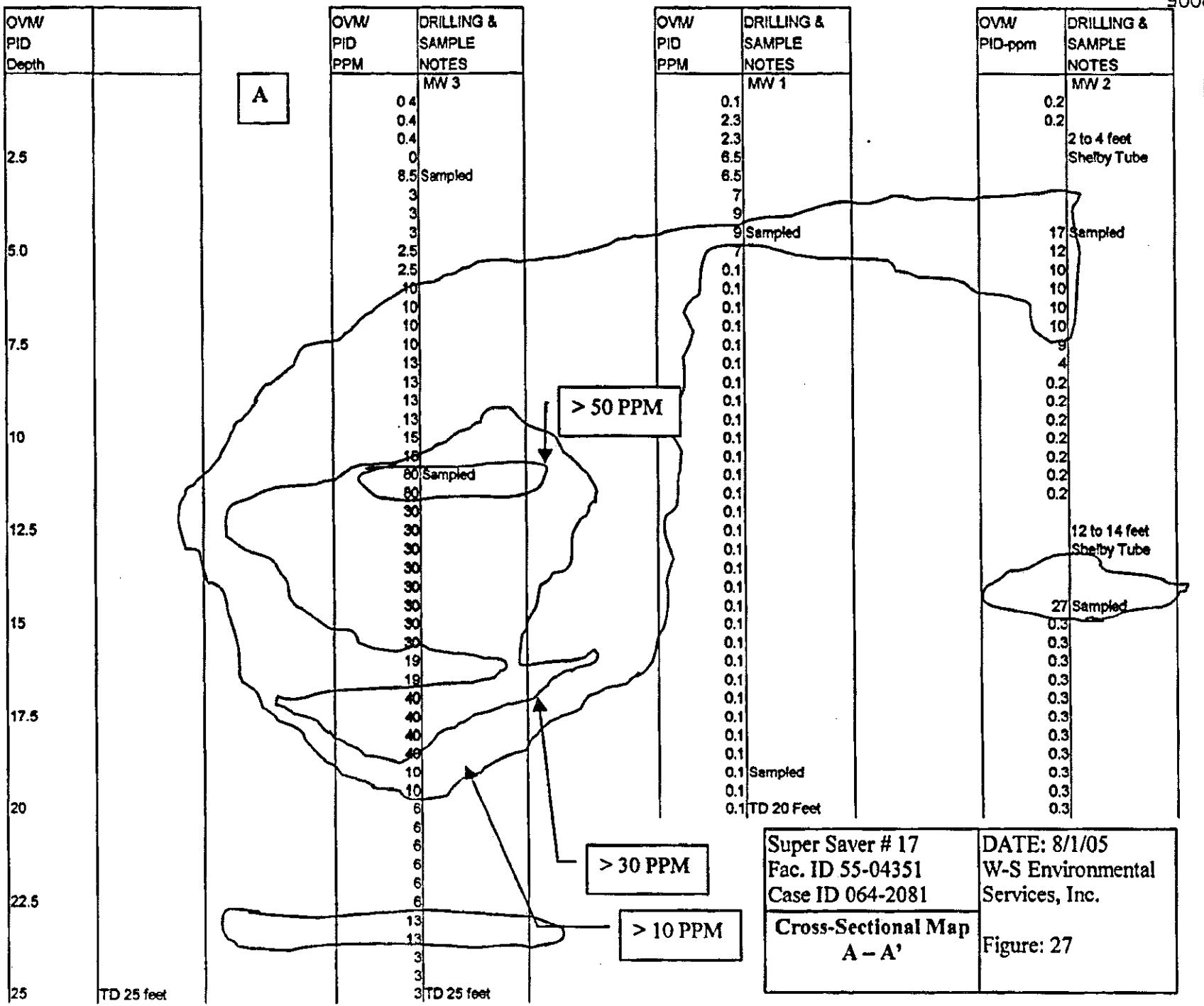


Super Saver # 17 4836 S Penn Okla City, OK Fac. ID 55-04351 Case ID 064-2081	DATE: 8/15/05 W-S Environmental Services, Inc.
PID Thickness Map 30+ppm	Figure: 25
Joe Drummond 0190	

IMAGED 8/22/2005



IMAGED 8/22/2005



Super Saver # 17 Fac. ID 55-04351 Case ID 064-2081	DATE: 8/1/05 W-S Environmental Services, Inc.
Cross-Sectional Map A – A'	Figure: 27

IMAGED 8/22/2005

Ram, Inc. Super Saver # 17
4836 South Pennsylvania
Oklahoma City, OK

Facility 55-04351
Case # 064-2081

WATER TABLE ELEVATION DATA
6/24/05

Monitoring Well Number	Elevation Transit Shot	Water Table Elevation	Screened Interval	Depth to Water (TOC)
MW 1	4.625'	1241.39 feet	5-15	12.99
MW 2	4.35'	1237.39 feet	5-15	9.26
MW 3	5.166'	1233.64 feet	5-20	16.19
MW 4	5'	1234.01 feet	5-17	15.99

IMAGED 8/22/2005

RAM, INC. – Super Saver # 17 (Penn Quick Stop)

ANALYTICAL DATA SUMMARY FOR SOIL
Chemical levels detected during soil borings

MW NO. Sample Location	Sampling Date	Sample Depth [ft.]	Benzene [mg/kg]	Toluene [mg/kg]	Ethyl-benzene [mg/kg]	Total Xylenes [mg/kg]	Naphthalene [mg/kg]	TPH-GRO [mg/kg]	TPH-DRO [mg/kg]	Other
MW1-1	6/10/05	4-4.5	ND	ND	ND	ND	NS	ND	NS	
MW1-2	6/10/05	11.5	ND	ND	ND	ND	NS	ND	NS	
MW2-1	6/10/05	4-4.5	ND	ND	ND	ND	NS	ND	NS	
MW2-2	6/10/05	19	ND	ND	ND	ND	NS	ND	NS	
MW3-1	6/10/05	3-3.5	ND	ND	ND	ND	NS	ND	NS	
MW3-2	6/10/05	11.5	ND	0.02	0.2	0.1	NS	16	NS	
MW4-1	6/10/05	3-3.5	ND	ND	ND	ND	NS	ND	NS	
MW4-2	6/10/05	9.5	ND	ND	ND	ND	NS	ND	NS	

IMAGED 8/22/2005

RAM, INC. – Super Saver # 17 (Penn Quick Stop)

ANALYTICAL DATA SUMMARY FOR GROUNDWATER – SINGLE SAMPLING EVENTS
Chemical levels detected during groundwater sampling

MW NO. Sample Location	Installation Date	Screen Interval [ft.]	Sampling Date	Water Level	Benzene [mg/l]	Toluene [mg/l]	Ethyl-benzene [mg/l]	Total Xylenes [mg/l]	Naphthalene [mg/l]	TPH-GRO [mg/.]	TPH-DRO [mg/l]
MW-1	6/10/05	5-15	6/24/05	12.99	0.002	ND	ND	ND	NS	0.09	NS
MW-2	6/10/05	5-15	6/24/05	9.26	0.2	0.002	0.003	0.004	NS	2	NS
MW-3	6/10/05	5-20	6/24/05	16.19	ND	ND	ND	ND	NS	2	NS
MW-4	6/10/05	5-17	6/24/05	15.99	0.002	0.003	ND	0.003	NS	0.1	NS

MAGE 8/22/2005

Boring No. 1

W-S ENVIRONMENTAL SERVICES, INC.
PO Box 3396
McAlester, OK 74502

SURFACE ELEVATION:

CLIENT: Ram, Inc
PROJECT: Super Saver # 17
PROJECT: 4836 S. Penn
LOCATION: Oklahoma City, OK

BORING DEPTH: 20'

DATE: 06/10/05

DEPTH FRM LAND SURF	SAMP TYPE	REC.	DESCRIPTION OF MATERIAL	SOIL CLASS	LAB. OR FIELD TESTS - FT.	OVM/ PID PPM	DRILLING & SAMPLE NOTES
	CS-SS		5 inch concrete - 6 inch fill				
			1-2' Clay - Red Brown - No odor		1-2'	0.1	
				CL	2	2.3	
			2-3' Clay - Red Shale - No odor			2.3	
2.5			SAA		2.5	6.5	
						6.5	
					3.5	7	
					4	9	
	Soil grab				4.5	9	Sampled
5					5	7	
				CL	5.5	0.1	
						0.1	
						0.1	
						0.1	
7.5						0.1	
						0.1	
						0.1	
			9' possible water - (hard to identify) Clay - Red Brown			0.1	
						0.1	
10						0.1	
						0.1	
						0.1	
						0.1	
						0.1	
12.5						0.1	
						0.1	
						0.1	
						0.1	
						0.1	
15						0.1	
						0.1	
						0.1	
						0.1	
						0.1	
17.5						0.1	
						0.1	
						0.1	
	Soil grab				19	0.1	Sampled
						0.1	
20	EOB		Total Depth 20 feet		20 TD	0.1	TD 20 Feet
22.5							
25							
27.5							

DRILLING DATA

START DATE: 6/10/05
COMPLETION DATE: 6/10/05
LOGGED BY: J. Drummond
DRILLING METHOD: Hollow Stem Auger
DRILLING CONTRACTOR: AEI CORP

SAA = Same As Above
SS = Split Spoon Sampler
CS = Continous Sampler
EOB = End of Boring
BDL = Below Detection Limit
TOC = Top of Casing
N/A = Not Applicable

Water Level Information
Depth at Completion:
Later Time/Depth:
Later Time/Depth:
Cave in Depth: 5'
Drilling Losses: 5'

MAGE 8/22/2005

Boring No. 2

W-S ENVIRONMENTAL SERVICES, INC.
PO Box 3396
McAlester, OK 74502

SURFACE ELEVATION:

CLIENT: Ram, Inc
PROJECT: Super Saver # 17
PROJECT: 4836 S. Penn
LOCATION: Oklahoma City, OK

BORING DEPTH: 20'

DATE: 06/10/05

DEPTH FRM LAND SURF	SAMP TYPE	REC.	DESCRIPTION OF MATERIAL	SOIL CLASS	LAB. OR FIELD TESTS - FT.	OVM/ PID PPM	DRILLING & SAMPLE NOTES
			5 inch concrete - 6 inch fill				
			1-2' Clay - Red Brown - No odor		1-2'	0.2	
				CL	2	0.2	
			2-3' Clay - Red Shale - No odor				2 to 4 feet
2.5			SAA				Shelby Tube
					4		
	Soil grab				4.5	17	Sampled
5					5	12	
				CL	5.5	10	
						10	
						10	
						10	
7.5						9	
						4	
			SAA			0.2	
			9' possible water - (hard to identify) Clay - Red Brown			0.2	
			Red Shale			0.2	
10			SAA			0.2	
						0.2	
						0.2	
						0.2	
12.5							12 to 14 feet Shelby Tube
			SAA				
	Soil grab		Clay - Red Shale			27	Sampled
15						0.3	
						0.3	
						0.3	
						0.3	
						0.3	
17.5						0.3	
						0.3	
						0.3	
						0.3	
						0.3	
20					20 TD	0.3	
22.5							
25							
27.5							

DRILLING DATA

START DATE: 6/10/05
COMPLETION DATE: 6/10/05
LOGGED BY: J. Drummond
DRILLING METHOD: Hollow Stem Auger
DRILLING CONTRACTOR: AEI CORP

SAA = Same As Above
SS = Split Spoon Sampler
CS = Continous Sampler
EOB = End of Boring
BDL = Below Detection Limit
TOC = Top of Casing
N/A = Not Applicable

Water Level Information
Depth at Completion:
Later Time/Depth:
Later Time/Depth:
Cave in Depth: 5'
Drilling Losses: 5'

MAGE 8/22/05

Boring No. 3

W-S ENVIRONMENTAL SERVICES, INC.
PO Box 3396
McAlester, OK 74502

SURFACE ELEVATION:

CLIENT: Ram, Inc
PROJECT: Super Saver # 17
PROJECT: 4836 S. Penn
LOCATION: Oklahoma City, OK

BORING DEPTH: 25'

DATE: 06/10/05

DEPTH FRM LAND SURF	SAMP TYPE	REC.	DESCRIPTION OF MATERIAL	SOIL CLASS	LAB. OR FIELD TESTS - FT.	OVM/ PID PPM	DRILLING & SAMPLE NOTES
			5 inch concrete - 6 inch fill				
			1-3' Clay - Red - no odor		1-3'	0.4	
			SAA	CL		0.4	
						0.4	
2.5						0	
	Soil grab		3-3.3 Clay - Red shale	CL	3-3.3'	8.5	Sampled
			SAA		3.3-5'	3	
						3	
						3	
5			5-6' Clay - Red Shale	CL	5-6'	2.5	
			SAA			2.5	
			SAA		6-8'	10	
						10	
						10	
7.5						10	
			SAA		8-10'	13	
						13	
			Unable to determine water level.			13	
						13	
10			SAA		10-11'	15	
						15	
	Soil grab		Clay - Red shale - no odor - collect sample		11'-12'	80	Sampled
						80	
			SAA		12-16'	30	
12.5						30	
						30	
						30	
						30	
						30	
15						30	
						30	
			Clay - Red Shale		16-17	19	
						19	
			SAA		17-19	40	
17.5						40	
						40	
						40	
			Clay - Red Shale		19-20	10	
						10	
20			Clay - Red Shale		20-23	6	
						6	
						6	
						6	
						6	
22.5						6	
			Clay - Red Shale		23-24	13	
						13	
					24-25	3	
						3	
25					25 TD	3	TD 25 feet
27.5							

DRILLING DATA

START DATE: 6/10/05
COMPLETION DATE: 6/10/05
LOGGED BY: J. Drummond
DRILLING METHOD: Hollow Stem Auger
DRILLING CONTRACTOR: AEI CORP

SAA = Same As Above
SS = Split Spoon Sampler
CS = Continous Sampler
EOB = End of Boring
BDL = Below Detection Limit
TOC = Top of Casing
N/A = Not Applicable

Water Level Information
Depth at Completion:
Later Time/Depth:
Later Time/Depth:
Cave in Depth: 5'
Drilling Losses: 5'

MAGE 8/22/2005

Boring No. 4

W-S ENVIRONMENTAL SERVICES, INC.
PO Box 3396
McAlester, OK 74502

SURFACE ELEVATION:

CLIENT: Ram, Inc
PROJECT: Super Saver # 17
PROJECT: 4836 S. Penn
LOCATION: Oklahoma City, OK

BORING DEPTH: 20'

DATE: 06/10/05

DEPTH FRM LAND SURF	SAMP TYPE	REC.	DESCRIPTION OF MATERIAL	SOIL CLASS	LAB. OR FIELD TESTS - FT.	OVM/ PID-ppm	DRILLING & SAMPLE NOTES
	CS-SS		5 inch concrete - 6 inch fill				
			1-3' Clay - Red - no odor	CL	1-3'	2.1	
			SAA	CL		2.1	
						2.1	
2.5						2.1	
	Soil grab		3-3.5 Clay - Red shale	CL	3-3.5	8.5	Sampled
			SAA	CL	3.5-4	1.5	
			Clay - Red Shale	CL	4-7'	2.5	
						2.5	
5						2.5	
						2.5	
						2.5	
						2.5	
			Clay - Red Shale	CL	7-8'	1.5	
7.5						1.5	
			SAA	CL	8-9'	10	
						10	
			Unable to determine water level.	CL	9-9.5	20	
	Soil grab			CL	9.5-10	40	Sampled
10			SAA	CL	10-15'	2.2	
						2.2	
			Clay - Red shale - no odor - collect sample	CL	11'-12'	2.2	
						2.2	
			SAA	CL	12-15'	2.2	
12.5						2.2	
						2.2	
						2.2	
						2.2	
						2.2	
15			Clay - Red Shale	CL	15-17'	2.5	
						30	
						19	
						19	
			SAA	CL	17-18	1.9	
17.5						1.9	
			Clay - Red Shale	CL	18-20	1.6	
						1.6	
						1.6	
						1.6	
20					20'TD	1.6	TD 20 Feet
22.5							
25							
27.5							

DRILLING DATA

START DATE: 6/10/05
COMPLETION DATE: 6/10/05
LOGGED BY: J. Drummond
DRILLING METHOD: Hollow Stem Auger
DRILLING CONTRACTOR: AEI CORP

SAA = Same As Above
SS = Split Spoon Sampler
CS = Continous Sampler
EOB = End of Boring
BDL = Below Detection Limit
TOC = Top of Casing
N/A = Not Applicable

Water Level Information
Depth at Completion:
Later Time/Depth:
Later Time/Depth:
Cave in Depth: 3'
Drilling Losses: 3'

BOB ANTHONY
Commissioner

ED APPLE
Commissioner

DENISE A. BODE
Commissioner

OKLAHOMA CORPORATION COMMISSION
PETROLEUM STORAGE TANK DIVISION
(405) 521-4683 FAX: (405) 521-4945

JIM THORPE BLDG, ROOM 238 • P.O. BOX 52000-2000 • OKLAHOMA CITY, OKLAHOMA 73152-2000

September 23, 1998

Case ID# 064-1150
Facility ID# 55-06377

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 582 305 955

Harris Oil Company
Attn: Mr. Lionel Harris
Drawer 112
Cushing, Oklahoma 74023

RE: Closure by Risk Based Corrective Action (ORBCA) for site located at:

Maverick Mini-Mart #16
4915 S. Pennsylvania Ave.
Oklahoma City, Oklahoma

Dear Mr. Harris:

Based upon the Oklahoma Risk Based Corrective Action (ORBCA) methodology, the data indicates the highest Chemicals of Concern (C.O.C.) levels in the soil and groundwater at this site are below Risk Based Screening Levels (RBSLs) and pose no threat to human health, safety or the environment and is appropriate for LUST case closure. Your request for closure of this site is approved.

As you are aware, should any Chemical of Concern levels be discovered in the future to exceed those determined appropriate for this site, the case will need to be reopened according to OCC UST Rules and Regulations.

If you have any questions, please contact the Petroleum Storage Tank Division at (405) 522-1447 between 8:00 a.m. and 4:30 p.m. Monday through Friday. Please reference the appropriate OCC Facility Number and Case Number on all correspondence.

Sincerely,

Joe Bruns

Joe Bruns
Project Environmental Analyst

JB:raw

cc: see back

cc:

Trust Environmental Services
Attn: Ms. Dona Crouch
2227 West Lindsey, Suite 1500
Norman, Oklahoma 73069

Les Vap

Copies to Technical and IF Claim Files

(064-1150)

Z 582 305 955

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

9/24

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
HARRIS OIL CO.
ATTN: MR. LIONEL HARRIS
DRAWER 112
CUSHING, OK 74023

4a. Article Number
Z 582 305 955

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
9-26-98

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*
064-1150

6. Signature: *(Addressee or Agent)*
X [signature]

Thank you for using Return Receipt Service.

PS Form 3811, December 1994 102595-97-B-0179 Domestic Return Receipt

4.13

TRUST ENVIRONMENTAL SERVICES, LLC

December 12, 1996

RECEIVED
LUST TRUST FUND

DEC 1 6 1996

OKLAHOMA CORPORATION
COMMISSION

Mr. Neil Garrett
Oklahoma Corporation Commission
Fuel Division, UST Department
Jim Thorpe Building
Oklahoma City, Oklahoma 73105

Re: ORBCA Summary Report, Tier 1/1-A, Maveric Mini-Mart #16, 4915 S. Pennsylvania, Oklahoma City, Oklahoma
Facility ID No. 55-06377
OCC Case No. 064-1150
Trust Project No. 278-669

Dear Mr. Garrett:

Attached is a copy of the Tier 1/1-A analysis worksheets for your review. If you have any questions, please feel free to call me at 360-2600.

Sincerely,

Wayne Kellogg

Wayne Kellogg
Project Manager
Certified UST Consultant No. 0010

/ns

Enclosure

cc: Mr. Lionel Harris

2227 West Lindsey • Suite 1500 • Norman, Oklahoma 73069 • 405/360-2600 • Fax 405/360-4577

ORBCA SUMMARY REPORT
TIER 1/1-A
OCC CASE NO. 064-1150
FACILITY ID NO. 55-06377

MAVERIC MINI-MART #16
4915 SOUTH PENNSYLVANIA AVENUE
OKLAHOMA CITY, OKLAHOMA

SUBMITTED BY:

TRUST ENVIRONMENTAL SERVICES, LLC
DECEMBER, 1996

ORBCA SUMMARY REPORT

Table of Contents

ES	Executive Summary*
1	Facility Information
2	Site Description
3	Underground Storage Tank Type
4	Land Use Summary*
5	Chronology of Events
6	Release Characterization*
7	UST/Piping Removal Characterization*
8	Site Stratigraphy and Hydrogeology*
9	Water Use*
10	Analytical Data Summary for Soil*
11-A	Analytical Data Summary for Groundwater* (Sites with only one sampling event)
11-B	Analytical Data Summary for Groundwater* (Sites with multiple sampling events)

Note: * Indicates Worksheets that require attachment(s)

12	Site Conceptual Exposure Model*	
	Current Conditions	Future Conditions
13	Comparison of Tier 1 RBSLs with Maximum On-Site Concentrations	
	Current Conditions	Future Conditions
14	Tier 1-A Fate and Transport Parameters	
15	Justification for Tier 1-A Fate and Transport Parameters	
16	Comparison of Tier 1-A Modified RBSLs with Maximum On-Site Concentrations	
	Current Conditions	Future Conditions
17	Conclusions and Recommendations of Tier 1/Tier 1-A Analyses	
18	Tier 2/Tier 3 Exposure Factors	
19	Justification for Tier 2/Tier 3 Exposure Factors	
20	Tier 2/Tier 3 Fate and Transport Parameters	
21	Justification for Tier 2/Tier 3 Fate and Transport Parameters	
22	References and Protocols	

ORBCA SUMMARY REPORT
TABLE OF CONTENTS
MAVERIC MINI-MART #16, OKLAHOMA CITY, OKLAHOMA

LIST OF FIGURES

FIGURE NO.		LOCATION
1	Topographic Map	ES-3
2	Site Vicinity Map	ES-3
3	Facility Map	ES-3
4	Potentiometric Surface Map	ES-3
5	Benzene Concentrations in Soil Samples	ES-3
6	Benzene Concentrations in Groundwater	ES-3
7	Site Vicinity Map	WS-4
8	Facility Map	WS-7
9	Cross-Section A-A'	WS-8
10	Area Geologic Map	WS-8
11	Map Identifying All Points of Exposure	WS-12

ORBCA SUMMARY REPORT	Worksheet ES-1
LUST ID: 064-1150	FACILITY ID: 55-06377
Date Form Completed: 13-Nov-96	Form Completed by: M. Stinnett

EXECUTIVE SUMMARY

OCC CASE NUMBER:	*064-1150*		
OCC FACILITY NUMBER:	*55-06377*		
PRIORITIZATION INDEX NUMBER:	*0*		
FACILITY NAME AND ADDRESS:	*Maveric Mini-Mart #16, 4915 South Pennsylvania Avenue, Oklahoma City,*		
FACILITY LOCATION DESCRIPTION:	*Refer to ISGC report*		
STATUS OF FACILITY:	☐ ACTIVE	☒ INACTIVE	
GROUND SURFACE CONDITION:			
ESTIMATED VOLUME RELEASED:	*Unknown*		
IS NATIVE SOIL IMPACTED ON-SITE:	☐ YES	☒ NO	☐ UNKNOWN
IS NATIVE SOIL IMPACTED OFF-SITE:	☐ YES	☒ NO	☐ UNKNOWN
IS GROUNDWATER IMPACTED ON-SITE:	☒ YES	☐ NO	☐ UNKNOWN
IS GROUNDWATER IMPACTED OFF-SITE:	☒ YES	☐ NO	☐ UNKNOWN
HAS THE SOURCE OF THE RELEASE BEEN IDENTIFIED:	☒ YES	☐ NO	☐ UNKNOWN
HAS FREE PRODUCT ASSOCIATED WITH THIS RELEASE BEEN FOUND:	☐ YES	☒ NO	☐ UNKNOWN
HAS SURFACE WATER BEEN IMPACTED BY THIS RELEASE:	☐ YES	☒ NO	☐ UNKNOWN
SHALLOWEST DEPTH TO GROUNDWATER ENCOUNTERED:	*4.13' BGS*		
AVERAGE DEPTH TO GROUNDWATER:	*8.2' BGS*		
HAS A DRINKING WATER SUPPLY BEEN IMPACTED BY THIS RELEASE:	☐ YES	☒ NO	☐ UNKNOWN

RECOMMENDATIONS

- ☒ CLOSURE UNDER TIER 1
- ☐ CLOSURE UNDER TIER 1-A
- ☐ REMEDIATE AND CLOSE UNDER TIER 1 OR TIER 1-A
- ☐ GO TO TIER 2
- ☐ REMEDIATE AND CLOSE UNDER TIER 2
- ☐ GO TO TIER 3
- ☐ REMEDIATE AND CLOSE UNDER TIER 3
- ☐ MONITOR FOR CLOSURE THROUGH NATURAL ATTENUATION

EXPLANATION OF RECOMMENDATIONS

Site concentrations do not exceed the Tier I RBSLs.

ORBCA SUMMARY REPORT	Worksheet ES-2
LUST ID: 064-1150	FACILITY ID: 55-06377
Date Form Completed: 13-Nov-96	Form Completed by: M. Stinnett

EXECUTIVE SUMMARY

1 Current land use of the site if no longer an active UST/AST facility::

Site is inactive and currently vacant.

2 Soil stratigraphy and analytical data summary:

Stratigraphy

Depth	*Classification*	*Soil Type*
0-10'	*CL*	*Clay*
10-15'		*Shale*

-13 soil samples analyzed for BTEX and TPH from 13 soil borings

-Maximum observed benzene concentration was 1.6 mg/kg from MW-6

3 Groundwater data summary:

-13 water samples taken at the site from 13 wells

-Maximum benzene concentration in the last year was 1.19 mg/L from MW-6

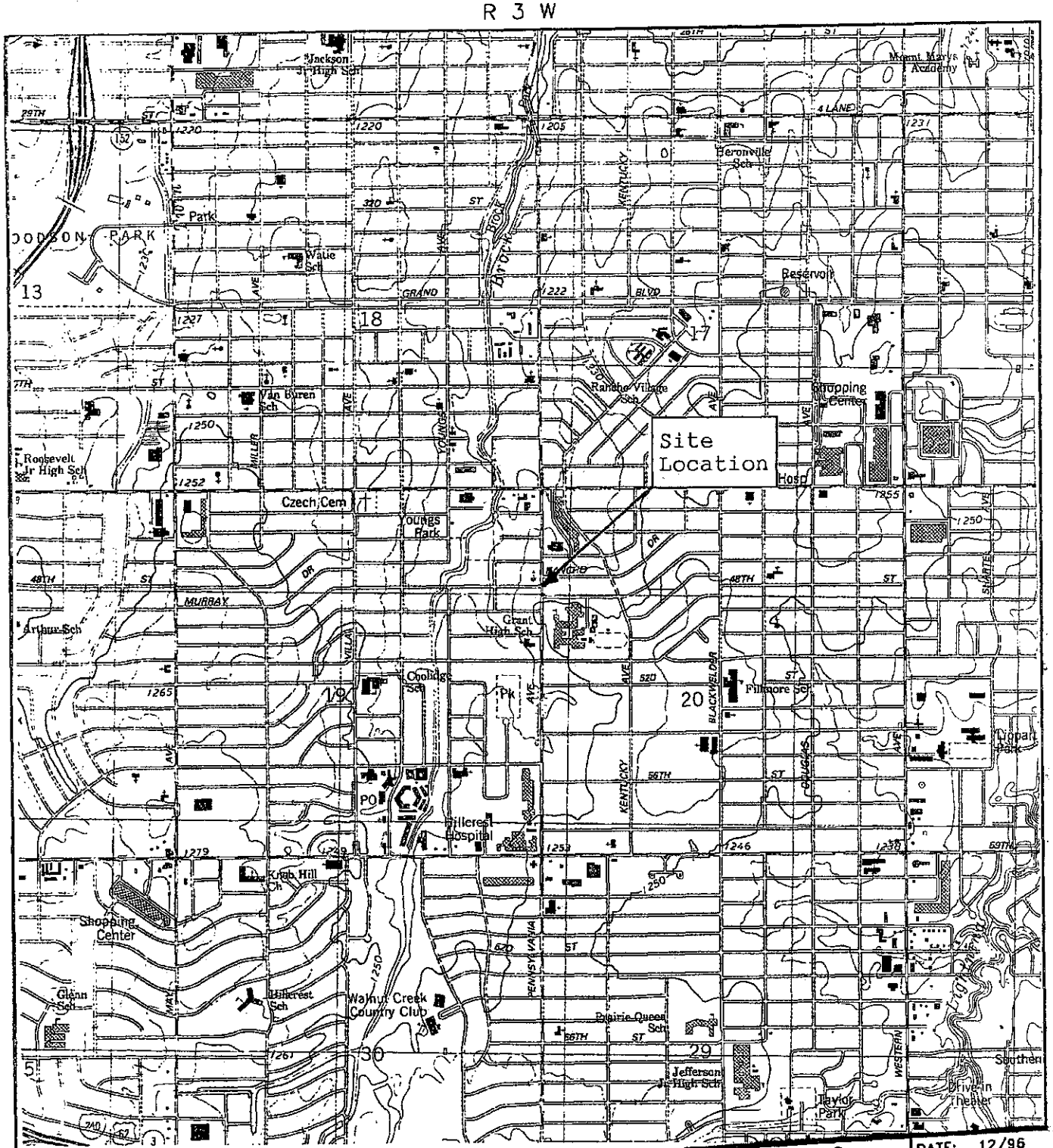
ORBCA SUMMARY REPORT	Worksheet ES-3
LUST ID: 064-1150	FACILITY ID: 55-06377
Date Form Completed: 13-Nov-96	Form Completed by: M. Stinnett

EXECUTIVE SUMMARY

4	**Risk assessment analysis:**
	Current complete pathways considered for Tier 1 and 1-A quantitative analysis include:
	-Indoor inhalation of vapors from shallow groundwater (resident child and adult)
	-Indoor inhalation of vapors from shallow groundwater (commercial worker)
	Future potential complete Tier 1 and 1-A pathways include:
	-Ingestion and dermal contact with oil, and inhalation of vapor and particulates
	(construction worker)
	-Dermal contact with shallow groundwater (construction worker)
	Results:
	-RBSLs were not exceeded for any pathway under the Tier 1-A analysis
5	**Overall recommendations of risk assessment:**
	Trust recommends the site be monitored for 1 year and then closed under the Tier 1-A analysis.

R 3 W

T 11 N



OKLAHOMA CITY, OKLA.

NE/4 OKLAHOMA CITY 15' QUADRANGLE

35097-D5-TF-024

1986

SCALE 1:24 000

1000 0 1000 2000

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

OKLAHOMA

QUADRANGLE LOCATION

N

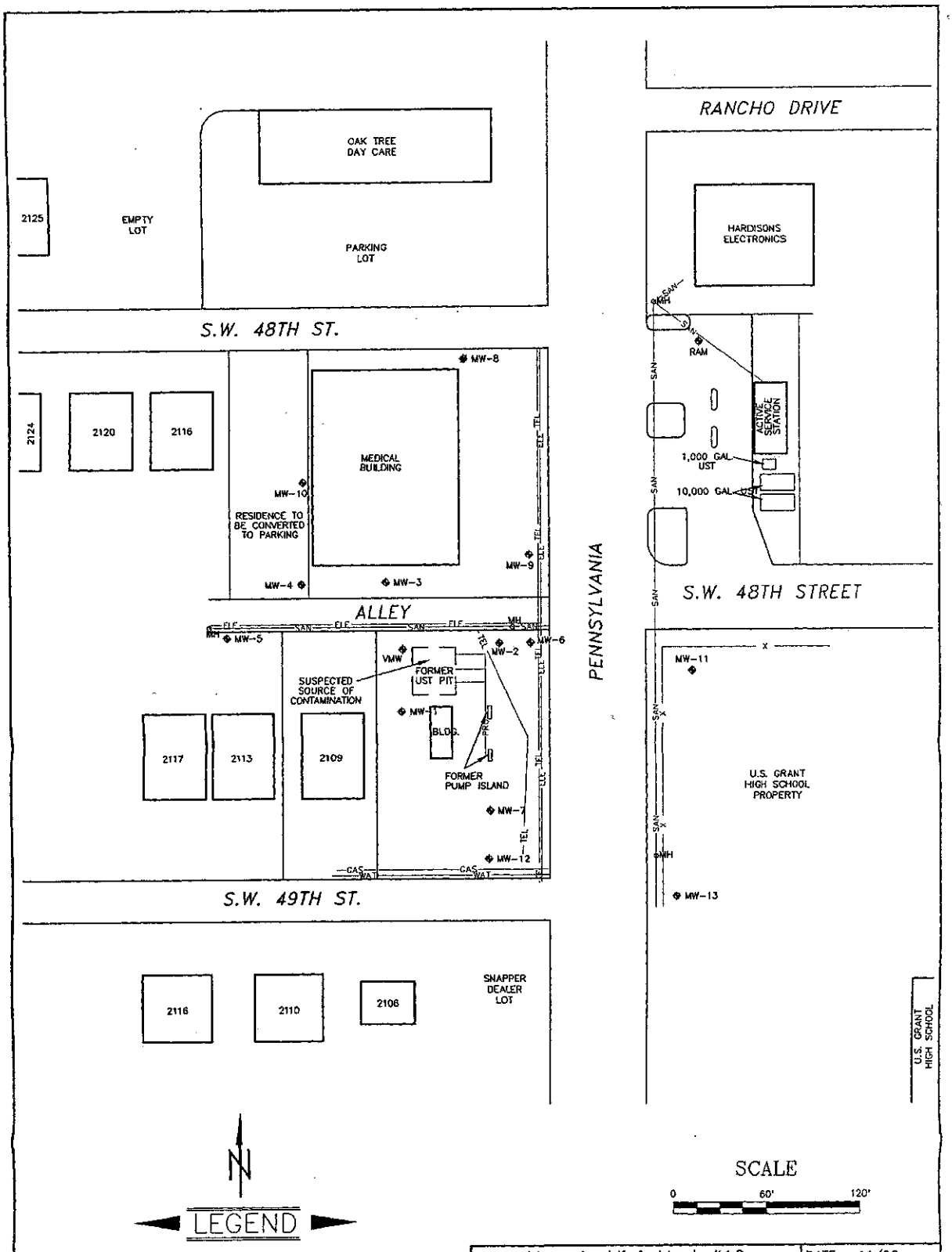
Maveric Mini-Mart #16
Oklahoma City, Oklahoma

TOPOGRAPHIC MAP

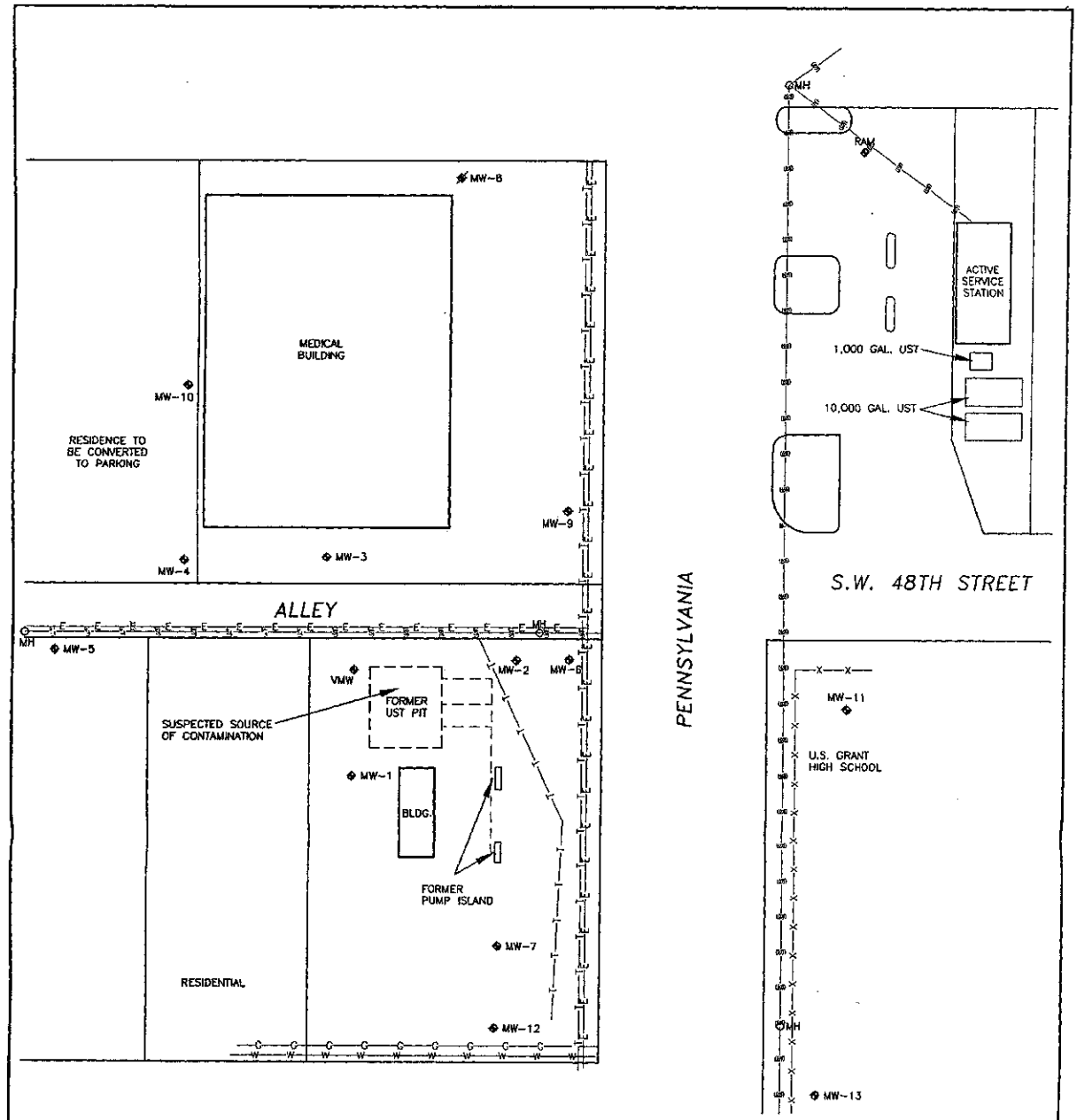
TRUST ENVIRONMENTAL SERVICES, LLC

DATE:	12/96
DESIGNED:	
CHECKED:	
APPROVED:	
DRAWN:	TKS
PROJ.:	276-669

Figure 1



Maveric Mini-Mart #16 Oklahoma City, Oklahoma	DATE: 11/96
	DESIGNED: WK
SITE VICINITY MAP	CHECKED: WK
	APPROVED:
	DRAWN: TSK
	PROJ.: 278-669
TRUST ENVIRONMENTAL SERVICES, LLC	Figure 2



N

LEGEND

—W—W—W—	WATER LINE
—E—E—E—	ELECTRIC LINE
—S—S—S—	SANITARY SEWER LINE
—G—G—G—	GAS LINE
—T—T—T—	TELEPHONE LINE
— — — — —	FORMER PRODUCT LINE
—X—X—X—	FENCE
OMH	MANHOLE
MW-5	MONITORING WELL
MW-8	PLUGGED MONITORING WELL
VMW	VAPOR MONITORING WELL

SCALE

0 40' 80'

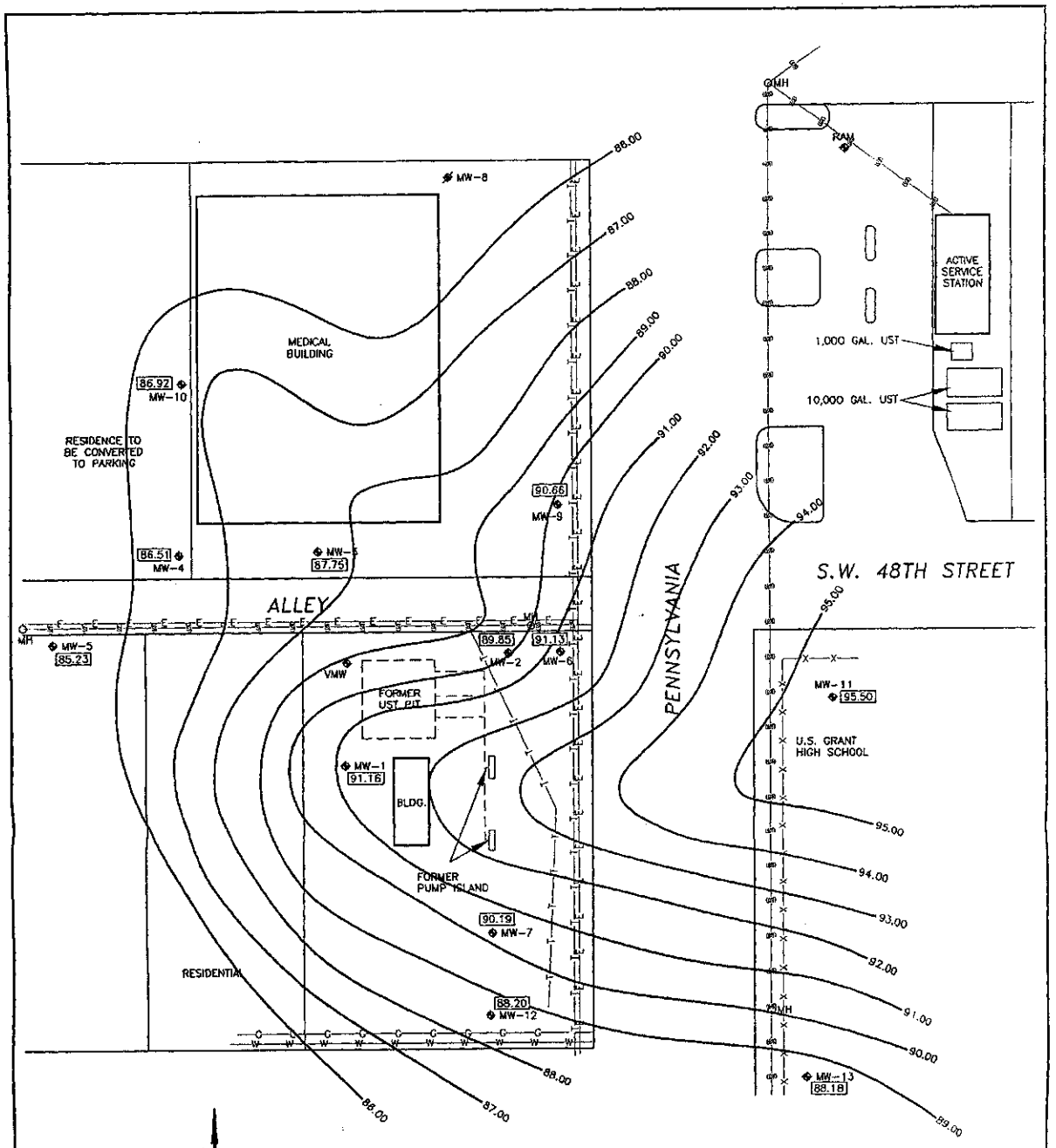
Maveric Mini-Mart #16
Oklahoma City, Oklahoma

FACILITY MAP

DATE:	11/96
DESIGNED:	WK
CHECKED:	WK
APPROVED:	
DRAWN:	TSK
PROJ.:	278-669

TRUST ENVIRONMENTAL SERVICES, LLC

Figure 3



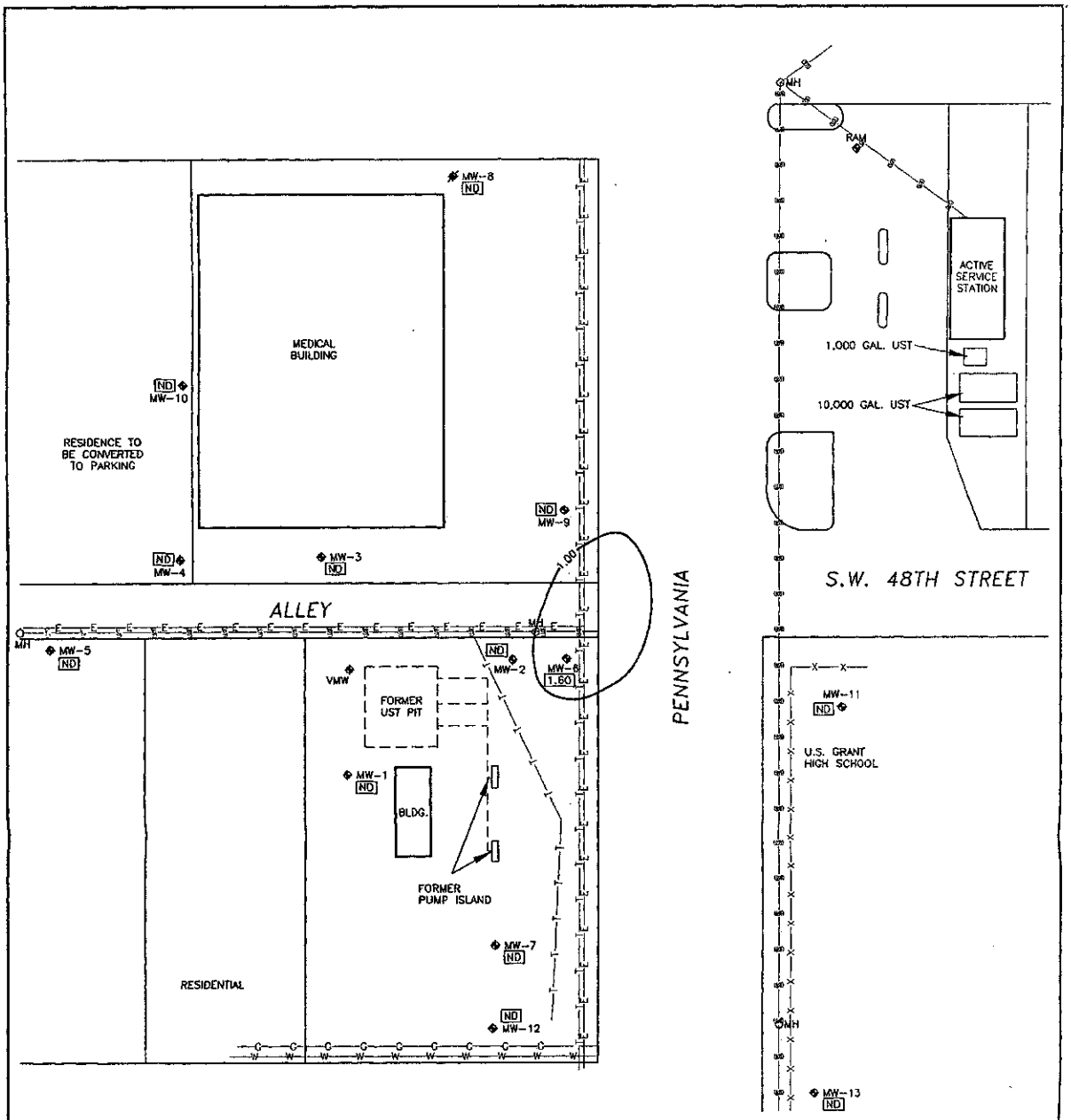
LEGEND

—W—W—W—	WATER LINE
—E—E—E—	ELECTRIC LINE
—S—S—S—	SANITARY SEWER LINE
—G—G—G—	GAS LINE
—T—T—T—	TELEPHONE LINE
— — — —	FORMER PRODUCT LINE
—X—X—X—	FENCE
OMH	MANHOLE
MW-5	MONITORING WELL
MW-8	PLUGGED MONITORING WELL
VMW	VAPOR MONITORING WELL
88.20	POTENTIOMETRIC SURFACE, ft.

SCALE

0 40' 80'

Maveric Mini-Mart #16 Oklahoma City, Oklahoma	DATE: 11/96
	DESIGNED: WK
	CHECKED: WK
	APPROVED:
	DRAWN: TSK
	PROJ.: 278-669
POTENTIOMETRIC SURFACE MAP (7/19/96)	
TRUST ENVIRONMENTAL SERVICES, LLC	Figure 4



MONITORING WELL DATA

WELL NAME	SOIL SAMPLE DATE	SOIL SAMPLE INTERVAL
MW-1	12/29/94	12.5'
MW-2	12/29/94	12.5'
MW-3	1/16/95	12.5'
MW-4	1/16/95	12.5'
MW-5	1/16/95	8'
MW-6	2/1/95	7.5'
MW-7	2/1/95	12.5'

WELL NAME	SOIL SAMPLE DATE	SOIL SAMPLE INTERVAL
MW-8	2/1/95	7.5'
MW-9	4/1/95	15'
MW-10	4/1/95	10'
MW-11	5/15/95	10'
MW-12	7/26/95	3-8'
MW-13	7/26/95	5-10'

LEGEND

—W—W—W—	WATER LINE
—E—E—E—	ELECTRIC LINE
—S—S—S—	SANITARY SEWER LINE
—G—G—G—	GAS LINE
—T—T—T—	TELEPHONE LINE
— — — — —	FORMER PRODUCT LINE
—X—X—X—	FENCE
OMH	MANHOLE
MW-5	MONITORING WELL
MW-8	PLUGGED MONITORING WELL
VMW	VAPOR MONITORING WELL
1.60	BENZENE CONCENTRATION, ppm
ND	NONE DETECTED

SCALE

0 40' 80'

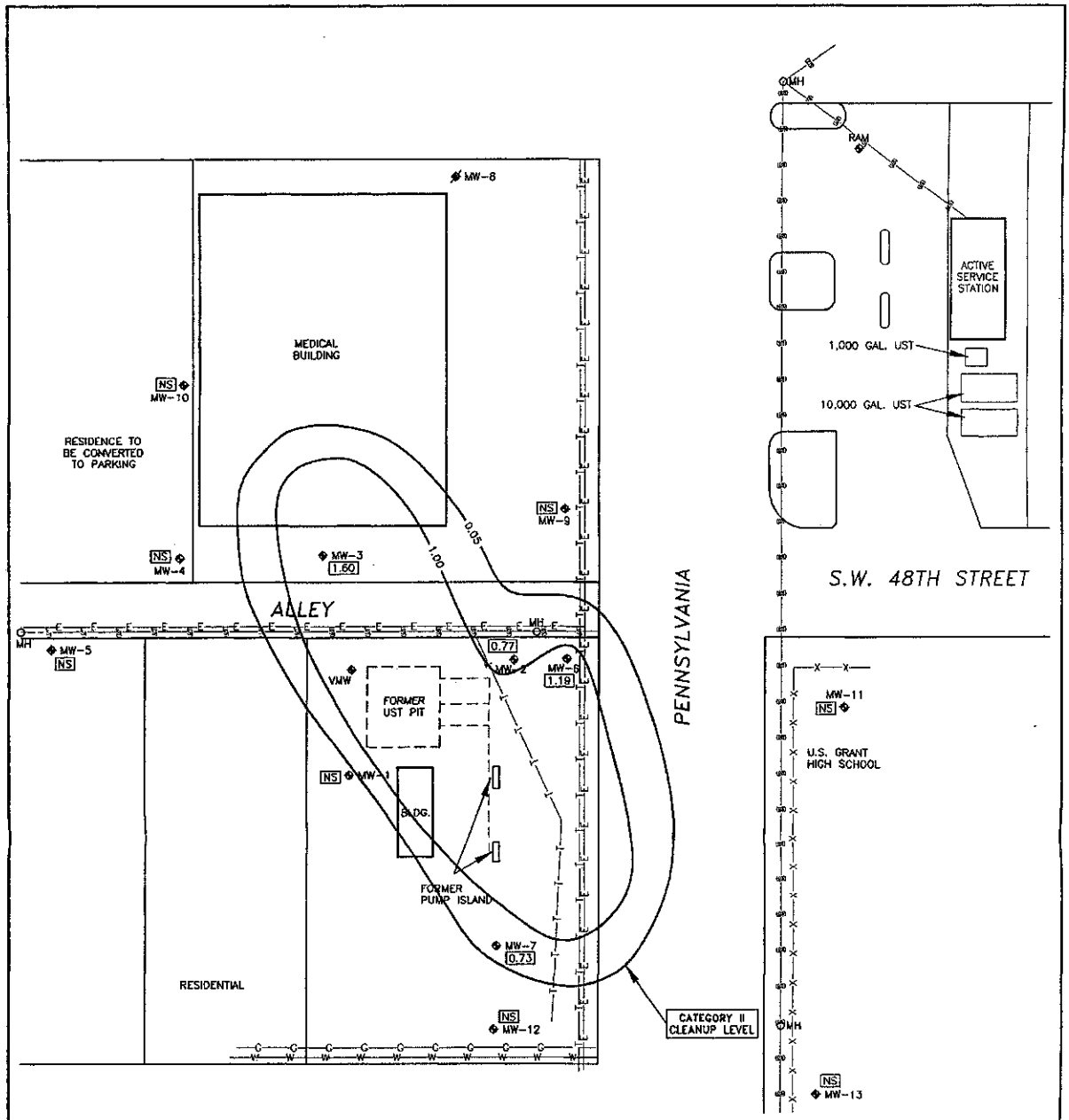
Maveric Mini-Mart #16
Oklahoma City, Oklahoma

BENZENE CONCENTRATIONS IN SOIL SAMPLES, (ppm)

DATE:	11/96
DESIGNED:	WK
CHECKED:	WK
APPROVED:	
DRAWN:	TSK
PROJ.:	278-669

TRUST ENVIRONMENTAL SERVICES, LLC

Figure 5



N

LEGEND

—W—W—W—	WATER LINE
—E—E—E—	ELECTRIC LINE
—S—S—S—	SANITARY SEWER LINE
—G—G—G—	GAS LINE
—T—T—T—	TELEPHONE LINE
— — — — —	FORMER PRODUCT LINE
—X—X—X—	FENCE
○MH	MANHOLE
◆ MW-5	MONITORING WELL
✱ MW-8	PLUGGED MONITORING WELL
◆ VMW	VAPOR MONITORING WELL
1.60	BENZENE CONCENTRATION, ppm
NS	NOT SAMPLED

SCALE

0 40' 80'

Maveric Mini-Mart #16 Oklahoma City, Oklahoma	DATE: 11/96
	DESIGNED: WK
BENZENE CONCENTRATIONS IN GROUNDWATER, (ppm) (7/19/96)	CHECKED: WK
	APPROVED:
	DRAWN: TSK
	PROJ.: 278-669
TRUST ENVIRONMENTAL SERVICES, LLC	Figure 6

IMAGED 10/10/2008

Appr'd 9/26/08
NRG

ARCADIS

Infrastructure, buildings, environment, communications

ARCADIS
5100 E Skelly Drive
Suite 1000
Tulsa
Oklahoma 74135
Tel 918 664 9900
Fax 918 664 9925

ENVIRONMENTAL

Mr. Neil Garrett
Oklahoma Corporation Commission
Petroleum Storage Tank Division, Room 238
Jim Thorpe Building
Oklahoma City, Oklahoma 73105

Subject:
ORBCA TIER 1A Report
Circle B Food Mart
2412 SW 44th Street
Oklahoma City, Oklahoma
Case Number 064-3283
Facility Number 55-11121

Date,
4 September 2008

Contact:
Eric M. Rainey, P.G.

Extension:
(918) 664-9900

Dear Mr. Garrett:

On behalf of LDL Investment Group, LLC, ARCADIS is submitting to the Oklahoma Corporation Commission (OCC) an ORBCA Tier 1A Report prepared for the above referenced site.

If there are any questions, please contact the undersigned at (918) 664-9900 at your earliest convenience.

Sincerely,

ARCADIS U.S., Inc.

Eric M. Rainey, P.G.
Senior Project Manager
OCC PSTD Consultant License #0545

cc: Link Clifton

Attachment

2008 SEP -5 AM 10:28

Part of a bigger picture

Our ref.:
G:\STAFF\EMR\StarFuels\2412 SW 44th\OBRCA Tier 1A COV sep 08.DOC

IMAGED 10/10/2008

OKLAHOMA CORPORATION COMMISSION
PETROLEUM STORAGE TANK DIVISION

ORBCA Report

Tier 1A ☒ Tier 2 ☐

PSTD Reviewer Neil R. Garrett Approve [✓] Deny [ ] Date 9/26/08

1. FACILITY INFORMATION
   Case Number 064-3283
   Facility Number 55-11121

2. Facility Name: **Circle B Food Mart**
   Facility Address: **2412 SW 44th Street**
   Facility City: **Oklahoma City**
   Facility County: **Oklahoma**

3. Facility Location Description: **Southwest corner of SW 44th Street and Agnew Ave**
   Facility Latitude/Longitude: **Lat 35.4205 Long -97.5549**
   Legal Location: **NW 1/4, NW 1/4, NE 1/4, Sec 19, T11N, R3W, Oklahoma Co.**

4. Facility Owner: **LDL Investment Group, LLC**
   Owner Phone No.: **913-652-9400**
   Owner Address: **10777 Barkley, Ste. 220**
   Owner City/State/Zip: **Overland Park, KS 66221**
   Facility Operator: **Circle B Food Mart**
   Facility Phone No.: **405-682-4136**

5. CERTIFIED REMEDIATION CONSULTANT: **ARCADIS**

I certify that all work has been done under my supervision and in a good and workmanlike fashion according to the workplan the Petroleum Storage Tank Division Purchase order approval.

Licensed Remediation Consultant
(ORBCA Certified)
Eric M. Rainey
(Print Name)

September 4, 2008
Date Signed

0545
License Number

ARCADIS
(Company Name)

5100 E. Skelly Dr., Ste. 1000, Tulsa, OK 74135
Current Business Address

918-664-9900
Current Phone Number

eric.rainey@arcadis-us.com
E-Mail Address

Consulting Firm Principal Signature

2008 SEP -5 AM 10:28

IMAGED 10/10/2008

TABLE OF CONTENTS

SECTION #1 – SITE HISTORY
SECTION #2 - SITE DESCRIPTION
SECTION #3 - LAND USE SUMMARY
SECTION #4 - CHRONOLOGY OF EVENTS
SECTION #5 - RELEASE CHARACTERIZATION
SECTION #6 – UST/AST/PIPING REMOVAL CHARACTERIZATION
SECTION #7 - SITE STRATIGRAPHY AND HYDROGEOLOGY
SECTION #8 - WATER USE
SECTION #9 - SITE CONCEPTUAL EXPOSURE SCENARIO
SECTION #10 - TIER1A.XLS INPUT/OUTPUT
SECTION #11 - CONCLUSIONS & RECOMMENDATIONS

REFERENCES & PROTOCOLS

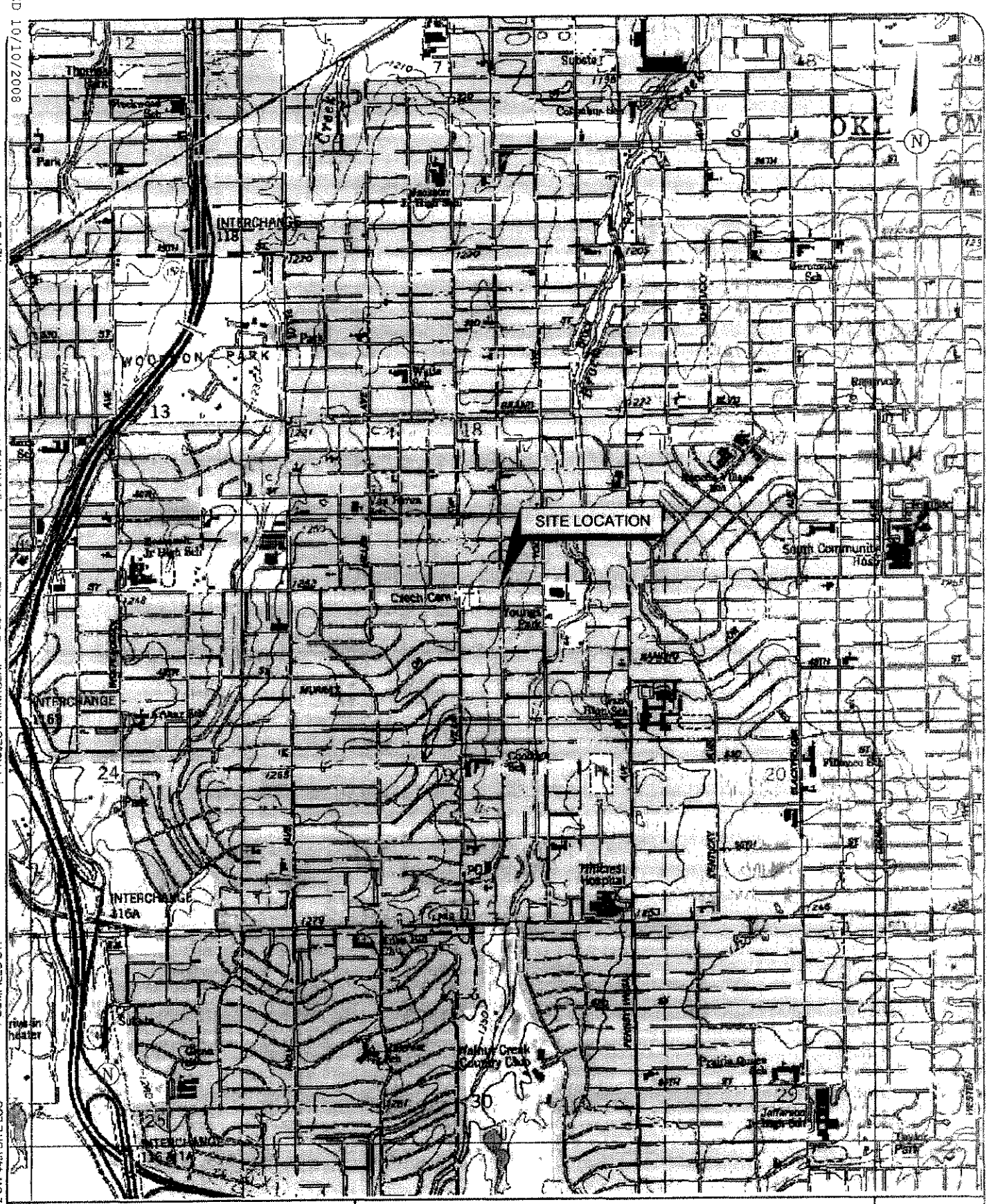
MAPS
- Vicinity Map
- Site Map
- Point(s)-of-Exposure Map
- Land Use & Zoning Map
- Topographic Map
- Water Well Map
- Area Geologic Map
- UST/AST/Piping Removal Map (if required)
- Groundwater Gradient Map
- Impacted Soil Contour Map(s)
- Impacted Groundwater Contour Map(s)

TABLES & GRAPHS
- Groundwater Elevations
- Soil Analytical Data (Worksheet #10)
- Groundwater Analytical Data (Worksheet #11A)
- Time Vs. Concentration Graphs

FIGURES
- Cross-Sections
- Soil Boring Logs
- 3-D Smear Zone Analysis (Tier 2)

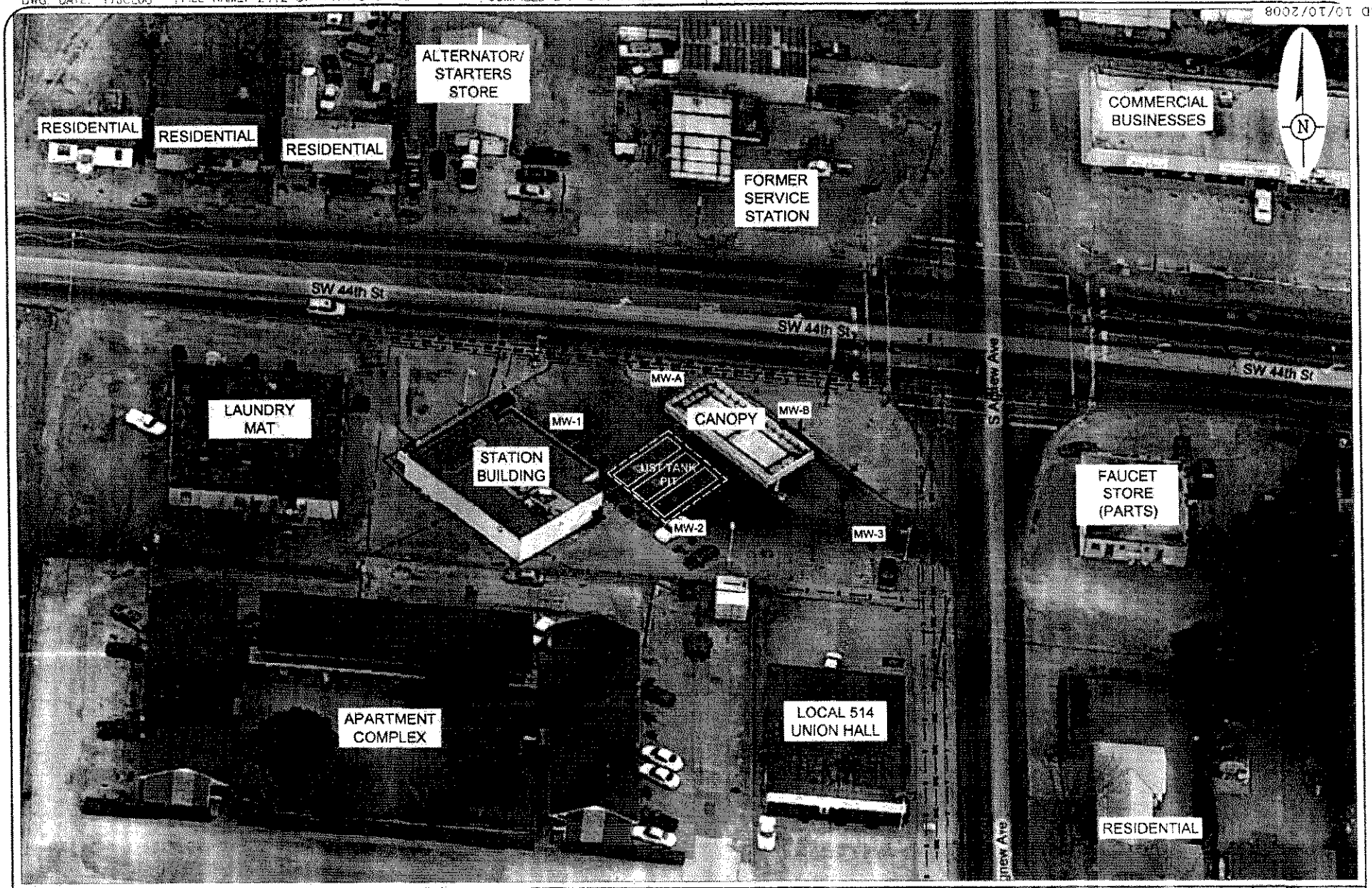
APPENDIX
- Site Physical Properties Laboratory Reports
- Soil Laboratory Analytical Reports
- Groundwater Laboratory Analytical Reports
- Completed Well or Boring Installation Report with all required attachments

IMAGED 10/10/2008


SITE LOCATION
INTERCHANGE 118
WOODSON PARK
INTERCHANGE 116
INTERCHANGE 116A
INTERCHANGE 116B
OKL
OM
Pilgrim Community Hospital
Walnut Creek Country Club
Creek Cem
Jefferson High Sch
Taylor Park
Prairie Queen
Pilgrim Hill
Pilgrim Sch
Pilgrim Park
Pilgrim Hospital
Sunset Jr High Sch
Sunset
Rainey
Mercy Sch
Mercy Village
Mercy Park
Mercy Hospital
Mercy Hosp
Mercy Sch
Mercy Park
Mercy Hosp
Mercy Sch
Mercy Park
Mercy Hosp
Mercy Sch
Mercy Park

DWG. DATE: 17JUL08 | FILE NAME: 2412 SW 44TH SITE MAP | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

5100 EAST SKELLY DRIVE SUITE 100
TULSA, OK 74135
Tel: (918) 664-9400 Fax: (918) 664-9925

SCALE: 1"= 60 ft. (Approximate)

VICINITY MAP

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

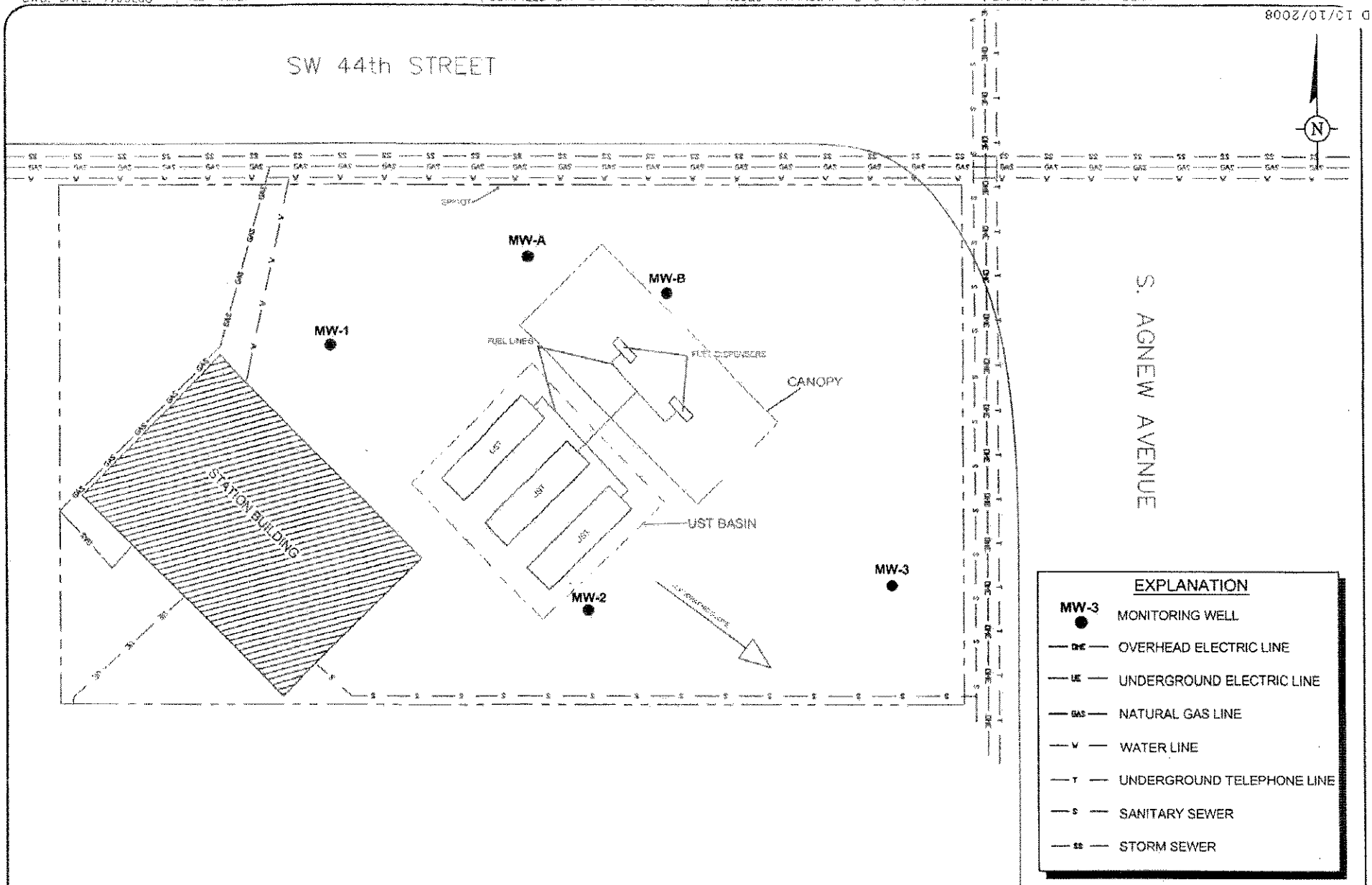
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
2

J:\Projects\TARO\OK001552\0012412 SW 44TH\2412 SW 44TH AERIAL MAP.dwg, 7/17/2008 11:18:07 AM

DWG. DATE: 17JUL08 FILE NAME: COMPILED BY: ERIC RAINEY PROJECT MANAGER: ERIC RAINEY DRAWN BY: BRIAN DeRAY

IMAGED 10/10/2008



ARCADIS

5100 EAST SKELLY DRIVE SUITE 1000
TULSA, OKLAHOMA 74135
Tel: (918) 664-9909 Fax: (918) 664-9925

0 30 FT.

SITE MAP

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

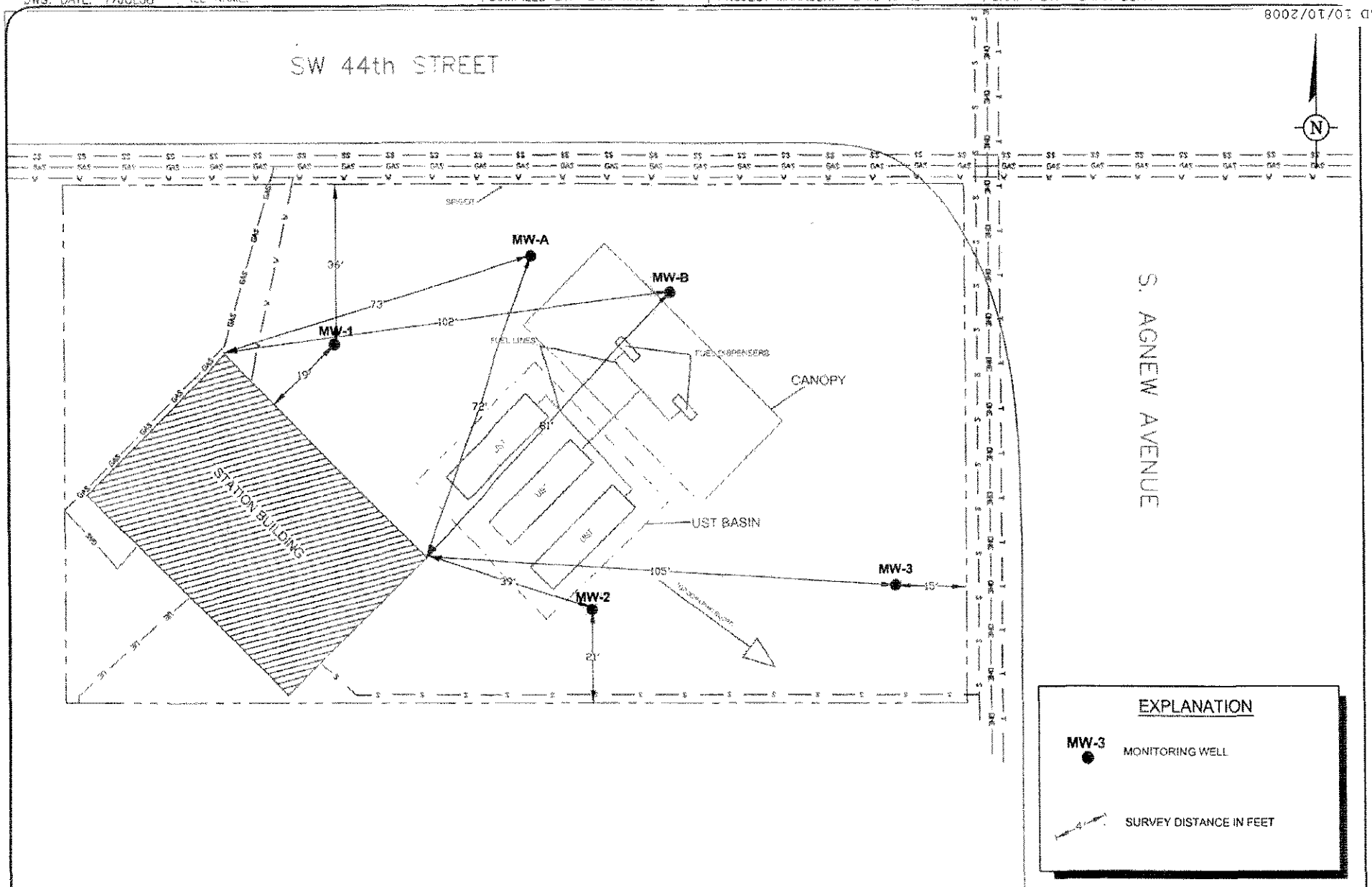
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
3

G:\Aproject\STAR\OK001552001\2412 SW 44TH\2412 SW 44 | SITE MAP 20080717.dwg, 7/22/2008 11:09:39 AM

DWG. DATE: 17JUL08 | FILE NAME: | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

5100 EAST SKELLY DRIVE SUITE 1000
TULSA, OKLAHOMA 74135
Tel (918) 664-9900 Fax (918) 664-9925

0 30 FT.

SITE MAP WITH MONITORING WELL DISTANCES

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

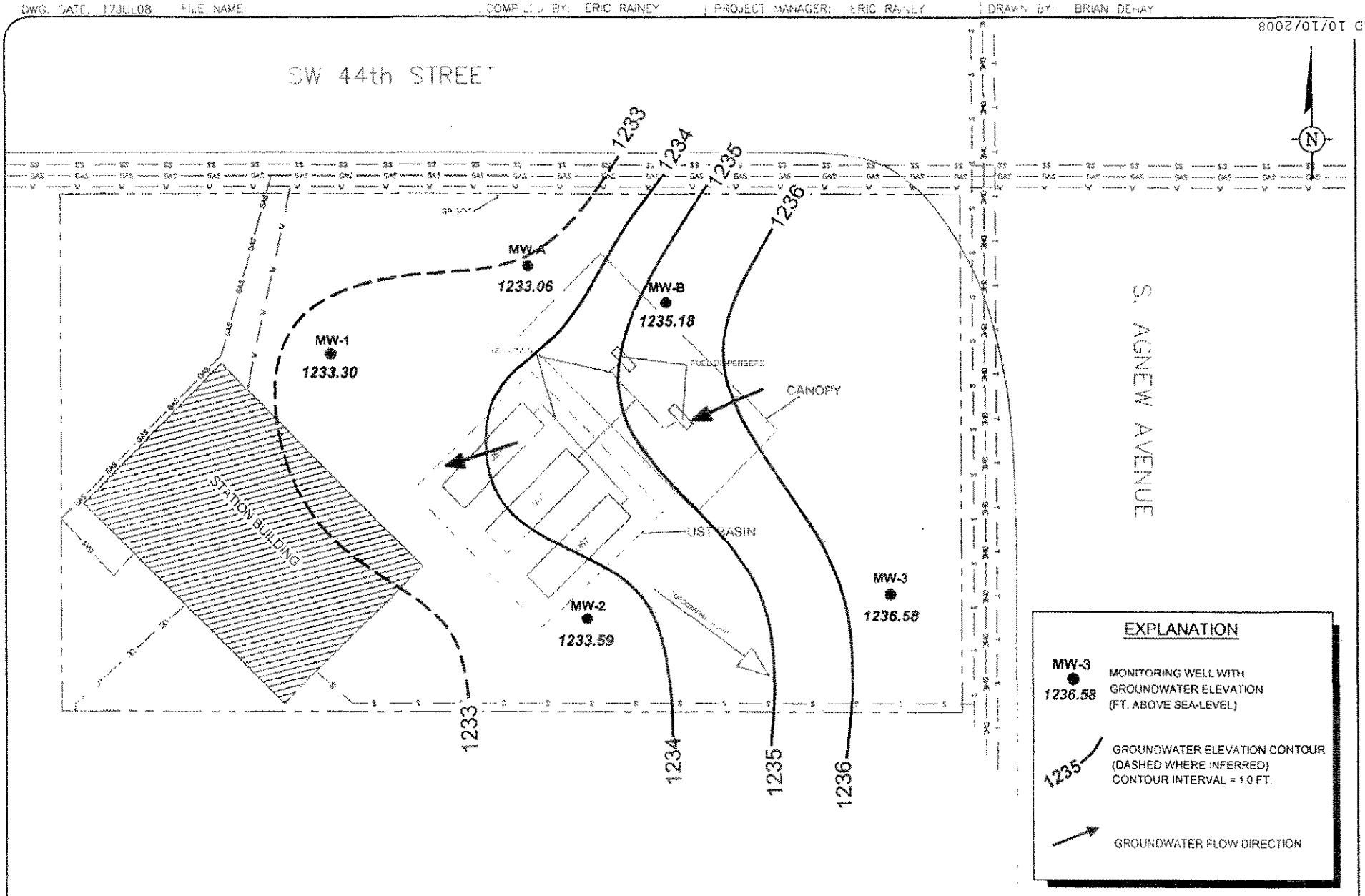
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
4

G:\Aprojects\STAR\OK001552001\2412 SW 44TH\2412 SW 44TH Well Survey 20080623.dwg, 7/22/2008 11:11:05 AM

DWG. DATE: 17JUL08 FILE NAME: COMPILED BY: ERIC RAINEY PROJECT MANAGER: ERIC RAINEY DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

GROUNDWATER ELEVATION CONTOURS:
JUNE 23, 2008

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
5

G:\Project\STAR\OK001552001\2412 SW 44TH\2412 SW 44TH GW ELEV 20080623.dwg, 7/22/2008 11:12:13 AM

IMAGED 10/10/2008

Table 1. Summary of Fluid Level Measurements, 2412 SW 44th Street, OKC, OK.

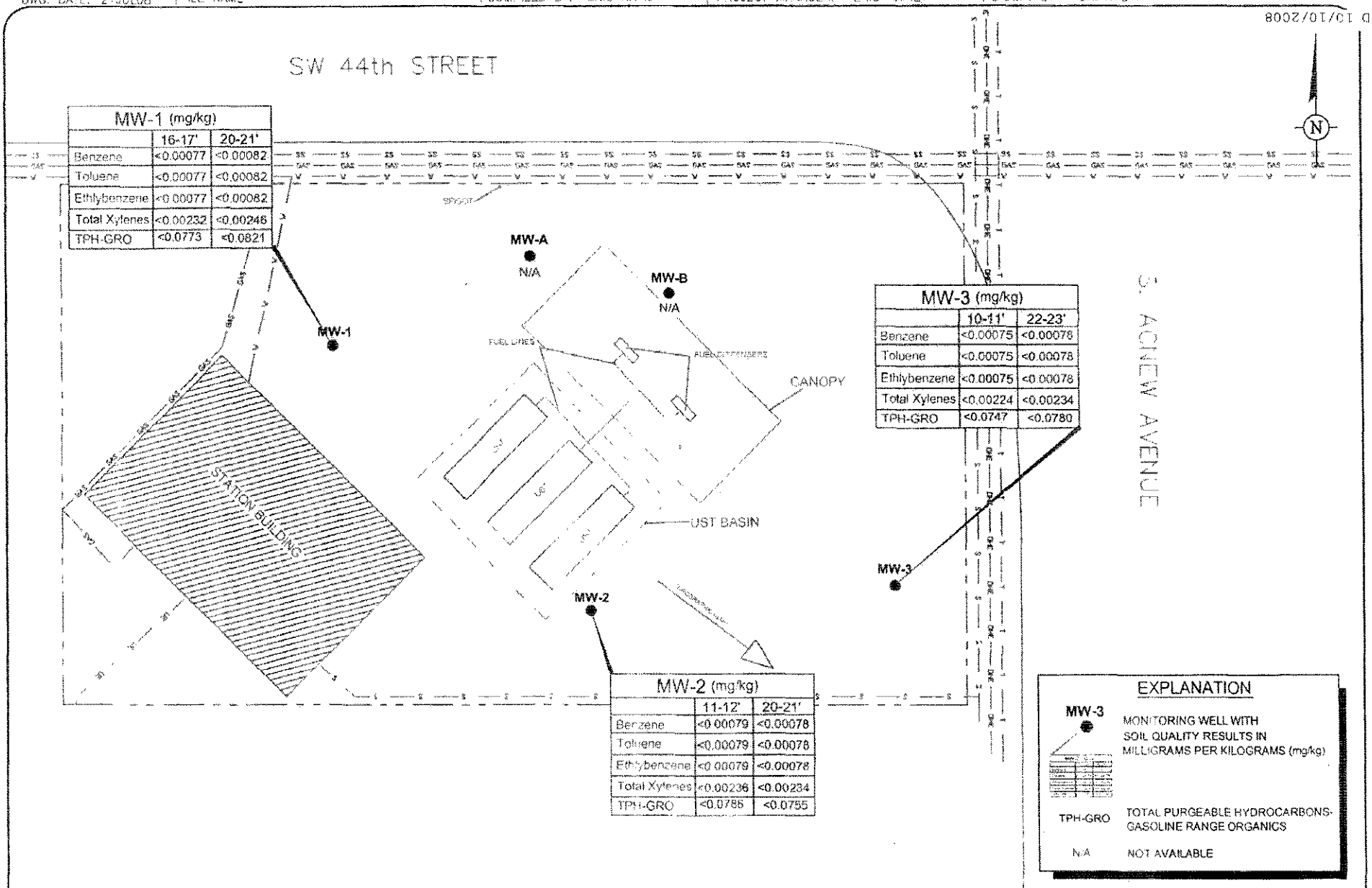
Well Number	Date Measured	Measuring Point Elevation (i.e. TOC) (ft)	Screen Interval (ft bTOC)	Depth to Water (ft bTOC)	Water Level Elevation (ft)	Depth to Product (ft bTOC)	Product Level Elevation (ft)	Product Thickness (ft)	Corrected Water Level Elevation (ft)
MW-1	6/23/08	1250.97	10-25	17.67	1233.30	--	--	--	1233.30
MW-2	6/23/08	1251.29	10-25	17.70	1233.59	--	--	--	1233.59
MW-3	6/23/08	1253.17	10-25	16.59	1236.58	--	--	--	1236.58
MW-A	6/23/08	1251.20	NA	18.14	1233.06	--	--	--	1233.06
MW-B	6/23/08	1253.17	NA	17.99	1235.18	--	--	--	1235.18

TOC Top of Casing.
ft bTOC Feet below top of casing.
Benchmark SE building corner slab.

G:\STAFF\EMR\StarFuels\2412 SW 44th\[GWELE.XLS]Sheet1

DWG. DATE: 2-JUL08 | FILE NAME: | COMPILED BY: ERIC RANEY | PROJECT MANAGER: ERIC RANEY | DRAWN BY: BRIAN OFFLEY

IMAGED 10/10/2008



MW-1 (mg/kg)	16-17'	20-21'
Benzene	<0.00077	<0.00082
Toluene	<0.00077	<0.00082
Ethylbenzene	<0.00077	<0.00082
Total Xylenes	<0.00232	<0.00248
TPH-GRO	<0.0773	<0.0821

MW-3 (mg/kg)	10-11'	22-23'
Benzene	<0.00075	<0.00078
Toluene	<0.00075	<0.00078
Ethylbenzene	<0.00075	<0.00078
Total Xylenes	<0.00224	<0.00234
TPH-GRO	<0.0747	<0.0780

MW-2 (mg/kg)	11-12'	20-21'
Benzene	<0.00079	<0.00078
Toluene	<0.00079	<0.00078
Ethylbenzene	<0.00079	<0.00078
Total Xylenes	<0.00236	<0.00234
TPH-GRO	<0.0786	<0.0755

ARCADIS

SOIL QUALITY RESULTS
JUNE 2008

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

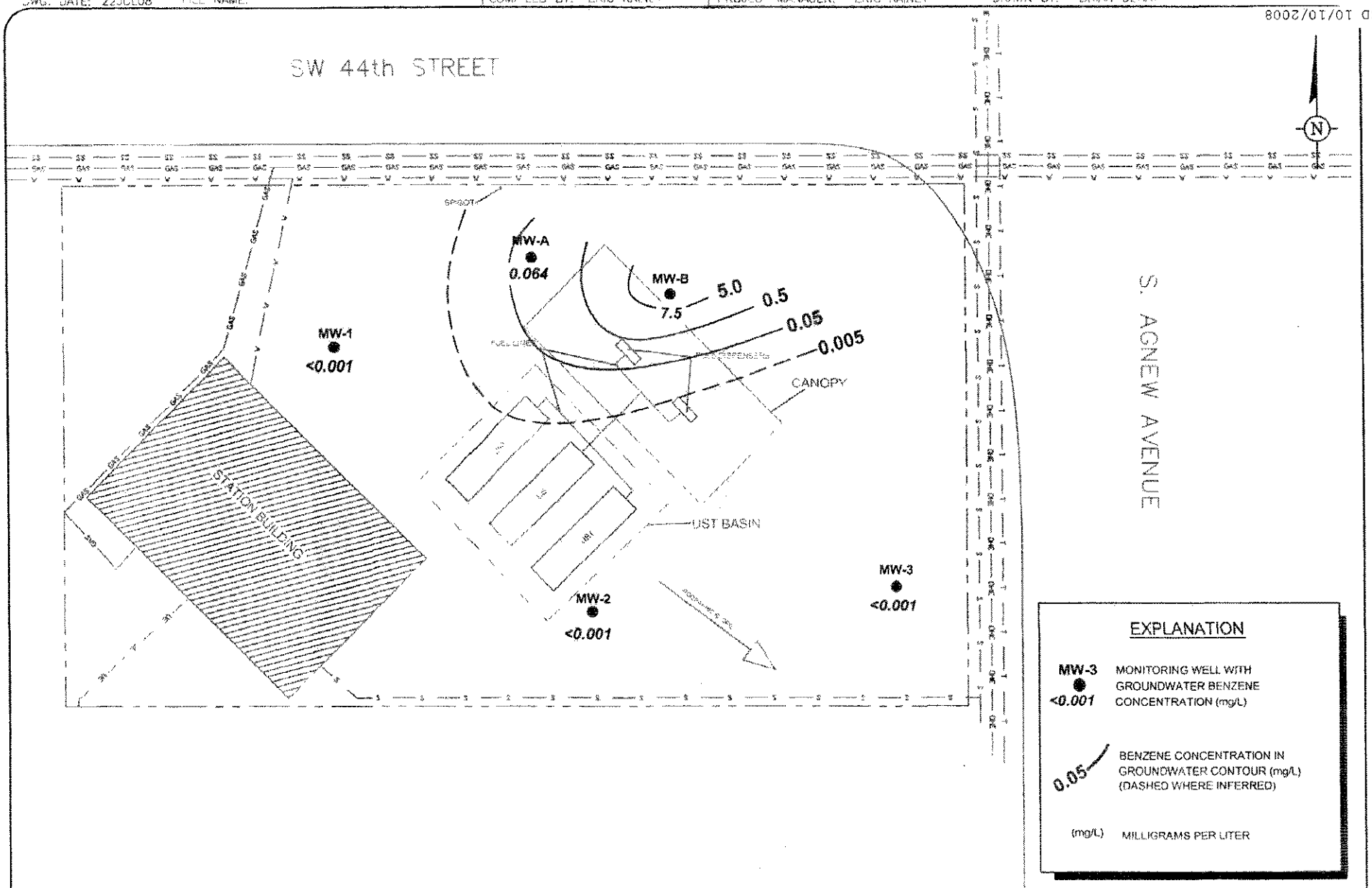
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
6

J:\Projects\STAR\OK001552001\2412 SW 44TH\2412 SW 44TH SOIL JUN2008.dwg, 7/22/2008 11:12:34 AM

DWG. DATE: 22JUL08 FILE NAME: COMPILED BY: ERIC RAINEY PROJECT MANAGER: ERIC RAINEY DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

BENZENE CONCENTRATIONS IN GROUNDWATER
JUNE 23, 2008

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

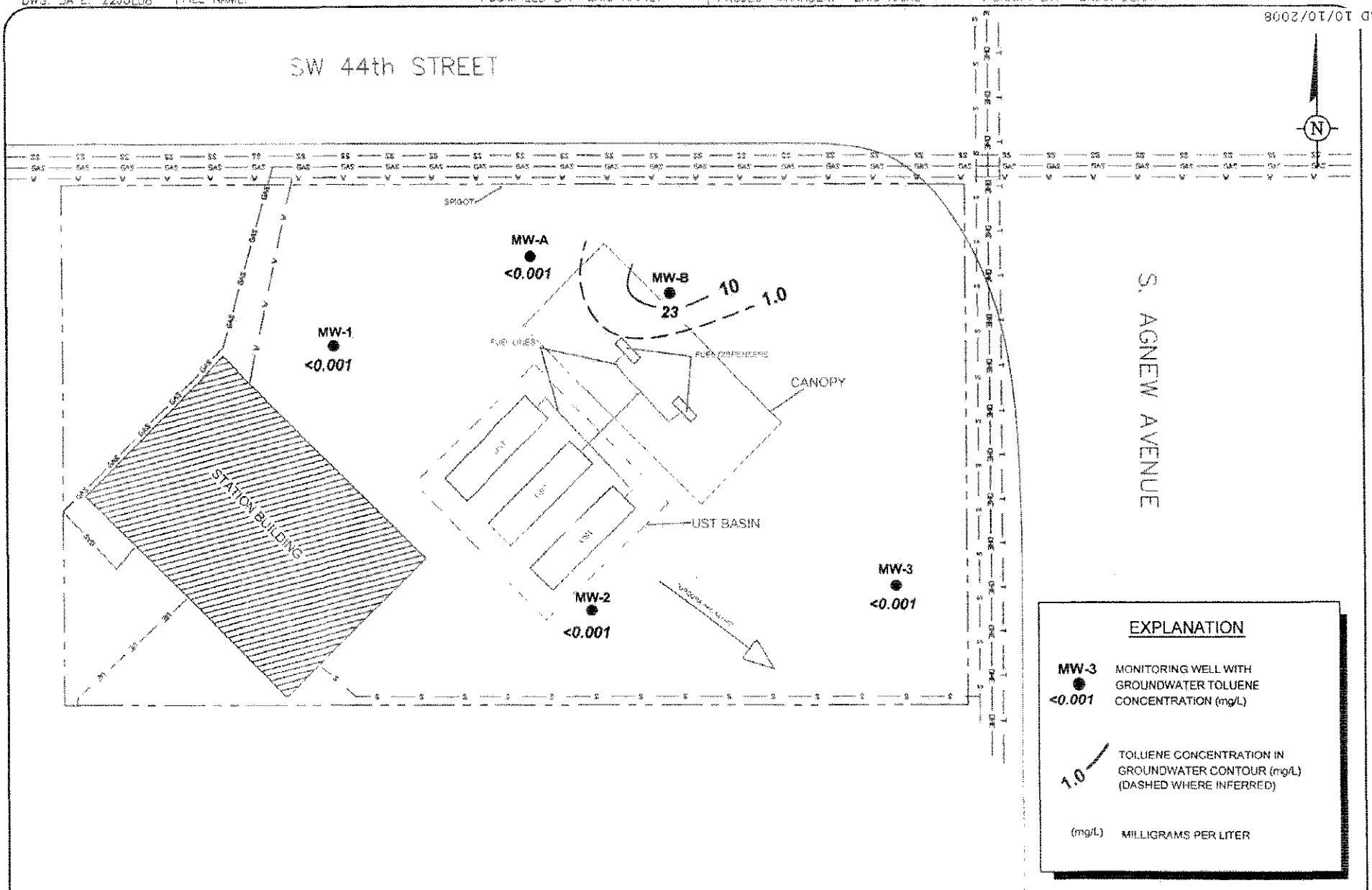
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
7

\\Approject\STAR\OK001552\0012\2412 SW 44TH\2412 SW 44TH GW BENZ 20080623.dwg, 7/22/2008 11:13:00 AM

DWG. DATE: 22JUL08 | FILE NAME: | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

5100 EAST SKELLY DRIVE, SUITE 1000
TULSA, OKLAHOMA 74135
TEL (918) 664-9100 FAX (918) 664-9925

TOLUENE CONCENTRATIONS IN GROUNDWATER
JUNE 23, 2008

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

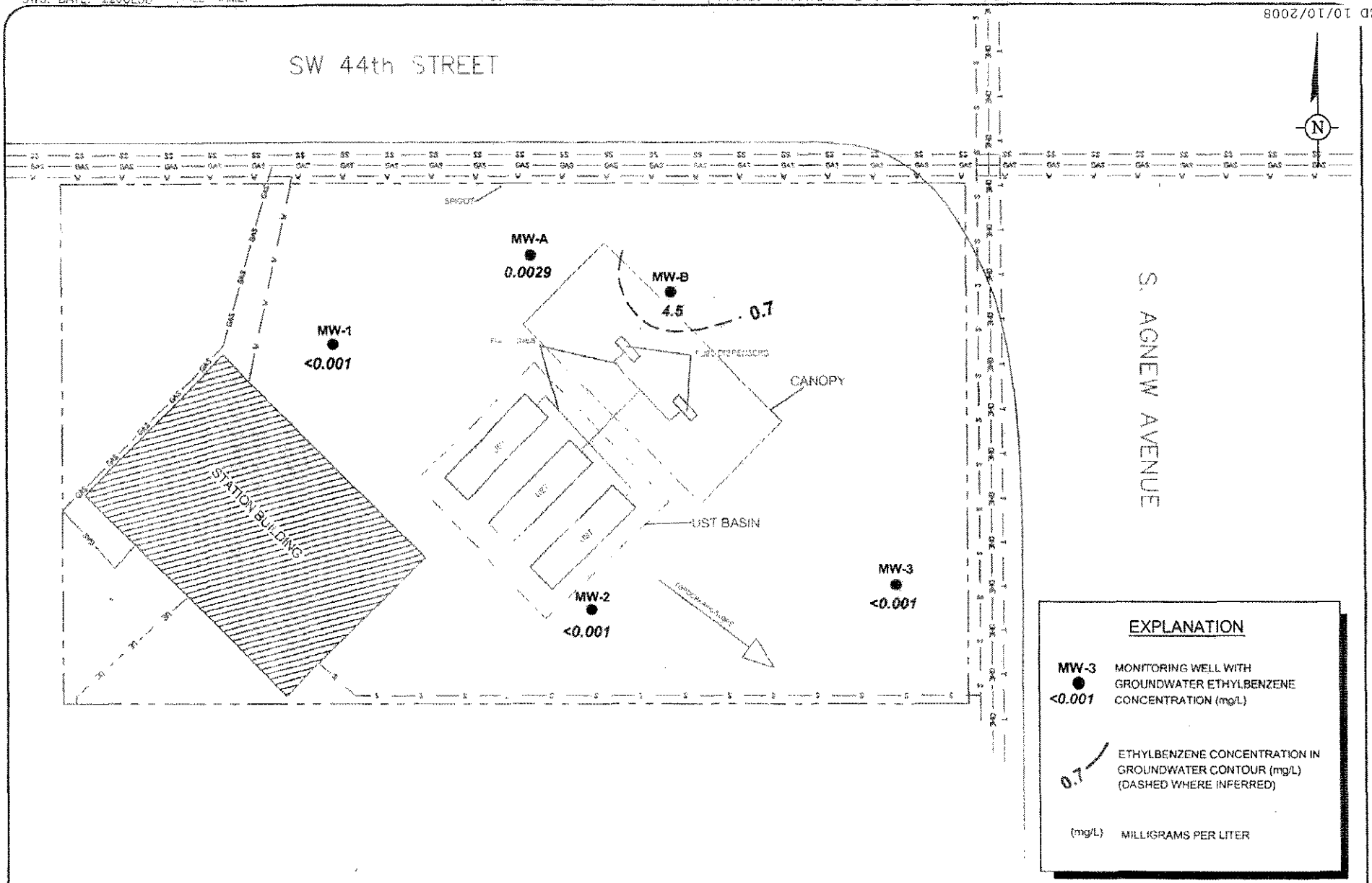
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
8

J:\Projects\STARS\OK001552C - 2412 SW 44TH\2412 SW 44TH GW TOLU 20080623.dwg, 7/22/2008 11:13:19 AM

DWG. DATE: 22JUL08 | FILE NAME: | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

ETHYLBENZENE CONCENTRATIONS IN GROUNDWATER
JUNE 23, 2008

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

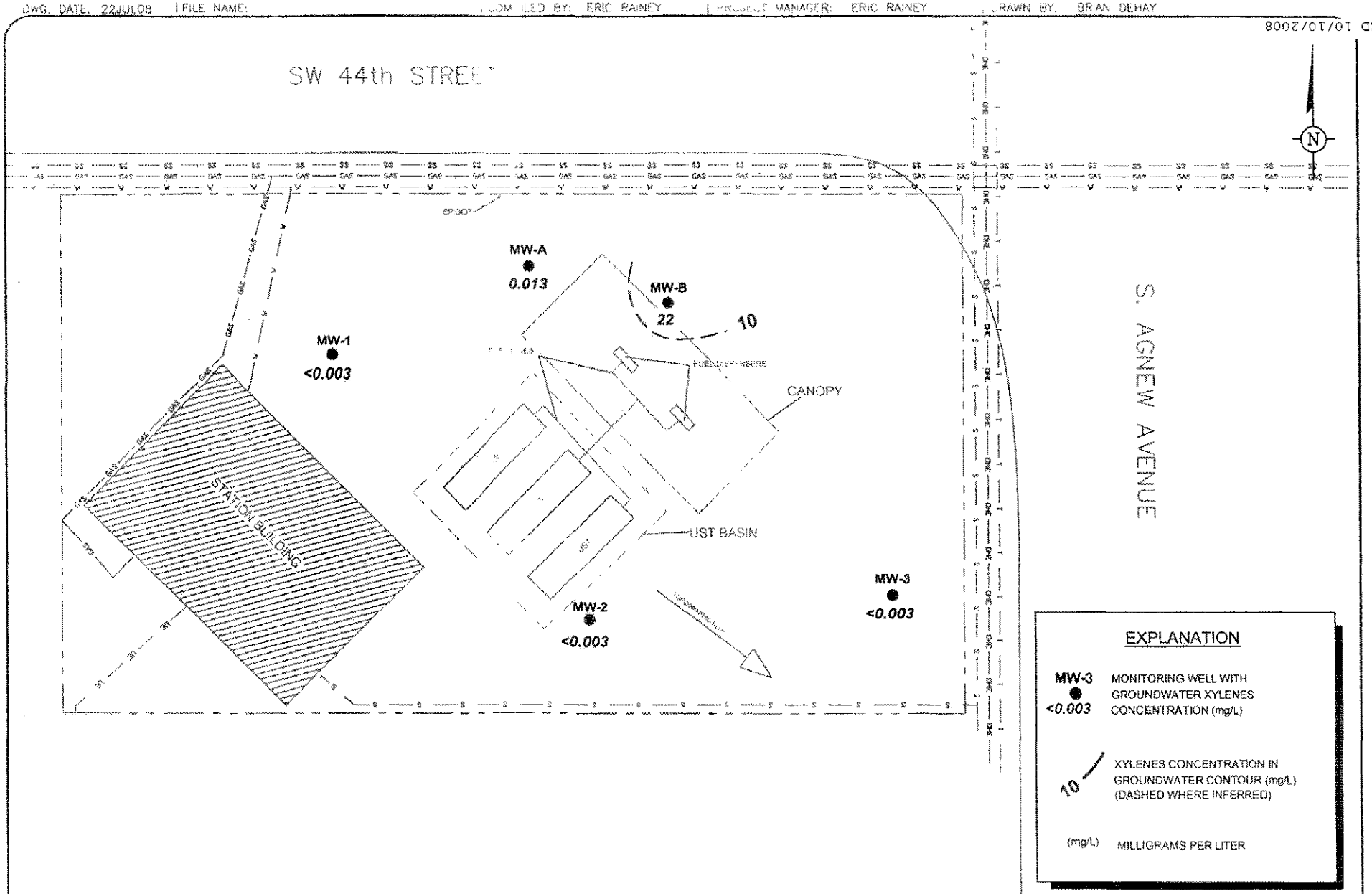
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
9

G:\Aproject\STAR\OK001552001\2412 SW 44TH\2412 SW 44TH GW ETHYLBNZ 20080623.dwg, 7/22/2008 11:13:44 AM

DWG. DATE: 22JUL08 | FILE NAME: | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

5100 EAST SKELLY DRIVE, SUITE 100
TULSA, OKLAHOMA 74135
Tel: (918) 664-9858 Fax: (918) 664-3935

0 15 30 FT.

XYLENES CONCENTRATIONS IN GROUNDWATER
JUNE 23, 2008

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

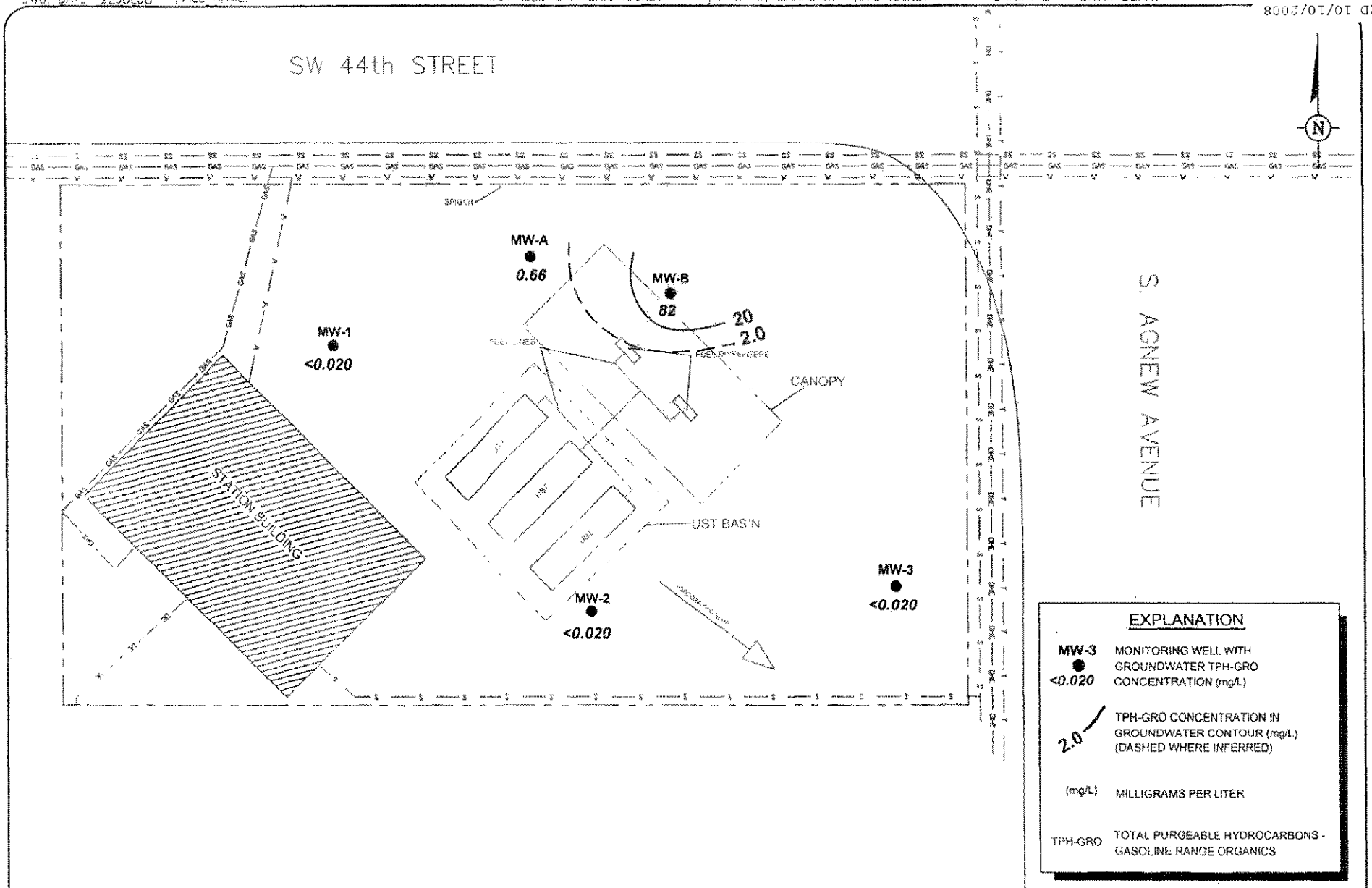
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
10

G:\Projects\STAR\OK001552001\2412 SW 44TH\2412 SW 44TH GW XYL 20080623.dwg, 7/22/2008 11:14:04 AM

DWG. DATE: 22JUL08 | FILE NAME: | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

5100 EAST SKELLY DRIVE, SUITE 1010
TULSA, OKLAHOMA 74135
Tel: (918) 664-9900 Fax: (918) 664-9925

TPH-GRO CONCENTRATIONS IN GROUNDWATER
JUNE 23, 2008

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
11

G:\Aprojects\STAR\OK001552\0012412 SW 44TH\2412 SW 44TH GW GRO 20080623.dwg, 7/22/2008 11:14:26 AM

IMAGED 10/10/2008

SITE HISTORY

1. What is the current name of the business at this site?
   Circle B Food Mart

2. What does this business do?
   convenience store with unleaded fuel sales

3. List Previous Names of this Facility
   a. **Kwik Shop**
   b. **Star Fuels 1035**
   c. **Texaco Food Mart**

4. List Previous Owner(s) of this Facility with Address(es)
   a. **Star Fuel Marts, LLC, 100777 Barkley, Ste. 220, Overland Park, KS 66221**
   b. **Equilon Enterprises, LLC, Houston, TX**
   c.

5. Has this site ever had an emergency response? **No**

   If yes, when was it:? ☐ State Lead ☐ Owner/Operator Lead (Discuss below)

   Additional Notes:

6. STORAGE TANK TYPE

If the UST/AST is active, answer "Y" and if inactive, answer "N". Provide the UST/AST installation date if known. Provide out of use or closure date if the UST/AST is inactive. A site map denoting Tank Number(s) is required.

Tank No.	Product	Capacity (gal)	Active (Y/N)	Installation Date	UST(U) AST(A)	Out of Use (O) /Close (C)/Remove (R) Date (s)
1	Unlea	10000	Y	8/87	U	
2	Unlea	10000	Y	8/87	U	
3	Unlea	10000	Y	8/87	U	

IMAGED 10/10/2008

SITE DESCRIPTION

1. What is the status of the tank system?
   - ☒ Operating
   - ☐ Permanently or Temporarily out of Service. From to
   - ☐ Abandoned in

2. What are the ground surface conditions?

   Paved **Yes** % area paved : **90** Material: **Concrete**
   Unpaved Material:

3. What are the types and depths of utilities?

Designate each utility as Conduit (C); Potential Conduit (P); Not a Potential Conduit (N); Not Present (NP)

N	Sanitary Sewer:	Depth: **3'**	Flow Direction: **East**	
N	Storm Sewer:	Depth: **5'**	Flow Direction: **East**	
N	Electric Line	Depth: **2'**		
N	Telephone Line	Depth: **3'**		
N	Gas line	Depth: **3'**		
N	Water Line	Depth: **3'**	**Identify water line material:**	**PVC**
__	Other (fiberoptic, cable etc.)	Depth:		

	Yes	No	Dates
Have the utilities been inspected?	☒	☐	**6/10/08**
Are utility trenches uncovered?	☐	☒	

If unable to obtain depth to utility, explain why.
NA
Show service lines and service line depths on site map.

4. What is the immediate (within 500 feet) Land Use? At a minimum, state whether residential or non-residential.

   North:
   - Northeast: **Commerical and Residential**
   - Northwest: **Commercial and Residential**

   South:
   - Southeast: **Residential**
   - Southwest: **Residential**

   West: **Commercial and Residential**

   East: **Commerical and Residential**

5. What is the direction of the surface drainage? Direction(s): **East** Grade (ft/ft): **0.05**
   Where does the surface drainage discharge?

   Stream **Yes** What is the name of the stream? **Brock Creek**
   Lake **N/A** What is the name of the lake? **N/A**
   Groundwater recharge/discharge area **N/A** What is the name of the aquifer? **N/A**

   Additional Notes:

IMAGED 10/10/2008

LAND USE SUMMARY

The purpose of this section is to identify existing and reasonable beneficial uses for land. All occupiable buildings should be identified by address number on vicinity map and/or Point of Exposure map.

1. What is the current on site land use?

	Current (Y/N)	Prior (Y/N)	COMMENTS
Residential	**N**	**N**	**Commercial**
Non-residential	**Y**	**Y**	**Commerical**
Sensitive/special	**N**	**N**	**N/A**
Other	**N**	**N**	**N/A**

Describe the current site use.

2. What is the distance and direction to the nearest residence (feet)?
100 ft to the north-northeast

3. Locate and describe any occupied buildings with basements. Identify these buildings on the vicinity base map.
No basements in site vicinity

4. Describe the foundation of every occupiable building that might be situated over any shallow (less than 10 feet) impacted soil or groundwater. Assume a crack factor of 1% (.01) for residential homes and 0.1% (.001) for commercial buildings unless you can thoroughly describe why a different value should be used.
N/A (i.e., groundwater greater than 10 ft bgs)

5. What is the distance and direction to any environmentally sensitive area within a 1/2 mile? (Define in Notes) Include distance and direction(s) to any groundwater recharge and discharge areas.
Describe:
Young's Park is located approximately 750 ft to the east

6. What is the distance and direction to the nearest school, hospital, day care, retirement home, etc., (specify facility)?
Describe:
Grant HS is located approximately 1/2 mile to the southeast

7. What is the distance and direction to the nearest commercial/industrial site from the facility?
Describe:
A laundry mat is located 30 ft to the west of the site

8. Additional Notes:

9. What is the likely future land use for this site?

	Potential (Y/N)	COMMENTS
Residential	**N**	
Non-residential	**N**	
Sensitive/special	**N**	
Other	**N**	

Additional Notes: Site location is expected to remain commercial.

IMAGED 10/10/2008

CHRONOLOGY OF EVENTS

1. Instructions: Describe potential sources and spill events, including location type and estimated volume of materials stored or released, time and duration of release, and affected media (soil, groundwater, etc.). Describe monitoring well installation, soil boring activities, and slug tests. Discuss past corrective action efforts as appropriate. Include any new historical owner/operators not previously identified in the Suspicion of Release Report or Initial Response and Abatement Report.

DATE(S) EVENT

9/2007 Phase II Investigation is conducted at the site to assess subsurface conditions as part of a property transfer. Four soil borings (SW-1 through SW-4) are installed at the site to facilitate the collection of soil and groundwater samples. Benzene was detected in the groundwater above the OCC action level and was reported to the OCC. OCC confirms case.

10/2007 An Initial Response, Abatement, and Site Characterization Report is prepared and submitted to the OCC.

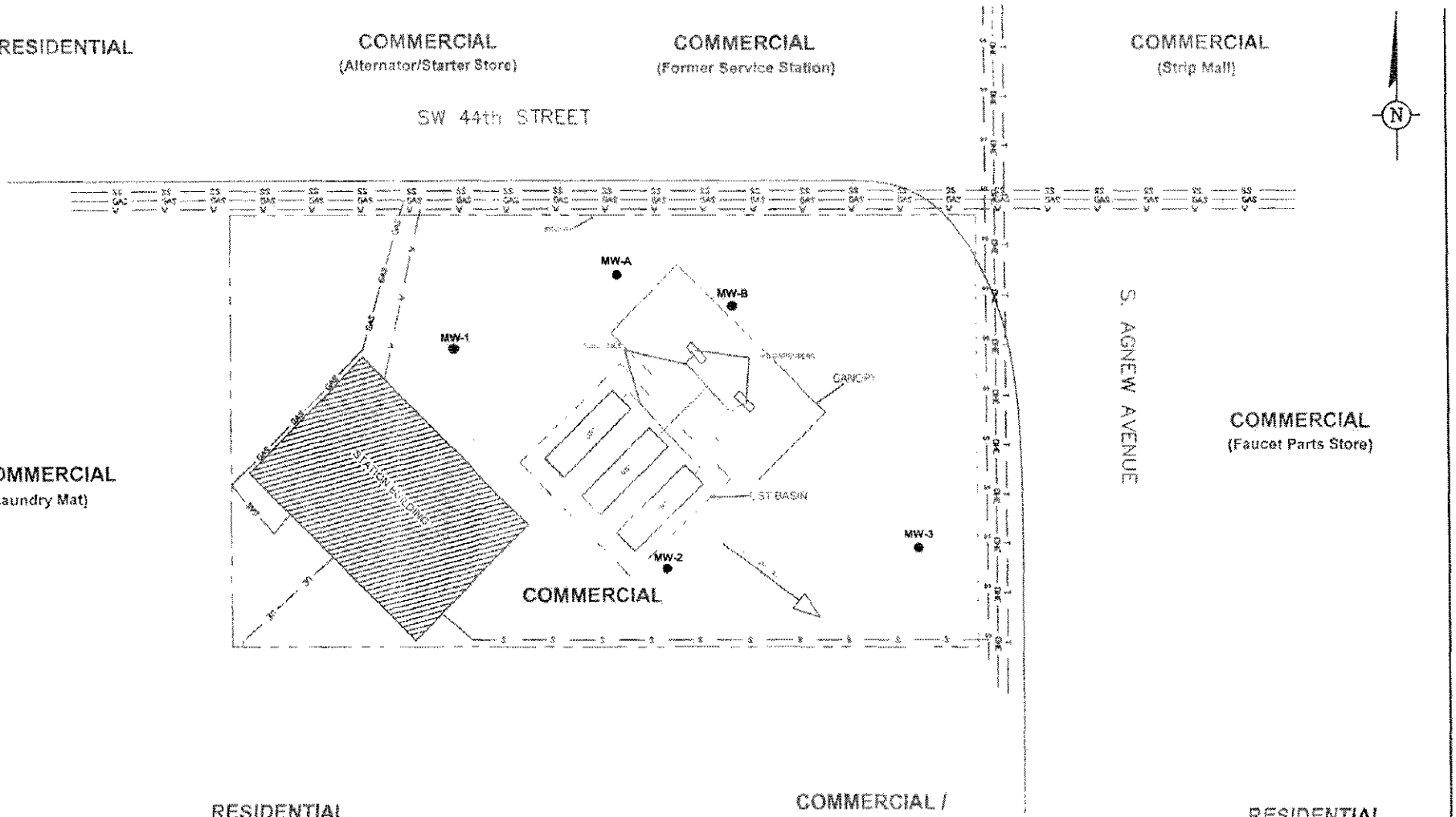
5/2008 OCC issues PO to conduct ORBCA evaluation after resolving indeminity fund application issues

6/2008 Three ORBCA wells (MW-1 through MW-3) are installed at the site. Soil and groundwater samples are collected and analyzed. Geotechnical samples are collected and analyzed. Two existing monitoring wells are found on-site from a previous unknown investigation. Fluid level measurements are collected.

8/2008 OCC grants extension until September 10, 2008 to submit ORBCA report

DWG. DATE: 22JUL08 FILE NAME: COMPILED BY: ERIC RAINEY PROJECT MANAGER: ERIC RAINEY DRAWN BY: BRIAN DeHAY

IMAGED 10/10/2008



ARCADIS

LAND USE / ZONING MAP

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
12

G:\Aproject\STAR\OK001552\2012 SW 44TH\2412 SW 44TH LAND USE.dwg, 8/29/2008 6:58:04 AM

IMAGED 10/10/2008

RELEASE CHARACTERIZATION

1. The release was discovered during/by:
   - ☐ UST/AST Removal
   - ☐ Release Detection Equipment
   - ☐ Inventory Control
   - ☐ Citizen Complaint
   - ☐ Unknown
   - ☐ Closure in Place
   - ☒ Property Transaction
   - ☐ System Tightness Testing
   - ☐ Spill Incident
   - ☐ Other (specify):

2. What is/was the pumping mechanism:
   ☒ Pressure ☐ Suction ☐ Unknown

3. Has the source of the release been identified? Yes ☐ No ☒

4. What is the source of the release? If known, be specific about the point of release:
   - ☐ Spills/overfills
   - ☐ Dispenser
   - ☒ Unknown
   - ☐ Piping
   - ☐ Tank
   - ☐ Other (specify):

5. What is the substance released?
   - ☒ Gasoline
   - ☐ Used Oil
   - ☐ Jet Fuel
   - ☐ Diesel
   - ☐ AV Gas
   - ☐ Other:

6. Is there an on going release at this site? Yes ☐ No ☒
   If yes, why has the release not been mitigated?

7. Provide additional details of this release
   Date Discovered: N/A
   Location:N/A
   Estimated quantity of fuel release:N/A
   Additional information:N/A

8. Is the groundwater impacted? Yes ☒ No ☐

9. Is the surface water impacted? Yes ☐ No ☒

10. Is the native soil impacted? Yes ☐ No ☒

11. Has free product been found at this site? Yes ☐ No ☒

    If YES, does free product extend off-site?

    If YES, denote greatest thickness (to the nearest 1/100 foot):
    Maximum: Current:

    If YES, has OCC/PSTD required initiation of free product removal?

IMAGED 10/10/2008

UST/AST/PIPING REMOVAL CHARACTERIZATION

NOTE: A separate Removal Characterization must be filled out for each UST/AST system removal.

1. What was the date of removal:? **N/A** Tank No.: **N/A** Capacity(ies): **N/A**

2. Was the soil excavated? Yes ☐ No ☐

   If yes, give the

   Date: and Quantity:

3. Details of Excavated Soil:

	Date	Quantity	Location
Stockpiled on-site			
Disposed off-site*			
Used (as fill material...) on-site			
Used as road base*			
Soil farm*			

4. Were confirmatory soil samples collected after excavation from the native soil? Yes ☐ No ☐

5. Was the excavated soil sampled? Yes☐ No ☐

6. Was the groundwater sampled during excavation? Yes☐ No☐

7. What is the status of the excavation:?

   ☐Open with water
   ☐Open/dry
   ☐Barricaded
   ☐Backfilled
   - ☐with excavated soil ☐with clean fill
   - ☐Pervious cover ☐Impervious cover

   ☐ Other:

NOTE: A SITE MAP, TO SCALE, DEPICTING SAMPLING LOCATIONS AND ANY USTs, ASTs, PIPING RUNS, AND DISPENSER ISLANDS, IS REQUIRED

8. Depth to bottom of UST pit?

9. Was the UST pit over-excavated? Yes☐ No☐
   If YES, cite dimensions (in feet) and give direction(s):

10. Was the piping trench over-excavated? Yes☐ No☐
    If YES, cite dimensions (in feet) and give direction(s):

    * Provide as attachments all copies of letters, permits, etc., for off-site removal.

11. Additional Notes:

IMAGED 10/10/2008

SITE STRATIGRAPHY AND HYDROGEOLOGY

1. Has groundwater been impacted by release? Yes☒ No☐

   If groundwater was **not** encountered, total depth drilled: feet.

2. Describe the Stratigraphy by filling in below:

Unconsolidated:

Depth	Unified Soil Classification	General Description of Soil
0-22	**ML**	**silty clay**
22-25	**SM**	**sand (v. fine to med)**

Predominant Soil Type: Vadose - **silty clay** Saturated - **silty clay/sand**

Consolidated (Lithified):

Depth	Bedrock Type & Geologic Formation	Describe rock properties, features & fractures
N/A	**N/A**	**N/A**

Predominant Type: Vadose - **N/A** Saturated - **N/A**

3. What was the average depth at which groundwater was first encountered (ft.)? (Show on Boring Logs) **15 ft**
4. What was the shallowest depth to water table/piezometer (ft.)? **16.5 ft**
5. What was the groundwater flow direction? **west-southwest**
6. What was the hydraulic gradient (i) [ft./ft.]? **0.04**

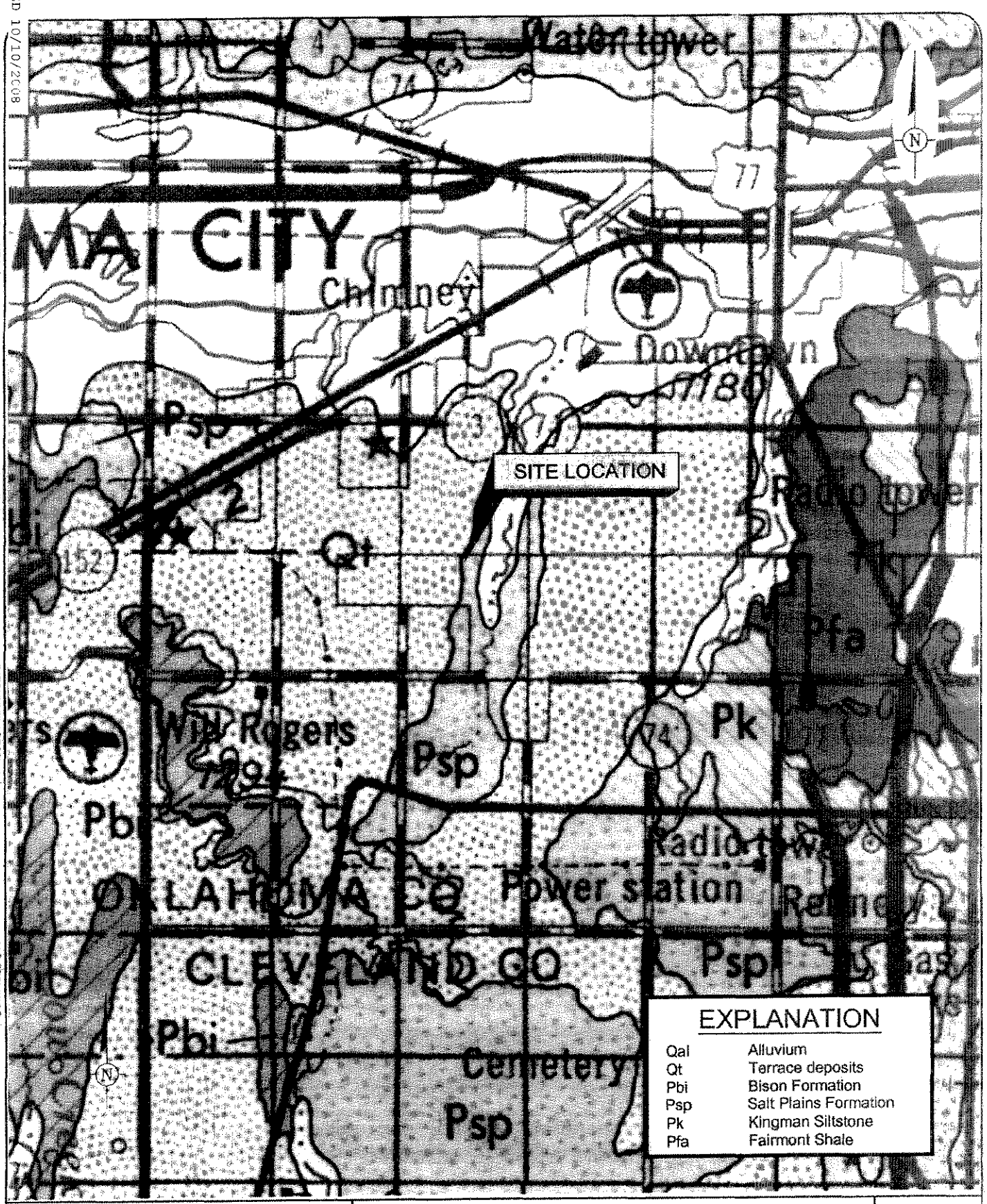
		Vadose Zone	Saturated Zone
7.	What is the porosity (?) [cm3/cm3]?	**0.399**	**0.373**
8.	What is the volumetric water content [cm3/cm3]?	**0.378**	**0.312**
9.	What is the dry bulk density [g/cm3]:?	**2.677**	**2.706**
10.	What is the hydraulic conductivity (K) [ft./day]:?	0.1	**1**

11. What was the hydraulic conductivity test method?
    - ☐ grain size/sieve analysis
    - ☐ slug test
    - ☐ pump test, period (hours):
    - ☒ other (specify): **literature**

12. What was the Darcy Velocity (Ki):? **0.04**

13. Is the water-bearing zone confined or unconfined? **semi-confined**
14. What is the groundwater level fluctuation (± ft.)? Cite greatest known fluctuation from one well. **N/A**
15. What is the name of the aquifer? **Terrace**
16. What is the annual precipitation, 30-yr avg. (in/yr.)? **34**

    Additional Notes:



ARCADIS
5100 EAST SKELLY DRIVE SUITE 1000
TULSA, OKLAHOMA 74135
Tel: (918) 664-9900 Fax: (918) 664-9925

SCALE: 1" = 1 MILE

AREA GEOLOGIC MAP

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

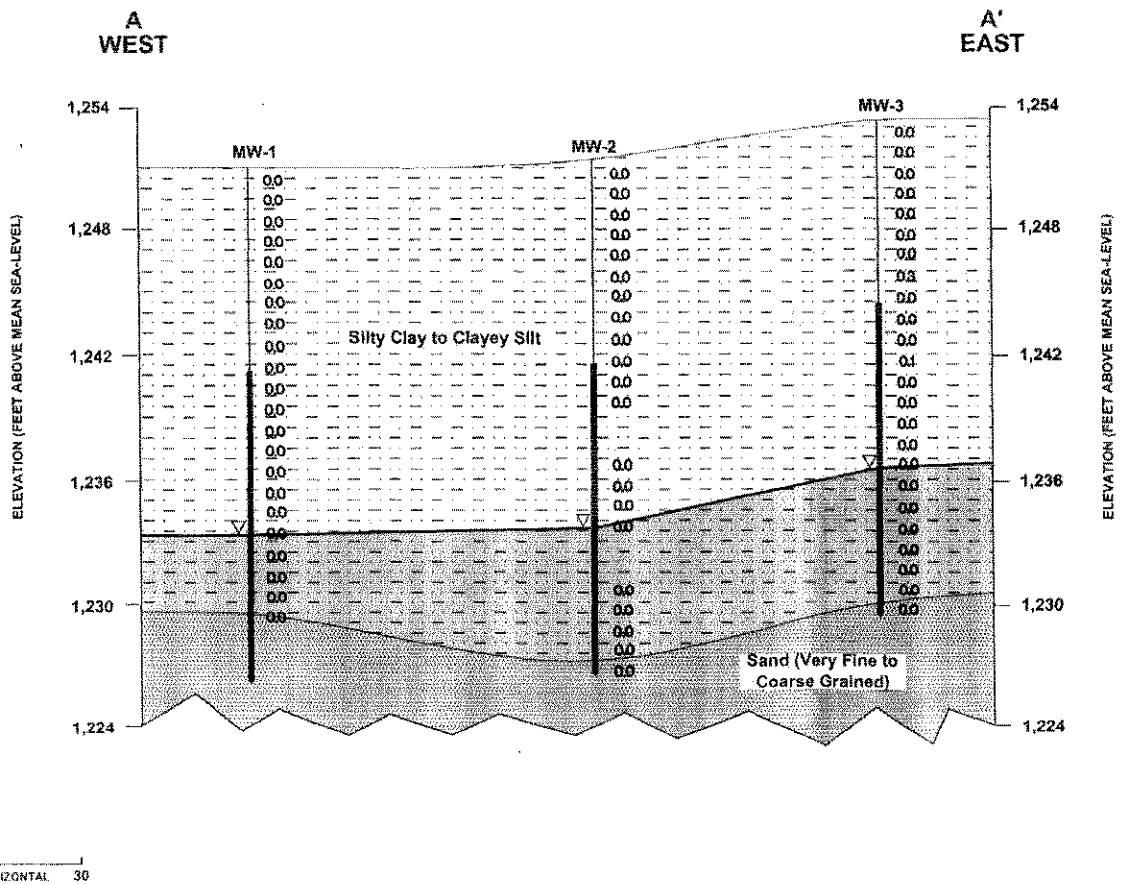
PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
13

FILE NAME: | COMPILED BY: | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY | REV'D BY:

IMAGED 10/10/2008

FILE NAME: | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY | REV'D BY:

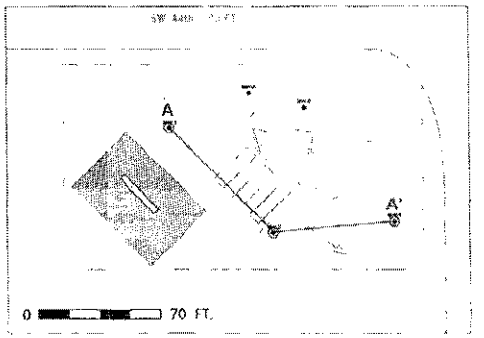


GRAPHIC SCALE (FEET)

EXPLANATION

WELL WITH SCREENED INTERVAL AND PID READINGS (ppmv)

GROUNDWATER ELEVATION (JUNE 23, 2008)



CROSS SECTION TRACE

ARCADIS

GEOLOGIC CROSS-SECTION A-A'

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
14

IMAGED 10/10/2008

WATER USE

The section's purpose is to identify existing and reasonable beneficial uses for groundwater and surface water.
NOTE: The ORBCA Guidance Document requires a ground (or door to door) foot search for water wells within a 660-feet radius of the source of contamination. By signing below, the Licensed Remediation Consultant managing this investigation certifies such a search has been performed.

Licensed Consultant _____

1. Denote all water wells within ½ mile radius of the site on topographic map. Furnish the following information for each well identified:
   - a: Well owner name and physical address of the well location;
   - b: Description of well's location within the property;
   - c: Well construction specification (if available);
   - d: Photo of well-head for each identified water well;
   - e: Distance of well from the source of contamination;

2. What are the uses of the groundwater resources?

	YES/NO Current	YES/NO Potential	COMMENTS (e.g. Distance from source to reception point)
Domestic Drinking	N	N	N/A
Irrigation (Non-Agri.)	N	N	N/A
Public/Municipal Supply	N	N	N/A
Industrial Supply	N	N	N/A
Agriculture	N	N	N/A
Other (Define in Notes)	N	N	N/A
Within Wellhead Protection Area	N	N	N/A

3. What is the likelihood of use of this groundwater in the future? ☒ None/Extremely Unlikely
   ☐ Low ☐ Medium ☐ High

4. What is the water quality? If known, Please specify units, for Tier 1A, use Hydrologic atlas information. For Tier 2, lab analyses of water from most upgradient monitoring well is required:

TDS:	**<1000 ppm**	Specific Conductance:	**500 to 23,000**	Chlorides:	**80 to 8600**
Hardness:	**150 to 3000**	Nitrates:	**NA**	Iron:	**NA**
Sulfates:	**50 to 225**	Other (specify):			

5. Is the site and surrounding properties supplied by a public/municipal/rural water district system?
   : **Yes**

6. What are the uses of the surface water resources. Under comments list the OWRB Beneficial Use Classification.

	Current	Potential	COMMENTS
Domestic supply	N/A	N/A	
Public/Municipal Supply	N/A	N/A	
Recreational	N/A	N/A	
Other	N/A	N/A	

7. What is the likelihood of the surface water being used in the future?
   ☒ None/Extremely unlikely
   ☐ Low ☐ Medium ☐ High

IMAGED 10/10/2008

WATER USE

The section's purpose is to identify existing and reasonable beneficial uses for groundwater and surface water.
NOTE: The ORBCA Guidance Document requires a ground (or door to door) foot search for water wells within a 660-feet radius of the source of contamination. By signing below, the Licensed Remediation Consultant managing this investigation certifies such a search has been performed.

Licensed Consultant _____

1. Denote all water wells within ½ mile radius of the site on topographic map. Furnish the following information for each well identified:
   - a: Well owner name and physical address of the well location;
   - b: Description of well's location within the property;
   - c: Well construction specification (if available);
   - d: Photo of well-head for each identified water well;
   - e: Distance of well from the source of contamination;

2. What are the uses of the groundwater resources?

	YES/NO Current	YES/NO Potential	COMMENTS (e.g. Distance from source to reception point)
Domestic Drinking	**N**	**N**	**N/A**
Irrigation (Non-Agri.)	**N**	**N**	**N/A**
Public/Municipal Supply	**N**	**N**	**N/A**
Industrial Supply	**N**	**N**	**N/A**
Agriculture	**N**	**N**	**N/A**
Other (Define in Notes)	**N**	**N**	**N/A**
Within Wellhead Protection Area	**N**	**N**	**N/A**

3. What is the likelihood of use of this groundwater in the future? ☒ None/Extremely Unlikely ☐ Low ☐ Medium ☐ High

4. What is the water quality? If known, Please specify units, for Tier 1A, use Hydrologic atlas information. For Tier 2, lab analyses of water from most upgradient monitoring well is required:

TDS:	**<1000 ppm**	Specific Conductance:	**500 to 23,000**	Chlorides:	**80 to 8600**
Hardness:	**150 to 3000**	Nitrates:	**NA**	Iron:	**NA**
Sulfates:	**50 to 225**	Other (specify):			

5. Is the site and surrounding properties supplied by a public/municipal/rural water district system?
   : **Yes**

6. What are the uses of the surface water resources. Under comments list the OWRB Beneficial Use Classification.

	Current	Potential	COMMENTS
Domestic supply	**N/A**	**N/A**	
Public/Municipal Supply	**N/A**	**N/A**	
Recreational	**N/A**	**N/A**	
Other	**N/A**	**N/A**	

7. What is the likelihood of the surface water being used in the future?
   ☒ None/Extremely unlikely
   ☐ Low ☐ Medium ☐ High

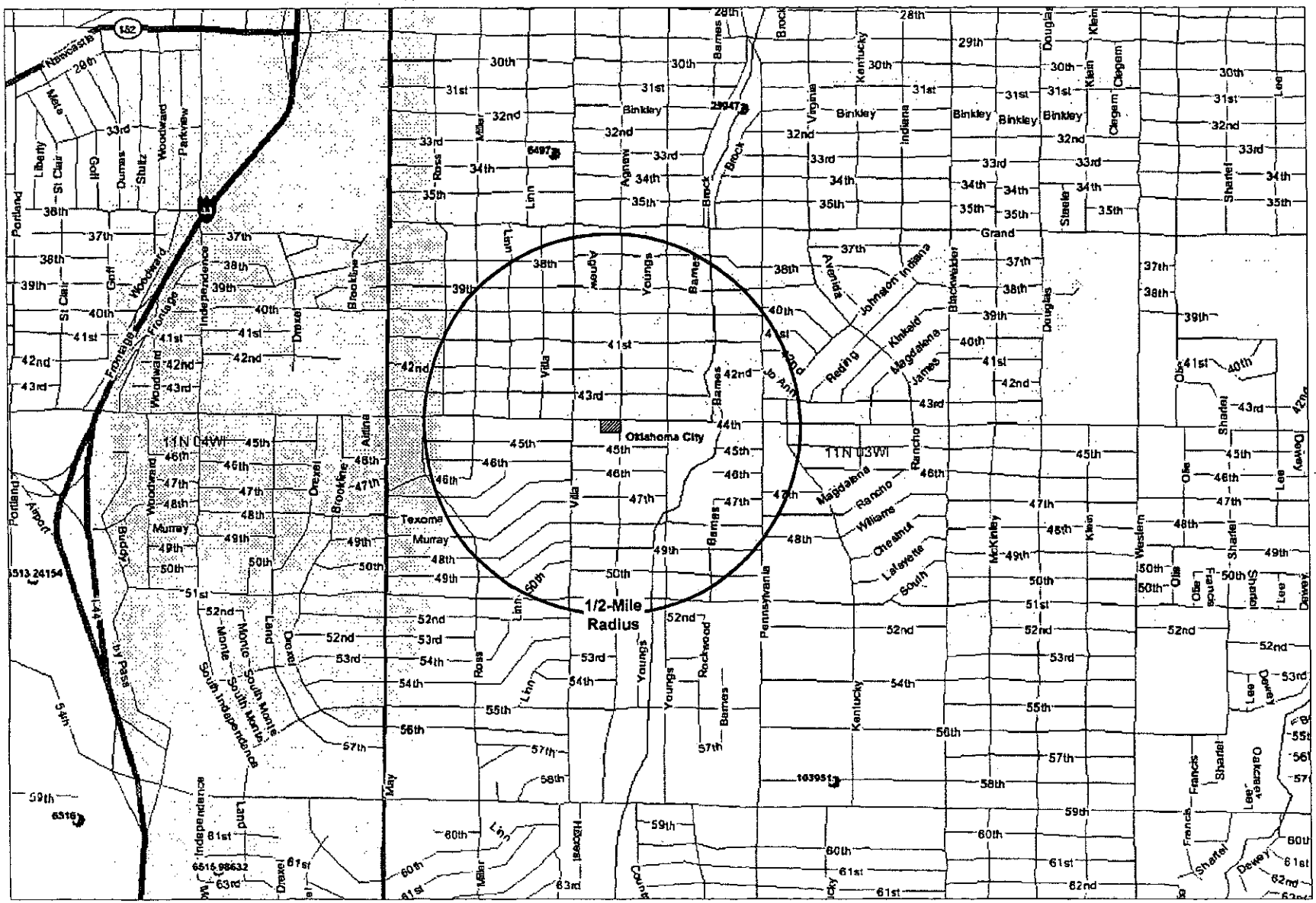
IMAGED 10/10/2008

8. If a stream is, or may potentially be, impacted by COCs, does the stream have?
   ☐ Intermittent water flow ☐ Continuous water flow

9. Additional Notes:

DWG. DATE: 21JUL08 | FILE NAME: 2412 SW 44TH SITE MAP | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

5100 EAST SKELLY DRIVE SUITE 1000
TULSA, OKLAHOMA 74135
Tel: (918) 664-9900 Fax: (918) 664-9925

0 2,000 FT.

WATER WELL LOCATIONS WITHIN 1/2-MILE RADIUS

(Well Search on OWRB Map Viewer 2008)

2412 SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

PROJECT NUMBER
OK001552.0002

FIGURE NUMBER
15

G:\Aproject\STAR\OK001552001\2412 SW 44TH\2412 SW 44TH WW Search.dwg, 8/22/2008 7:32:33 AM

IMAGED 10/10/2008

ARCADIS

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE / OF
4K01552.0001	Star Fuels	SW 44th & S. Agnew	MW-1	1 OF 2

DRILLING METHOD: HSA	SAMPLING METHOD: Core Barrel
DRILLING START: 0925 6-10-08 FINISH: 1030	DEVEL. START: 6-10-08 FINISH:
STATIC DTW: 17.67 DTO: TIME: DATE: 6/23/08	DRILLED BY: Accurate
ELEVATION TOC: 1250.97 GL:	LOGGED BY: L. Cook

WELL LOCATION: See Site Map (N)

WELL CONSTRUCTION: Flush Mount; Grout; Bentonite; Sand pack; 2-inch PVC 0.010 slot screen

DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
				Concrete							
1						0					
2	ML CL	Silty Clay	DK BR	Clay w/ silt, firm, sl moist low plstc	M	0			-	80	CB
3						0					
4			RD BR	Clay, some silt, sl firm-weak, low plstc to none, sl moist	M	0					
5						0					
6	ML CL	Silty Clay	RD BR	Silt + clay, sl firm-sl weak tr vfs, low plstc, moist	M	0			-	60	CB
7						0					
8						0					
9						0					
10						0					
11						0					
12	ML CL	Silty Clay	RD BR	Silt + clay, soft, tr-little vfs weak	M	0			-	100	CB
13						0					
14						0					
15						0					
16	ML CL	Silty Clay	RD BR	Silt + clay, very soft, moist-wet MW1-17 (0950)	M	0				60	CB
17											
18				saturated	W	0					
19											

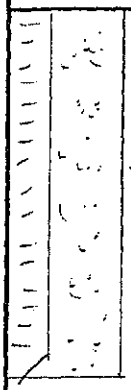
IMAGED 10/10/2008

ARCADIS

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE 2 OF 2	WELL LOCATION
	Star Fuels	DKC	MW-1		N

DRILLING METHOD	SAMPLING METHOD
DRILLING START / FINISH	DEVEL. START / FINISH
STATIC DTW / DTO — TIME / DATE	DRILLED BY
ELEVATION TOC / GL	LOGGED BY L Cook

WELL CONSTRUCTION



well TD=25ft

DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
0.0						0					
1	MCL	Silty Clay		clay + silt, soft							
				MW1-21 (1015)		0			-	80	G
2	SM	Sand	RD	fine-medium, some clay + silt							
3				sub ang - sub round, poorly sorted, saturated							
4											
25				TD=25ft							
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											

IMAGED 10/10/2008

ARCADIS

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
OK01552.0001	Star Fuels	SW 44th & Agnew	MW-2	1 OF 2

DRILLING METHOD: HSA	SAMPLING METHOD: Core Barrel
DRILLING START: 1055 6-10-08 FINISH: 1210	DEVEL. START: 6-10-08 FINISH:
STATIC DTW / DTO: 17.70 TIME / DATE: 6/23/08	DRILLED BY: Accurate
ELEVATION TOC / GL: 1251.29	LOGGED BY: L. Cook

WELL LOCATION: N — See Site Map

WELL CONSTRUCTION: Flush Mount; Grout; Bentonite; Sand Pack; 2 inch PVC 0.010 slot screen

DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
				Concrete							
1			BR			0					
2	CL	Clay		clay (75%) 25% silt, firm	M	0					
			RD BR	med plstc, moist					-	70	CB
3											
4						0					
5											
6	ML CL	silty Clay	RD BR	Clay 70%, silt 30%,		0					
				sl firm, low plstc	M				F	80	CB
7						0					
8						0					
9						0					
10						0					
11	CL ML	Clayey Silt	RD BR	Silt 65% 35% clay	M				-	95	CB
				tr vfs, softer		0					
				MW 2-12 (1115)							
12				12-14' Geotech 1130							
13											
14					M	0					
					V/M	0					
15	CL ML	Clayey Silt	RD BR	as above, siltstone frag,		0					
16				hard,	M-W				-	90	CB
						0					
17						0					
						0					
18				Geotech 18-20 1145							
19											
20											

IMAGED 10/10/2008

ARCADIS

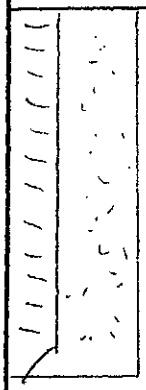
JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE 2 OF 2
OK001562.0001	Star Fuels	SW 44th & Agnew	MW-2	

DRILLING METHOD	SAMPLING METHOD
DRILLING START / FINISH	DEVEL. START / FINISH
STATIC DTW / DTO — TIME / DATE	DRILLED BY
ELEVATION TOC / GL	LOGGED BY L-Cook

WELL LOCATION

N

WELL CONSTRUCTION



Well TD=25ft

DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
20						0					
1											
				MW2-21 (1145)		0					
2	CL/ML	Clayey silt	IRD	silt, some clay, wet	W				-	85	CB
						0					
3						0					
4						0					
5	SM	Sand	BD	uf-coarse, silty							
				TD = 25ft							
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											

IMAGED 10/10/2008

ARCADIS

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE / OF 2
04001552.0001	Star Fuels	SW 44th + Agnew	MW-3	

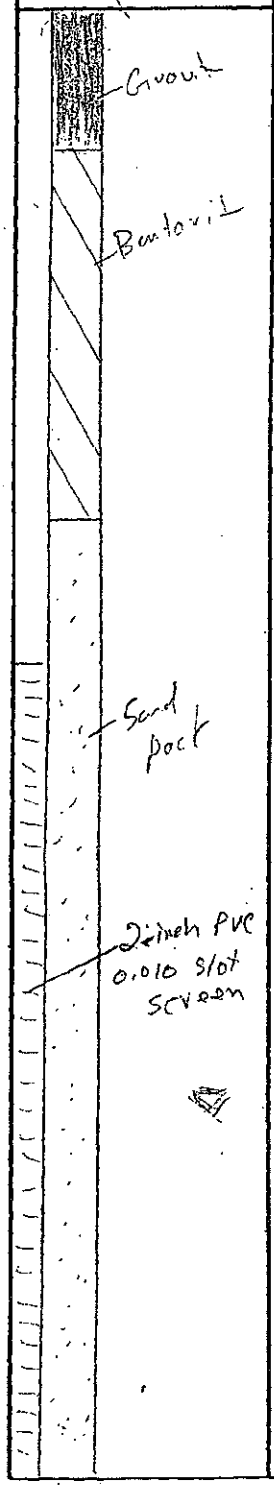
DRILLING METHOD	HSA
SAMPLING METHOD	Core Barrel
DRILLING START / FINISH	1355 / 1515 6-16-08
DEVEL. START / FINISH	6-18-08
STATIC DTW / DTO	16.59
TIME / DATE	6/23/08
DRILLED BY	Accurate
ELEVATION TOC / GL	1253.17
LOGGED BY	L Cook

WELL LOCATION

N

See site map

WELL CONSTRUCTION: Flush Mount



DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
				Concrete							
1											
2											
		clay									
3			DK BR			0					
			RD BR		M	0			–	100	CB
4	ML/CL	clayey silt		silt 60, clay 40, sl firm, low plstc							
5					M	0					
6				thin clay lenses		0				80	CB
7	ML/CL	clayey silt	RD BR	silt 65 clay 35 sl firm – sl soft, alt clay/silt lenses		0.3					
8						0					
9						0					
10						0					
11	ML/CL	clayey silt		as above, increasing silt MW3-11 1420	M	0.1			–	80	CB
12				hard silt clasts	M	0					
13						0					
14											
15						0					
16	ML/CL	clayey silt		silt 70 clay 30 tr vfs soft, saturated	S	0			–	90	CB
17						0					
18						0					
19											
20											

IMAGED 10/10/2008

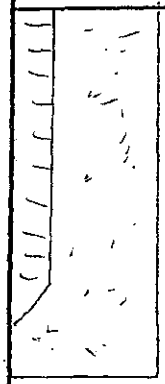
ARCADIS

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE 2 OF 2
OK001552.0001	Star Fuels		MW-3	

DRILLING METHOD	SAMPLING METHOD
DRILLING START / FINISH	DEVEL. START / FINISH
STATIC DTW / DTO — TIME / DATE	DRILLED BY
ELEVATION TOC / GL	LOGGED BY L. Cook

WELL LOCATION — N

WELL CONSTRUCTION



Well TD = 24ft

DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
1						0					
2	CL-ML	Clayey silt	RD	silt 75, clay 25, tr vfs, soft	S	0				85	CB
3				MW3-23 (1500)		0					
4						0					
5	SM	Sand		vf-med, silty, little clay hard SS lense ~2" TD = 25ft	S						
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											

IMAGED 10/10/2008

STANDARD TESTING AND ENGINEERING COMPANY

CORPORATE OFFICE and CENTRAL LABORATORY
3400 N. LINCOLN, OKLAHOMA CITY, OK 73105 (405) 528-0541
CA77 Exp. 06/30/09

Area Offices

902 Trails West Loop	Enid, OK 73703	(580) 237-3130
202 S.E. J Avenue	Lawton, OK 73501	(580) 353-0872
5358 S. 125 East Ave. Ste. B	Tulsa, OK 74146	(918) 459-2700

Acct ID: 0220ARC16 File ID: ARC16-39
Report Date: 07/09/2008
Project: Client Information
Location: Star Fuels Mart, MW-2 (12'-14')

Date Sampled: 06/10/2008
Sampled By: L. Cook
By Order Of: Eric Rainey
Order Number: OK 0001552.0001

Client: Arcadis Geraghty & Miller
REPORT: Dry Bulk
LAB NO: 0208E-0516

TEST RESULTS

Report No: 0208E-0516
Page 1 of 1

Material Represented: Red Lean Clay		
Test Methods	Sample ID	MW-2 (12'-14')
ASTM D2216	Natural Water Content (g weight of water/ g weight of dry soil	0.235
ASTM 2937	Dry Bulk Density (g/cc)	1.609
ASTM D854	Specific Gravity	2.677
	Walkley Black, Fractional Organic Carbon (g carbon/	0.00064
	Volumetric Water Content (CC volume of water/ CC total sample volume)	0.378
	Porosity (CC volume of void / CC total sample volume)	0.399
	Soil Description	Red Lean Clay

Orig: Arcadis Geraghty & Miller (Tulsa, OK) (1-cc copy)
1-cc Laboratory

Respectfully Submitted,
Standard Testing & Engineering Company

Charles B. Burris, P.E.

REGISTERED PROFESSIONAL ENGINEER CHARLES B. BURRIS 21492 OKLAHOMA

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OBSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS OR PROCEDURES, NOR DO THEY REPRESENT AN ONGOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE NOT TO BE REPRODUCED WITHOUT WRITTEN PERMISSION.
REPORT CREATED BY ElmTree SYSTEM

IMAGED 10/10/2008

STANDARD TESTING AND ENGINEERING COMPANY

CORPORATE OFFICE and CENTRAL LABORATORY
3400 N. LINCOLN, OKLAHOMA CITY, OK 73105 (405) 528-0541
CA77 Exp. 06/30/09

Area Offices

902 Trails West Loop	Enid, OK 73703	(580) 237-3130
202 S.E. J Avenue	Lawton, OK 73501	(580) 353-0872
5358 S. 125 East Ave. Ste. B	Tulsa, OK 74146	(918) 459-2700

Acct ID: 0220ARC16 File ID: ARC16-39
Report Date: 07/09/2008
Project: Client Information
Location: Star Fuels Mart, MW-2 (18'-20')

Date Sampled: 06/10/2008
Sampled By: L. Cook
By Order Of: Eric Rainey
Order Number: OK 0001552.0001

Client: Arcadis Geraghty & Miller
REPORT: Dry Bulk
LAB NO: 0208E-0517

TEST RESULTS

Report No: 0208E-0517
Page 1 of 1

Material Represented: Red Lean Clay with Sand		
Test Methods	Sample ID	MW-2 (18'-20')
ASTM D2216	Natural Water Content (g weight of water/ g weight of dry soil	0.184
ASTM 2937	Dry Bulk Density (g/cc)	1.698
ASTM D854	Specific Gravity	2.706
	Walkley Black, Fractional Organic Carbon (g	0.00029
	Volumetric Water Content (CC volume of w ater/ CC total sample volume)	0.312
	Porosity (CC volume of void / CC total sample	0.373
	Soil Description	Red Lean Clay w ith Sand

Orig: Arcadis Geraghty & Miller (Tulsa, OK) (1-cc copy)
1-cc Laboratory

Respectfully Submitted,
Standard Testing & Engineering Company

Charles B. Burris, P.E.

PROFESSIONAL ENGINEER CHARLES B. BURRIS 14492 OKLAHOMA 7/14/08

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OBSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS OR PROCEDURES, NOR DO THEY REPRESENT AN ONGOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE NOT TO BE REPRODUCED WITHOUT WRITTEN PERMISSION.
REPORT CREATED BY ElmTree SYSTEM

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

June 23, 2008 4:48:51PM

Client: ARCADIS U.S., Inc. (8321)
5100 East Skelly Drive, Suite 1000
Tulsa, OK 74135
Attn: Eric Rainey

Work Order: NRF0830
Project Name: Circle B Food Mart
Project Nbr: [none]
P/O Nbr:
Date Received: 06/11/08

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW1-17	NRF0830-01	06/10/08 09:50
MW1-21	NRF0830-02	06/10/08 10:15
MW2-12	NRF0830-03	06/10/08 11:15
MW2-21	NRF0830-04	06/10/08 11:45
MW3-11	NRF0830-05	06/10/08 14:20
MW3-23	NRF0830-06	06/10/08 15:00
Trip Blank	NRF0830-07	06/10/08 00:01

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

Additional Laboratory Comments:
The Diesel Range TPH requested on the COC was not analyzed, at the request of the consultant.
Oklahoma Certification Number: 9412

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

Lisa M. Headley

Lisa Headley

Senior Project Manager

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NRF0830-01 (MW1-17 - Soil) Sampled: 06/10/08 09:50								
Volatile Organic Compounds by EPA Method 8021B								
Benzene	ND		mg/kg	0.000773	1	06/20/08 16:59	SW846 8021B	8061784
Ethylbenzene	ND		mg/kg	0.000773	1	06/20/08 16:59	SW846 8021B	8061784
Toluene	ND		mg/kg	0.000773	1	06/20/08 16:59	SW846 8021B	8061784
Xylenes, total	ND		mg/kg	0.00232	1	06/20/08 16:59	SW846 8021B	8061784
Surr: a,a,a-Trifluorotoluene (52-145%)	*82 %*					*06/20/08 16:59*	*SW846 8021B*	*8061784*
Purgeable Petroleum Hydrocarbons								
GRO (C6-C10)	ND		mg/kg	0.0773	1	06/20/08 16:59	ODEQ	8061784
Surr: a,a,a-Trifluorotoluene (80-120%)	*82 %*					*06/20/08 16:59*	*ODEQ*	*8061784*
Sample ID: NRF0830-02 (MW1-21 - Soil) Sampled: 06/10/08 10:15								
Volatile Organic Compounds by EPA Method 8021B								
Benzene	ND		mg/kg	0.000821	1	06/20/08 17:29	SW846 8021B	8061784
Ethylbenzene	ND		mg/kg	0.000821	1	06/20/08 17:29	SW846 8021B	8061784
Toluene	ND		mg/kg	0.000821	1	06/20/08 17:29	SW846 8021B	8061784
Xylenes, total	ND		mg/kg	0.00246	1	06/20/08 17:29	SW846 8021B	8061784
Surr: a,a,a-Trifluorotoluene (52-145%)	*83 %*					*06/20/08 17:29*	*SW846 8021B*	*8061784*
Purgeable Petroleum Hydrocarbons								
GRO (C6-C10)	ND		mg/kg	0.0821	1	06/20/08 17:29	ODEQ	8061784
Surr: a,a,a-Trifluorotoluene (80-120%)	*83 %*					*06/20/08 17:29*	*ODEQ*	*8061784*
Sample ID: NRF0830-03 (MW2-12 - Soil) Sampled: 06/10/08 11:15								
Volatile Organic Compounds by EPA Method 8021B								
Benzene	ND		mg/kg	0.000786	1	06/20/08 18:00	SW846 8021B	8061784
Ethylbenzene	ND		mg/kg	0.000786	1	06/20/08 18:00	SW846 8021B	8061784
Toluene	ND		mg/kg	0.000786	1	06/20/08 18:00	SW846 8021B	8061784
Xylenes, total	ND		mg/kg	0.00236	1	06/20/08 18:00	SW846 8021B	8061784
Surr: a,a,a-Trifluorotoluene (52-145%)	*85 %*					*06/20/08 18:00*	*SW846 8021B*	*8061784*
Purgeable Petroleum Hydrocarbons								
GRO (C6-C10)	ND		mg/kg	0.0786	1	06/20/08 18:00	ODEQ	8061784
Surr: a,a,a-Trifluorotoluene (80-120%)	*85 %*					*06/20/08 18:00*	*ODEQ*	*8061784*
Sample ID: NRF0830-04 (MW2-21 - Soil) Sampled: 06/10/08 11:45								
Volatile Organic Compounds by EPA Method 8021B								
Benzene	ND		mg/kg	0.000780	1	06/20/08 18:37	SW846 8021B	8061784
Ethylbenzene	ND		mg/kg	0.000780	1	06/20/08 18:37	SW846 8021B	8061784
Toluene	ND		mg/kg	0.000780	1	06/20/08 18:37	SW846 8021B	8061784
Xylenes, total	ND		mg/kg	0.00234	1	06/20/08 18:37	SW846 8021B	8061784
Surr: a,a,a-Trifluorotoluene (52-145%)	*79 %*					*06/20/08 18:37*	*SW846 8021B*	*8061784*
Purgeable Petroleum Hydrocarbons								
GRO (C6-C10)	ND		mg/kg	0.0755	1	06/21/08 18:55	ODEQ	8062018
Surr: a,a,a-Trifluorotoluene (80-120%)	*91 %*					*06/21/08 18:55*	*ODEQ*	*8062018*

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NRF0830-05 (MW3-11 - Soil) Sampled: 06/10/08 14:20								
Volatile Organic Compounds by EPA Method 8021B								
Benzene	ND		mg/kg	0.000747	1	06/20/08 19:49	SW846 8021B	8061784
Ethylbenzene	ND		mg/kg	0.000747	1	06/20/08 19:49	SW846 8021B	8061784
Toluene	ND		mg/kg	0.000747	1	06/20/08 19:49	SW846 8021B	8061784
Xylenes, total	ND		mg/kg	0.00224	1	06/20/08 19:49	SW846 8021B	8061784
Surr: a,a,a-Trifluorotoluene (52-145%)	*98 %*					*06/20/08 19:49*	*SW846 8021B*	*8061784*
Purgeable Petroleum Hydrocarbons								
GRO (C6-C10)	**0.133**		mg/kg	0.0747	1	06/20/08 19:49	ODEQ	8061784
Surr: a,a,a-Trifluorotoluene (80-120%)	*98 %*					*06/20/08 19:49*	*ODEQ*	*8061784*
Sample ID: NRF0830-06 (MW3-23 - Soil) Sampled: 06/10/08 15:00								
Volatile Organic Compounds by EPA Method 8021B								
Benzene	ND		mg/kg	0.000780	1	06/20/08 21:23	SW846 8021B	8061784
Ethylbenzene	ND		mg/kg	0.000780	1	06/20/08 21:23	SW846 8021B	8061784
Toluene	ND		mg/kg	0.000780	1	06/20/08 21:23	SW846 8021B	8061784
Xylenes, total	ND		mg/kg	0.00234	1	06/20/08 21:23	SW846 8021B	8061784
Surr: a,a,a-Trifluorotoluene (52-145%)	*98 %*					*06/20/08 21:23*	*SW846 8021B*	*8061784*
Purgeable Petroleum Hydrocarbons								
GRO (C6-C10)	ND		mg/kg	0.0780	1	06/20/08 21:23	ODEQ	8061784
Surr: a,a,a-Trifluorotoluene (80-120%)	*98 %*					*06/20/08 21:23*	*ODEQ*	*8061784*
Sample ID: NRF0830-07 (Trip Blank - Soil) Sampled: 06/10/08 00:01								
Volatile Organic Compounds by EPA Method 8021B								
Benzene	ND		mg/kg	0.00100	1	06/20/08 12:53	SW846 8021B	8061974
Ethylbenzene	ND		mg/kg	0.00100	1	06/20/08 12:53	SW846 8021B	8061974
Toluene	ND		mg/kg	0.00100	1	06/20/08 12:53	SW846 8021B	8061974
Xylenes, total	ND		mg/kg	0.00300	1	06/20/08 12:53	SW846 8021B	8061974
Surr: a,a,a-Trifluorotoluene (52-145%)	*84 %*					*06/20/08 12:53*	*SW846 8021B*	*8061974*

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
Purgeable Petroleum Hydrocarbons							
ODEQ	8061784	NRF0830-01	6.47	5.00	06/12/08 08:44	MXE	EPA 5035A (GC)
ODEQ	8061784	NRF0830-02	6.09	5.00	06/12/08 08:46	MXE	EPA 5035A (GC)
ODEQ	8061784	NRF0830-03	6.36	5.00	06/12/08 08:48	MXE	EPA 5035A (GC)
ODEQ	8061784	NRF0830-04	6.41	5.00	06/12/08 08:50	MXE	EPA 5035A (GC)
ODEQ	8062018	NRF0830-04RE1	6.62	5.00	06/12/08 08:50	MXE	EPA 5035A (GC)
ODEQ	8061784	NRF0830-05	6.69	5.00	06/12/08 08:52	MXE	EPA 5035A (GC)
ODEQ	8061784	NRF0830-06	6.41	5.00	06/12/08 08:54	MXE	EPA 5035A (GC)
Volatile Organic Compounds by EPA Method 8021B							
SW846 8021B	8061784	NRF0830-01	6.47	5.00	06/12/08 08:44	MXE	EPA 5035A (GC)
SW846 8021B	8061784	NRF0830-02	6.09	5.00	06/12/08 08:46	MXE	EPA 5035A (GC)
SW846 8021B	8061784	NRF0830-03	6.36	5.00	06/12/08 08:48	MXE	EPA 5035A (GC)
SW846 8021B	8061784	NRF0830-04	6.41	5.00	06/12/08 08:50	MXE	EPA 5035A (GC)
SW846 8021B	8061784	NRF0830-05	6.69	5.00	06/12/08 08:52	MXE	EPA 5035A (GC)
SW846 8021B	8061784	NRF0830-06	6.41	5.00	06/12/08 08:54	MXE	EPA 5035A (GC)
SW846 8021B	8061974	NRF0830-07	5.00	5.00	06/12/08 08:56	MXE	EPA 5035A (GC)

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8021B						
8061784-BLK1						
Benzene	<0.000500		mg/kg	8061784	8061784-BLK1	06/20/08 12:23
Ethylbenzene	<0.000400		mg/kg	8061784	8061784-BLK1	06/20/08 12:23
Toluene	<0.000600		mg/kg	8061784	8061784-BLK1	06/20/08 12:23
Xylenes, total	<0.00100		mg/kg	8061784	8061784-BLK1	06/20/08 12:23
Surrogate: a,a,a-Trifluorotoluene	87%			8061784	8061784-BLK1	06/20/08 12:23
8061784-BLK2						
Benzene	<0.000500		mg/kg	8061784	8061784-BLK2	06/20/08 23:24
Ethylbenzene	<0.000400		mg/kg	8061784	8061784-BLK2	06/20/08 23:24
Toluene	<0.000600		mg/kg	8061784	8061784-BLK2	06/20/08 23:24
Xylenes, total	<0.00100		mg/kg	8061784	8061784-BLK2	06/20/08 23:24
Surrogate: a,a,a-Trifluorotoluene	88%			8061784	8061784-BLK2	06/20/08 23:24
8061974-BLK1						
Benzene	<0.000500		mg/kg	8061974	8061974-BLK1	06/19/08 15:30
Ethylbenzene	<0.000400		mg/kg	8061974	8061974-BLK1	06/19/08 15:30
Toluene	<0.000600		mg/kg	8061974	8061974-BLK1	06/19/08 15:30
Xylenes, total	<0.00100		mg/kg	8061974	8061974-BLK1	06/19/08 15:30
Surrogate: a,a,a-Trifluorotoluene	86%			8061974	8061974-BLK1	06/19/08 15:30
8061974-BLK2						
Benzene	<0.000500		mg/kg	8061974	8061974-BLK2	06/20/08 12:23
Ethylbenzene	<0.000400		mg/kg	8061974	8061974-BLK2	06/20/08 12:23
Toluene	<0.000600		mg/kg	8061974	8061974-BLK2	06/20/08 12:23
Xylenes, total	<0.00100		mg/kg	8061974	8061974-BLK2	06/20/08 12:23
Surrogate: a,a,a-Trifluorotoluene	87%			8061974	8061974-BLK2	06/20/08 12:23
Purgeable Petroleum Hydrocarbons						
8061784-BLK1						
GRO (C6-C10)	<0.0200		mg/kg	8061784	8061784-BLK1	06/20/08 12:23
Surrogate: a,a,a-Trifluorotoluene	87%			8061784	8061784-BLK1	06/20/08 12:23
8061784-BLK2						
GRO (C6-C10)	<0.0200		mg/kg	8061784	8061784-BLK2	06/20/08 23:24
Surrogate: a,a,a-Trifluorotoluene	88%			8061784	8061784-BLK2	06/20/08 23:24
8062018-BLK1						
GRO (C6-C10)	<0.0200		mg/kg	8062018	8062018-BLK1	06/21/08 09:51
Surrogate: a,a,a-Trifluorotoluene	89%			8062018	8062018-BLK1	06/21/08 09:51
8062018-BLK2						
GRO (C6-C10)	<0.0200		mg/kg	8062018	8062018-BLK2	06/21/08 16:24

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Purgeable Petroleum Hydrocarbons						
8062018-BLK2						
Surrogate: a,a,a-Trifluorotoluene	89%			8062018	8062018-BLK2	06/21/08 16:24

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8021B								
8061784-BS1								
Benzene	0.100	0.103		mg/kg	103%	80 - 130	8061784	06/20/08 23:54
Ethylbenzene	0.100	0.105		mg/kg	105%	73 - 120	8061784	06/20/08 23:54
Toluene	0.100	0.103		mg/kg	103%	78 - 120	8061784	06/20/08 23:54
Xylenes, total	0.300	0.321		mg/kg	107%	73 - 120	8061784	06/20/08 23:54
Surrogate: a,a,a-Trifluorotoluene	30.0	25.5			85%	52 - 145	8061784	06/20/08 23:54
8061974-BS1								
Benzene	0.100	0.101		mg/kg	101%	80 - 130	8061974	06/20/08 14:28
Ethylbenzene	0.100	0.101		mg/kg	101%	73 - 120	8061974	06/20/08 14:28
Toluene	0.100	0.0993		mg/kg	99%	78 - 120	8061974	06/20/08 14:28
Xylenes, total	0.300	0.306		mg/kg	102%	73 - 120	8061974	06/20/08 14:28
Surrogate: a,a,a-Trifluorotoluene	30.0	26.2			87%	52 - 145	8061974	06/20/08 14:28
Purgeable Petroleum Hydrocarbons								
8061784-BS1								
GRO (C6-C10)	1.00	1.17		mg/kg	117%	60 - 140	8061784	06/20/08 23:54
Surrogate: a,a,a-Trifluorotoluene	30.0	25.5			85%	80 - 120	8061784	06/20/08 23:54
8062018-BS1								
GRO (C6-C10)	1.00	1.04		mg/kg	104%	60 - 140	8062018	06/21/08 07:57
Surrogate: a,a,a-Trifluorotoluene	30.0	26.5			88%	80 - 120	8062018	06/21/08 07:57

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8021B										
8061784-MS1										
Benzene	ND	0.0271		mg/kg	0.0500	54%	24 - 153	8061784	NRF0847-06	06/21/08 06:27
Ethylbenzene	ND	0.0138		mg/kg	0.0500	28%	10 - 150	8061784	NRF0847-06	06/21/08 06:27
Toluene	ND	0.0192		mg/kg	0.0500	38%	13 - 136	8061784	NRF0847-06	06/21/08 06:27
Xylenes, total	ND	0.0345		mg/kg	0.150	23%	10 - 148	8061784	NRF0847-06	06/21/08 06:27
Surrogate: a,a,a-Trifluorotoluene		25.6		ug/L	30.0	85%	52 - 145	8061784	NRF0847-06	06/21/08 06:27

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	Target Range	RPD	Limit	Batch	Sample Duplicated	Analyzed Date/Time
Volatile Organic Compounds by EPA Method 8021B												
8061784-MSD1												
Benzene	ND	0.0329		mg/kg	0.0497	66%	24 - 153	19	50	8061784	NRF0847-06	06/21/08 06:57
Ethylbenzene	ND	0.0324	R3	mg/kg	0.0497	65%	10 - 150	81	50	8061784	NRF0847-06	06/21/08 06:57
Toluene	ND	0.0321		mg/kg	0.0497	65%	13 - 136	50	50	8061784	NRF0847-06	06/21/08 06:57
Xylenes, total	ND	0.0952	R3	mg/kg	0.149	64%	10 - 148	94	50	8061784	NRF0847-06	06/21/08 06:57
Surrogate: a,a,a-Trifluorotoluene		25.3		ug/L	30.0	84%	52 - 145			8061784	NRF0847-06	06/21/08 06:57

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

CERTIFICATION SUMMARY

TestAmerica Nashville

Method	Matrix	AIHA	Nelac	Oklahoma
ODEQ	Soil	N/A	X	X
SW846 8021B	Soil	N/A	X	X

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	ARCADIS U.S., Inc. (8321)	Work Order:	NRF0830
	5100 East Skelly Drive, Suite 1000	Project Name:	Circle B Food Mart
	Tulsa, OK 74135	Project Number:	[none]
Attn	Eric Rainey	Received:	06/11/08 08:15

DATA QUALIFIERS AND DEFINITIONS

R3	The RPD exceeded the acceptance limit due to sample matrix effects.
ND	Not detected at the reporting limit (or method detection limit if shown)

METHOD MODIFICATION NOTES

IMAGED 10/10/2008

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER RECEI

NRF0830

Cooler Received/Opened On 6/11/2008 @ 0815

1. Tracking # 0596 (last 4 digits, FedEx)

Courier: FedEx IR Gun ID A00750

2. Temperature of rep. sample or temp blank when opened: 1.8 *Degrees Celsius*

3. If item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: 1 (front)

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry Ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (Intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

   If preservation in-house was needed, record standard ID of preservative used here_____

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (Intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

Dates taken from containers

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 9/6/07

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Nashville Division
2960 Foster Creighton Drive * Nashville TN 37204
Phone: (800) 765-0980 / (615) 726-0177 Fax:(615) 726-3404

Page ____

Client: ARCADIS U.S., Inc. (8321)
Address: 5100 East Skelly Drive, Suite 1000
City, State, Zip: Tulsa OK 74135
Client Invoice Contact: Eric Rainey
Client Project Mgr: Eric Rainey
Client Telephone#: (918) 664-9900 Fax: (918) 664-9925
Sampler Name (Print): Larry Cook
SamplerSignature: [signature]

TA Account #: 102146 PO #:
Invoice to: ARCADIS U.S., Inc. (8321)
Report to: Eric Rainey
Project Name: Circle B Food Mart
Facility ID: [none]
Site Address:
City,State,Zip: Oklahoma
Regulatory District (CA):

Sample ID	Date Sampled	Time Sampled	# Containers Shipped	Grab	Composite	Field Filtered	Preservative: Methanol	Sodium Bisulfate	(Blue Label) HCL	(Orange Label) NaOH	(Yellow Label) Plastic H2SO4	(Yellow Label) Glass H2SO4	(Red Label) HNO3	(Black Label) None	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	(specify) Other	Analyze for: 8021B BTEX	TPH - Diesel Range by ODEQ	TPH - Gasoline Range by ODEQ									RUSH TAT (Pre Schedule) *
MW1-17		0950	7	X			X	X											X		X	X	X			0						
MW1-21		1015	7	X			X	X											X		X	X	X			2						
MW2-12		1115	7	X			X	X											X		X	X	X			3						
MW2-21		1145	7	X			X	X											X		X	X	X			4						
MW3-11		1420	7	X			X	X											X		X	X	X			5						
MW3-23		1500	7	X			X	X											X		X	X	X			6						

NRF0830
06/25/08 23:59

COMMENTS: All turn around times are calculated from the time of receipt at TestAmerica.
* Pre-Arrangements must be made AT LEAST 48 Hours in ADVANCE to receive results with RUSH turn around time commitments;additional charges may be assessed.
There may be a charge assessed for TestAmerica disposing of sample remainders.

NOTES/SPECIAL INSTRUCTIONS: BO # 10865

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Relinquished by:	Date:	Time:
[signature]	6/10/08	1930						

Shipped Via:

Received for TestAmerica by: [signature] Date: 6/11/08 Time: 9:05

Shipped Via:
Temperature Upon Receipt: 1°C
Sample Containers Intact? Y N
VOCs Free of Headspace? Y N

QC Deliverables (Please Circle One): Level 2 Level 3 Level 4 Site Specific
(If site specific, please pre-schedule w/ TestAmerica Project Manager or attach specific instructions)

Date Due of Report:

ID 10/10/2008

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Austin • 14050 Summit Drive, Suite A100, Austin, TX 78728 • Tel 512 244 0855 • Fax 512 244 0160 • www.testamericainc.com

ANALYTICAL REPORT

PROJECT NO. OK001552.0001

Star Fuel Mart 2412 SW 44th

Lot #: I8F240208

Eric Rainey

ARCADIS Geraghty & Miller, Inc
5100 East Skelly Drive
Suite 1000
Tulsa, OK 74135

TESTAMERICA LABORATORIES, INC.

Neal J. Salcher
Project Manager

July 9, 2008

IMAGED 10/10/2008

Case Narrative

LOT NUMBER: **I8F240208**

This report contains the analytical results for the eight samples received under chain of custody by TestAmerica Laboratories, Inc. on June 24, 2008. These samples are associated with your Star Fuel Mart 2412 SW 44th project.

All samples were received in good condition and within temperature requirements.

All applicable quality control procedures met method-specified acceptance criteria except where noted in the case narrative or flagged on the result pages.

This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at (512) 310-5215.

LOT NUMBER I8F240208

Nonconformance 09-0024596

Affected Samples:
I8F240208 (8):

Affected Methods:
8021B

Case Narrative:
The sample was a trip blank that was screened due to analyst error. There was insufficient volume for analysis of the sample at a 1X so the limited volume was analyzed at a dilution of 2X.

Corrective Action:
The analyst was informed of the error and was reminded that trip blanks do not need to be screened prior to analysis.

IMAGED 10/10/2008

EXECUTIVE SUMMARY - Detection Highlights

I8F240208

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DRUM SOIL 06/23/08 10:00 001				
Lead	11.7	0.29	mg/kg	SW846 6010B
MW-B 06/23/08 14:00 005				
Gasoline Range Organics	82000	4000	ug/L	OK-DEQ 8020/8015
Benzene	7500	200	ug/L	SW846 8021B
Ethylbenzene	4500	200	ug/L	SW846 8021B
Toluene	23000	200	ug/L	SW846 8021B
Xylenes (total)	22000	600	ug/L	SW846 8021B
MW-A 06/23/08 14:30 006				
Gasoline Range Organics	660	20	ug/L	OK-DEQ 8020/8015
Benzene	64	1.0	ug/L	SW846 8021B
Ethylbenzene	2.9	1.0	ug/L	SW846 8021B
Xylenes (total)	13	3.0	ug/L	SW846 8021B
PW062308 06/23/08 15:00 007				
Gasoline Range Organics	11000	200	ug/L	OK-DEQ 8020/8015
Benzene	610	10	ug/L	SW846 8021B
Ethylbenzene	520	10	ug/L	SW846 8021B
Toluene	2000	10	ug/L	SW846 8021B
Xylenes (total)	2600	30	ug/L	SW846 8021B
Lead	0.0056	0.0030	mg/L	SW846 6010B
Flashpoint	>210	--	deg F	SW846 1020A

IMAGED 10/10/2008

ANALYTICAL METHODS SUMMARY

I8F240208

PARAMETER	ANALYTICAL METHOD
Gasoline Range Organics	OK-DEQ 8020/8015 Mod
Ignitability	SW846 1020A
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Volatiles by GC	SW846 8021B

References:

OK-DEQ "GASOLINE RANGE ORGANICS (GRO), 8015 MODIFIED" AND "DIESEL R ANGE ORGANICS (DRO), 8100 MODIFIED"; OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY, FEBRUARY 24, 1996.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

IMAGED 10/10/2008

SAMPLE SUMMARY

I8F240208

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
KQG3L	001	DRUM SOIL	06/23/08	10:00
KQG3M	002	MW-2	06/23/08	13:00
KQG3P	003	MW-1	06/23/08	13:15
KQG3Q	004	MW-3	06/23/08	13:45
KQG3V	005	MW-B	06/23/08	14:00
KQG3W	006	MW-A	06/23/08	14:30
KQG3X	007	PW062308	06/23/08	15:00
KQHAA	008	TRIP BLANK	06/23/08	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

IMAGED 10/10/2008

QC DATA ASSOCIATION SUMMARY

I8F240208

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SOLID	OK-DEQ 8020/8015		8190342	8190228
	SOLID	SW846 6010B		8177237	8177148
	SOLID	SW846 8021B		8190285	8190187
002	WATER	OK-DEQ 8020/8015		8190350	8190230
	WATER	SW846 8021B		8190286	8190188
003	WATER	OK-DEQ 8020/8015		8190350	8190230
	WATER	SW846 8021B		8190286	8190188
004	WATER	OK-DEQ 8020/8015		8190350	8190230
	WATER	SW846 8021B		8190286	8190188
005	WATER	OK-DEQ 8020/8015		8190350	8190230
	WATER	SW846 8021B		8190286	8190188
006	WATER	OK-DEQ 8020/8015		8190350	8190230
	WATER	SW846 8021B		8190286	8190188
007	WATER	SW846 1020A		8183186	8183089
	WATER	OK-DEQ 8020/8015		8190350	8190230
	WATER	SW846 6010B		8177175	8177114
	WATER	SW846 8021B		8190286	8190188
008	WATER	SW846 8021B		8190286	8190188

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: DRUM SOIL

GC Volatiles

Lot-Sample #...:	I8F240208-001	**Work Order #...:**	KQG3L1AC	**Matrix.....:**	SOLID
Date Sampled...:	06/23/08 10:00	**Date Received..:**	06/24/08	**MS Run #.....:**	8190228
Prep Date.....:	07/07/08	**Analysis Date..:**	07/07/08		
Prep Batch #...:	8190342	**Analysis Time..:**	12:31		
Dilution Factor:	0.99				
% Moisture.....:		**Method.....:**	OK-DEQ 8020/8015		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	99	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(75 - 125)
4-Bromofluorobenzene (GRO)	82	(75 - 125)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: DRUM SOIL

GC Volatiles

Lot-Sample #...:	I8F240208-001	**Work Order #...:**	KQG3L1AA	**Matrix.....:**	SOLID
Date Sampled...:	06/23/08 10:00	**Date Received..:**	06/24/08	**MS Run #.....:**	8190187
Prep Date.....:	07/07/08	**Analysis Date..:**	07/07/08		
Prep Batch #...:	8190285	**Analysis Time..:**	12:31		
Dilution Factor:	0.98				
% Moisture.....:		**Method.....:**	SW846 8021B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	4.9	ug/kg
Ethylbenzene	ND	4.9	ug/kg
Toluene	ND	4.9	ug/kg
Xylenes (total)	ND	15	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	88	(20 - 184)
a,a,a-Trifluorotoluene (TFT)	100	(47 - 137)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: DRUM SOIL

TOTAL Metals

Lot-Sample #...: I8F240208-001 Matrix.....: SOLID
Date Sampled...: 06/23/08 10:00 Date Received..: 06/24/08
% Moisture.....:

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 8177237						
Lead	11.7	0.29	mg/kg	SW846 6010B	06/25-06/30/08	KQG3L1AD
		Dilution Factor: 0.97		Analysis Time..: 09:46	MS Run #.....: 8177148	

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...: I8F240208-002 Work Order #...: KQG3M1AC Matrix.....: WATER
Date Sampled...: 06/23/08 13:00 Date Received..: 06/24/08 MS Run #.....: 8190230
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 17:24
Dilution Factor: 1

Method.....: OK-DEQ 8020/8015

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	89	(75 - 125)
4-Bromofluorobenzene (GRO)	85	(75 - 125)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-2

GC Volatiles

Lot-Sample #...: I8F240208-002 Work Order #...: KQG3M1AA Matrix.....: WATER
Date Sampled...: 06/23/08 13:00 Date Received..: 06/24/08 MS Run #.....: 8190188
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190286 Analysis Time..: 17:24
Dilution Factor: 1

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	98	(72 - 127)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #...: I8F240208-003 Work Order #...: KQG3P1AC Matrix.....: WATER
Date Sampled...: 06/23/08 13:15 Date Received..: 06/24/08 MS Run #.....: 8190230
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 17:51
Dilution Factor: 1

Method.....: OK-DEQ 8020/8015

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	86	(75 - 125)
4-Bromofluorobenzene (GRO)	91	(75 - 125)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-1

GC Volatiles

Lot-Sample #...:	I8F240208-003	**Work Order #...:**	KQG3P1AA	**Matrix.....:**	WATER
Date Sampled...:	06/23/08 13:15	**Date Received..:**	06/24/08	**MS Run #.....:**	8190188
Prep Date.....:	07/07/08	**Analysis Date..:**	07/07/08		
Prep Batch #...:	8190286	**Analysis Time..:**	17:51		
Dilution Factor:	1				
		Method.....:	SW846 8021B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	100	(72 - 127)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...:	I8F240208-004	**Work Order #...:**	KQG3Q1AC	**Matrix.....:**	WATER
Date Sampled...:	06/23/08 13:45	**Date Received..:**	06/24/08	**MS Run #.....:**	8190230
Prep Date.....:	07/07/08	**Analysis Date..:**	07/07/08		
Prep Batch #...:	8190350	**Analysis Time..:**	18:19		
Dilution Factor:	1				
		Method.....:	OK-DEQ 8020/8015		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	89	(75 - 125)
4-Bromofluorobenzene (GRO)	81	(75 - 125)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-3

GC Volatiles

Lot-Sample #...: I8F240208-004 Work Order #...: KQG3Q1AA Matrix.....: WATER
Date Sampled...: 06/23/08 13:45 Date Received..: 06/24/08 MS Run #.....: 8190188
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190286 Analysis Time..: 18:19
Dilution Factor: 1

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	ND	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	104	(72 - 127)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-B

GC Volatiles

Lot-Sample #...: I8F240208-005 Work Order #...: KQG3V1AC Matrix.....: WATER
Date Sampled...: 06/23/08 14:00 Date Received..: 06/24/08 MS Run #.....: 8190230
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 18:42
Dilution Factor: 200

Method.....: OK-DEQ 8020/8015

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	82000	4000	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	90	(75 - 125)
4-Bromofluorobenzene (GRO)	93	(75 - 125)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-B

GC Volatiles

Lot-Sample #...: I8F240208-005
Date Sampled...: 06/23/08 14:00
Prep Date.....: 07/07/08
Prep Batch #...: 8190286
Dilution Factor: 200

Work Order #...: KQG3V1AA
Date Received..: 06/24/08
Analysis Date..: 07/07/08
Analysis Time..: 19:42

Matrix.....: WATER
MS Run #.....: 8190188

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	7500	200	ug/L
Ethylbenzene	4500	200	ug/L
Toluene	23000	200	ug/L
Xylenes (total)	22000	600	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	103	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	91	(72 - 127)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-A

GC Volatiles

Lot-Sample #...: I8F240208-006 Work Order #...: KQG3W1AC Matrix.....: WATER
Date Sampled...: 06/23/08 14:30 Date Received..: 06/24/08 MS Run #.....: 8190230
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 18:46
Dilution Factor: 1

Method.....: OK-DEQ 8020/8015

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	660	20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	111	(75 - 125)
4-Bromofluorobenzene (GRO)	100	(75 - 125)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: MW-A

GC Volatiles

Lot-Sample #...: I8F240208-006
Date Sampled...: 06/23/08 14:30
Prep Date.....: 07/07/08
Prep Batch #...: 8190286
Dilution Factor: 1

Work Order #...: KQG3W1AA
Date Received..: 06/24/08
Analysis Date..: 07/07/08
Analysis Time..: 18:46

Matrix.....: WATER
MS Run #.....: 8190188

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	64	1.0	ug/L
Ethylbenzene	2.9	1.0	ug/L
Toluene	ND	1.0	ug/L
Xylenes (total)	13	3.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	106	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	93	(72 - 127)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: PW062308

GC Volatiles

Lot-Sample #...: I8F240208-007 Work Order #...: KQG3X1AE Matrix.....: WATER
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08 MS Run #.....: 8190230
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 19:14
Dilution Factor: 10

Method.....: OK-DEQ 8020/8015

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	11000	200	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	109	(75 - 125)
4-Bromofluorobenzene (GRO)	96	(75 - 125)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: PW062308

GC Volatiles

Lot-Sample #...: I8F240208-007 Work Order #...: KQG3X1AA Matrix.....: WATER
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08 MS Run #.....: 8190188
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190286 Analysis Time..: 19:14
Dilution Factor: 10

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	610	10	ug/L
Ethylbenzene	520	10	ug/L
Toluene	2000	10	ug/L
Xylenes (total)	2600	30	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	104	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	98	(72 - 127)

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: PW062308

TOTAL Metals

Lot-Sample #...: I8F240208-007 Matrix.....: WATER
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 8177175						
Lead	0.0056	0.0030	mg/L	SW846 6010B	06/25-06/26/08	KQG3X1AD
		Dilution Factor: 1		Analysis Time..: 10:38	MS Run #.....: 8177114	

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: PW062308

General Chemistry

Lot-Sample #...: I8F240208-007 Work Order #...: KQG3X Matrix.....: WATER
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Flashpoint	>210	--	deg F	SW846 1020A	07/01/08	8183186

Dilution Factor: 1 Analysis Time..: 10:00 MS Run #.....: 8183089

IMAGED 10/10/2008

ARCADIS U.S., Inc.

Client Sample ID: TRIP BLANK

GC Volatiles

Lot-Sample #...: I8F240208-008
Date Sampled...: 06/23/08
Prep Date.....: 07/07/08
Prep Batch #...: 8190286
Dilution Factor: 2

Work Order #...: KQHAA1AA
Date Received..: 06/24/08
Analysis Date..: 07/07/08
Analysis Time..: 16:56

Matrix.....: WATER
MS Run #.....: 8190188

Method.....: SW846 8021B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	ND	2.0	ug/L
Ethylbenzene	ND	2.0	ug/L
Toluene	ND	2.0	ug/L
Xylenes (total)	ND	6.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	98	(72 - 127)

IMAGED 10/10/2008

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I8F240208
MB Lot-Sample #: I8G080000-342
Analysis Date..: 07/07/08
Dilution Factor: 1

Work Order #...: KQ6681AA
Prep Date.....: 07/07/08
Prep Batch #...: 8190342

Matrix.....: SOLID
Analysis Time..: 10:31

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Gasoline Range Organics	ND	100	ug/kg	OK-DEQ 8020/8015

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(75 - 125)
4-Bromofluorobenzene (GRO	89	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I8F240208
MB Lot-Sample #: I8G080000-350
Work Order #...: KQ67T1AA
Matrix.....: WATER
Prep Date.....: 07/07/08
Analysis Time..: 15:33
Analysis Date..: 07/07/08
Prep Batch #...: 8190350
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Gasoline Range Organics	ND	20	ug/L	OK-DEQ 8020/8015

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	89	(75 - 125)
4-Bromofluorobenzene (GRO	87	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I8F240208
MB Lot-Sample #: I8G080000-285

Work Order #...: KQ61T1AA
Prep Date.....: 07/07/08
Prep Batch #...: 8190285

Matrix.....: SOLID
Analysis Time..: 10:31

Analysis Date..: 07/07/08
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	5.0	ug/kg	SW846 8021B
Ethylbenzene	ND	5.0	ug/kg	SW846 8021B
Toluene	ND	5.0	ug/kg	SW846 8021B
Xylenes (total)	ND	15	ug/kg	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(20 - 184)
a,a,a-Trifluorotoluene (TFT)	98	(47 - 137)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: I8F240208
MB Lot-Sample #: I8G080000-286
Work Order #...: KQ61X1AA
Matrix.....: WATER
Prep Date.....: 07/07/08
Analysis Time..: 15:33
Analysis Date..: 07/07/08
Prep Batch #...: 8190286
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8021B
Ethylbenzene	ND	1.0	ug/L	SW846 8021B
Toluene	ND	1.0	ug/L	SW846 8021B
Xylenes (total)	ND	3.0	ug/L	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	97	(72 - 127)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2003

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: I8F240208 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: I8F250000-175 Prep Batch #...: 8177175						
Lead	ND	0.0030	mg/L	SW846 6010B	06/25-06/26/08	KQJED1AA
		Dilution Factor: 1				
		Analysis Time..: 10:07				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: I8F240208 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: I8F250000-237 **Prep Batch #...:** 8177237						
Lead	ND	0.30	mg/kg	SW846 6010B	06/25-06/30/08	KQJPR1AA
		Dilution Factor: 1				
		Analysis Time..: 09:13				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQ6681AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: I8G080000-342 KQ6681AD-LCSD
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190342 Analysis Time..: 11:26
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	84	(60 - 140)			OK-DEQ 8020/8015 Mod
	89	(60 - 140)	5.9	(0-40)	OK-DEQ 8020/8015 Mod

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	91	(75 - 125)
	105	(75 - 125)
4-Bromofluorobenzene (GRO)	90	(75 - 125)
	104	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQ6681AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: I8G080000-342 KQ6681AD-LCSD
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190342 Analysis Time..: 11:26
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Gasoline Range Organics	**330**	**278**	**ug/kg**	**84**		**OK-DEQ 8020/8015 Mod**
	330	**295**	**ug/kg**	**89**	**5.9**	**OK-DEQ 8020/8015 Mod**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	91	(75 - 125)
	105	(75 - 125)
4-Bromofluorobenzene (GRO)	90	(75 - 125)
	104	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQ67T1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: I8G080000-350 KQ67T1AD-LCSD
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 16:01
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	87	(80 - 120)			OK-DEQ 8020/8015 Mod
	86	(80 - 120)	0.59	(0-20)	OK-DEQ 8020/8015 Mod

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(75 - 125)
	90	(75 - 125)
4-Bromofluorobenzene (GRO)	90	(75 - 125)
	94	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQ67T1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: I8G080000-350 KQ67T1AD-LCSD
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 16:01
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Gasoline Range Organics	330	287	ug/L	87		OK-DEQ 8020/8015 Mod
	330	285	ug/L	86	0.59	OK-DEQ 8020/8015 Mod

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	94	(75 - 125)
	90	(75 - 125)
4-Bromofluorobenzene (GRO)	90	(75 - 125)
	94	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQ61T1AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: I8G080000-285 KQ61T1AD-LCSD
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190285 Analysis Time..: 11:26
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**98**	**(73 - 128)**			**SW846 8021B**
	88	**(73 - 128)**	**11**	**(0-30)**	**SW846 8021B**
Ethylbenzene	**91**	**(73 - 136)**			**SW846 8021B**
	81	**(73 - 136)**	**11**	**(0-30)**	**SW846 8021B**
Toluene	**100**	**(71 - 129)**			**SW846 8021B**
	89	**(71 - 129)**	**12**	**(0-30)**	**SW846 8021B**
Xylenes (total)	**93**	**(74 - 130)**			**SW846 8021B**
	82	**(74 - 130)**	**12**	**(0-30)**	**SW846 8021B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(71 - 133)
	91	(71 - 133)
a,a,a-Trifluorotoluene (TFT)	97	(67 - 125)
	93	(67 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQ61T1AC-LCS Matrix.....: SOLID
LCS Lot-Sample#: I8G080000-285 KQ61T1AD-LCSD
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190285 Analysis Time..: 11:26
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	34.4	33.6	ug/kg	98		SW846 8021B
	34.4	30.3	ug/kg	88	11	SW846 8021B
Ethylbenzene	33.3	30.2	ug/kg	91		SW846 8021B
	33.3	27.1	ug/kg	81	11	SW846 8021B
Toluene	33.4	33.6	ug/kg	100		SW846 8021B
	33.4	29.8	ug/kg	89	12	SW846 8021B
Xylenes (total)	98.7	91.5	ug/kg	93		SW846 8021B
	98.7	81.3	ug/kg	82	12	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(71 - 133)
	91	(71 - 133)
a,a,a-Trifluorotoluene (TFT)	97	(67 - 125)
	93	(67 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQ61X1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: I8G080000-286 KQ61X1AD-LCSD
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190286 Analysis Time..: 16:01
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Xylenes (total)	**96**	**(86 - 119)**			**SW846 8021B**
	94	**(86 - 119)**	**2.6**	**(0-20)**	**SW846 8021B**
Benzene	**101**	**(80 - 115)**			**SW846 8021B**
	99	**(80 - 115)**	**2.0**	**(0-20)**	**SW846 8021B**
Ethylbenzene	**91**	**(81 - 115)**			**SW846 8021B**
	89	**(81 - 115)**	**1.8**	**(0-20)**	**SW846 8021B**
Toluene	**99**	**(85 - 115)**			**SW846 8021B**
	96	**(85 - 115)**	**2.8**	**(0-20)**	**SW846 8021B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(85 - 111)
	101	(85 - 111)
a,a,a-Trifluorotoluene (TFT)	100	(86 - 107)
	101	(86 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQ61X1AC-LCS Matrix.....: WATER
LCS Lot-Sample#: I8G080000-286 KQ61X1AD-LCSD
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190286 Analysis Time..: 16:01
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Xylenes (total)	98.7	95.1	ug/L	96		SW846 8021B
	98.7	92.6	ug/L	94	2.6	SW846 8021B
Benzene	34.4	34.8	ug/L	101		SW846 8021B
	34.4	34.1	ug/L	99	2.0	SW846 8021B
Ethylbenzene	33.3	30.3	ug/L	91		SW846 8021B
	33.3	29.7	ug/L	89	1.8	SW846 8021B
Toluene	33.4	33.0	ug/L	99		SW846 8021B
	33.4	32.1	ug/L	96	2.8	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(85 - 111)
	101	(85 - 111)
a,a,a-Trifluorotoluene (TFT)	100	(86 - 107)
	101	(86 - 107)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I8F240208 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#:	I8F250000-175	**Prep Batch #...:** 8177175			
Lead	97	(80 - 120)	SW846 6010B	06/25-06/26/08	KQJED1AC
		Dilution Factor: 1	Analysis Time..: 10:13		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I8F240208 Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: I8F250000-175 Prep Batch #...: 8177175							
Lead	0.500	0.484	mg/L	97	SW846 6010B	06/25-06/26/08	KQJED1AC
			Dilution Factor: 1		Analysis Time..: 10:13		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I8F240208 Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#:	I8F250000-237	Prep Batch #...: 8177237			
Lead	101	(80 - 120)	SW846 6010B	06/25-06/30/08	KQJPR1AC
		Dilution Factor: 1	Analysis Time..: 09:18		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I8F240208 Matrix.....: SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: I8F250000-237 Prep Batch #...: 8177237							
Lead	50.0	50.3	mg/kg	101	SW846 6010B	06/25-06/30/08	KQJPR1AC

Dilution Factor: 1 Analysis Time..: 09:18

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: I8F240208 Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Flashpoint		Work Order #: KQWEW1AA	LCS Lot-Sample#: I8G010000-186		
	102	(95 - 105)	SW846 1020A	07/01/08	8183186

Dilution Factor: 1 Analysis Time..: 10:00

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: I8F240208 Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Flashpoint			Work Order #:	KQWEW1AA	LCS Lot-Sample#:	I8G010000-186	
	81.0	82.6	deg F	102	SW846 1020A	07/01/08	8183186

Dilution Factor: 1 Analysis Time..: 10:00

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQG3L1AU-MS Matrix.....: SOLID
MS Lot-Sample #: I8F240208-001 KQG3L1AV-MSD
Date Sampled...: 06/23/08 10:00 Date Received..: 06/24/08 MS Run #.....: 8190228
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190342 Analysis Time..: 12:58
Dilution Factor: 0.99 % Moisture.....:

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	57 a	(60 - 140)			OK-DEQ 8020/8015 Mod
	59 a	(60 - 140)	2.4	(0-40)	OK-DEQ 8020/8015 Mod

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(75 - 125)
	92	(75 - 125)
4-Bromofluorobenzene (GRO	79	(75 - 125)
	86	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQG3L1AU-MS Matrix.....: SOLID
MS Lot-Sample #: I8F240208-001 KQG3L1AV-MSD
Date Sampled...: 06/23/08 10:00 Date Received..: 06/24/08 MS Run #.....: 8190228
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190342 Analysis Time..: 12:58
Dilution Factor: 0.99 % Moisture.....:

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Gasoline Range Organics	ND	330	189	ug/kg	57 a		OK-DEQ 8020/8015 Mod
	ND	330	194	ug/kg	59 a	2.4	OK-DEQ 8020/8015 Mod

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	96	(75 - 125)
	92	(75 - 125)
4-Bromofluorobenzene (GRO	79	(75 - 125)
	86	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQG3X1A4-MS Matrix.....: WATER
MS Lot-Sample #: I8F240208-007 KQG3X1A5-MSD
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08 MS Run #.....: 8190230
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 20:09
Dilution Factor: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	**59 a**	**(80 - 120)**			**OK-DEQ 8020/8015 Mod**
	62 a	**(80 - 120)**	**0.82**	**(0-20)**	**OK-DEQ 8020/8015 Mod**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)
	97	(75 - 125)
4-Bromofluorobenzene (GRO	99	(75 - 125)
	98	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQG3X1A4-MS Matrix.....: WATER
MS Lot-Sample #: I8F240208-007 KQG3X1A5-MSD
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08 MS Run #.....: 8190230
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190350 Analysis Time..: 20:09
Dilution Factor: 10

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Gasoline Range Organics	11000	3300	12900	ug/L	59 a		OK-DEQ 8020/8015 Mod
	11000	3300	13000	ug/L	62 a	0.82	OK-DEQ 8020/8015 Mod

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene (TFT)	100	(75 - 125)
	97	(75 - 125)
4-Bromofluorobenzene (GRO	99	(75 - 125)
	98	(75 - 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQG3L1AR-MS Matrix.....: SOLID
MS Lot-Sample #: I8F240208-001 KQG3L1AT-MSD
Date Sampled...: 06/23/08 10:00 Date Received..: 06/24/08 MS Run #.....: 8190187
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190285 Analysis Time..: 12:58
Dilution Factor: 0.99 % Moisture.....:

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	80	(73 - 128)			SW846 8021B
	74	(73 - 128)	7.1	(0-30)	SW846 8021B
Ethylbenzene	69 a	(73 - 136)			SW846 8021B
	72 a	(73 - 136)	4.2	(0-30)	SW846 8021B
Toluene	81	(71 - 129)			SW846 8021B
	80	(71 - 129)	2.0	(0-30)	SW846 8021B
Xylenes (total)	72 a	(74 - 130)			SW846 8021B
	73 a	(74 - 130)	2.3	(0-30)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(20 - 184)
	100	(20 - 184)
a,a,a-Trifluorotoluene (TFT)	106	(47 - 137)
	106	(47 - 137)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQG3L1AR-MS Matrix.....: SOLID
MS Lot-Sample #: I8F240208-001 KQG3L1AT-MSD
Date Sampled...: 06/23/08 10:00 Date Received..: 06/24/08 MS Run #.....: 8190187
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190285 Analysis Time..: 12:58
Dilution Factor: 0.99 % Moisture.....:

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	ND	34.4	27.5	ug/kg	80		SW846 8021B
	ND	34.4	25.6	ug/kg	74	7.1	SW846 8021B
Ethylbenzene	ND	33.3	23.1	ug/kg	69 a		SW846 8021B
	ND	33.3	24.1	ug/kg	72 a	4.2	SW846 8021B
Toluene	ND	33.4	27.1	ug/kg	81		SW846 8021B
	ND	33.4	26.5	ug/kg	80	2.0	SW846 8021B
Xylenes (total)	ND	98.7	70.6	ug/kg	72 a		SW846 8021B
	ND	98.7	72.3	ug/kg	73 a	2.3	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(20 - 184)
	100	(20 - 184)
a,a,a-Trifluorotoluene (TFT)	106	(47 - 137)
	106	(47 - 137)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQG3X1A2-MS Matrix.....: WATER
MS Lot-Sample #: I8F240208-007 KQG3X1A3-MSD
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08 MS Run #.....: 8190188
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190286 Analysis Time..: 20:09
Dilution Factor: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	112	(80 - 115)			SW846 8021B
	102	(80 - 115)	3.5	(0-20)	SW846 8021B
Ethylbenzene	93	(81 - 115)			SW846 8021B
	94	(81 - 115)	0.45	(0-20)	SW846 8021B
Toluene	102	(85 - 115)			SW846 8021B
	89	(85 - 115)	1.9	(0-20)	SW846 8021B
Xylenes (total)	86	(86 - 119)			SW846 8021B
	89	(86 - 119)	0.80	(0-20)	SW846 8021B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	108	(81 - 119)
	109	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	106	(72 - 127)
	100	(72 - 127)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: I8F240208 Work Order #...: KQG3X1A2-MS Matrix.....: WATER
MS Lot-Sample #: I8F240208-007 KQG3X1A3-MSD
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08 MS Run #.....: 8190188
Prep Date.....: 07/07/08 Analysis Date..: 07/07/08
Prep Batch #...: 8190286 Analysis Time..: 20:09
Dilution Factor: 10

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	**610**	**344**	**999**	**ug/L**	**112**		**SW846 8021B**
	610	**344**	**965**	**ug/L**	**102**	**3.5**	**SW846 8021B**
Ethylbenzene	**520**	**333**	**831**	**ug/L**	**93**		**SW846 8021B**
	520	**333**	**835**	**ug/L**	**94**	**0.45**	**SW846 8021B**
Toluene	**2000**	**334**	**2330**	**ug/L**	**102**		**SW846 8021B**
	2000	**334**	**2280**	**ug/L**	**89**	**1.9**	**SW846 8021B**
Xylenes (total)	**2600**	**987**	**3400**	**ug/L**	**86**		**SW846 8021B**
	2600	**987**	**3430**	**ug/L**	**89**	**0.80**	**SW846 8021B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	108	(81 - 119)
	109	(81 - 119)
a,a,a-Trifluorotoluene (TFT)	106	(72 - 127)
	100	(72 - 127)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I8F240208 Matrix.....: WATER
Date Sampled...: 06/23/08 15:00 Date Received..: 06/24/08

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I8F240208-007 Prep Batch #...: 8177175							
Lead	96	(75 - 125)			SW846 6010B	06/25-06/26/08	KQG3X1AF
	94	(75 - 125)	2.2	(0-20)	SW846 6010B	06/25-06/26/08	KQG3X1AG

Dilution Factor: 1
Analysis Time..: 10:56
MS Run #.....: 8177114

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I8F240208 **Matrix.....:** WATER
Date Sampled...: 06/23/08 15:00 **Date Received..:** 06/24/08

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I8F240208-007 **Prep Batch #...:** 8177175									
Lead									
	0.0056	0.500	0.487	mg/L	96		SW846 6010B	06/25-06/26/08	KQG3X1AF
	0.0056	0.500	0.477	mg/L	94	2.2	SW846 6010B	06/25-06/26/08	KQG3X1AG

Dilution Factor: 1
Analysis Time..: 10:56
MS Run #.....: 8177114

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: I8F240208 Matrix.....: SOLID
Date Sampled...: 06/23/08 10:00 Date Received..: 06/24/08

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I8F240208-001		Prep Batch #...: 8177237					
						% Moisture.....:	
Lead	88	(75 - 125)			SW846 6010B	06/25-06/30/08	KQG3L1AE
	91	(75 - 125)	1.3	(0-20)	SW846 6010B	06/25-06/30/08	KQG3L1AF

Dilution Factor: 0.95
Analysis Time..: 10:09
MS Run #.....: 8177148

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: I8F240208 **Matrix.....:** SOLID
Date Sampled...: 06/23/08 10:00 **Date Received..:** 06/24/08

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: I8F240208-001 **Prep Batch #...:** 8177237									
								% Moisture.....:	
Lead									
	11.7	47.6	53.8	mg/kg	88		SW846 6010B	06/25-06/30/08	KQG3L1AE
	11.7	46.7	54.5	mg/kg	91	1.3	SW846 6010B	06/25-06/30/08	KQG3L1AF

Dilution Factor: 0.95
Analysis Time..: 10:09
MS Run #.....: 8177148

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

IMAGED 10/10/2008

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: I8F240208 **Work Order #...:** KQG3X-SMP KQG3X-DUP **Matrix.....:** WATER

Date Sampled...: 06/23/08 15:00 **Date Received..:** 06/24/08

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
						SD Lot-Sample #:	I8F240208-007	
Flashpoint								
	>210	>210	deg F	0.0	(0-5.0)	SW846 1020A	07/01/08	8183186

Dilution Factor: 1 Analysis Time..: 10:00 MS Run Number..: 8183089

IMAGED 10/10/2008

Report Attachment

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of the NELAC standards. All data have been found to be compliant with laboratory protocol except as otherwise noted.

Note that if this report contains tests performed for the following methods, the associated method deviations are applicable.

EPA 410.4, COD: Laboratory uses different analytical wavelength as specified by instrument manufacturer.
EPA 340.2, Fluoride: Preliminary Bellack distillation not performed.
EPA 624: The laboratory uses a different desorb time and purge volume than stated in the method.
Iowa OA1: Benzene, toluene, ethylbenzene and xylenes (BTEX) are not analyzed along with the Gasoline Range Organics if client does not require BTEX.
EPA TO-12: Samples not analyzed in duplicate.
EPA TO-14A and TO-15: Zero humidified nitrogen is used in place of air for method blanks.

TRRP Reporting Requirements

If this package contains reports requiring TRRP (Texas Risk Reduction Program) reporting criteria, the following information applies.

The REPORTING LIMIT is equivalent to the TRRP acronym MQL (method quantitation limit).
The MDL is equivalent to the TRRP acronym SDL (sample detection limit).

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN-OF-CUSTODY ADDENDUM

Lot No: I8F240208

CHECKED/RECEIVED BY: Allison Beissel

COC NUMBER:

DATE/TIME RECEIVED: 6/24/08 9:00

QUOTE/PROFILE: 79946

UNPACKED DATE/TIME: 6/24/08 9:45

CLIENT/PROJECT: Arcadis

SAMPLES LOGGED IN: LOG-IN REVIEWED:

Number of Shipping Containers Received with Chain of Custody 1

VOC AIR / FILTER SAMPLES ☐ YES **SEE SECTIONS 1.0, 2.0, & 6.0**

1.0 CONTAINERS EXAMINED UPON RECEIPT:

Container Sealed: ☒ YES ☐ NO Custody Seal Signed/Dated: ☒ YES ☐ NO

Custody Seal Present: ☒ YES ☐ NO

If seal not intact list air bill number of that container(s):

2.0 VOC CANISTERS EXAMINED UPON RECEIPT:

Canister Valves Closed: ☐ YES ☐ NO Samples Received Match Chain: ☐ YES ☐ NO

Canister Valves Capped: ☐ YES ☐ NO Other Equipment Received: ☐ YES ☐ NO

Valve Cap Tightened Properly: ☐ YES ☐ NO See Additional Comments (Section 5.0 and / or 7.0) ☐ YES ☐ NO

Packing Material Used: (circle) Chain-of-Custody form properly maintained: ☐ YES ☐ NO

None / Absorbent / Paper / Bubble Wrap Can Size: ☐ 6L ☐ 15L Other

3.0 SAMPLE TEMPERATURE UPON RECEIPT BY: **IR THERMOMETER #:** ☐ P4 ☒ P5

Temperature of the container(s):

Circle selection: TB = Temp. Blank and/or SC = Sample Container CF = Correction Factor [*acceptable tolerance 4°C ± 2°*]

TB ☐ SC ☒ Initial 2.0 CF 0.0	TB ☐ SC ☐ Initial CF	TB ☐ SC ☐ Initial CF	TB ☐ SC ☐ Initial CF	TB ☐ SC ☐ Initial CF	TB ☐ SC ☐ Initial CF	TB ☐ SC ☐ Initial CF	TB ☐ SC ☐ Initial CF
Final 2.0	Final	Final	Final	Final	Final	Final	Final

If temperature is outside acceptable tolerance, Project Manager was notified (_____PM). Date: Time:

Samples received do not require cooling OK to analyze samples: ☒ YES ☐ NO

PRESERVATION OF SAMPLES REQUIRED: ☒ NA ☐ YES ☒ VOA Samples **VERIFIED BY:**

NOTE: pH CHECK OF SAMPLES FOR 1664A ANALYSIS CHECK AT TIME OF ANALYSIS BY BENCH ANALYST
pH CHECK OF VOLATILE SAMPLES PERFORMED AFTER ANALYSIS BY THE BENCH ANALYST.

Base samples are>pH 12: ☐ YES ☐ NO Acid preserved are<pH 2: ☐ YES ☐ NO

Cyanide samples checked for sulfides: ☐ YES Sulfide samples appear to be preserved with zinc acetate: ☐ YES ☐ NO

Samples checked for chlorine per specification (N.C.) ☐ YES Free chlorine present: ☐ YES ☐ NO

If sample preservation is outside acceptable tolerance, Project Manager was notified (✓ NS PM)

Date: 6-24-08 Time: 1530 ☑ see pH adjustment form

VOLATILE SAMPLES FILLED COMPLETELY, IF NOT, LIST ID AND HEADSPACE OF VOA's CONTAINING BUBBLES EXCEEDING 6MM IN DIAMETER:

Sample ID	mm Headspace

Sample ID	mm Headspace

IMAGED 10/10/2008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN–OF–CUSTODY ADDENDUM

Lot No: I8F240208

4.0 CONDITION OF BOTTLES/CONTAINERS

VERIFIED BY: [signature]

Samples received match COC: ☒ YES ☒ NO
Bottles received intact: ☒ YES ☐ NO
See additional discrepancies/comments section: ☒ YES ☐ NO
Samples received from USDA restricted area: ☐ YES ☒ NO
Chain-of-Custody form properly maintained: ☒ YES ☐ NO
VOA trip blanks included: 1 ☒ YES ☐ NO ☐ N/A

5.0 ADDITIONAL DISCREPANCIES

Appears on COC		Appears on Label		
Sample ID	Date/Time	Sample ID	Date/Time	Comments

6.0 SHIPPING DOCUMENTATION:

Air/freight bill is available and attached to COC: ☒ YES ☐ NO Air bill #: _____

Hand-delivered Carrier: _____ Date: _____ Time: _____

7.0 OTHER COMMENTS:

RECC. 1x40mL "Trip Blank"
ID Bottles
Drumsoil 2x125mL jar
MW-2,1,3,4A 3x40mL
PW06-308 3x40mL, 2x1L

CORRECTIVE ACTION:

Client's Name: _____ Informed verbally on: _____ By: _____
Client's Name: _____ Informed verbally on: _____ By: _____
Sample(s) processed "as is" comments: _____

Samples(s) on hold until: _____ If released, notify: _____

REVIEW:

Project Management: [signature] Date: 6/25/08

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

IMAGED 10/10/2008

TAL-4142 (0907)

I8F240208

Client: Arcadis	Project Manager: Eric Rainey	Date: 6-23-08	Chain of Custody Number: 375074
Address: 5100 E. Skelly Dr #1000	Telephone Number (Area Code)/Fax Number: 918 664-9900	Lab Number:	Page 1 of 1
City: Tulsa; State: OK; Zip Code: 74135	Site Contact:	Lab Contact:	
Project Name and Location (State): Star Fuel Mart / 2412 SW 44th, OKC	Carrier/Waybill Number: Fed X		
Contract/Purchase Order/Quote No.: OK001552.0001			

Analysis (Attach list if more space is needed): BTEX 8021 OK; TPH-GRO; Total Lead; Flash point

Special Instructions/ Conditions of Receipt

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	BTEX 8021 OK	TPH-GRO	Total Lead	Flash point	Special Instructions/ Conditions of Receipt
Drum Soil	6-23-08	1000				X	X						X	X	X		2.0°C 6-24-2008
MW-2		1300		X						X			X	X			See coc
MW-1		1315		X						X			X	X			
MW-3		1345		X						X			X	X			
MW-B		1400		X						X			X	X			
MW-A		1430		X						X			X	X			
PW062308		1500		X						X			X	X	X	X	

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal: [ ] Return To Client [X] Disposal By Lab [ ] Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: [ ] 24 Hours [ ] 48 Hours [ ] 7 Days [ ] 14 Days [ ] 21 Days [ ] Other Std

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: Tony Cook	6/23/08	1630	1. Received By: [signature]	6-24-08	1600
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

61/61

IMAGED 10/10/2008

SITE CONCEPTUAL EXPOSURE SCENARIO - CURRENT CONDITIONS

1. Give reasons for including or excluding exposure pathways.

Potentially Exposed Receptor	Exposure Route, Medium, and Exposure Point	Justification for Inclusion or Exclusion of Pathways

Resident:

Complete	Not Complete		
☐	☒	Ingestion & dermal contact w/surficial soil	No offsite surficial hydrocarbon impacts, zoned commercial, site covered in concrete
☐	☒	Indoor inhalation of vapors from surficial soil	No offsite surficial hydrocarbon impacts, zoned commercial, site covered in concrete
☐	☒	Indoor inhalation of vapors from sub-surface soil	No subsurface hydrocarbon impacts under building, zoned commercial
☐	☒	Indoor inhalation of vapors from shallow groundwater	Depth to groundwater greater than 10 ft.
☐	☒	Ingestion of shallow & deep groundwater	No water wells within 660 ft; the potable water source for the area is supplied by the City of OKC

Commercial Worker:

Complete	Not Complete		
☐	☒	Ingestion & dermal contact w/surficial soil	Site covered in concrete
☐	☒	Indoor inhalation of vapors from surficial soil	Site covered in concrete; no surficial soil impacts beneath building
☐	☒	Indoor inhalation of vapors from sub-surface soil	No subsurface soil impacts beneath building
☐	☒	Indoor inhalation of vapors from shallow groundwater	Depth to groundwater greater than 10 ft.

IMAGED 10/10/2008

☐ ☒ Ingestion of shallow & deep groundwater
No water wells within 660 ft; the potable water source for the area is supplied by the City of OKC

Construction Worker:
Complete Not Complete
☐ ☒ Ingestion & dermal contact w/surficial soil
No current construction activities in the ROW; soil impacts not identified or anticpated in the surficial soil within the ROW area.

☐ ☒ Dermal contact w/shallow groundwater
Average depth to groundwater greater than 15 ft.

SECTION 9

SITE CONCEPTUAL EXPOSURE SCENARIO - FUTURE CONDITIONS

1. Give reasons for including or excluding exposure pathways.

Potentially Exposed Receptor	Exposure Route, Medium, and Exposure Point	Justification for Inclusion or Exclusion of Pathways

Resident:
Complete Not Complete
☐ ☒ Ingestion & dermal contact w/surficial soil
Site is expected to reamain commercial

☐ ☒ Indoor inhalation of vapors from surficial soil
Site is expected to reamain commercial

☐ ☒ Indoor inhalation of vapors from sub-surface soil
Site is expected to reamain commercial

☐ ☒ Indoor inhalation of vapors from shallow groundwater
Depth to groundwater is greater than 10 ft bgs.

☐ ☒ Ingestion of shallow & deep groundwater
No water wells within 660 ft are foreseeable in the future; the potable water source for the area is supplied by the City of OKC

IMAGED 10/10/2008

Commercial Worker:

Complete	Not Complete	
☐	☒	Ingestion & dermal contact w/surficial soil

Site is expected to remain covered in concrete; no surficial soil impacts identified at site

☐	☒	Indoor inhalation of vapors from surficial soil

No surficial soil impacts identified at site

☐	☒	Indoor inhalation of vapors from sub-surface soil

No subsurface hydrocarbon impacts were identified at site

☐	☒	Indoor inhalation of vapors from shallow groundwater

Depth to groundwater is greater than 10 ft bgs

☒	☐	Ingestion of shallow & deep groundwater

A future water well used for irrigation purposes could be installed at the site

Construction Worker:

Complete	Not Complete	
☒	☐	Ingestion & dermal contact w/surficial soil

Future excavation activities in the ROW is possible.

☐	☒	Dermal contact w/shallow groundwater

Depth to groundwater is greater than 10 ft bgs

IMAGED 10/10/2008

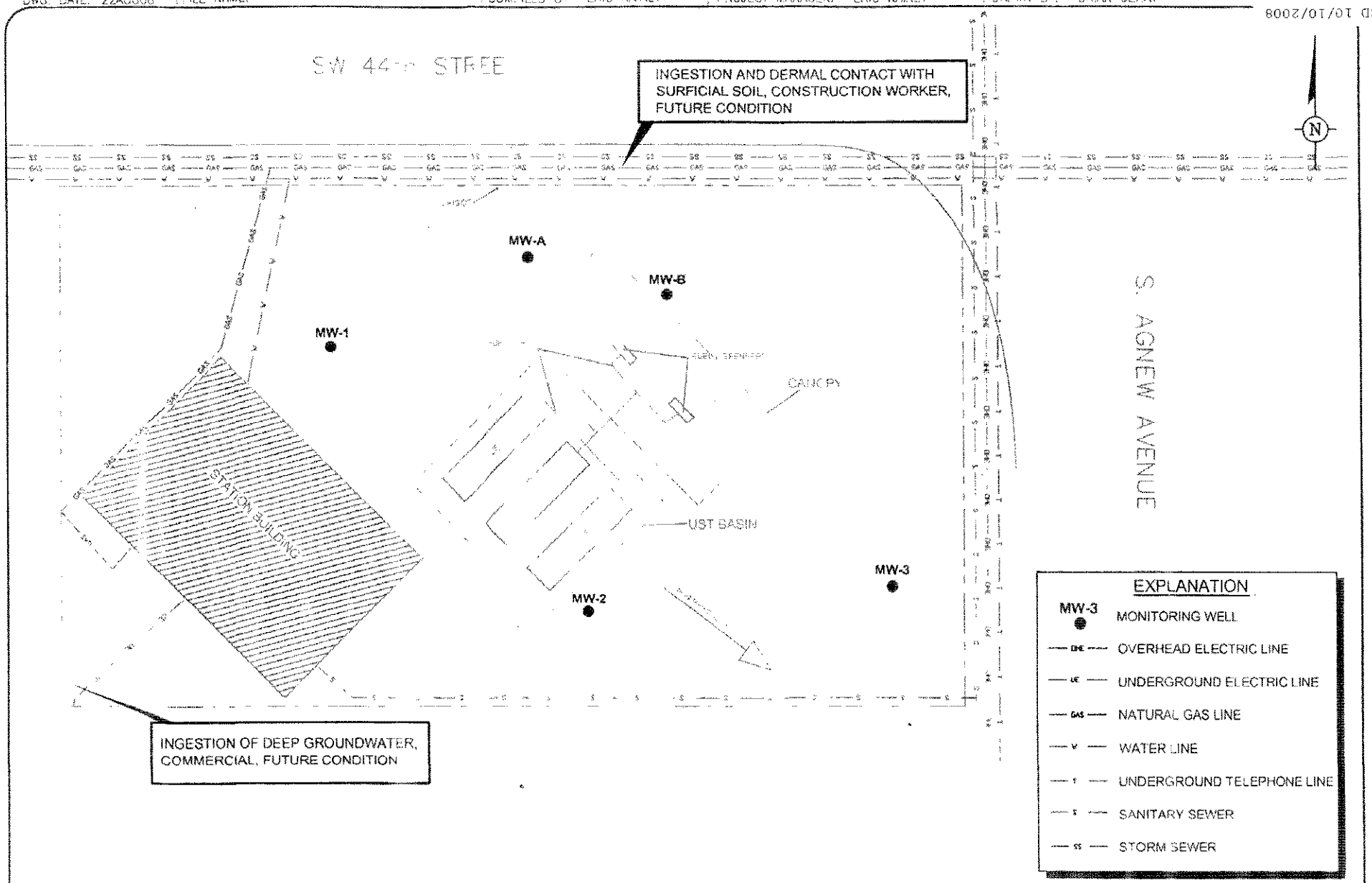
TIER1A.XLS INPUT/OUTPUT

1. Insert at this point in the report all the input and output spreadsheets from the Tier1A.xls file. If you need to make more than one run based on varying site conceptual exposure scenarios or fate and transport parameters, you need to clearly describe those scenarios or parameter changes and section off each run. If a fate and transport factor used is not the default, laboratory analysis or derived from direct field observation, then you need to describe below why you are justified in using that particular value.

   See Attached.

DWG. DATE: 22AUG08 | FILE NAME: | COMPILED BY: ERIC RAINEY | PROJECT MANAGER: ERIC RAINEY | DRAWN BY: BRIAN DEHAY

IMAGED 10/10/2008



ARCADIS

POINT OF EXPOSURE MAP

24 . SW 44th STREET
OKLAHOMA CITY, OKLAHOMA

OK001552 0002

16

J:\Projects\STAR\OK001552\001\2412 SW 44TH\2412 SW 44TH POE.dwg, 8/29/2008 7:03:57 AM

IMAGED 10/10/2008

CONCLUSIONS AND RECOMMENDATIONS OF ORBCA ANALYSES

1. Write in the maximum chemical of concern (COC) concentrations compared with minimum modified Risk-Based Screening Levels (RBSLs) or site specific target levels (SSTL's) for all completed pathways. Comparisons should only be made with soil that still exists in the area or groundwater data that is no more than two years old.

Maximum Soil COC Concentration		Minimum Mod. RBSL/SSTL	Exceed/Not exceeded
Benzene	**<0.0008** mg/Kg	**458.732** mg/Kg	**Not Exc**
Toluene	**<0.0008** mg/Kg	**173.692** mg/Kg	**Not Exc**
Ethylbenzene	**<0.0008** mg/Kg	**161.665** mg/Kg	**Not Exc**
Xylenes	**<0.0024** mg/Kg	**77.663** mg/Kg	**Not Exc**
Naphthalene	**NA** mg/Kg	**32.861** mg/Kg	**NA**

Max. Groundwater COC Concentration			
Benzene	**7.5** mg/L	**5.82** mg/L	**Exceed**
Toluene	**23** mg/L	**120.54** mg/L	**Not Exc**
Ethylbenzene	**4.5** mg/L	**60.27** mg/L	**Not Exc**
Xylenes	**22** mg/L	**198** mg/L	**Not Exc**
Naphthalene	**NA** mg/L	**4.088** mg/L	**NA**

2. **CONCLUSIONS:**

According to the ORBCA Tier 1/1A evaluation, site maximum concentrations for analyzed constituents detected in soil and groundwater did not eceed the risk based screening levels (RBSLs) for the completed exposure pathways/receptors, with one exception. The exception involved an exceedance for benzene in groundwater for ingestion of shallow and deep groundwater, commercial worker, future condition.

3. **RECOMMENDATIONS:**

Based on the site hydrogeology and occurrence of hydrocarbon impacts in the subsurface, we recommend that this site be closed. All hydrocarbon constituents detected in soil and groundwater were below the RBSLs, with the exception of benzene in groundwater. Since the installation of future water well at the site is very remote, and extent of benzene in the groundwater appears to be stable as evidence by the absence of detectable benzene in two downgradient wells, there is miminal risk to human health and the environment. Moreover, if the decay constant is used to assess fate and transport, the benzene concentration in groundwater at the site would be below the calculated RBSL. Based on all the factors presented above, we request OCC approval for site closure.

Recommendation

- ☒ Closure Under Tier 1-A
- ☐ Remediate and Close Under Tier 1-A
- ☐ Go To Tier 2
- ☐ Close Under Tier 2

IMAGED 10/10/2008

- ☐ Remediate and close under Tier 2
- ☐ Go To Tier 3
- ☐ Remediate and close under Tier 3
- ☐ Monitor for Closure Through Natural Attenuation

IMAGED 10/10/2008

REFERENCES AND PROTOCOLS

Include a brief description of the protocol followed for the entire field and sampling activities related to this investigation. The protocols usually referenced oftentimes offer several acceptable methods of collecting certain data. Describe what particular method was used.

Freeze, R. A, and J.A. Cherry, 1979, Groundwater: Prentice HAll, Inc., England Clifff, NJ

American Petroleum Institute, 1996, A Guide to the Assessment and Remediation of Underground Petroleum Releases, API Publication #1628.

American Society of Testing and Materials. Unified Soils Classification System for Engineering Purposes, ASTM Publication D2487.

USEPA Office of Soild Waste, RCRA Groudnwater Monitoring Technical Enforcement Document, 1986.

Bingham, R.H., and R. L. Moore, 1991, Reconnaissance of the Water Resources of the Oklahoma City Quadrangle, Central Oklahoma: Oklahoma Geological Survey, Hydrogeologic Atlas 4, 1:250,000.

ORBCA Guidance Document, July 2008.

IMAGED 10/10/2008

TIER 2/TIER 3 EXPOSURE FACTORS

PARAMETER, Units	Tier 1	Tier 2/Tier 3	Source
Body Weight			
On/Off-site Resident (adult), kg	70		
On/Off-site Resident (child), kg	15		
On/Off-site Commercial Worker, kg	70		
Construction Worker, kg	70		
Exposure Duration			
On/Off-site Resident (adult), yr.	30		
On/Off-site Resident (child), yr.	6		
On/Off-site Commercial Worker, yr.	25		
Construction Worker, yr.	0.083		
Exposure Time for indoor inhalation, Dermal contact, and soil ingestion			
On/Off-site Resident (adult), hrs/day	16		
On/Off-site Resident (child), hrs/day	16		
On/Off-site Commercial Worker, hrs/day	8		
Construction Worker, hrs/day	8		
Exposure Frequency			
On/Off-site Resident (adult and child), days/yr.	350		
On-site Commercial Worker, days/yr.	250		
Construction Worker, days/yr.	250		
Soil ingestion rate			
On/Off-site Resident (adult), mg/day	100		
On/Off-site Resident (child), mg/day	200		
On/Off-site Commercial Worker, mg/day	50		
Construction Worker, mg/day	50		
Daily Indoor Inhalation Rate			
On/Off-site Resident (child), m^3/hr	0.937		
On/Off-site Resident (adult), m^3/hr	0.937		
On/Off-site Commercial Worker, m^3/hr	2		
Daily Outdoor Inhalation Rate			
Construction Worker, m^3/hr	2		
Exposure Time for outdoor inhalation, dermal contact, and soil ingestion			
On/Off-site Resident (adult), hrs/day	16		
On/Off-site Resident (child), hrs/day	16		
On/Off-site Commercial Worker, hrs/day	8		
Construction Worker, hrs/day	8		
Daily water ingestion rate			
On/Off-site Resident (adult), L/day	2		
On/Off-site Resident (child), L/day	1		
On/Off-site Commercial Worker, L/day	1		
Construction Worker, L/day	1		

IMAGED 10/10/2008

TIER 2/TIER 3 EXPOSURE FACTORS

Skin surface area for dermal contact with soil	
On/Off-site Resident (adult), cm^2	3160
On/Off-site Resident (child), cm^2	3160
On/Off-site Commercial Worker, cm^2	3160
Construction Worker, cm^2	3160
Soil skin adherence factor, mg/cm^2	0.5
Oral relative absorption factor	1
Dermal relative absorption factor (volatiles)	0.5
Dermal relative absorption factor (PAHs)	0.05
Target Risk and Hazard Quotient	
Target Hazard Quotient	
Current Conditions	1
Future Conditions	1
Target Excess Individual Lifetime Cancer Risk	
Current Conditions	0.000001
Future Conditions	0.0001

Other factor(s) specifically for Tier 2/Tier 3

JUSTIFICATION FOR TIER 2/TIER 3 EXPOSURE FACTORS

Tier 2/Tier 3 factor:
Justification:

Tier 2/Tier 3 factor:
Justification:

Tier 2/Tier 3 factor:
Justification:

Tier 2/Tier 3 factor:
Justification:

Tier 2/Tier 3 factor:
Justification:

Tier 2/Tier 3 factor:
Justification:

Tier 2/Tier 3 factor:
Justification:

Tier 2/Tier 3 factor:
Justification:

IMAGED 10/10/2008

TIER 1A/2/3 FATE AND TRANSPORT PARAMETERS

PARAMETER, Units	Tier 1	Tier 1A/2/3	Source
Source parameters			
Depth to groundwater, cm	304.8	537	site specific
Depth to surficial soil sources, cm	30.48		
Depth to subsurface soil sources, cm	304.8	500	site specific
Thickness of vadose zone, cm	295	490	site specific
Building parameters			
Height of the indoor space (Building)			
On/Off-site Resident (adult and child), cm	300		
On-site Commercial Worker, cm	300		
Construction Worker, cm	300		
Width of the indoor space (Building), cm	1500		
Length of the indoor space (Building), cm	1500		
Fraction of area exposed by cracks, Residential, 1.0%	1.0 (.01)		
Commercial, (.01%)	0.1(.001)	0.001	commercial
Enclosed space air exchange rate			
On/Off-site Resident (adult), 1/day	12		
On/Off-site Resident (child), 1/day	12		
On/Off-site Commercial Worker, 1/day	18		
Averaging time for vapor flux			
On/Off-site Resident (adult), sec	946080000		
On/Off-site Resident (child), sec	189216000		
On/Off-site Commercial Worker, sec	788400000		
Construction Worker, sec	31536000		
Groundwater parameters			
Groundwater Darcy velocity, cm/year	2500	445	site specific
Groundwater mixing zone thickness (Source thickness), cm	200		
Source width parallel to flow direction, cm	1500		
Thickness of capillary fringe, cm	5		
Soil parameters			
Total soil porosity, cc/cc	0.35	0.399	site specific
Volumetric water content in vadose zone soils, cc/cc	0.2	0.378	site specific
Volumetric air content in vadose zone soils, cc/cc	0.15	0.021	site specific
Soil bulk density, g/cc	1.7	2.677	site specific
Fraction organic carbon content in soil , g-C/g-soil	0.01	0.0006	site specific
Other parameters			
Particulate emission rate, g/cm2-s	6.9E-09		
Wind speed above ground surface in ambient mixing zone,cm/s	225		
Width of source parallel to wind direction, cm/yr.	2500		
Ambient air mixing zone height, cm	200		
Infiltration Rate (see Table 5-4)			
West Zone County, cm/yr.	7		
Central Zone County, cm/yr.	10	10	site specific
East Zone County, cm/yr.	13		

Other parameter(s) specifically for Tier 1A/2/3

IMAGED 10/10/2008

JUSTIFICATION FOR TIER 1A/2/3 FATE AND TRANSPORT PARAMETERS

Tier 1A/2/3 parameter: Depth to Groundwater
Justification: The average depth to groundwater is 17.62 ft bgs (537 cm)

Tier 1A/2/3 parameter: Depth to subsurface soil source
Justification: No soil impacts were detected in soil samples; however, soil impacts are anticpated in portions of the site in the capillary zone (i.e., approx 500 cm)

Tier 1A/2/3 parameter: Thickness of vadose zone
Justification: The vadose zone is based on the average depth to groundwater minus the capilary zone (approx. 490 cm)

Tier 1A/2/3 parameter: Fraction of area exposed by cracks
Justification: Per ORBCA guidance for commerical senarios

Tier 1A/2/3 parameter: Darcy groundwater velocity
Justification: Site specific hydraulic conductivity (1 ft) multiplied by the hydraulic gradient (0.04)

Tier 1A/2/3 parameter: Soil parameters
Justification: Site site specific laboratory analyses obtained from geotechnical samples

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

Tier 1A/2/3 parameter:
Justification:

IMAGED 10/10/2008

ANALYTICAL DATA SUMMARY FOR SOIL

Chemical levels detected during soil borings and UST/AST/piping removal activity

MW No. Sample Location	Sampling Date	Sample Depth [ft.]	Benzene [mg/kg]	Toluene [mg/kg]	Ethyl-benzene [mg/kg]	Total Xylenes [mg/kg]	Naphthalene [mg/kg]	TPH-GRO [mg/kg]	TPH-DRO [mg/kg]	OTHER
MW-1	6/10/08	16-17	<0.00077	<0.0007	<0.0007	<0.0023	NA	<0.0773	NA	
MW-1	6/10/08	20-21	<0.00082	<0.0008	<0.0008	<0.00246	NA	<0.0821	NA	
MW-2	6/10/08	11-12	<0.00078	<0.0007	<0.0007	<0.00236	NA	<0.0786	NA	
MW-2	6/10/08	20-21	<0.00078	<0.0007	<0.0007	<0.00234	NA	<0.0755	NA	
MW-3	6/10/08	10-11	<0.00074	<0.0007	<0.0007	<0.00224	NA	<0.0747	NA	
MW-3	6/10/08	22-23	<0.00078	<0.0007	<0.0007	<0.00234	NA	<0.078	NA	

IMAGED 10/10/2008

NALYTICAL DATA SUMMARY FOR GROUNDWATER - SINGLE SAMPLING EVENTS

hemical levels detected during groundwater sampling

MW No. Sample Location	Install-ation Date	Screen Interval	Sampling Date	Water Level	Benzene [mg/l]	Toluene [mg/l]	Ethyl-benzene [mg/l]	Xylene [mg/l]	MtBE [mg/l]	Naphth-alene [mg/l]	TPH GRO [mg/l]	TPH DRO [mg/l]
MW-1	6/10/08	10-25	6/23/08	17.67	<0.001	<0.001	<0.001	<0.003	NA	NA	<0.02	NA
MW-2	6/10/08	10-25	6/23/08	17.70	<0.001	<0.001	<0.001	<0.003	NA	NA	<0.02	NA
MW-3	6/10/08	9-24	6/23/08	16.59	<0.001	<0.001	<0.001	<0.003	NA	NA	<0.02	NA
MW-A	NA	NA	6/23/08	18.14	0.064	<0.001	0.0029	0.013	NA	NA	0.66	NA
MW-B	NA	NA	6/23/08	17.99	7.5	23	4.5	22	NA	NA	82	NA

BROWNFIELDS PUBLIC RECORD

Brownfields Program
Public Record
Updated April 4, 2010

The following sites have **completed** the Oklahoma Brownfield Program:

National Institute for Petroleum Energy Research (NIPER) 220 N. Virginia Avenue Bartlesville, OK 74003	Certificate of No Action Necessary issued on November 30, 1999 Allowable Use – Commercial/Industrial IC – Certificate filed in County Land Records (notice to deed)
Flint Industries, Flintco Warehouse 1802 W. 21st Street Tulsa, Oklahoma	Certificate of No Action Necessary issued on February 14, 2000 Allowable Use – Commercial/Industrial IC – Certificate filed in County Land Records (notice to deed)
Asphalt Technology 24606 South Highway 66 Claremore, Oklahoma 74017	Certificate of No Action Necessary issued on December 15, 2000 Allowable Use – Commercial/Industrial IC – Certificate filed in County Land Records (notice to deed)
Oklahoma City Urban Renewal Authority, Bricktown Phase I 204 South Reno Avenue and Byers Avenue NW4 Sec. 03 T11N R03W IM Oklahoma City, Oklahoma	Certificate of No Action Necessary issued on December 1, 2005 Allowable Use – Commercial/Industrial; no groundwater use allowed; future structures must have vapor barrier IC – Certificate filed in the County Land Records (notice to deed)
Oklahoma Steel Castings (currently Brainerd Chemical) 1200 N. Peoria Tulsa, Oklahoma	Certificate of No Action Necessary issued on August 8, 2002 Allowable Use – Commercial/Industrial IC – Certificate filed in the County Land Records (notice to deed)

Duralast Rubber Products, Inc. (aka UNR Industries) East 13th Street South and South Norwood Avenue Tulsa, Oklahoma	Certificate of Completion issued on July 25, 1997 Allowable Use – Commercial/Industrial IC – Certificate filed in the County Land Records (notice to deed)
Rafferty Property (aka Sinclair Topping Plant) Sec. 23 T18N R05E IM Cushing, Oklahoma	Certificate of Completion issued on December 1, 2000 Allowable Use – Agricultural/Commercial/Industrial IC – Certificate filed in the County Land Records (notice to deed)
Electronic Chemicals Inc. (aka ECI) 5201 W. 21st Street Tulsa, Oklahoma 74107	Certificate of Completion issued on September 23, 1997 Allowable Use – Commercial/Industrial IC – Certificate filed in the County Land Records (notice to deed)
Federated Metals (currently Cimarron Center and Cimarron Plaza) 200 South Wilson Avenue Sand Springs, Oklahoma	Certificate of Completion issued on February 11, 2004 Allowable Use – Commercial IC – Certificate filed in the County Land Records (notice to deed)
Ozark-Mahoning Company Phosphogypsum Stack 5101 W. 21st Street Tulsa, Oklahoma	Certificate of Completion issued February 2, 2001 Allowable Use – Commercial/Industrial IC – Certificate filed in the County Land Records (notice to deed)
Tract Nine West, Blackwell Industrial Park Second Addition to the City of Blackwell Blackwell, Oklahoma	Certificate of Completion issued October 4, 2002 Allowable Use – Commercial/Industrial IC – Certificate filed in the County Land Records (notice to deed)
Tract 20, Blackwell Industrial Park Second Addition to the City of Blackwell Blackwell, Oklahoma	Certificate of Completion issued October 28, 2003 Allowable Use – Commercial/Industrial IC – Certificate filed in the County Land Records (notice to deed)

Summit Machine Tool & Little Giant 4000 NW 39th Expressway Oklahoma City, Oklahoma	Certificate of Completion issued January 4, 2007 Allowable Use – Commercial/Industrial IC _ Certificate filed in the County Land Records (notice to deed)
Portion of Tract 10, Blackwell Industrial Park G&C Concrete Second Addition to the City of Blackwell Blackwell, Oklahoma	Certificate of Completion issued December 29, 2008 Allowable Use – Commercial/Industrial IC – Certificate filed in the County Land Records (notice to deed)
Oklahoma City Landfill/Dell Property Transfer Southwest 15th & South Portland Avenue Oklahoma City, Oklahoma	Certificate of No Action Necessary issued April 22, 2009 Allowable Use – Commercial IC – Certificate filed in the County Land Records (notice to deed)
Oklahoma City Urban Renewal Authority Phase 1A Bricktown Redevelopment Property NW4, Section 3, Township 11 North, Range 03 West, I.M. E. Reno Avenue & S. Geary Place Oklahoma City, Oklahoma	Certificate of No Action Necessary issued September 28, 2009 Allowable Use – Commercial IC – Certificate filed in the County Land Records (notice to deed)
Claremore Regional Hospital Expansion NW Corner of East 15th Street and Florence Avenue Claremore, Oklahoma	Certificate of Completion – under preparation Allowable Use – Commercial

The following sites are currently in the Brownfield Program and may complete the program in the next year.

Okmulgee Refinery
Section 31, Township 14 North, Range 13 East and Section 6, Township 13 North, Range 13 East
Okmulgee, Oklahoma

Baker Petrolite Warehouse Facility
1818 West 21st Street
Tulsa, Oklahoma

Sapulpa Tank Farm (Koch Pipeline Company LP.)
NE4, Section 26, Township 18 North, Range 11 East, and NW4, Section 25, Township 18 North, Range 11 East I.M.
Sapulpa, Oklahoma

Sapulpa Refinery
State Highway 166 & Frankoma Road
Sapulpa, Oklahoma

Downtown Airpark Property (Hangar Four Property, LLC. & Humphreys Partners 2006, LLC.)
1701 S. Western, Oklahoma City, Oklahoma
NE4, Section 8 & SE4 of Section 5, Township 11 North, Range 3 West I.M.

Sand Springs Railway
9200 West 21st Street
Southeast Corner of Adams Road and Morrow Road
Sand Springs, Oklahoma

Tinker AFB Aerospace Complex (former GM plant)
SW 74th and Midwest Boulevard, Oklahoma City, Oklahoma

JM Assets LP (Former City of Broken Arrow Landfill)
W2, NE4, Section 8, Township 18 North, Range 15 East
Broken Arrow, Oklahoma

Mimosa Tree Capital Investments II, LLC/211 S. Elgin, LLC (Former Universal Rig Warehouse)
SE4, NW4, Section 1, Township 19 North, Range 12 East I.M.
Tulsa, Oklahoma

Tronox – Cleveland Refinery
NE4, Section 18, Township 21 North, Range 8 East, I.M.
Cleveland, Oklahoma

OKLAHOMA MILITARY DEPARTMENT QUESTIONNAIRE

INTERNAL COMPLIANCE ASSESSMENT SYSTEM (ICAS)
PREVISIT QUESTIONNAIRE (PVQ)

Facility/Unit name: Co C 1-179th In, & Co A 1-179 In

Address (include street name and number): 2222 S.W. 44Th ST. Okla City, OK 73119-3526

Date of Visit: 19 FEB. 1997

Facility Type:

Armory X
OMS ____
CSMS ____
UTES ____
MATES ____

WETS ____
LTA ____
MTA ____

Year facility was built: 1964

Rank/Name and telephone Number of POC completing PVQ:

Rank/Name: SSG, Cooper, Randle L. COMM: 685-3871 DSN: 940-3691

Rank/Name and Telephone Number of POC at facility/site who will be accompanying ICAS assessor during site visit.

Rank/Name: SSG, Cooper, Randle L. COMM: 685-3871 DSN: 940-3691

1. What type of unit(s) is/are assigned to this facility and what is/are the mission(s)?

Infantry, Anything that Higher Headquater, Govenor, or the Presedent of the United State Authorized us to do.

2. How many and what types of vehicles are stored at the facility?

5- POV's, 2-2½ Ton, 4 Army pickups (M1028 & M1009)

List areas where vehicles are parked:
Company Compound, public parking lot.

3. Are contract drawings/as-built plans of the facility available at the site?: YES X NO ____

4. Please provide two (2) clean map copies of the general plan of the facility and site including key structures showings floor plans. Use an arrow to indicate north on one of the maps. (The fire evacuation plan may be used).

SECTION 1: CLEAN AIR ACT (CAA)

1. Does the site operate any incinerators? YES/NO

2. Is any open burning conducted at the the site? YES/NO

3. Does the site receive, dispense, store, or transfer diesel, MOGAS, JP-4 or other VOCs? YES/NO

Please list: 1 each 5 gallon Container for yard work

4. Are solvents used at the facility? YES/NO

Please explain: Some solven is use to clean weapon parts, Dry Cleaing Solven, Caburator Cleaner

5. Does the site have now or has it ever had an indoor rifle/pistol range? YES/NO

Has lead testing ever been performed? 1991 YES/NO

6. Are there any painting operations at the site other than vehicle spot painting and building maintenance? YES/NO

Explain: _____

7. Is Chemical Agent Resistant Coating (CARC) used in painting operations at the site? YES/NO

Explain: _____

SECTION 2. CLEAN WATER ACT (CWA)

8. Does the site have any wastewater discharge permits, ie., National Pollutant Discharge Elimination System (NPDES) and/or State Pollutant Discharge Elimination System (SPDES) permits? YES/NO

9. Are vehicles washed at this site? YES/NO

a. Are vehicles washed in an area other than on a wash rack? YES/NO

b. Where are the wash rack or vehicle wash water effluents discharged? (e.g. storm sewer, municipal sanitary sewer, industrial wastewater system, open surface channel/ditch, street, waterway, or other).

N/A

c. Does the wash rack have an oil/water/solids separator? N/A — YES/NO

d. When was maintenance (e.g. clean out) last performed on the oil/water/solids separator?

N/A

10. Does run-off from parking areas empty into a storm drain system? — YES/NO

11. Does the facility have floor drains or sump pits in maintenance or indoor parking areas? — YES/NO

12. Do the floor drains and sumps provide pretreatment (oil/water/solids separator) before discharge? — YES/NO

13. Is there a septic system or lagoon(s) on site? — YES/NO

Is it permitted? N/A — YES/NO

14. Does the mess/kitchen area have a grease trap or interceptor? — YES/NO

a. How often is it cleaned? N/A

Last meals ~~serve~~ was in 1992

b. Is the mess/kitchen area being used for food preparation during drill or training periods? N/A — YES/NO

c. Approximately how many meals are served during an average month? ~~0~~ N/A.

15. Is there any evidence of oil, oil stained soil or stressed vegetation areas on the site? — YES/NO

16. Does the site store, transport, or dispose of petroleum products? — YES/NO

17. Does the site have diked areas, berms, or other designed areas? (PVC ground line surrounded with sand bags, concrete basins, etc.) — YES/NO

18. Does the site have storage tanks or pods (stationary or mobile) in use or abandoned-in-place? YES/NO

If so, are these used for FUEL or WASTE POL storage? YES/NO

SECTION 3. SAFE DRINKING WATER ACT (SDWA)

19. Does the site operate its own potable water system? If yes, describe drinking water source: YES/NO

_____

a. Does the water receive treatment? N/A YES/NO

b. Is the drinking water quality monitored by water quality analysis? N/A YES/NO

c. How often? N/A

d. Is water quality documentation maintained at the site? N/A YES/NO

SECTION 4. RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C (RCRA-C, HAZARDOUS WASTE)

Any waste which is not excepted, and is listed in 40 CFR 261, or which exhibits any one of the following characteristics is a hazardous waste:

* IGNITABLE (flash point <140 deg. F).
* CORROSIVE (pH <2 or >12.5).
* TOXIC (Toxic Characteristic Leaching Procedure (TCLP) for As, Ba, Cd, Cr, Pb, Hg, Se, Ag, and selected pesticides).
* REACTIVE (reacts violently with air, water and/or other substances.

20. Does the facility generate hazardous waste? YES/NO
The following are hazardous materials/wastes that may typically be found at an ARNG facility.

	CHECK IF USED AT THIS FACILITY (1 kg = 2.2 lb)	WASTES Vol Gen/mo lb.	WASTES Vol Gen/mo Kg.	UNUSED MATERIALS STORED lb.	UNUSED MATERIALS STORED Kg.
✓	*Solvents (see below for examples) Carburator Cleaner, Mean, 5 gal of Solvent			5 gl	
✓	Liquid Paint (oil base, CARC) OD 12 W Paint, Inside Paint 4, (5 gal)			4 gal	
✓	Paint Stripper, remover, or thinner 1 gal Can Thinner			1 gal	
	Spray paint booth air filters				
✓	Pesticides, (insecticides, herbicides, rodenticides, etc.) Small amount of rodenticides				
✓	NBC filters and test kits				
	DS2 (diethylene triamine)				
	STB (super topical bleach)				
	Battery acid and Caustics (in unserviceable batteries)				
✓	Solvent, Break-free contaminated rags and rifle bore cleaning patches	1/2 lb rag + patches			
	Antifreeze				
	De-icing solution (fuel systems)				
	Printing ink, ink solvents and cleaners				
	Spill absorbent materials tainted soil				
	Other				
	Other				
	Other				
	TOTAL	1/2 lb			

* Examples: Trichloroethane, Methylene Chloride, Tetrachloroethylene, 1,1,1 Trichloroethane, Carbon Tetrachloride, Chlorinated Fluorocarbons, Toluene, Methyl ethyl ketone (MEK), Break-Free in liquid form, Mineral Spirits, Xylene.

Is the facility a small quantity generator (SQG) of hazardous waste? (criteria from 40 CFR 261.5 and 262.44: If generated volume is >100kg (220 lb)/month but <1000 kg (2200 lb) /month or the accumulated volume is >1000 kg at any one time.) NOTE: CSMSs may generate sufficient amounts to be regulated as a SQG, OMSs normally will not. YES/NO

Is the facility a conditionally exempt small quantity generator (CESQG) of hazardous waste? (Criteria from 40 CFR 261.5: no more than 100 kg (220 lb) of hazardous waste, or 1 kg (2.2 lb) of acutely hazardous waste is generated in a calendar month; on-site accumulation does not exceed more than 1000 kg of hazardous waste). YES/NO

USEPA Generator Designation: a Conditionally Exempt, ___ Small Quantity, ____ Large Quantity.

21. If the facility is a small quantity or large quantity hazardous waste generator:

a. Does the facility transport, store or dispose of hazardous waste? YES/NO

b. Does the facility store hazardous waste in containers? YES/NO

c. Are containers labeled with contents and accumulation start date and the words HAZARDOUS WASTE? YES/NO

d. Is waste stored on site for more than 180 days? YES/NO

e. Does the facility use manifests or shipping papers and keep records when hazardous wastes are transported off site? (see Hazmat Trans SOP, 1 May 1994). YES/NO

f. Does the facility have an EPA identification number? YES/NO

If yes, give number:_____

g. Is the facility registered with the state to transport hazardous waste? YES/NO

h. Are facility personnel thoroughly familiar with training requirements regarding hazardous waste? YES/NO

i. Has the facility ever disposed of hazardous waste on-site? YES/NO

SECTION 5. RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE-D (RCRA-D. SOLID WASTE)

22. Is trash picked-up by some type of municipal authority? YES/NO

23. Does a private contractor pickup the trash and dispose of it? YES/NO

24. Does the facility participate in solid waste recycling? YES/NO

25. Is a landfill located on the site? YES/NO

Does it have a permit? N/A YES/NO

26. Are there any solid waste collection points? YES/NO

How many? 1, S.E. of parking lot

27. Are asbestos brake pads/linings/shoes changed at the facility? YES/NO

How is the waste disposed of? _____

SECTION 6. RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I (RCRA-I, UNDERGROUND STORAGE TANK (UST) MANAGEMENT)

28. Does the site store/dispense aircraft fuel? How many USTs are used and what size are they? YES/NO

_____

_____

29. Does the site store/dispense fuel for ground vehicles? How many USTs are used and what size are they? YES/NO

_____

_____

30. Does the site have any USTs that are leaking, suspected of leaking, or are being over filled? YES/NO

31. Are USTs and piping substandard with respect to release detection or construction? YES/NO

32. Are there plans to install any new USTs at the site? YES/NO

33. Does the site store hazardous substances or waste oil in USTs? YES/NO

34. Are there any inactive or abandoned USTs present on the site? How many? Capacity? YES/NO

Site never had any USTs

SECTION 7. COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT/SUPERFUND AMENDMENT AND REAUTHORIZATION ACT (CERCLA/SARA)

35. Does the site have any "unofficial" or closed landfill sites that are no longer in use? YES/NO

36. Is the site a suspected source of any off-site contamination? YES/NO

37. Have there been releases of hazardous substances equal to or in excess of reportable quantities? (40 CFR 302, Table 302.4) YES/NO

SECTION 8. FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA)

38. Are applications of pesticide made by contract? YES/NO

39. Do site personnel engage in the application of pesticides (insecticides, herbicides, or rodenticides)? YES/NO

a. If yes, explain_____

b. Are personnel trained and certified in the application of pesticides? YES/NO

40. Does the site store, mix, or prepare pesticides on site? YES/NO

SECTION 9. NATURAL RESOURCES MANAGEMENT PROGRAM

41. Are there any ground erosion problems at the site? YES/NO
Describe: _____

SECTION 10. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

42. Is the National Environmental Policy Act (NEPA) integrated into the planning and decision making process in training operations? YES/NO

43. Is mission training conducted at the facility? YES/NO

44. Is mission training conducted on borrowed or leased land (LTAs)? YES/NO

Have individual environmental assessment documents, i.e. Training Record of Environmental Consideration (TREC), Environmental Checklist and a land use agreement been prepared for each training site? YES/NO

45. Is mission training conducted only at major (MTAs) or weekend training areas (WETs)? YES/NO

SECTION 11. NOISE ABATEMENT

46. Are loud noises produced at the site? YES/NO

a. Can these noises be heard off-site? N/A YES/NO

b. Near which of the following areas is the site located:

____Industrial
__✓__Commercial
____Rural
__✓__Residential
____Otherwise undeveloped area
____Other:_____

47. Does the site have helicopters? YES/NO

48. Have there been any complaints on noise produced by ARNG activities and operations at the site? YES/NO

SECTION 12. HAZARDOUS MATERIALS MANAGEMENT

49. Does site have or use known hazardous materials? YES/NO

50. Does the facility maintain an up-to-date file on Material Safety Data Sheet (MSDS) documentation on all used and stored hazardous materials? YES/NO

The following is a partial list of hazardous materials that may typically be found at an ARNG facility. The facility should have Material Safety Data Sheets (MSDS) on file for those materials they have on hand.

(PLEASE CHECK IF THESE OR OTHER HAZARDOUS MATERIALS ARE ON HAND)

		Estimated Amount (units, gal., lbs. etc.)
✓	Antifreeze	5 gal
	Battery, acid	
✓	Battery, Alkaline, nickel cadmium	3 Dz
	Battery, lead acid	
✓	Battery, lithium	
✓	Battery, magnesium	20 ea
	Battery, electric storage	
	Cleaner, battery and terminal	
	Oil and grease absorbent	
	Oil, wood stain	
	Fuel, JP-4	
	Fuel, Diesel or Heating Oil	
✓	Gasoline, regular	
✓	Gasoline, unleaded (MOGAS)	1 5 gal
	Gasoline	
	Gas line antifreeze 5613	
	Grease, general purpose	
	Hydraulic fluid	
	Lubricant	
✓	Oil, motor	24 qt
✓	Paint thinner	1 gal
✓	Paint, latex base, interior flat	1 H, 5 gal
	Paint, latex base, exterior	
	Paint, remover	
✓	Paint, primer	1 gal
	Paint, vehicle, chemical agent resistant coating (CARC)	
	Paint, oil interior flat	
✓	Pesticide (e.g. insecticides, herbicides, and rodenticides)	1 Bx
✓	Solvent, equipment cleaner and degreasers	1-5gal
	Solvent, degreaser aerosol	3-Can
✓	Solvent, 1,1,1 trichloroethane	

		Estimated Amount (units, gal., lbs. etc.)
_____	Super Topical Bleach	_____
_____	Toner, reproduction	_____
_____	D-40, spray cans	_____

OTHER ON-HAND HAZARDOUS MATERIALS:

_____	Breakfree	36 BOT
_____	_____	_____

51. Does the facility have indoor flammable/combustible materials storage cabinets? YES/NO

Where is the cabinet located?
Co C Supply Room, Co A Storage Rm

52. Does the facility have a POL (petroleum, oil, lubricant) storage area? YES/NO

Where is the POL storage area located? (e.g. inside facility, outside facility, etc.)
S.E Side of Compound.

53. Is hazardous material (not waste) transported off or from the site? YES/NO

Where is it transported to?

_____

NOTE: Complete and retain this PVQ until ICAS visit.

OKLAHOMA CORPORATION COMMISSION

OIL AND GAS WELL DATABASE

OCC Oil and Gas Database

API	Operator #	Well Name	Well #	Well Type	Status	SEC	TWP	RNG	M					
3.51092E+13	16711	CAPITOL HILL	16C-2	OIL	AC	19	11N	3W	Indian	SW4	NW4	SE4		
3.51092E+13	16711	CAPITOL HILL	16C-2	OIL	AC	19	11N	3W	Indian	SW4	NW4	SE4		
3.51092E+13	16711	CAPITOL HILL (FORMERLY USF&G)	16C-2	OIL	AC	19	11N	3W	Indian	SW4	NW4	SE4		
3510921570	16711	CAPITOL HILL	16C-2	OIL	AC	19	11N	3W	Indian	SW4	NW4	SE4		
3.51092E+13	16711	CAPITOL HILL	16C-2	OIL	AC	19	11N	3W	Indian	SW4	NW4	SE4		
3510921738	16711	YOUNGS PARK(USF&G#19D-1)	19D-4	GAS	AC	19	11N	3W	Indian	NE4	NE4	SW4	NE4	
3.51092E+13	16711	YOUNGS PARK(USF&G#19D-1)	19D-4	GAS	AC	19	11N	3W	Indian	NE4	NE4	SW4	NE4	
3.51092E+13	18924	YOUNGS PARK	20B-4	OIL	PA	19	11N	3W	Indian	NE4	NE4	SW4		
3.51092E+13	18924	YOUNGS PARK	19A-1	INJ	PA	19	11N	3W	Indian	NE4	NE4	SW4		
3510921612	18924	YOUNGS PARK	20B-4	OIL	PA	19	11N	3W	Indian	NE4	NE4	SW4		
3510921525	18924	YOUNGS PARK	20B-2	GAS	PA	19	11N	3W	Indian	NE4	NE4	SW4		
3.51092E+13	18924	YOUNGS PARK	20B-2	OIL	PA	19	11N	3W	Indian	NE4	NE4	SW4		
3.51092E+13	18924	YOUNGS PARK	20B-4	OIL	PA	19	11N	3W	Indian	NE4	NE4	SW4		
3.51092E+13	18924	YOUNGS PARK	20B-4	OIL	PA	19	11N	3W	Indian	NE4	NE4	SW4		
3510921507	18924	YOUNGS PARK	19A-1	INJ	PA	19	11N	3W	Indian	NE4	NE4	SW4		
3.51092E+13	18924	YOUNGS PARK	19A-1	INJ	PA	19	11N	3W	Indian	NE4	NE4	SW4		

OCC Oil and Gas Database

API	Operator #	Well Name	Well #	Well Type	Status	SEC	TWP	RNG	M				
3510921999	16879	WILLOW CREEK	30-A-1	GAS	AC	30	11N	3W	Indian	SE4	NW4	SE4	SW4
3.51092E+13	1363	BRINCKS "A"	1		AC	30	11N	3W	Indian				
3.51092E+13	1363	BRINCKS "A"	1	OIL	AC	30	11N	3W	Indian				
3510921509	1366	BRINCKS "A"	1	OIL	AC	30	11N	3W	Indian				

APPENDIX D:

SITE PHOTOGRAPHS

OKC 44th Street Armory Photos

North hallway- looking west

East hallway- looking south

OKC 44th Street Armory Photos

Drill floor- looking west

Kitchen

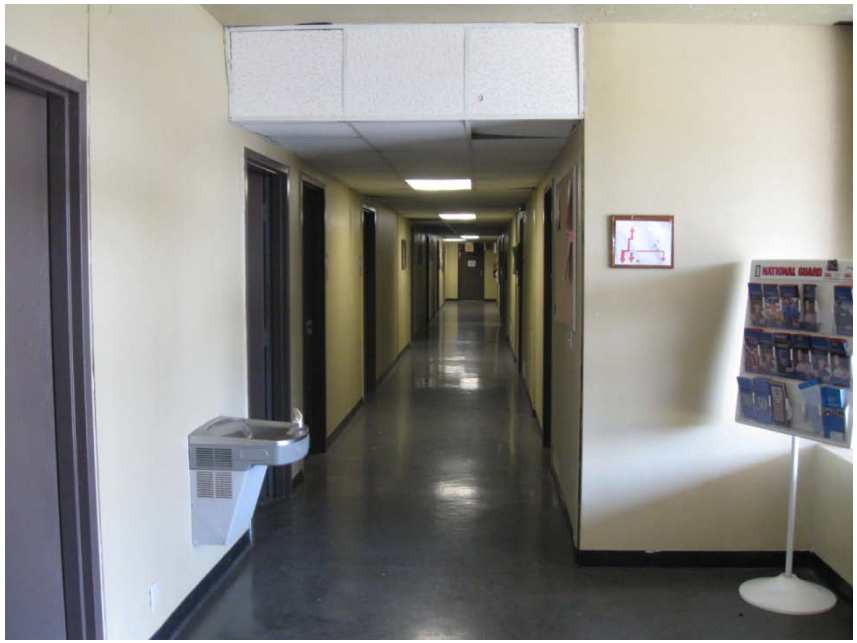
OKC 44th Street Armory Photos

Classroom

Drill floor- looking north

OKC 44th Street Armory Photos

Drill floor windows- looking east



South hallway- looking east

OKC 44th Street Armory Photos

Main entrance- looking south

Male latrine

OKC 44th Street Armory Photos

South hallway and ceiling- looking east

South hallway ceiling

OKC 44th Street Armory Photos

Mechanical room

Mechanical room

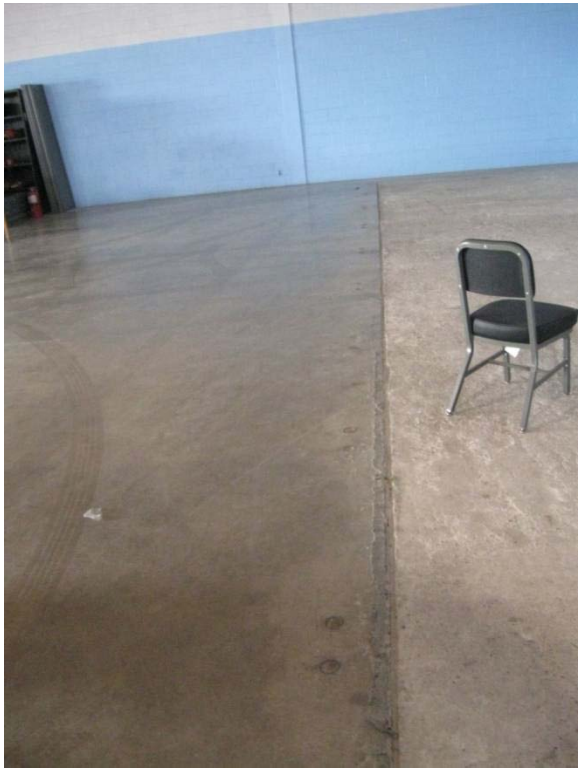
OKC 44th Street Armory Photos

Drill floor- looking north
Possible IFR area and target holes

Drill floor- looking north
Possible IFR area

OKC 44th Street Armory Photos

Drill floor- looking north



Drill floor- looking west
Possible IFR area

OKC 44th Street Armory Photos

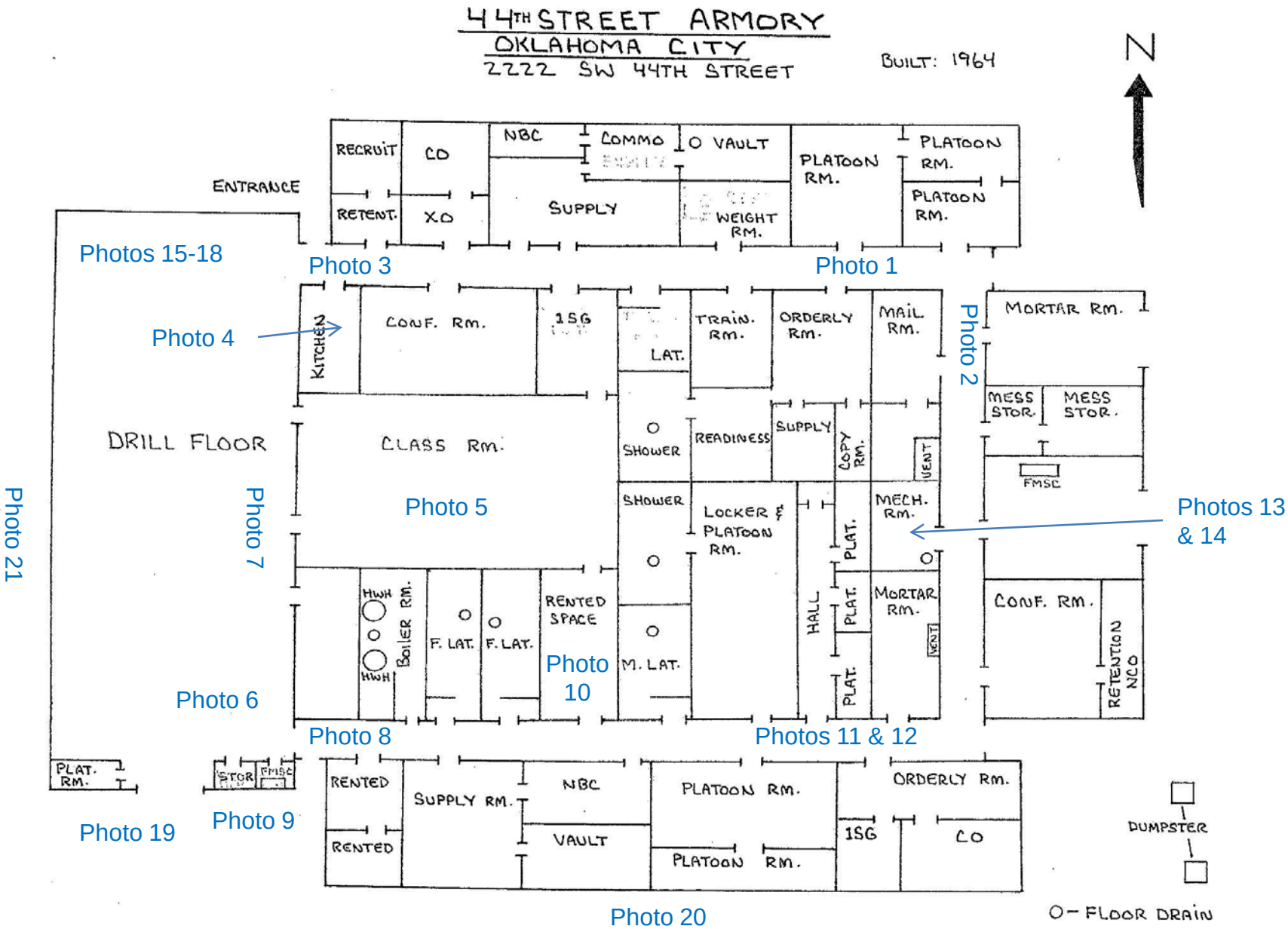
South side of armory

South side of armory

OKC 44th Street Armory Photos

West side of armory

Key to Photo Locations



APPENDIX E:

SITE VISIT NOTES

Name of person interviewed Kevin Coffman

Their Title Sargent # of yrs worked @ armory 14 months

GENERAL TOPICS TO COVER DURING OWNER/OPERATOR/NEIGHBOR INTERVIEWS

Target Property: OKC 44th St. Armory

Please print your name: Beatriz Santamaria Date: 10/02/2010

Relative to the property in question, are you the:

Owner/Occupant/Neighbor/Employee/Observer/Other _____? (circle one)

If the space provided by a question is too small for your answer, please write the question number and the rest of the answer on the back.

1. What types of chemicals were used at the armory?

   No

2. Are you aware of any chemicals currently present in the armory?

   No

   40 gallons COP → cleaning weapons (in the past)

3. Please describe the current properties that are nearby in the spaces provided below (i.e. residential, list business name, etc):

   Property to the North Commercial

   Property to the East residential / commercial

   Property to the South Playground

   Property to the West residences

4. Please describe the historical use of the properties nearby in the spaces provided below (if unknown, please put unknown in the spaces):

   Property to the North Same

   Property to the East Same

   Property to the South Playground not in place before

   Property to the West same

5. Are you aware of any current Industrial use in the area? No, Residential

6. Are you aware of current Industrial use nearby? (if so, please describe uses, period, location) maybe methhouse

* 11yrs → doesn't know there is a ITR

* had huge termite problem within past few months

7. Are you aware of any past Industrial use in the area? NO

8. Are you aware of past Industrial use nearby? (if so, please describe uses, period, location) Yes, gas station, look @ next question

9. Most common types of industrial use (circle as appropriate): Service station, Vehicle repair, Print shop, Dry cleaner, Photo lab, Junkyard, Waste treatment/storage/disposal sites, or Other : ~~Bakeries, Pawn Shop, apts, church, gas Stations~~ Restaurants, Vet, (west, least,

10. Are you aware of any discarded auto/industrial batteries, pesticides, paints or other industrial chemicals present in the area? Larger than 5 gallon size? More than 50 gallons total? No

11. Are you aware of any drums or storage tanks present in the area?

NO

12. Are you aware of any fill dirt brought onto the property? Do you know the source of the fill? NO

13. Are you aware of any pits, lagoons, or ponds (or former pits, lagoons, or ponds) in the area? Drainage ditch east side of armory.

14. Are you aware of any stained soil, chemical spills, or groundwater seeps in the area? No

15. Are you aware of any oil and gas exploration on the property or nearby?

NO

16. Are you aware of any groundwater or surface water contamination on the property or nearby? No

17. Are you aware of discharges and runoff from nearby properties affecting the armory property? No floods on armory

18. Are you aware of any vent pipes or fill pipes protruding from the ground now or in the past? NO

19. Are you aware of any past leaks, spills, or stains in the area? NO

20. Are you aware of any underground storage tanks used to store gasoline or diesel on-site in the past or present? No

Note: House on fire around area that was meth house → chemical burning

21. Are you aware of any unusual odors coming from soil, structures or drains in the area? NO

22. Are you aware of any wells in the area, or nearby? No
park behind has sprinkler system

23. Are you aware of any environmental lawsuits, liens or violations?

NO

24. Are you aware of any hazardous substances, past or present, in the area?
meth houses

25. Are you aware of any wastewater discharge in the area? No

26. Do you know anybody who worked there before? How could we reach them?

Sgt. SFC Kyle Glisson 405 228 5881

27. Are you aware of any transformers in the area? No

28. Have you heard of any "meth labs" in the area or nearby? Yes

29. Was there a firing range at this facility, or an area used as a firing range? No
Unknown

30. Was sand from the firing range used or disposed? Where? N/A

31. Are there or have there been radiation signage in the building? If so, what do the sign(s) say? NO

32. Are water impoundments present on the property? NO

33. Have above ground storage tanks been used on the property in the past or present? Where?
NO

34. Are you aware of any hazardous air emissions on the property or nearby properties?
NO

PLEASE USE THIS SPACE FOR ANSWERS FOR WHICH WE DIDN'T LEAVE ENOUGH ROOM

If we need to reach you again for follow-up information, what is the best way to contact you?

- Start moving ~~thursday~~ tuesday following thanksgiving.
- probably will take a couple of weeks to move out of the cannery – ~ 15th December

APPENDIX F:

ENVIRONMENTAL PROFESSIONALS QUALIFICATIONS

Environmental Professional Qualifications

Heather Mallory holds a Bachelors and Masters Degree in Environmental Science from the University of Oklahoma. Mrs. Mallory has eight years experience in environmental sampling and remediation. She is an Environmental Programs Specialist with the Land Protection Division of the Oklahoma Department of Environmental Quality. Her responsibilities include: project management of the Tar Creek Superfund Site, conducting and reviewing Targeted Brownfield Assessments, and project management of various Voluntary Cleanup sites across the state.

Rita R. Kottke, Ph.D., holds a Doctorate in Environmental Science from Oklahoma State University. She is an Environmental Programs Manager with the Land Protection Division of the Oklahoma Department of Environmental Quality. She functions as the DEQ's Brownfield Coordinator, Brownfield Cleanup Revolving Loan Fund Contact, Superfund Site Redevelopment Contact, Superfund Emergency Response Contact, Land Revitalization/Reuse Contact, and as a liaison between the state, EPA, and local communities. Her responsibilities also include acting as technical project manager at various Voluntary Cleanup and Superfund sites within the state. She has been with the agency for thirteen years, working in the Superfund and Brownfields Programs. She has over seventeen years experience performing site assessments of real property. She was heavily involved in the formulation of the Brownfields Program's implementing rules, the negotiation of DEQ's Brownfield Memorandum of Agreement (MOA) with EPA, and the development of Oklahoma's Brownfield Cleanup Revolving Loan.