

FINAL

**ENVIRONMENTAL CONDITION OF
PROPERTY REPORT**

**HARRY L. TWADDLE
ARMED FORCES RESERVE CENTER (OK017)
5316 SOUTH DOUGLAS BOULEVARD
OKLAHOMA CITY, OKLAHOMA 73150-3409**

Prepared For:

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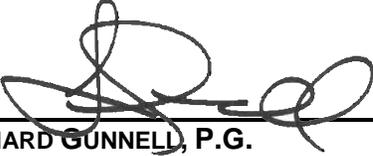
CERTIFICATION

All information/documentation provided accurately reflects the environmental condition of the property. This Environmental Condition of Property (ECP) Report is in general accordance with the U.S. Department of Defense (DoD) requirements for completion of an ECP Report.

JAMES WHEELER II
Chief, Environmental Division
90th Regional Readiness Command

DATE

The undersigned certifies the contents of this report are in general accordance with DoD policies for the completion of an ECP Report.



LENARD GUNNELL, P.G.
Project Geologist
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March 13, 2007
DATE

EXECUTIVE SUMMARY

The Terraine-EnSafe Joint Venture (TEJV), under contract to the U.S. Army Corps of Engineers Louisville District, has prepared this Environmental Condition of Property (ECP) Report for the Harry L. Twaddle Armed Forces Reserve (AFR) Center (Facility ID OK017), hereafter referred to as the "Site" or "AFR Center." The Site is at 5316 South Douglas Boulevard in Oklahoma City, Oklahoma. The Site is rectangular in shape and encompasses approximately 25 acres.

This ECP Report was conducted in conformance with primary Department of Defense (DoD) and Army guidance, the DoD's Base Redevelopment and Realignment Manual, DoD 4165.77-M, Army regulations, and the American Society for Testing and Materials Designation D 6008-96 (2005), *Standard Practice for Conducting Environmental Baseline Surveys* as secondary guidance when it was not inconsistent with the primary guidance.

This ECP Report details the history of the property, including the AFR and any prior tenant uses of the Site and the resulting environmental condition of the property.

The AFR Center is on approximately 25 acres of land and contains the following permanent structures: a 142,766-square-foot Administration Building, a 2,743-square-foot Marine organizational maintenance shop (OMS), a 3,440-square-foot Navy OMS, an 8,150-square-foot Marine Artillery Vehicle Building, a 2,000-square-foot Marine Equipment Storage Building, and a 1,305-square-foot Army Equipment Storage Building. The Site is currently occupied by multiple detachments of the 95th Division.

Based on a review of aerial photographs and U.S. Geological Survey topographical maps dating back to 1938, the Site was undeveloped prior to the 1971 land lease by the U.S. government. According to interviews with AFR personnel, initial construction of AFR Center Administration Buildings began in 1971 and was completed in 1974. An addition to the Administration Building and construction of other Site buildings were completed in 1991.

Areas of potential environmental concern were reviewed and the TEJV found the following relating to the environmental condition of the property:

- A *Property Inspection Checklist for Environmental Baseline Studies* was prepared by "USARC Safety" in 1997 in preparation for the transfer of approximately 59 acres to Tinker Air Force Base (AFB). The 59 acres adjoined the AFR Center property. The checklist reported dirt/debris mounds, ground depressions, and landfills/waste piles on the 59-acre property. No clarification was made as to the exact location of the noted items. No evidence of those features was observed on the 25-acre AFR Center property during the Site reconnaissance.

- Tinker AFB has been present west of the Site, across South Douglas Boulevard, since at least 1957. Tinker AFB is listed on multiple environmental databases. Activities at Tinker AFB have resulted in release(s) of contaminants to the environment. An investigation is ongoing relative to chlorinated hydrocarbons in groundwater from a former industrial waste evaporation basin. The most recent (2004) available data as well as previous (2002) data show chlorinated hydrocarbons are present in groundwater monitoring wells located on and adjacent to the AFR Center property. Sample data since 2004 was not available for review to determine the extent to which the plume has migrated to the AFR Center from Tinker AFB.

In accordance with DoD policy defining the classifications (See Sherri Goodman Memorandum dated 21 October 1996), the Site property has been classified as Type 7. This classification does not include categorizing the property based on *de minimis* conditions that generally do not present material risk of harm to the public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

This classification was selected because pertinent reports and/or other documentation were not available during the ECP survey. The presence of the chlorinated hydrocarbons plume in groundwater from the Tinker AFB continues to pose a high risk for migration to the AFR Center. The 2004 data is not recent enough to accurately reflect current conditions.

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List of Acronyms and Abbreviations

ACM	asbestos-containing material
AFB	Air Force Base
AFR	Armed Forces Reserve
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
BRAC	Base Realignment and Closure
BRRM	Base Redevelopment and Realignment Manual
C&D	Construction & Demolition
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	CERCLA Information System
CESQG	conditionally exempt small-quantity generator
CFR	Code of Federal Regulations
CORRACTS	Corrective Action Sites
DoD	Department of Defense
ECP	Environmental Condition of Property
EDR	Environmental Data Resources, Inc.
ERNS	Emergency Response Notification System
FEMA	Federal Emergency Management Agency
hazmat	hazardous materials
IFR	indoor firing range
kg	kilogram
LBP	lead-based paint
LQG	large-quantity generator
LUST	leaking underground storage tank
MEP	military equipment parking
NFRAP	No Further Remedial Action Planned
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OCC	Oklahoma Corporation Commission

ODEQ	Oklahoma Department of Environmental Quality
OMS	organizational maintenance shop
OWS	oil-water separator
Parsons	Parsons Engineering Science, Inc.
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
POL	petroleum, oil, and lubricants
POV	privately owned vehicle
ppb	parts per billion
PWS	Public Water Supply
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
RQ	reportable quantity
RRC	Regional Readiness Command
SQG	small-quantity generator
SVOC	semi-volatile organic compound
SWMU	solid waste management unit
TEJV	Terraine-EnSafe Joint Venture
TSD	treatment, storage, and disposal
URB	Urban Landfill
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USAR	U.S. Army Reserve
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
VWR	vehicle wash rack

1.0 INTRODUCTION

The Terraine-EnSafe Joint Venture (TEJV), under contract to the U.S. Army Corps of Engineers (USACE) Louisville District, was authorized to prepare an Environmental Condition of Property (ECP) Report for the Harry L. Twaddle U.S. Armed Forces Reserve (AFR) Center (Facility ID OK017), in response to the Base Realignment and Closure Act (BRAC) 2005 legislation. The work was performed under Contract No. W912QR-04-D-0044, Delivery Order No. 0008. The facility at 5316 South Douglas Boulevard in Oklahoma City, Oklahoma, is herein referred to as the "Site" or "AFR Center." In support of the ECP, a visual reconnaissance of the Site was conducted on August 9, 2006. The purpose of the reconnaissance was to visually obtain information indicating the likelihood of recognized environmental conditions in connection with the Site.

1.1 PURPOSE OF ENVIRONMENTAL CONDITION OF PROPERTY

The Military Department with real property accountability shall assess, determine, and document the environmental condition of all transferable property in an ECP Report. This ECP Report is based on readily available information. Pursuant to the Department of Defense (DoD) policy, set forth in the Base Redevelopment and Realignment Manual (DoD 4165.66-M, March 1, 2006) Section C8.3 (BRRM), the primary purposes of the ECP Report include the following:

- Provide the Army with information it may use to make disposal decisions.
- Provide the public with information relative to the environmental condition of the property.
- Assist in community planning for the reuse of BRAC property.
- Assist federal agencies during the property screening process.
- Provide information for prospective buyers.
- Assist prospective new owners in meeting the requirements under the U.S. Environmental Protection Agency's (USEPA's) "All Appropriate Inquiry" regulations.
- Provide information about completed remedial and corrective actions at the property.
- Assist in determining appropriate responsibilities, asset valuation, and liabilities with other parties to a transaction.

The ECP Report contains the information required to comply with the provisions of 40 Code of Federal Regulations (CFR) Part 373, which require that a notice accompany contracts for the sale of, and deeds entered into, for the transfer of federal property on which any hazardous substance was stored, released or disposed of. The Comprehensive

Environmental Response, Compensation, and Liability Act (CERCLA), Section 120(h) stipulates that a notice is required if certain quantities of designated hazardous substances have been stored on the property for one year or more – specifically, quantities exceeding 1,000 kilograms (kg) or the reportable quantity (RQ), whichever is greater, of the substances specified in 40 CFR 302.4 or one kg of acutely hazardous waste as defined in 40 CFR 261.30. A notice is also required if hazardous substances have been disposed of or released on the property in an amount greater than or equal to the RQ. Army Regulation 200-1 requires that the ECP Report address asbestos, lead-based paint (LBP), radon and other substances potentially hazardous to human health.

This ECP Report used the American Society for Testing and materials (ASTM) Designation D 6008-96 (2005), *Standard Practice for Conducting Environmental Baseline Surveys* as a guideline when not inconsistent with the BRRM, CERCLA §120, Army regulations, and other applicable Army guidance.

1.2 SCOPE OF SERVICES

This ECP covers the approximately 25-acre AFR Center at 5316 South Douglas Boulevard in Oklahoma City, Oklahoma. The property is bounded by Tinker Air Force Base (AFB) property on all sides. South Douglas Boulevard trends north to south immediately west of the Site, with Tinker AFB property beyond. A general Site location map, Site building layout maps, historical topographic maps and aerial photographs, a Federal Emergency Management Agency (FEMA) flood plain map, and a U.S. Fish and Wildlife Service (USFWS) wetland map are provided in Appendix A. Appendix B provides photographs taken during the August 2006 visual Site reconnaissance. Appendix C provides a lease termination and land acquisition for the Site and chain-of-title information. Historical environmental documents and reports as well as miscellaneous information are provided in Appendix D. The environmental database report is provided in Appendix E.

This ECP report classifies the property into one of seven DoD Environmental ECP categories as defined by the S.W. Goodman Memorandum dated October 21, 1996. The property classification categories are as follows:

- Category 1: Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas).
- Category 2: Areas where only release or disposal of petroleum products has occurred.
- Category 3: Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response.

- Category 4: Areas where release, disposal, and/or migration of hazardous substances has occurred, and all removal or remedial actions to protect human health and the environment have been taken.
- Category 5: Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken.
- Category 6: Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented.
- Category 7: Areas that are not evaluated or require additional evaluation.

1.3 ASSUMPTIONS AND LIMITATIONS

This report was prepared to permit formulation of an opinion of the environmental condition of the Site. Opinions on the environmental conditions at the Site are based on information from the visual reconnaissance, interviews, and collection and review of readily available information. New information or changes in Site use could require a review and possible modification of the findings and conclusions contained in this report.

The information obtained from the AFR, the AFR's representatives, individuals interviewed and prior environmental reports was considered to be accurate unless reasonable inquiries indicated otherwise. Conditions observed were considered representative of areas that were not accessible unless otherwise indicated.

This ECP Report presents a summary of readily available information on the environmental conditions of, and concerns relative to, the land, facilities, and real property assets at the AFR Center. Its findings are based on a record search of readily available documents, a thorough review of the applicable and relevant documents, a visual reconnaissance conducted on August 9, 2006, and interviews with personnel knowledgeable about the Site and its history. Extensive environmental investigations and reports and Site historical documents were reviewed in support of this ECP. Information obtained from these other studies is reflected within this report by reference. A complete list of references is provided as Section 9.0.

All Site buildings were visually inspected during the visual reconnaissance. However, a 100% visual reconnaissance of each building (e.g., attics, crawl spaces, etc.) was not practical due to accessibility restrictions. No sampling or analysis of any media was conducted during this survey.

2.0 SITE LOCATION AND PHYSICAL DESCRIPTION

The visual reconnaissance included a driving tour of the facility and the surrounding area, and a walking assessment of the developed area of the Site and buildings including the Administration Building (north and south areas), the organizational maintenance shops (OMSs), and all storage/warehouse buildings. The visual reconnaissance was conducted by TEJV personnel on August 9, 2006, to field-verify information produced in the document review and to identify recognized environmental conditions of property.

A reconnaissance of the Site perimeter was conducted to evaluate adjacent property uses that could contribute to any environmental contamination on the Site. TEJV personnel drove on accessible roads along the perimeter and in the surrounding area to visually identify any contiguous properties that appear, in the TEJV's professional judgment, to have contamination that could migrate to the Site. The findings of the perimeter survey are presented in Section 4.0.

2.1 SITE LOCATION

The Site is located at 5316 South Douglas Boulevard in Oklahoma City, Oklahoma County, Oklahoma. The Site is in southeast Oklahoma City. As shown on Figure 1 in Appendix A, the Site is surrounded by Tinker AFB. The Site is bordered to the west by South Douglas Boulevard, with the developed portion of Tinker AFB beyond. The area to the south was an open field until recently; a new building for Tinker AFB was being constructed on the property during the visual Site reconnaissance. South Douglas Boulevard was closed to traffic south of the Site. An area east of the Site is wooded and appears to have been used for a motocross track. Approximately 500 feet north of the Tinker AFB open field to the north are some industrial/commercial buildings.

2.2 ASSET INFORMATION

Facility Name and Address: Harry L. Twaddle AFR Center
5316 South Douglas Boulevard
Oklahoma City, Oklahoma 73150-3409

Property Owner: United States Government

Date of Ownership: June 5, 2005

Current Occupant: Multiple Detachments of the 95th Division

Zoning: R-1, Single Family Residential

County, State: Oklahoma County, Oklahoma

USGS Quadrangle: Choctaw, Oklahoma

Section/Township/Range: Section 24, Township 11 North, Range 2 West

Latitude/Longitude: 35°24' 45.0" N; 97°22' 9.1" W

Historical Legal Description: All those certain pieces or parcels of land being the West ½ of the Southwest ¼ of Section 24, Township 11 North, Range 2 West, lying and situate in the City of Oklahoma, County of Oklahoma, State of Oklahoma.

Historical Assessor's Parcel Numbers: 168502300 and 168502310

2.3 PHYSICAL DESCRIPTION

A Site layout plan and floor layout plans of the AFR Center are provided as Figures 2 through 7 in Appendix A. Photographs 1 through 10 show the exterior of the Administration Building and surrounding area. Photographs 11 through 18 show specific rooms and conditions within the Administration Building including: the mechanical room and former Indoor Firing Range (IFR). Photographs 19 and 20 show the track area on the east side of the Site. Photographs 21 through 38 show the exterior of buildings and general layout of facilities in the military equipment parking (MEP) area on the south side of the Site. Photographs 39 through 54 show the interior of some facilities and other environmental features on the south side of the Site. Photographs 55 through 62 show land use of property adjacent to the Site.

The AFR Center is on approximately 25 acres and contains multiple structures including the 142,766-square-foot Administration Building, the 2,743-square-foot Marine OMS and the 3,440-square-foot Navy OMS. The Administration Building and Marine OMS have concrete block walls with brick veneer. The Navy OMS is constructed with concrete block walls and masonry veneer. Other buildings on the Site include an 8,150-square-foot Marine Artillery Vehicle Building, a 2,000-square-foot Marine Equipment Storage Building, and a 1,305-square-foot Army Equipment Storage Building.

Other ancillary buildings and improvements on the Site include a guard shack; pavilions; storage buildings; flammable material, chemical, and hazardous materials (hazmat) storage buildings and sheds; a vehicle wash rack (VWR), and a grease rack.

Initial construction of the Administration Building began in 1971 and was completed in 1974. A major expansion of the Administration Building and other facilities on the Site was completed in 1991. As shown on Figure 2 in Appendix A, the south area was the initial part of the Administration Building; the north area was added in 1991. The general layout and exterior views of the Administration Building are shown on Photographs 1 through 9 in Appendix B. A privately owned vehicle (POV) parking lot is located east of the Administration Building as shown on Figure 2 in Appendix A. Representative views of the POV parking lot are shown on Photographs 9 and 10 in Appendix B.

A Site map of the AFR Center is presented on Figure 2 in Appendix A. Vehicle access is via two driveways on the north and south ends of the Administration Building. The driveways connect South Douglas Boulevard to the POV parking lot on the west side of the Administration Building. The large POV parking lot on the east side of the Administration Building is enclosed by a gated chain-link security fence topped with barbed wire. Gates on the driveways connecting the west POV lot to the east POV lot restrict vehicle access. As shown on Photograph 6 in Appendix B, there is a guard shack at the gate on the south driveway.

Approximately one-third of the Site is covered by impervious surface features (e.g., asphalt parking areas, driveways, concrete walkways, building footprints, etc.). The area around the buildings and parking lots is generally covered by grassed lawn area; there are landscaped shrubs immediately adjacent to the Administration Building. There are some larger (over 25 feet tall) trees around the perimeter of the Administration Building.

Topographically, the Site is relatively flat. No signs of erosion, excavation, or fill were observed on the Site. According to interviews with AFR personnel, no soil or fill material from offsite sources has been brought onto the Site, nor has any significant re-grading occurred on the Site.

As shown on Figures 3, 4, 5, and 6 in Appendix A, the Administration Building includes classrooms, restrooms, offices, administrative areas, a small-arms vault, mechanical room, and other areas. The interior of the building appeared to be well maintained during the visual reconnaissance; there were no obvious signs of disrepair. General views of the hallways in the Administration Building are shown on Photographs 11 and 12 in Appendix B.

The only peeling paint observed was in the mechanical room. The mechanical room is located on the first floor near the center of the Administration Building and contains the heating, ventilation, and air-conditioning system, water heaters, chillers, and the fire prevention system equipment. The mechanical room is accessible from an outside door. The room is equipped with floor drains to convey the condensate/blowdown/leakage from the various pieces of mechanical equipment to the public sewer system. Floor drains and some equipment and piping in the mechanical room are shown on Photographs 13, 14, and 15 in Appendix B. The condensate, blowdown, and leakage are piped directly from the equipment to floor drains to prevent water from accumulating on the floor. Floor drains are also located in the restrooms to facilitate floor cleaning. The floor drains discharge into the public sanitary sewer that serves the Site.

A supply storage area is shown on Photograph 16. A Memorial Room (Photograph 17 in Appendix B) replaced an IFR which, as described in Section 3.5.2, was removed and approved for alternate use. The arms vault door is shown on Photograph 18; firearms and ammunition were previously stored in the vault. Cleaning supplies and chemicals are stored in a janitor's closet. No evidence of chemical or petroleum releases was observed inside any room in the Administration Building.

Site representatives said that no live ammunition is stored on the Site and that all lead contamination from previous shooting activities has been abated. As described in section 3.5.7 of this report, all the fluorescent light fixtures on the Site are non-polychlorinated biphenyl (PCB)-containing.

As shown on Figure 2 in Appendix A and Photographs 19 and 20 in Appendix B, there is a one-quarter mile running track on the east side of the Site. The area surrounding the track is mowed and maintained. There are bleachers near, and a picnic pavilion northwest of, the track. The grassed areas north, east, and south of the track extend to the chain-link fence at the Site boundary.

The south side of the Site contains a MEP area that is enclosed by a chain link fence (separate from the POV parking lot) and includes multiple maintenance and storage facilities. The layout of the Site is shown on Figure 2 and individual structures are shown on Photographs 21 through 38 in Appendix B. The south side of the Site contains the following (generally from west to east):

- Marine OMS
- Flammable Materials Storage Shed
- Chemical Storage Building
- VWR
- Grease rack
- One hazmat and two equipment storage sheds
- Marine Artillery Vehicle Building
- Marine Equipment Storage Building
- Navy OMS
- Army Equipment Storage Building
- Flammable Materials Storage Unit

The Marine OMS (Photographs 21 through 24) is on the west side of the MEP area. As shown on Photograph 24, the Flammable Materials Storage Shed and Chemical Storage Building are located south of the Marine OMS. These facilities are shown on Photographs 25 and 26, respectively. As shown on Photograph 24, the VWR is located south of the Marine OMS and adjacent to the grease rack. The VWR and grease rack are shown on Photographs 27 and 28 respectively. The VWR was in use during the visual Site reconnaissance. There are two oil-water separators (OWSs) in this area to handle discharge from the floor drains in the Marine OMS and wash water from the VWR. One OWS is northwest of the Marine OMS and receives wastewater from the floor drains. The other OWS is northwest of the Marine OMS, outside the MEP fence. Discharge from both OWSs is conveyed to a wastewater treatment facility at Tinker AFB.

There are two equipment storage sheds and one hazmat storage shed on the south side of the Site between the edge of the pavement and the boundary fence. The metal sheds are shown on Photographs 29 and 30 in Appendix B. Empty missile casings are stockpiled

west of those sheds. The Marine Artillery Vehicle Building is east of the sheds and extends to the south MEP fence, as shown on Figure 2 in Appendix A and Photographs 31 and 32 in Appendix B. Eight vehicle bay doors on the north side of Marine Artillery Vehicle Building open onto the MEP area.

The Marine Equipment Storage Building is located north of the Marine Artillery Vehicle Building and is shown on Photographs 32 through 34. During the visual reconnaissance, a mobile command unit was parked just west of the Marine Equipment Storage Building.

The Navy OMS is shown on Photographs 35 and 36. The Navy OMS vehicle bay doors open to the POV parking lot to the north and the MEP area to the south. Further east of the Navy OMS is the Army Equipment Storage Building; it is located on the east side of the MEP and is shown on Photograph 37. A Flammable Materials Storage Building is located further south along the east fence line of the MEP, as shown on Photograph 38.

The Marine OMS is a one-story, L-shaped structure on the west side of the MEP area. A floor plan of the building is shown on Figure 7 in Appendix A. There are three vehicle doors on the east side of the OMS facing the MEP area and one each on the north and south sides. Pedestrian doors are located on the south, east, and west sides. A flammable materials storage room comprises a small wing on the south side of the OMS. The OMS has a bare concrete floor and concrete block walls. Vehicle maintenance is performed on military vehicles within the OMS. There are equipment and devices within the OMS to control and manage hazmat used and generated during maintenance activities. Some of the equipment and devices include:

- Floor drains to collect drainage within building – Photograph 39
- OWS northwest of OMS – Photograph 40
- Used fluids and battery accumulation area – Photograph 41
- Aerosol and paints storage locker in OMS – Photograph 42

The Marine Artillery Vehicle Building is a metal frame and sheet metal building. The building is used to store and prepare vehicles with missile launch capability. The interior of the building is shown on Photographs 43 and 44 in Appendix B.

Typical views of the interiors of chemical storage sheds are shown on Photographs 45 and 46 in Appendix B.

The Navy OMS is a one-story, rectangular-shaped structure on the east side of the MEP area. There are vehicle doors on the north and south sides that open to the POV parking lot and MEP area, respectively. The OMS has a bare concrete floor and concrete block walls. Vehicle maintenance is performed on military vehicles within the OMS. There is an OWS near the northwest corner of the building which receives discharge from the floor drains. Effluent from the OWS is pumped to Tinker AFB for treatment. There are equipment and devices within the OMS to control and manage hazmat used and generated

during maintenance activities. Some of the equipment and devices associated with the Navy OMS include:

- Floor drains to collect drainage within building – Photograph 47
- Battery storage room and hazmat storage locker – Photograph 48
- Liquid and petroleum, oil, and lubricants (POL) storage area – Photograph 49
- OWS at northwest corner – Photograph 50
- Lift station for OMS – Photograph 51

The interior of an equipment storage shed is shown on Photograph 52. The interiors of other hazmat storage areas are shown on Photographs 53 and 54.

Military equipment including vehicles and container storage units were located throughout the MEP area during the visual reconnaissance.

2.4 SITE HYDROLOGY AND GEOLOGY

2.4.1 Surface Water Characteristics

The Site is in the Lower North Canadian watershed. This watershed is drained by the North Canadian River whose closest point is located approximately 5 miles north of the Site and flows in an easterly direction.

Figure 1 in Appendix A presents a topographic map of the Site and surrounding area. As shown on the map, there are no surface water bodies on the Site. The Site generally slopes to the southeast and is approximately 1,258 feet above mean sea level. The Site storm water drains and culverts flow toward intermittent streams located to the southeast and east. The streams then flow east to Soldier Creek located approximately 2,000 feet east of the Site. Soldier Creek continues approximately 5 miles north to the North Canadian River. The Northern Canadian River then flows east to the Arkansas River, which ultimately discharges to the Mississippi River.

According to the FEMA Flood Insurance Rate Map for Oklahoma County, Oklahoma and Incorporated Areas (Map Number 40109C0415 G, Effective Date July 22, 2002), the Site is in Zone X. FEMA classifies Zone X as “Areas determined to be outside the 500-year flood plain.” Figure 8 in Appendix A provides a map depicting the extents of the nearest 100-year and 500-year flood plains in the area of the Site.

2.4.2 Hydrogeological Characteristics

TEJV visited the Oklahoma City Service Center of the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) in Oklahoma City, where soils maps for the Site were reviewed. Additionally, the Oklahoma County Assessor Records geographical information system and the NRCS Soil Survey Geographic Database were consulted. Based on these sources, the predominant soil type on the Site is Urban Land Fill (URB).

URB soils are classified as Hydrologic Group Class D. Class D has very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer. The soil does not meet the requirement for hydric soil.

There are no wetlands on the Site according to Figure 9 in Appendix A, which is a copy of the National Wetlands Inventory (NWI) Map of the Site area.

The primary aquifer in the Oklahoma City area is the Central Oklahoma Aquifer, also known as the Garber-Wellington Aquifer. This aquifer is located in the center of Oklahoma. It covers an area of about 8,000 square kilometers in the Central Lowland Physiographic Province. It is located under the counties of Canadian, Cleveland, Kingfisher, Lincoln, Logan, Oklahoma, Payne, and Pottawatomie. The main source for recharge is by infiltration of precipitation and percolation of surface water crossing an outcrop area. The recharge flows west from an unconfined part of the aquifer to a confined one. Water is then diverted to the north and south underneath the confining layer and discharges into a few major streams. Generally, the flow in the unconfined portion of the aquifer itself is from west to east and controlled by the natural topography.

No public wells or springs were observed on the Site. Potable water is provided to the Site from Tinker AFB.

A search was also conducted for wells within 1 mile of the Site (Environmental Data Resources, Inc. [EDR] Report in Appendix E). The environmental database report included a search of the following well databases: federal U.S. Geological Survey (USGS), Federal Reporting Data System — Public Water Supply (PWS) System, and State Database. The search identified 22 USGS wells and 138 state database wells within 1 mile of the Site; no PWS wells were identified. Of the identified wells, two State Database wells were observed on the Site.

The USGS wells range in construction date from 1942 to 1995 and the only applicable data reported were water levels. Most of the state database wells are associated with groundwater investigations as a result of releases at Tinker AFB. Two of those wells were identified on the Site. The wells are associated with a chlorinated hydrocarbon investigation in the upper and lower saturated zones as a result of a former industrial waste evaporation basin. Well numbers 2-322B and 2-332A are associated with the upper and lower saturated zones, respectively, and are located on the northwest corner of the Site and midway along the north property fence line of the Site, respectively. Well 2-322B is in the grass median adjacent to South Douglas Boulevard and well 2-332A is in the grass field just east of the corner of the east POV lot. An additional well was observed offsite in the wooded area northeast of the Site.

TEJV visited the Oklahoma Department of Environmental Quality (ODEQ) where files for the Tinker AFB investigation were reviewed. Additionally, sampling and analysis reports were provided to TEJV by U.S. Army Reserve (USAR) personnel. The ODEQ file information included a 2002 monitoring report that indicated that chlorinated hydrocarbons

were detected in well 2-322B at a concentration of 2 parts per billion (ppb). The specific compound was not listed. Chlorinated hydrocarbons were not detected in well 2-332A. The next closest well to the Site is located on Tinker AFB. The well is labeled 2-108B, is approximately 400 feet to the north-northwest, and contained 493.99 ppb of chlorinated hydrocarbons.

The sampling and analysis reports provided by USAR personnel are dated April 2005 (representing data collected in 2004) and December 2003 (representing data collected in October 2001 and August 2002). The reports indicate the detection of the volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) in monitoring well 2-322B and SVOCs in well 2-332A. Table 1 lists the concentrations of VOCs and SVOCs. The sampling reports and information obtained at the ODEQ are provided in Appendix D.

Well ID	Date Sampled	Constituent	Concentration (ppb)
2-322B	10/03/2001	bis(2-Ethylhexyl)phthalate	2.1
	10/03/2001	Trichloroethylene	4.6
	08/09/2002	Trichloroethylene	2.0
	08/09/2002	Toluene	0.65
	08/24/2004	Trichloroethylene	1.5
	2002	Total Chlorinated Hydrocarbons	2.0
2-332A	08/24/2004	bis(2-Ethylhexyl)phthalate	9.4

2.5 SITE UTILITIES

The Site is served by utilities provided by Tinker AFB.

2.6 WATER SUPPLY WELLS AND SEPTIC SYSTEMS

As described in Section 2.4.2, there are no PWS wells within 1 mile of the Site. The Site is served by the Tinker AFB sanitary sewer system, there are no septic systems on the Site, and no known septic systems were identified in the area.

3.0 SITE HISTORY

3.1 HISTORY OF OWNERSHIP

Land titles for the Site were reviewed back to 1900 and ownership was discussed with AFR Center personnel. Appendix C contains a Historical Chain-of-Title Report prepared for the Site and Appendix D contains a Record of Communication regarding ownership of the Site. According to USAR personnel, the United States of America is the current owner of the 25.63 acres of property that contains the Harry L. Twaddle AFR Center.

Based upon review of historical records, it appears that the City of Oklahoma acquired the title to the property prior to 1900; however, no records were discovered transferring ownership to the City of Oklahoma. The chain-of-title report identified a land lease on November 9, 1971, from the City of Oklahoma to the United States of America. According to a Record of Environmental Consideration (REC) dated January 16, 2004, the Army Reserve proposed to terminate its land lease on the property containing the Harry L. Twaddle AFR Center. In exchange for the lease termination, the remaining property would be under the control and responsibility of Oklahoma City Water Utilities Trust.

A USAR representative stated it was leasing approximately 79 acres from the City of Oklahoma, but only using approximately 25 acres. In 2004, an agreement was reached to transfer ownership of approximately 25.63 acres to the U.S. government as described in the REC. This agreement was reportedly finalized on June 5, 2005. The U.S. government terminated the lease on the remaining land at that time. TEJV did not obtain any formal documentation regarding completion of this transaction during the ECP.

No environmental liens or, institutional or engineering controls were found on record.

3.2 PAST USES AND OPERATIONS

Pertinent major dates in the facility's development, administration, and mission are summarized in Table 2.

Year	Description
1971	Site property was leased by the United States of America and construction of the Administration Building began
1974	South area of Administration Building was completed
1991	Major expansion of the Administration Building was completed
1991	MEP area and buildings were constructed on south side of Site
1997	Cleanup of IFR completed
2005	U.S. government takes ownership of property comprising the Harry L. Twaddle AFR Center

Historical information sources suggest that the Site was undeveloped until the U.S. government leased it in 1971.

Historical uses of the AFR Center included administrative and educational operations, maintenance of military vehicles including vehicle washing, and an IFR. The Site was historically used by reservists for drill activities on various weekends throughout the year. As discussed in Section 3.5.2, the IFR was closed in 1997 by American Asbestos, Inc.

Historical topographic maps and aerial photographs provided information about the Site and surrounding area. Figures 10 through 14 in Appendix A present topographical maps of the Site and surrounding area dated 1938, 1956, 1969, 1975, and 1986, respectively. Figures 15 through 21 present aerial photographs of the Site and surrounding areas dated 1957, 1963, 1970, 1984, 1995, 2003, and 2005, respectively.

Pertinent observations on the historical USGS topographic maps are summarized below.

- **1938 (Figure 10).** The Site is part of a large, undeveloped tract of land within eastern Boone Township.
- **1956 (Figure 11).** The Site is an undeveloped parcel of property on the east side of South Douglas Boulevard. Tinker AFB is located across South Douglas Boulevard to the west.
- **1969 (Figure 12).** The Site remains undeveloped. A road (SE 49th Street) has been developed to the north with two new buildings shown south of the intersection with South Douglas Boulevard. New buildings are present at Tinker AFB to the west. A structure is present south of the Site.
- **1975 (Figure 13).** The Site is developed as the AFR Center. The map shows the south area of the Administration Building completed and in place. Smaller buildings are shown on the Site north and south of the Administration Building; based on a Historic Architectural Report, both of the buildings are OMSs. The OMS to the north included an associated VWR and OWS. The OMS to the south is in the location of the current Marine OMS. New structures are present at Tinker AFB. New buildings are present near the intersection of South Douglas Boulevard and SE 49th Street.
- **1986 (Figure 14).** The Site and surrounding properties are similar to the 1975 map. Additional structures and runways are present at Tinker AFB.

Pertinent observations on the historical aerial photographs are summarized below.

- **1957 (Figure 15).** The Site property is an agricultural field. The associated farm buildings are just north of the Site along South Douglas Boulevard. Adjacent properties to the north, east, and south are agricultural. Tinker AFB is on the west side of South Douglas Boulevard.

- **1963 (Figure 16).** The Site appears to be a pasture. An unimproved road extends from the northwest corner of the Site to a small structure, possibly a feed trough, in the center of the field. The property to the east appears to be undeveloped agricultural land. A structure is discernible on the former farm to the north, the surrounding property appears to be disturbed. Disturbed land is also apparent south of the Site. Tinker AFB is to the west.
- **1970 (Figure 17).** The Site and the eastern adjacent property appear to be unchanged from the 1963 aerial photograph. Development of properties near the intersection of South Douglas Boulevard and SE 49th Street to the north has occurred with the addition of new buildings. The property to the south is undeveloped, but past evidence of disturbance are present. Tinker AFB is to the west.
- **1984 (Figure 18).** The Site has been developed as the AFR Center. The south area of the Administration Building, parking areas, and other buildings are visible. Properties to the north along SE 49th Street have been further developed. The property to the far northeast of the Site, the Midwest Construction & Demolition (C&D) Landfill, is shown disturbed. Unimproved trails or roads are present on property to the east. Tinker AFB is to the west.
- **1995 (Figure 19).** The Administration Building is shown expanded to its current size. Other buildings and parking areas are shown and appear similar to current conditions. The running track on the east side of the Site is clearly visible. Development of surrounding properties is apparent with the presence of additional structures north of the Site along South Douglas Boulevard and SE 49th Street. The Midwest C&D Landfill is present northeast of the Site. Several trails or unimproved roads are visible on the wooded property to the east. Property to the southeast is disturbed, but structures are not evident. The adjacent property to the south appears undeveloped. Tinker AFB is to the west.
- **2003 (Figure 20).** The AFR Center and surrounding properties appear similar to current conditions. The Site is located within an area of mixed land use.
- **2005 (Figure 21).** The AFR Center and surrounding properties are similar to current conditions. The Administration Building, OMSs, MEP areas, POV lots, and the running track are clearly visible. Adjacent property to the north is undeveloped, but several buildings are located along SE 49th Street further to the north. The Midwest C&D Landfill is still visible. Several trails are visible on the wooded property to the east and the disturbed property to the southeast; the trails appear to be a motocross track. The property to the south is undeveloped. Tinker AFB is to the west across South Douglas Boulevard.

The available business directory, Polk's city directories, was reviewed by EDR (EDR's research spanned roughly five-year intervals between 1953 through 2006). The city

directories did not list the Site address from 1953 to 1989. The first listing for the Site address was in 1996. No historical Sanborn fire insurance maps were available for this Site.

3.3 PAST USE, STORAGE, DISPOSAL, AND RELEASE OF HAZARDOUS SUBSTANCES

Information related to the past use and storage of hazardous substances at the Site was compiled through review of available Site records, search of federal and state environmental databases, and interviews with AFR Center personnel.

Activities historically conducted at the Site may have been different or included other activities than those observed on the Site during the visual reconnaissance and/or described by current AFR and USAR personnel. The closure and/or removal status of facilities and materials which were known to be located on the Site cannot be verified without documentation. Interviews with current Site personnel indicate that no potentially contaminated equipment was ever stored at the Site; and that all environmental systems are operating properly.

3.3.1 Past Use and Storage of Hazardous Substances

Chemicals formerly used and stored at the Site in the MEP area were associated with vehicle and facility maintenance activities, and were stored in designated areas, buildings, sheds, and lockers. Janitorial chemicals and building maintenance-related products were also stored in the designated storage areas within the janitor's closets in the Administration Building.

A 1998 Historical Architectural Report contained a map dated September 7, 1989. The 1989 map shows:

- **USAR Center** – Currently the AFR Center Administration Building south area.
- **Maintenance Shop** (north) – Located in the current Administration Building north area.
- **Maintenance Shop** (south) – Located in the current Marine OMS area.

The figure also contained the following waste management and environmental concern areas:

1. **VWR with OWS** - Near north Maintenance Shop
2. **Print Room** - Located within the current south area of the Administration Building
3. **Photo Lab** - Located within the current south area of the Administration Building
4. **Flammable Locker** - Located in the south Maintenance Shop
5. **Flammable Locker** - Located in the south Maintenance Shop
6. **Battery Room** - Located in the south Maintenance Shop
7. **Storage Shed** - Located near the current Flammable Materials Storage Shed
8. **Flammable Storage** - Located in a current vacant area

No documentation was obtained during the ECP survey regarding the apparent removal and closure of the north Maintenance Shop or items 1, 2, 3, and 8.

Certain types of chemical products used and stored at the Site would have contained CERCLA hazardous substances and would have been stored on a rotational basis in amounts necessary to support the unit through direct-support-level maintenance. However, there is no indication that CERCLA hazardous substances were stored at the Site for one year or more in excess of corresponding RQs.

3.3.2 Past Disposal and Release of Hazardous Substances

Information related to past disposal and potential release of hazardous substances at the Site was compiled through review of available Site records, search of federal and state environmental databases, and interviews with AFR Center personnel. According to AFR Center personnel and Site records, onsite disposal of hazardous materials or hazardous wastes has not occurred at the Site.

A 1997 Property Inspection Checklist for Environmental Baseline Studies was prepared by "USARC Safety" in preparation for the transfer of approximately 59 acres to Tinker AFB. The Checklist reported that the Twaddle AFR Center property was north and higher than subject property for transfer. It also reported dirt/debris mounds, ground depressions, landfills/waste piles, automotive batteries, and groundwater monitoring wells on the 59 acres. No evidence of those features was observed on the 25-acre AFR Center property during the Site reconnaissance.

As indicated in Section 3.3.1, a figure contained in a 1998 Historical Architectural Report illustrated the layout of the Site in 1989. A Maintenance Shop and associated VWR and OWS were shown on the north side of the Site in the current north area of the Administration Building. Other hazardous materials and hazardous waste management facilities also shown on the Site included a print room and photo lab in the Administration Building, and hazardous waste storage areas in and around a second Maintenance Shop located on the south side of the Site in the area of the current Marine OMS. The Maintenance Shop, VWR, and OMS on the north side of the Site were removed for the expanded Administration Building and some of the other hazardous materials/waste facilities have also been removed. No records were identified during the ECP regarding releases from these facilities or their proper closure.

No stained soil or stressed vegetation was observed during the visual Site reconnaissance. The MEP and POV parking areas did not show any signs of staining, and no noxious or foul odors were noted.

3.4 PAST BULK PETROLEUM STORAGE TANKS

Based upon a review of available Site records, a search of federal and state environmental databases, and interviews with AFR Center personnel, it does not appear that bulk petroleum aboveground storage tanks (ASTs) were on the Site. Three bulk

petroleum underground storage tanks (USTs) have been on the Site: one 5,000-gallon gasoline UST, and two 500-gallon waste oil USTs. The two waste oil USTs were installed May 5, 1973, and the date the gasoline UST was installed is unknown. The 1988 closure of all three USTs are described in Sections 5.2.2 and 5.2.3.

3.5 REVIEW OF PREVIOUS ENVIRONMENTAL REPORTS

A review of Site records produced several applicable reports pertaining to the Site. The following subsections provide a brief summary of these reports. Copies of the reports, unless otherwise specified, are provided in Appendix D. Only pertinent sections of reports that addressed multiple sites are presented in Appendix D.

3.5.1 Architectural Assessment Report

Parsons Engineering Science, Inc. (Parsons) performed a *Historic Architectural Resources Assessment of the 90th Regional Support Command Facilities in Oklahoma* for the Department of the Army. The findings of the assessment were compiled in a report issued February 1998. The report concluded that the buildings on the Site were not eligible for placement on the National Register of Historic Places because they did not meet the 50-year age criteria and they did not appear to possess exceptional historical importance. No further architectural surveys were recommended for this Site until its age reached 50 years. The Oklahoma State Historic Preservation Officer concurred with the Parsons report recommendations in a letter dated February 2, 1998.

The architectural report indicated that the Twaddle AFR Center was known as the "Army, Marine, and Navy Center" and contained three buildings owned by the USAR. The 1989 map (Figure 23 of that report) showed three buildings, a POV parking area, two fenced MEP areas, and eight waste management and environmental concern areas on the Site. Information related to those areas was summarized in Section 3.3.1 of this report.

3.5.2 Indoor Firing Range Report

An IFR was formerly located in the south area of the Administration Building. The IFR was closed in 1997 by American Asbestos, Inc., and approved for alternate use. The abatement, cleanup, and encapsulation of all lead-containing dust and work items were documented in the report titled *Final Submittals Presented in Connection with: Prepare Indoor Firing Ranges for Alternate Use at Various Locations in OK & TX, Contract DABT 39-96-C-3046, 0001AB OKC Twaddle USARC*. That report was dated May 21, 1997.

Steel panels, plates, and equipment were removed and collected for transportation to a local reclamation site, where they were recycled. All debris from sand and bullet traps were containerized then transported to American Asbestos, Inc.'s, Oklahoma City facility for temporary storage prior to shipment to Encycle Recycling in Corpus Christi, Texas. The air exhaust system from the IFR was also removed. Final clearance certification of the IFR

was issued by the Department of the Army via memorandum on June 19, 1997. A copy of the memorandum is contained in Appendix D of this report.

3.5.3 Lead and LBP Assessment and Management

ETC Engineers, Inc., of Little Rock, Arkansas, performed a LBP assessment of the AFR Center/Twaddle USAR Center for the USACE, Little Rock District. The results were summarized in a *Report of Findings, Lead-Based Paint and Ozone Depleting Chemicals Assessment and Management, Armed Forces Reserve Center/Twaddle USARC Oklahoma City, Oklahoma*, issued January 1994. The report stated that the dates of construction for the building were 1989 through 1991, and that a “marine and navy garage” was part of the facility. The assessment documented materials/surfaces containing LBP in the Administration Building.

Paint samples collected from seven locations demonstrated positive test results above the U.S. Housing and Urban Development regulatory action level of 1 milligram of lead per square centimeter. Those concentrations were discovered in samples collected from the ceiling, deflectors, stair risers, stair stringers, stair treads, columns, and exterior door jam. The report recommended implementation of a management plan for LBP identified at the Site to reduce the risk of release and exposure to lead through normal activities. The report recommended abatement of the locations containing LBP.

Wipe samples were also collected from the floor and backstop area of the IFR; those samples tested positive for lead. This sampling was performed before the IFR cleanup was performed in 1997, as described in section 3.5.2 of this report. The report recommended abatement of the lead dust in the IFR.

3.5.4 Radon Report

Radon screening was performed from June 11 to June 14, 1990, at 20 locations in the Administration Building. The results were issued on November 6, 1991, in a one-page summary that is labeled only as “Midwest City.” The results ranged from 0.50 to 1.60 picocuries per liter (pCi/L).

3.5.5 Asbestos Report

An asbestos inspection was performed at the Twaddle AFR Center in December 1999 by the USAR. The results were summarized in *Asbestos Building Survey, Twaddle Armed Forces Reserve Center, Midwest City, Oklahoma*, issued December 1999. As part of the inspection, 30 samples were collected for asbestos analysis; five of the samples contained asbestos above 1%. Four of the positive samples were collected from “190 Cage Area” of the Administration Building (northeast corner of south area). The asbestos-containing material (ACM) from that area was determined to be white floor tile, green floor tile, and associated mastic. The other ACM was from the floor tile in the office in the Marine OMS. All ACM was classified as “non-friable” and the report stated that, “the nonfriable floor tiles and mastics in all locations are significantly damaged with a high probability for

disturbance.” The report also stated that the Navy warehouse was inaccessible the day of the survey. No recommendations for abatement were made in the report.

3.5.6 Cultural Resources Report

Parsons performed an assessment and prepared a *Management Summary, Cultural Resources Assessment of 90th Regional Support Command, Facilities in Arkansas, Louisiana, New Mexico, Oklahoma and Texas* for the Department of the Army. The assessments were compiled and issued February 1998. The assessment concluded that there were no architectural issues at the Twaddle AFR Center; the buildings on the Site were not eligible for the National Register of Historic Places. However, the assessment concluded that the Site had a “high” archeological potential and indicated archaeological issues were associated at the Site.

3.5.7 Polychlorinated Biphenyls Report

The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) performed a *Polychlorinated Biphenyls (PCB) Assessment No. 37-08-5615-97* for the USAR facilities in Arkansas, Louisiana, Oklahoma, New Mexico, and Texas. The assessments were compiled and issued on September 30, 1997. The assessment addressed the source of power and fluorescent lighting on the Site. Electric power is provide to the Site by Oklahoma Gas and Electric through Tinker AFB. Fluorescent lighting at the Site is operated by non-PCB-containing ballasts. No transformers that could contain PCBs were identified on the Site.

3.5.8 BRAC 05 Installation NEPA Information Needs Questionnaire

A “*BRAC 05 Installation NEPA Information Needs Questionnaire*” was completed by the 90th Regional Readiness Command (RRC) for Closure of the “MG Harry L. Twaddle AFRC.” The questionnaire provided baseline information for National Environmental Policy Act Plans of Action. The questionnaire described the Site as follows: “The MG Harry L. Twaddle USARC is located at 5316 South Douglas Blvd, Oklahoma City, OK 73150-3409 in Oklahoma City, Oklahoma County, OK, in the Choctaw Quadrangle. The three buildings located on this 79-acre property are the AFR Center, always used for training and administration; the maintenance shop, always used for maintenance; and the storage shed, always used for storage. All buildings were constructed in 1974. Tinker AFB is north of the property and Mishak Cemetery is south/southeast of the property.” The checklist did not reveal specific information with regards to the environmental condition of the Site, but did confirm findings provided in other documentation, specifically architectural and cultural resource information.

3.5.9 Checklist for Environmental Baseline Survey

A *Property Inspection Checklist for Environmental Baseline Studies* was prepared by “USARC Safety” in preparation for the transfer of approximately 59 acres to Tinker AFB. The Checklist reported that the 25-acre Twaddle AFR Center property was north and higher than 59-acre property proposed for transfer. It also reported dirt/debris mounds,

ground depressions, landfills/waste piles, automotive batteries, and groundwater monitoring wells on the 59-acre property. No clarification was made as to the exact location of those identified items.

3.5.10 Oil/Water Separators

In May 2000, EnSafe Inc. generated a report for the 90th Regional Support Command entitled *Oil/Water Separator Evaluation*. The OWS associated with the VWR was identified in the report and described as follows: "The OWS, installed in 1972, is a 1,600-gallon, concrete rectangular vessel with two wooden baffles dividing the OWS into three chambers: an influent chamber, a separation chamber (quiescent zone), and an effluent chamber. The influent chamber receives rinse water from the wash rack and the effluent chamber discharges into the sanitary sewer system."

4.0 ADJACENT PROPERTIES

According to Site personnel, all adjoining properties are owned by Tinker AFB. Figure 21 in Appendix A provides a 2005 aerial photograph of the Site and adjacent properties. As shown on the photograph, the Site is bounded by South Douglas Boulevard to the west, then the developed Tinker AFB property. The Site is bounded by an undeveloped field to the immediate north, with a Fina gas station beyond at the intersection of South Douglas Boulevard and Southeast 49th Street. Further north of and along Southeast 49th Street are industrial and commercial properties. The properties further to the northeast include the closed Midwest C&D Landfill; details of this property are in Section 5.2.1.

A wooded area is located to the east and southeast beyond the AFR Center fence. As evidenced in Figure 21, this area operated as a motocross track at least as early as 1995.

The area immediately south of the Site was most recently an undeveloped field. A new hangar for Tinker AFB was being constructed in this area during the August 2006 visual reconnaissance. South Douglas Boulevard has been terminated at the southern entrance to the AFR Center; the road has been excavated indicating that the road closure is permanent. This section of South Douglas Boulevard is in the new hangar construction zone and will, in conjunction with the new hangar area, become contiguous with Tinker AFB.

Appendix A provides historical aerial photographs and topographic maps and Appendix E presents an environmental database report that was used to evaluate potential environmental impacts from adjacent and surrounding properties that may have also impacted the environmental conditions at the Site. Some land use changes have occurred over the past 50 years, most noticeably the transition of rural/agricultural properties to commercial to the north, the development the landfill to the northeast, and the development of Tinker AFB in all directions. As described in Section 2.4.2, facilities at Tinker AFB may have impacted the environmental conditions of the AFR Center property.

Table 3 provides a list of adjacent properties with their directional location from the Site and zoning. A zoning map of the area is presented on Figure 22 in Appendix A. As shown on that figure, the Site is zoned R-1, Single Family Residential.

Table 3
List of Adjacent Properties

Direction From Site	Name/Type of Property	Addresses	Zoning
North	Undeveloped Tinker AFB land immediately north of the Site. Industrial facilities are located on Southeast 49 th Street approximately 500 feet north of the Site	Southeast 49 th Street	I-2 (Moderate Industrial). I-2 areas are for the conduct of light manufacturing, assembling, and fabrication, and for warehousing, wholesale, and service uses. AE-1 (Airport Environs Zone 1). AE-1 areas are exposed to a projected annual average noise level in excess of 65 decibels.
West	South Douglas Boulevard is immediately west of the Site. Tinker AFB is on the west side of South Douglas Boulevard.	4900 to 5900 South Douglas Boulevard	R-1 (Single Family Residential). R-1 are areas for single-family residential housing in restrictive residential areas. PUD (Planned Unit Development). PUDs are special zoning districts that provide development in accordance with a master design statement or a master development plan.
South	Recently undeveloped. Now under development for Tinker AFB (hangar construction)	Southeast 49 th Street	PUD (Planned Unit Development). PUDs are special zoning districts that provide development in accordance with a master design statement or a master development plan.
East	Vacant land – former motocross track	South Berryman Road	PUD and R-1

5.0 REVIEW OF REGULATORY INFORMATION

A component of the ECP is the review of all reasonably obtainable federal, state, and local government records for the Site and surrounding properties where there has been a release or likely release of any hazardous substance or any petroleum product and that are likely to cause or contribute to a release or threatened release of any hazardous substance or any petroleum product on the federal real property. An environmental database summary was obtained from EDR on July 31, 2006. The environmental database summary consolidates standard federal, state, local, and tribal environmental record sources based on ASTM-defined minimum search distances from the Site. A copy of the complete EDR report is included in Appendix E.

TEJV interviewed AFR personnel and reviewed reasonably accessible government environmental documents, ODEQ files, Oklahoma Corporation Commission (OCC) records, and historical aerial photographs and maps to investigate environmental conditions at the Site and surrounding area. Available information and the potential impact of environmental conditions on the Site were each assessed.

There were no environmental permits issued for the Site; therefore, there were no permit applications or associated permit documentation available for review. The Site did not participate in the Installation Restoration Program, Military Munitions Response Program, or a Compliance Cleanup program. However, there were previous environmental issues at the Site that required environmental cleanup and/or remediation. These issues included removal and cleanup of the IFR and USTs on the Site. As described in Section 3.5.2, the IFR was abated in 1997. The USTs that were on the Site are described in Sections 5.2.2 and 5.2.3 below.

TEJV conducted multiple interviews with relevant personnel to discuss general environmental interest and specific areas of interest identified during the records review and visual reconnaissance. Copies of the interview reports are included in Appendix D. Section 9.0 of this report identifies the individuals interviewed with respect to conditions and operations at the Site and the information from those interviews incorporated into this report.

5.1 FEDERAL ENVIRONMENTAL RECORDS

5.1.1 Federal National Priorities List Sites within One Mile

The National Priorities List (NPL) is a subset of the CERCLA Information System (CERCLIS) and identifies more than 1,200 sites for priority cleanup under the Superfund Program. NPL sites are targeted for long-term remedial action under CERCLA. According to the environmental database report, the Harry L. Twaddle AFR Center is not an NPL site.

Tinker AFB is listed on the NPL due to a chlorinated hydrocarbon release associated with the disposal of various wastes in industrial waste pits at the site. According to the environmental database search report, the Record of Decision for Tinker AFB was completed on August 15, 1990.

5.1.2 Federal CERCLIS Sites within One-Half Mile

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies, and persons, pursuant to Section 103 of CERCLA. CERCLIS contains sites that are either proposed to be or are on the NPL, sites that are in the screening and assessment phase for possible inclusion on the NPL, and sites that are in the screening and assessment phase for possible inclusion on the NPL. According to the environmental database report, the Harry L. Twaddle AFR Center is not a CERCLIS site.

The Tinker AFB, located west across South Douglas Boulevard from the Site, is listed as a CERCLIS site.

CERCLIS No Further Remedial Action Planned (NFRAP) sites have been removed and archived from CERCLIS. NFRAP status indicates that, to the best of USEPA's knowledge, assessment at a site has been completed and that no further steps will be taken to list this site on the NPL, unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with the site; it means that, based on available information, the location is not judged to be a potential NPL site. According to the environmental database report, the AFR Center is not a CERCLIS NFRAP site and there are no CERCLIS NFRAP sites within one-half mile of the Site.

One orphan site was listed on the CERCLIS NFRAP list. That site, the 137th Tactical Airlift Wing, was reported as located at an undisclosed address on Douglas Boulevard at Building 3767. Internet research conducted on the 137th Tactical Airlift Wing did not identify the location of the identified site. The address suggests it is located on Tinker AFB property.

5.1.3 Resource Conservation and Recovery Act Corrective Action Sites within One Mile

Resource Conservation and Recovery Act (RCRA) Corrective Action Sites (CORRACTS) represent facilities that have generated or managed hazardous wastes and require corrective action. According to the environmental database report, the AFR Center is not a CORRACTS.

Tinker AFB was the only identified CORRACTS within one mile. According to the environmental database search, based on current and reasonably expected conditions, current human exposures at the Tinker AFB site are minimal. The generation and management of hazardous wastes at Tinker AFB are not considered to represent a threat to human exposure at the AFR Center.

5.1.4 RCRA Transport, Treatment, Storage, and/or Disposal Facilities within One-Half Mile

The RCRA Information Database includes selective information on sites that generate, transport, treat, store, and/or dispose (TSD) of hazardous waste as defined by RCRA. According to the environmental database report, the AFR Center is not a RCRA TSD site.

Tinker AFB is the only identified TSD facility within one-half mile of the Site. The environmental database search indicated that 14 TSD violations were reported for the Tinker AFB facility. The TSD areas of violation at Tinker AFB included oversight requirements, container requirements, general requirements, tanks requirements, and closure/ post-closure requirements.

5.1.5 Federal RCRA Small- and Large-Quantity Generators List within One-Quarter Mile

Conditionally exempt small-quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste, per month. RCRA small-quantity generators (SQGs) are defined as facilities generating between 100 kg and 1,000 kg of hazardous waste per month, while a large-quantity generator (LQG) is defined as a facility generating more than 1,000 kg of hazardous waste, or over 1 kg of acutely hazardous waste, per month. According to the environmental database report, the AFR Center is not an SQG or LQG. However, USAR personnel indicated that the Site is a CESQG. According to USAR personnel, all potentially hazardous wastes and POLs generated at the Site are transported offsite for disposal or recycling. No wastes are disposed of onsite.

One RCRA SQG, Sooner Stripping, was identified within one-quarter mile of the Site. No violations were reported for Sooner Stripping.

Tinker AFB was the only RCRA LQG identified within one-quarter mile of the Site.

5.1.6 Federal Emergency Response Notification System List

The federal Emergency Response Notification System (ERNS) provides information on reported releases of oil and hazardous substances. According to the environmental database report, the USAR Center is not listed on the ERNS.

5.2 STATE AND LOCAL ENVIRONMENTAL RECORDS

The regulatory information presented below was obtained from the environmental database report. Supplemental information was also provided from research at the ODEQ.

5.2.1 State-Registered Landfills or Solid Waste Disposal Sites within One-Half Mile

According to the environmental database report, no solid waste landfills, incinerators, or transfer stations are within one-half mile of the Site. There is no solid waste landfill, incinerator, or transfer station on the Site. However, three of the unmapped sites (see Section 5.4) included solid waste facilities estimated to be within one-half mile of the Site.

The Midwest C&D landfill was identified approximately 500 feet northeast of the Site; this landfill is also listed as the Midwest Maintenance and Construction Company C&D landfill on the unmapped list. The Tinker AFB Landfill was determined to be south of SE 59th Street, approximately 2,200 feet south of the Site.

The ODEQ, Land Protection Division, Solid Waste Compliance and Inspection Section was contacted and confirmed that the Midwest Maintenance and Construction Company C&D landfill was permitted in November 1973 and is now closed. The date of closure was not provided. Given the nature of the landfill (C&D waste only) and its apparent downgradient direction from the Site, it is not considered to represent a potential impact to the Site.

Based on review of a 2005 aerial photograph, the Tinker AFB landfill did not appear active. According to the 2004 Tinker AFB Community Relations Plan, the landfill, labeled Landfill 6 (solid waste management unit [SWMU]-1), operated from 1970 to 1979 and is now in the Air Force's long term monitoring program. The landfill received general refuse and industrial waste. The former landfill location can be seen in the ODEQ file information included in Appendix D. The landfill is shown to have an associated groundwater chlorinated hydrocarbon plume. This plume is not associated with the former industrial waste evaporation basin. The Landfill 6/SWMU-1 plume is shown to be defined and has not impacted the AFR Center.

5.2.2 State-Registered Leaking UST Sites within One-Half Mile

The Site is listed in the state leaking UST (LUST) database. According to the environmental database report, no other LUST sites are located within one-half mile of the Site. A records search at the OCC indicated that the Site was categorized as a LUST site by the OCC due to the presence of contaminated soils discovered during the closure of one 5,000-gallon gasoline UST. The age of the tank is unknown. According to an August 22, 1988 OCC memorandum discovered in the file, at the time of removal, nine 14-

yard loads (126 cubic yards) of petroleum-impacted soil were excavated and disposed at Laidlaw Landfill at SE 4th and Bryant. The tank was removed by Joe's Backhoe and disposed by City Metals. A handwritten note on the memorandum indicates "closed 8/23/88." No analytical data were discovered during the file search. According to the environmental database search report, the LUST incident at the Site has been closed. A formal letter from OCC to this effect was not found during the file search; however, OCC personnel indicated that file information could be missing or misplaced. The existing documentation of this closure is provided in Appendix D.

5.2.3 State-Registered UST Sites within One-Quarter Mile

USTs are regulated under RCRA Subtitle I and must be registered with the state department responsible for administering the UST program. The Site is listed in the state UST database. Three USTs were present on the Site in the past; one 5,000-gallon gasoline UST, and two 500-gallon waste oil USTs. The closure of the gasoline UST is described in Section 5.2.2. The two waste oil USTs were installed May 5, 1973. A Facility Summary Report retrieved from the OCC files indicates that the waste oil USTs were "removed from the ground – 07/1988." No documentation was found detailing any soil analyses that may have been conducted at that time.

The environmental database report identified one state-registered UST site within one-quarter mile: Midwest Maintenance and Construction Company at 5500 South Douglas Boulevard. This UST site is reportedly approximately 1,292 feet south of the Site, at a lower topographic elevation. However, the Midwest Maintenance and Construction Company location was determined to be approximately 500 feet northeast of the Site, at the C&D landfill. According to the environmental database report, the UST is permanently out of use. There are no reported releases associated with this site and it represents a low potential environmental risk to the Site.

An unmapped registered UST site is located at 7410 Patrol Road at the Tinker AFB. The environmental database was not able to map this site and therefore listed it under the unmapped site category. TEJV was not able to locate the address; however, portions of Patrol Road are located within one-half mile of the Site. The registered UST at 7410 Patrol Road is also listed on the historical UST database but not the LUST database.

5.2.4 State Hazardous Waste Sites within One Mile

According to the environmental database report, no hazardous waste sites are within one mile of the Site. The Site is not classified as a hazardous waste site.

5.2.5 State AST Sites within One-Quarter Mile

According to the environmental database report there are no state-registered ASTs within one-quarter mile of the Site.

5.2.6 State Sites with Institutional Controls within One-Half Mile

Institutional controls include administrative procedures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post-remediation care requirements intended to prevent exposure to contaminants remaining onsite. According to the environmental database report, no state-registered sites with Institutional Controls are within one-half mile of the Site.

5.2.7 State Voluntary Cleanup Program Sites within One-Half Mile

There are no State Voluntary Cleanup Program (VCP) sites with one-half mile of the AFR Center. According to the environmental database report, the Site is not listed on the VCP list.

5.2.8 State Brownfields Program Sites within One-Half Mile

Included in the listing are brownfields properties addressed by Cooperative Agreement Recipients and brownfields properties targeted by Targeted Brownfields Assessments. According to the environmental database report, no state-registered Brownfield Program Sites are within one-half mile of the Site. According to the environmental database report, the Site is not listed on the brownfields list.

5.3 TRIBAL ENVIRONMENTAL RECORDS

According to the environmental database report, no designated Indian Reservations are within one mile of the Site.

5.4 UNMAPPED SITES

The environmental database search yielded 29 unmapped sites. Unmapped sites are those with address information sufficient to identify them within the same zip code of the target Site. Further research was conducted using maps of the Site and surrounding area. Of the 29 sites listed, five were estimated to be within the corresponding ASTM D 6008-recommended minimum search distances for the databases on which they were listed. One of the unmapped sites, the 137th Tactical Airlift Wing Building 3767, was discussed in Section 5.1.2. The unmapped registered UST site on Patrol Road was discussed in Section 5.2.3. The other three unmapped landfill sites were discussed in Section 5.2.1.

5.5 SUMMARY OF PROPERTIES EVALUATED TO DETERMINE RISK TO SITE

During review of environmental information summarized in this section, multiple databases and sites were reviewed to evaluate potential risks to the Site. The site with the highest potential to adversely affect the Site is the groundwater contamination associated with the Tinker AFB NPL Site. According to existing reports, elevated concentrations of chlorinated hydrocarbons are present immediately across South Douglas Boulevard from the Site and, as of 2004, low concentrations had migrated to the Site, which is an established risk. The 2004 data is not recent enough to accurately reflect current conditions.

6.0 SITE INVESTIGATION AND REVIEW OF HAZARDS

Findings documented in the following subsections are based on the August 9, 2006, Site and area reconnaissance, review of available Site records, and information obtained from AFR and USAR personnel.

6.1 UNDERGROUND AND ABOVEGROUND STORAGE TANKS

Based on observations and interviews, no petroleum USTs or ASTs are currently located on Site. Three OWSs are currently being used at the site. They are located at the VWR, the Marine OMS, and the Navy OMS. There is no documentation regarding the operation, maintenance, inspection or integrity of the OWSs located on the Site.

6.2 INVENTORY OF CHEMICALS/HAZARDOUS SUBSTANCES

During the August 9, 2006, visual reconnaissance, chemicals and hazardous substances were observed in designated areas throughout the Site. These included cleaning materials in the Administration Building, and POLs, vehicle maintenance compounds, and other materials in the designated areas of the OMS buildings, hazmat and chemical storage buildings, and sheds in the MEP area of the Site. Chemical inventories are provided in Appendix D.

6.3 WASTE DISPOSAL SITES

No signs of landfilling or illegal waste disposal activities were observed on the Site during TEJV's visual Site reconnaissance.

6.4 PITS, SUMPS, DRY WELLS, AND CATCH BASINS

The Site is served by a sanitary sewer system from Tinker AFB. Wastewater from the buildings discharges to the sanitary sewer system. Liquids entering floor drains in the OMSs and wash water from the VWR are conveyed to an OWS before entering the wastewater system.

Runoff from the Site generally drains into a storm water system that discharges to the east side of the Site.

6.5 ASBESTOS-CONTAINING MATERIAL

As described in Section 3.5.5, ACM was detected in the Administration Building and the Marine OMS in a 1999 Asbestos Survey. No documentation was made available for review regarding any removal of asbestos from the Site.

6.6 PCB-CONTAINING EQUIPMENT

As described in Section 3.5.7, there are no electrical transformers on the Site; electric power is provided by Tinker AFB. The previous USACHPPM PCB assessment indicated that fluorescent light fixtures on the Site are non-PCB-containing. No other PCB-containing equipment was identified on the Site.

6.7 LEAD

As described in Section 3.5.3, LBP was detected in the Administration Building during an assessment by ETC Engineers, Inc., in 1994 and recommendations were made for mitigation measures to reduce the risk of release and exposure to lead through normal activities. LBP was identified in the ceiling, entrance door frames, stair stringers, risers, and deflectors, stair tread, and a column. The TEJV was not provided any documentation regarding the implementation of those recommendations. During TEJV's visual Site reconnaissance, the observed painted surfaces in the Administration Building appeared to be in good condition.

An IFR was previously located on the Site and was closed in 1997 by American Asbestos, Inc., as described in Section 3.5.2. The lead abatement, cleanup, and encapsulation were completed and the area approved for alternate use via a Department of the Army memo dated June 19, 1997. The former IFR area was converted to the 95th Infantry Division Memorial which was dedicated October 2, 1993. The memorial was observed during TEJV's Site reconnaissance.

6.8 RADON

As described in Section 3.5.4, radon tests were performed which determined the Site-specific radon levels to be less than the USEPA-recommended federal action level of 4.0 pCi/L. The Site-specific radon levels were consistent with area/county radon levels reported by the USEPA.

6.9 UNEXPLODED ORDNANCE

No indications were found during the Site reconnaissance or during the review of records to indicate the presence of munitions and explosives of concern at the Site.

6.10 RADIOACTIVE MATERIALS

During the August 9, 2006 visual Site reconnaissance and records review process, no indications were found of the past storage or use of radiological commodities at the Site.

7.0 REVIEW OF SPECIAL RESOURCES

7.1 LAND USE

The Site is zoned R1 single family residential as shown on Figure 22 in Appendix A and described in Section 4.0 of this Report. The areas south and east of the Site of the Site are zoned PUD - Planned Use Development. The parcel of land to the north of the Site is zoned I2 for Moderate Industrial. The parcel of land located northeast of the Site containing the Midwest C&D landfill is zoned AA for Agriculture. The parcel of land located west of the Site across South Douglas Boulevard where Tinker AFB is located is zoned AE-1 for Airport Environs Zone 1 and R-1.

7.2 COASTAL ZONE MANAGEMENT

There is no coastal zone management plan for Oklahoma.

7.3 WETLANDS

The Site is upland and well drained. According to the USFWS NWI map, no jurisdictional wetland areas are identified on the Site, or adjacent properties. The nearest wetland is located approximately 1,000 feet east of the Site. Figure 9 in Appendix A provides a map of wetlands in the area of the Site.

7.4 100-YEAR FLOODPLAIN

According to the FEMA Flood Insurance Rate Map for Oklahoma County, Oklahoma and Incorporated Areas (Map Number 40109C0415 G, Effective Date July 22, 2002), the Site is in Zone X. FEMA describes Zone X as "Areas determined to be outside the 500-year flood plain." Figure 8 in Appendix A provides a map depicting the extents of the nearest 100-year and 500-year flood plains in the area of the Site.

7.5 NATURAL RESOURCES

According to the USFWS, the following the following threatened, endangered species, and/or de-listed species are listed in Oklahoma County:

- American peregrine falcon (*Falco peregrinus anatum*)
- Arkansas River Shiner (*Notropis girandi*)
- Bald eagle (*Haliaeetus leucophalus*)
- least tern (*Sterna antillarun*)
- Piping Plover (*Charadrius melodus*)
- Whooping Crane (*Grus americana*)

The Site is developed and maintained. Except for potential incidental use by migrants, the listed species are unlikely to occur at the Site.

7.6 CULTURAL RESOURCES

As described in Section 3.5.6, cultural resource assessments were performed on the Site. The assessments were compiled and issued February 1998. The assessments concluded that there were no architectural issues at the AFR Center; the buildings on the Site were not eligible for the National Register of Historic Places. The assessment also concluded that the Site was determined to have a “high” archeological potential. The assessment reported that, at that time, the Site included 79 total acres of which 70.7 acres were undeveloped. Despite the “high” archeological potential, no part of the 70.7 acres was recommended for further archeological survey. The report indicated that the U.S. government owned the buildings but not the surrounding land. The Oklahoma Archeologic Survey, in a letter dated July 14, 1997, concurred with the recommendation for this Site.

7.7 OTHER SPECIAL RESOURCES

There are no other known resources that could affect the Site.

8.0 CONCLUSIONS

The TEJV, under contract to the USACE Louisville District, was authorized to prepare an ECP Report for the 25-acre Harry L. Twaddle AFR Center (Facility ID OK017) at 5316 South Douglas Boulevard in Oklahoma City, Oklahoma County, Oklahoma. The Site is currently active and is occupied by various Detachments of the 95th Division. Buildings on the Site include the Administration Building, a Marine OMS, a Navy OMS, an Army Equipment Storage Building, a Marine Equipment Storage Building, and a Marine Artillery Vehicle Building. The Site has functioned as an administrative, educational, storage and vehicle maintenance facility.

Findings of this ECP are based on existing environmental information, including visual observations, Site records, and federal, state, and local database and file information related to the storage, release, treatment, or disposal of hazardous substances or petroleum products or derivatives on the Site. The following present the findings related to areas of potential environmental concern that were evaluated during the ECP process.

- **Hazardous Substances.** Chemicals containing CERCLA hazardous substances are used and stored at the Site in amounts necessary to support unit-level vehicle and building maintenance activities. However, the quantities stored for one year or more do not exceed 1,000 kg or the RQ of designated hazardous substances, or one kg of acutely hazardous waste. There is no evidence that the chemicals used or stored were ever improperly handled, released, or disposed at the Site.
- **UST/AST.** Three petroleum USTs were formerly located on the AFR Center property: one 5,000-gallon gasoline UST and two 500-gallon waste oil USTs. All tanks were removed in 1988 as documented by file information retrieved from the OCC. The documentation also confirms the removal of contaminated soils associated with the gasoline UST. No specific analytical data were found during the file review confirming the condition of the soils in the areas of the removed USTs. No ASTs have historically been, or are currently, located on the Site.
- **Non-UST/AST Petroleum Storage.** Petroleum storage has occurred and continues in designated areas of OMSs and within designated POL storage sheds and buildings. No documentation was available for review that would indicate that non-UST/AST petroleum products in excess of 55 gallons were stored for one year or more onsite, or that petroleum products were spilled or disposed in the OMS area.
- **VWR and OWSs.** One VWR and three OWSs were identified on the Site. The VWR appears to be used frequently. The OWSs are at the VWR, the Marine OMS, and the Navy OMS. No inspection records were obtained regarding the VWR or OWSs. No problems or issues were identified during the ECP survey; however, limited documentation was available regarding their operation, routine maintenance, cleanout, or integrity. An additional OMS, VWR, and associated OWS were previously located on the Site north of the original Administration Building. This area

is currently occupied by the north portion of the Administration Building. The OMS, VWR, and OWS facilities were apparently removed when the Administration Building was expanded in 1991. No records were made available regarding operation or closure of these facilities during the ECP survey.

- **Polychlorinated Biphenyls.** A PCB assessment was performed by the USACHPPM in 1997. The assessment addressed the source of power to the AFR Center and the condition of the fluorescent lights on the Site. The report indicates that power is supplied to the Site from the adjacent Tinker AFB and that the fluorescent lighting is operated by non-PCB containing fixtures. No electrical transformers are on the AFR Center property.
- **Asbestos-Containing Material.** A 1999 *Asbestos Building Survey* on the Site found ACM in the Administration Building and the Marine OMS. The report also stated that the Navy warehouse was inaccessible the day of the survey. TEJV was not provided with any documentation regarding additional ACM sampling or implementation of abatement measures.
- **Lead-Based Paint.** ETC Engineers, Inc. performed a LBP assessment of the Twaddle AFR Center in 1994. The assessment documented LBP in the Administration Building and presented abatement recommendations and a management plan. Two wipe samples collected from the IFR within the Administration Building also tested positive for lead. No documentation was provided during the ECP survey indicating that the LBP abatement measures and/or the management plan were ever implemented; therefore, verification of LBP removal and/or abatement could not be documented during the ECP survey. However, during the August 2006 visual reconnaissance the painted surfaces in the buildings were generally observed to be in good condition.
- **Indoor Firing Range.** An IFR was previously located in the south area of the Administration Building. The IFR was removed and the area cleaned and approved for alternate uses in 1997. A report by American Asbestos, Inc. documented the abatement, cleanup, and encapsulation of all lead-containing dust and other issues. Final clearance certification of the IFR was issued by the Department of the Army via memorandum on June 19, 1997.
- **Radiological Materials.** No radiological materials were identified during the visual reconnaissance. There is no evidence of any release of radiological materials at the Site.
- **Radon.** In 1990, radon tests were performed at 20 locations in the Administration Building. The results ranged from 0.50 to 1.60 pCi/L, which are below the USEPA-recommended action level of 4.0 pCi/L. The Site is in the USEPA Radon Zone 3. Zone 3 has "Low Potential" for radon. Based on actual measurements provided for

review during the ECP survey, and the general location of the Site, radon is not an environmental concern at the Site.

- **Munitions and Explosives.** No evidence was found during the Site reconnaissance or records review process of the past presence of munitions and explosives of concern.
- **Surrounding Properties.** Potential environmental sites of concern, located within corresponding ASTM D 6008-recommended minimum search distances from the Site, were evaluated. Land use on the adjacent and nearby properties includes Tinker AFB which occupies all surrounding properties and has been present west of the Site across South Douglas Boulevard since at least 1957, and the Midwest C&D landfill located approximately 500 feet northeast of the Site. Tinker AFB is documented in multiple environmental databases. Activities at Tinker AFB have resulted in release of contaminants to the environment. An investigation is ongoing relative to chlorinated hydrocarbons in groundwater from an industrial waste evaporation basin formerly located approximately 600 feet northwest of the Site, and from SWMU-1, a closed landfill formerly operated by Tinker AFB. The most recent available data indicates detection of chlorinated hydrocarbons in the groundwater monitoring wells located on and adjacent to the AFR Site. The Midwest C&D landfill is reported to have accepted only C&D waste and is located in what appears to be a downgradient direction from the Site and is therefore not considered a risk to the Site.

A *Property Inspection Checklist for Environmental Baseline Studies* was prepared by "USARC Safety" in preparation for the transfer of approximately 59 acres to Tinker AFB; the checklist was approved on April 21, 1997. The checklist reported dirt/debris mounds, ground depressions, landfills/waste piles, automotive batteries, and groundwater monitoring wells on the 59-acre property. No clarification was made as to the exact location of these noted items. The checklist suggests that the identified items were confined to the 59 acres pending transfer.

Based on the information revealed in this ECP survey and in accordance with DoD policy defining the classifications (see the S.W. Goodman Memorandum dated October 21, 1996), the Site has been classified as Category 7. This classification does not include categorizing the property based on *de minimis* conditions that generally do not present material risk of harm to the public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. This classification was selected because the presence of the chlorinated hydrocarbons plume in groundwater from the Tinker AFB continues to pose a high risk for migration to the AFR Center, and the 2004 data is not recent enough to accurately reflect current conditions.

9.0 REFERENCES

Persons Contacted

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- Mr. Jerry Hughes. Environmental Scientist, Engineering & Environment, Inc. (USAR Contractor), Oklahoma City, OK. Phone No. 405-946-4967. Meeting on August 9, 2006.
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Agencies Contacted

- U.S. Department of Agriculture, Natural Resource Conservation Service, Soil Survey of Oklahoma County
- Oklahoma Corporation Commission, Petroleum Storage Tank Division
- City of Oklahoma City, Oklahoma
- Oklahoma Department of Libraries
- United States Fish and Wildlife Service, Department of Interior
- Federal Emergency Management Agency
- Oklahoma Department of Environmental Quality, Water Quality Division
- Oklahoma Department of Environmental Quality, Land Protection Division, Solid Waste Compliance and Inspection Section