

**Closure Report
For the 2108 Fuel Storage Area
Tinker Air Force Base, Oklahoma**

**Facility Number 55-08120
Case Number 064-1795**



**Contract F34650-93-D-0106
Delivery Order 5017**

**Department of the Air Force
Oklahoma City Air Logistics Center
Tinker Air Force Base**

November 1999

CLOSURE REPORT
FOR THE 2108 FUEL STORAGE AREA
TINKER AIR FORCE BASE, OKLAHOMA

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Case Number 064-1795

November 1999

Prepared for
DEPARTMENT OF THE AIR FORCE
OKLAHOMA AIR LOGISTICS CENTER
TINKER AIR FORC BASE

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Contract F34650-93-D-0106
Delivery Order 5017

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AST	Aboveground storage tank
ASTM	American Society for Testing and Materials
bgs	below ground surface
COC	Chemicals of concern
°F	degrees Fahrenheit
DD	Decision document
DRO	Diesel range organics
ERPIMS	Environmental Resources Program Information Management System
GRO	Gasoline range organics
GWMU	Groundwater Management Unit
HSZ	Hennessey saturated zone
IRP	Installation Restoration Program
IT	IT Corporation
LSZ	Lower saturated zone
msl	mean sea level
OAC	Oklahoma Administrative Code
OCC	Oklahoma Corporation Commission
ODEQ	Oklahoma Department of Environmental Quality
ORBCA	Oklahoma Risk-Based Corrective Action
Parsons ES	Parsons Engineering Science
PZ	Producing zone
RBCA	Risk based corrective action
RBSLs	Risk based screening levels
RCRA	Resource Conservation and Recovery Act
SVOC	Semi-volatile organic compound
TPH	Total petroleum hydrocarbons
USDA	United States Department of Agriculture
UST's	Underground storage tanks
USZ	Upper saturated zone
VOC	Volatile organic compound
Woodward Clyde	Woodward Clyde Federal Services

SECTION 1

INTRODUCTION

This decision document (DD) supports the no further action alternative for the 2108 Fuel Storage Area at Tinker Air Force Base (AFB), Oklahoma. The purpose of the DD is to summarize the existing data for the site and to describe the Air Force's rationale for selecting the no-further-action alternative. The objectives of the DD for the 2108 Fuel Storage Area are:

1. To briefly describe the location, history, and environmental setting of the site;
2. To summarize the results from previous investigations; and
3. To assess the risk to human health and the environment.

Data used to support the no action alternative for this site was obtained the 2108 Fuel Storage Area Oklahoma Risk-Based Corrective Action (ORBCA) Assessment Report (Parsons ES 1997).

1.1 SITE LOCATION AND DESCRIPTION

Tinker AFB is located in Oklahoma County in central Oklahoma, approximately 8 miles southeast of downtown Oklahoma City. Figure 1.1 shows the location of Tinker AFB. The base is bounded by Sooner Road to the west, Douglas Boulevard to the east, Interstate 40 to the north, and Southeast 74th Street to the south.

Tinker AFB was established in 1941 as an aircraft maintenance and supply depot, comprising 1,460 acres. Land has been acquired to the west, east, and south, which has been used over the years as additional depot facilities, support facilities, military housing and recreational facilities. Apart from the main Base, Tinker AFB operates six satellite areas. As of 1999, the base encompasses 5,277 acres and contains approximately 747 buildings. Tinker AFB presently serves as a worldwide repair depot for a variety of aircraft, weapons, and engines.

The 2108 Fuel Storage Area is located on the southeast side of Tinker AFB, Oklahoma. The site encompasses the 2108 Fuel Storage Area and the 2101 Motor Pool Facility, and is northwest of Gate 29 (Marauder Gate). The facility has been in operation since the mid-1950's as a motor fuel dispensing area. An underground fuel line connected the 2101 Motor Pool Facility to the Building 2103 fill stand. UST's 2106 and 2107 formerly supplied the fuel stand. Several other tanks have existed in this area including UST 2101, which was recently closed in 1998. Several of these tanks were closed in place

from 1967 to 1997. Due to their proximity and common purpose, all of the tanks and affected media were evaluated in accordance with applicable requirements of the Oklahoma Administrative Code (OAC) 165:25-3 under Oklahoma Corporation Commission (OCC) case number 064-1795. The tanks included in the assessment were UST's 2101, 2102A, 2102B, 2104, 2105, 2106, 2107, and aboveground storage tank (AST) 2108, along with the associated lines. Building 2110, the Fuel Truck Maintenance Building, was also evaluated in this assessment. Figure 1.2 shows the site location and surrounding buildings.

1.1.1 Adjacent Land Uses

The surrounding area consists of several military maintenance facilities. Building 2110, the Fuel Truck Maintenance Building, is located 500 feet west of the site. The Motor Pool, Building 2101, is located approximately 600 feet north of AST 2108. An undeveloped commercial area is located within one-half mile of the eastern base boundary across Douglas Blvd. The General Motors Corporation operates an automobile manufacturing plant adjacent to the southern border of Tinker AFB. Residential and commercial properties border the northeast, east, and west boundaries of Tinker AFB. The area to the southeast is generally undeveloped.

1.1.2 Nearby Population

The nearest residence to this site is located off base about 2500 feet east of the site. This area is a low-density development. The nearest on-base population is Air Force personnel located in base housing facilities, which are about two miles northwest of the site. The base accommodates seven dormitories and 730 family housing units. Commercial on-base workers occupy Building 2110, the Fuel Truck Maintenance Facility and Building 2101, the Motor Pool, daily from 07:00 to 16:00.

1.1.3 Surface and Groundwater Resources

Tinker AFB is located within the Central Redbed Plains section of the Central Lowland Physiographic province. Elevations in Oklahoma County range from about 850 feet to 1,400 feet above mean sea level. The topography is characterized by almost level to gently rolling hills, broad flat plains, and well-entrenched main streams. The valleys of secondary streams may exhibit a sag and swale appearance indicating the erosion of residual soil that are somewhat cohesive. The ground surface at Tinker AFB varies in elevation from approximately 1,320 feet mean sea level (msl) in the southeastern portion of the base to 1,190 feet msl in the northwestern portion of the base. Local relief is primarily the result of dissection by erosional activity or stream channel development (Woodward Clyde, 1996).

Surface drainage on Tinker AFB is accomplished by overland flow of runoff to diversion structures, and then to area surface streams. Figure 1.3 shows the surface water drainage paths at Tinker AFB. Surface hydrology for Tinker AFB is dominated by Crutch Creek, Kuhlman Creek, Soldier Creek, and Elm Creek. Soldier Creek and Crutch Creek are perennial streams. Soldier Creek, which would be intermittent at the base under natural conditions, is perennial due to discharges from the drainage feature and cooling towers associated with Building 3001. Soldier Creek flows into Crutch Creek, which discharges into the North Canadian River located approximately six miles north of Tinker AFB. Crutch Creek and a tributary, Kuhlman Creek, drain most of the base. The northeastern portion of the base is drained by Soldier Creek, and the extreme southeastern portion of the base is drained by Elm Creek. Elm Creek and one small-unnamed stream cross installation boundaries south of the main instrument runway, and generally do not receive significant quantities of base runoff due to site grading designed to preclude such drainage. Elm Creek discharges into the Stanley Draper Lake, which is located less than one mile south of the southeastern border of the base (Woodward Clyde, 1996).

An important source of potable groundwater in the Oklahoma City metropolitan area is the central Oklahoma aquifer system. This aquifer extends under much of central Oklahoma and includes water in the Garber Sandstone and Wellington Formation. The Garber Sandstone and the Wellington Formation portions of the central Oklahoma aquifer system are commonly referred to as the "Garber-Wellington aquifer" and considered to be a single aquifer because these units were deposited under similar conditions. Tinker AFB lies within the limits of the Garber-Wellington groundwater basin. At the present time, Tinker AFB derives most of its water supply from this aquifer and supplements the supply by purchasing from the Oklahoma City Water Department. Tinker AFB water supply well number 23 is currently in use near the site. The well is located at pumphouse number 2109, which is 375 feet southwest of Building 2101, the Motor Pool. The nearby communities of Midwest City and Del City derive their water supplies from surface sources, but have wells using the aquifer in the event of an emergency. Industrial operations, individual homes, farm irrigation, and small communities not served by municipal distribution systems also depend on the Garber-Wellington aquifer. Communities presently depending upon surface water supplies, such as Oklahoma City, also maintain a well system drilled into the Garber-Wellington as a standby source of water in the event of drought (Woodward Clyde, 1996).

1.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

1.2.1 History

The 2108 Fuel Storage Area consisted of AST 2108, which was connected by underground lines to the 2108 fueling stands and to UST's 2106 and 2107 just south of Building 2101 on the eastern side of Tinker AFB. Several other tanks existed in this area including UST's 2101, 2102A, 2102B, 2104, and 2105. UST 2101 was temporarily closed in 1990, and was closed in-place in 1998. UST 2102A was closed in-place in 1997 by filling with flowable fill. UST 2102B was removed in 1989. UST 2103 is listed as an inactive 2,000-gallon tank. No other information is known about this tank. There is no removal/abandonment date and no closure information available. In 1967, UST's 2104 and 2105 were closed in place by partially filling with sand. A detailed site layout and history of the site can be found in the ORBCA Summary Report for the site (Parsons ES, 1997).

AST 2108, the fueling stands, and UST's 2106 and 2107 were dismantled and removed in 1996. The underground lines at the site were flushed, the ends capped and the lines were left in place. During tank removal and demolition, it was determined that a release occurred and OCC Case No. 064-1795 was activated in accordance with OAC 165:25-3-65. In accordance with OAC 25-3-74, an ORBCA Tier 1/1A review of the site was performed in the fall of 1997 (Parsons ES, 1997). ORBCA assessments are conducted in conformance with the American Society for Testing and Materials (ASTM) Method E1739 for Risk Based Corrective Action (RBCA). The investigation of the soil and groundwater at the site in 1997 indicated that subsurface contamination was below laboratory detection limits or did not exceed the Tier 1/1A levels for fuel compounds regulated by the OCC. The ORBCA Report recommended closure of the site in accordance with Tier 1/1A closure guidelines.

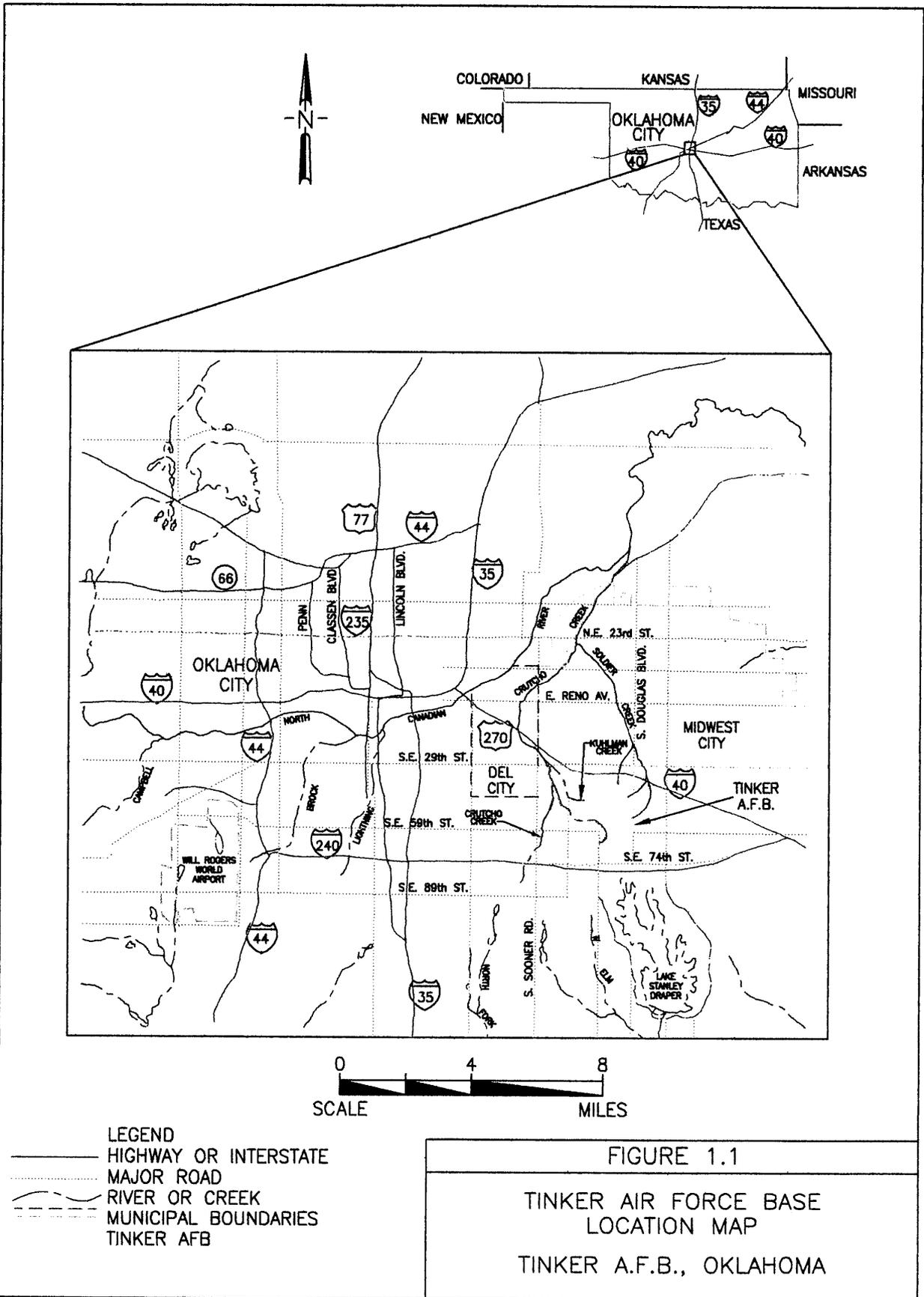
1.2.2 Regulatory Agency Activities

Following review of the 2108 Fuel Storage Area ORBCA Report (Parsons ES, 1997), the OCC concluded that no further action was required and closed the case on October 14, 1999 in accordance with OAC 165:25-3-79. In summary, all OCC comments and requirements were implemented or fulfilled for this site.

The groundwater beneath the 2108 Fuel Storage Area is within one of four Installation Restoration Program (IRP) groundwater management units (GWMU) at Tinker AFB. The GWMUs are managed in conformance with Resource Conservation and Recovery Act (RCRA) requirements. As such, the groundwater beneath the site is still regulated by the Oklahoma Department of Environmental Quality (ODEQ).

1.3 COMMUNITY PARTICIPATION

There has been no community involvement in the ORBCA investigation conducted at the 2108 Fuel Storage Area at Tinker AFB, Oklahoma.



- LEGEND
- HIGHWAY OR INTERSTATE
 - MAJOR ROAD
 - RIVER OR CREEK
 - - - MUNICIPAL BOUNDARIES
 - TINKER AFB

FIGURE 1.1
 TINKER AIR FORCE BASE
 LOCATION MAP
 TINKER A.F.B., OKLAHOMA

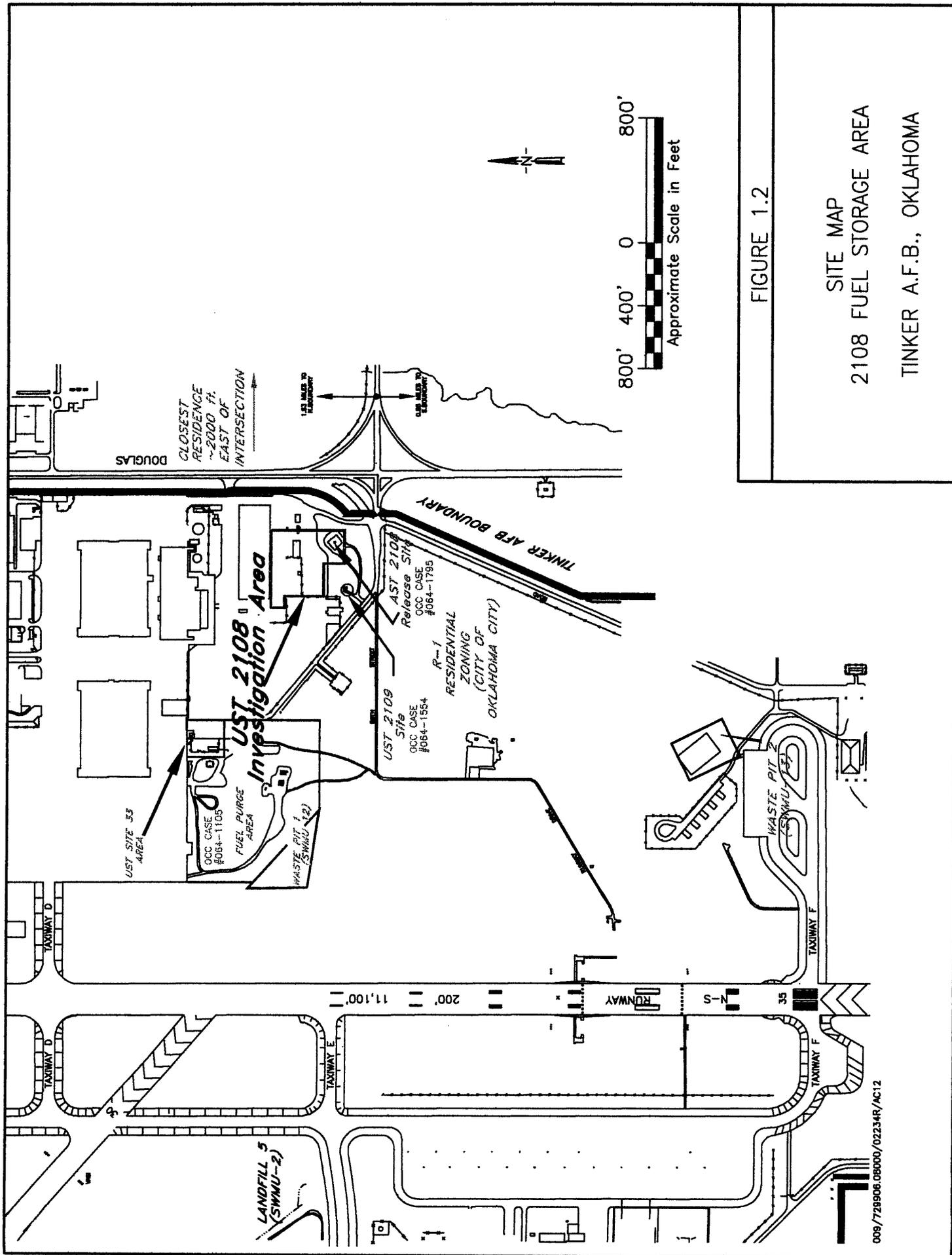


FIGURE 1.2

SITE MAP
 2108 FUEL STORAGE AREA
 TINKER A.F.B., OKLAHOMA

009/729906.06000/02234R/AC12

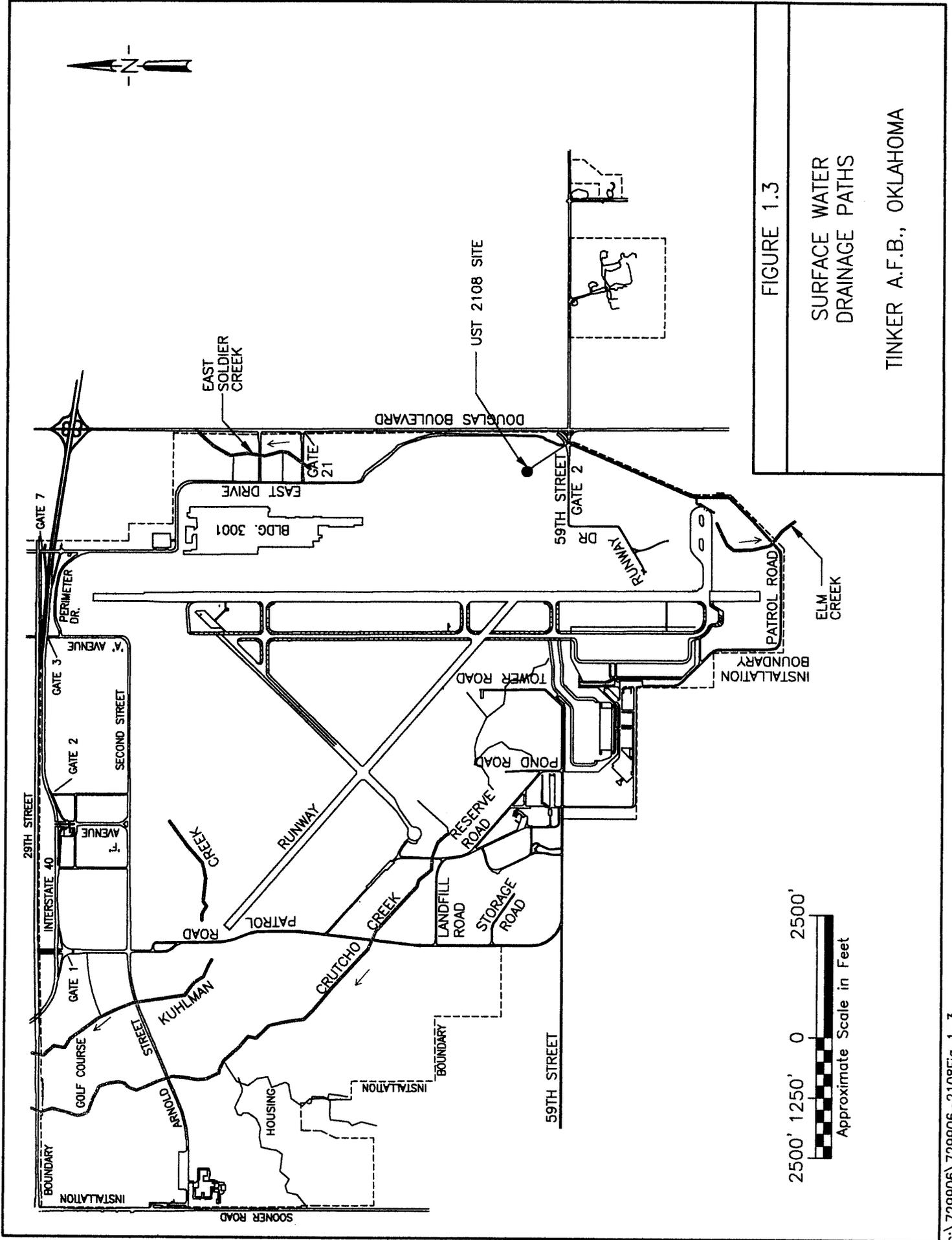
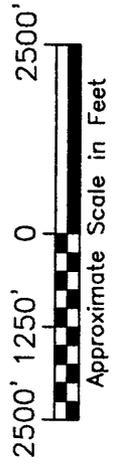


FIGURE 1.3

SURFACE WATER
DRAINAGE PATHS

TINKER A.F.B., OKLAHOMA



SECTION 2

CURRENT SITE STATUS

2.1 CLIMATOLOGY

The climate at Tinker AFB is characterized by long, hot summers (occasional droughts of varying duration occur), and comparatively mild winters. During the summer months, average daily temperatures range from approximately 66 to 94 degrees Fahrenheit (°F). During the winter months, average daily temperatures range from approximately 26 to 54°F. Maximum precipitation generally occurs in May, and the average annual precipitation for the region is 40.45 inches. The average evaporation rate is approximately 50 inches. The prevailing wind direction is southerly; however, northerly and southerly winds occur with about equal frequency from December to March. The average monthly wind speed varies from 12 miles per hour in July and August, to 16 miles per hour in March and April. Strong, gusty winds occur with thunderstorms and low-pressure systems that migrate from west to east during winter and spring. Severe storms occur more frequently in the spring, but can occur in any month of the year (Woodward Clyde, 1996).

2.2 GEOLOGY AND SOIL

Subsurface (bedrock) geologic units at Tinker AFB consist of, in descending order, the Hennessey Group, the Garber Sandstone, and the Wellington Formation. The bedrock units are composed of a sequence of sandstones, siltstones, and shales. These formations are about 900 feet thick.

Subsurface soils around the 2108 Fuel Storage Area generally consist of reddish brown clays to a depth of approximately 35 feet below ground surface (bgs). Within this clay unit are silty clays with thin gray silt seams and weathered shales that comprise the Hennessey Formation. Below this formation are moderately well sorted reddish brown sands that form the Garber Sandstone. The silt content decreases and the grain size increases with depth in this region.

The surface soils of the installation area are of three predominant types: residual, alluvial, and urban land. The predominant soils are the Stephenville-Darsil, Renthen-Urban Land Complex, Kirkland-Urban Land Complex, and Urban Land (USDA, 1996). Geologic units that outcrop at various locations within the Tinker AFB region are composed of Quaternary alluvium and terrace deposits, the Hennessey Group, and the Permian Garber-Wellington Formation. Quaternary alluvium, present along portions of

Crutch Creek and Soldier Creek, consists of unconsolidated, interfingering lenses of sand, silt, clay, and gravel. The terrace deposits, which were deposited by ancient streams, consist mostly of lenticular beds of sand, silt, clay, and gravel (Parsons ES, 1999).

2.2.1 Soil Contamination

Analytical data from 60 soil samples collected during this investigation revealed that the magnitude of contamination at this site is low. Figure 2-1 illustrates the locations of all the soil borings in the 2108 Fuel Storage Area. Samples were analyzed for Volatile Organic Compounds (VOCs), Semi-volatile Organic Compounds (SVOCs), Total Petroleum Hydrocarbons (TPH), Diesel Range Organics (DRO), Gasoline Range Organics (GRO)), and metals. This data was submitted to the Air Force Center for Environmental Excellence (AFCEE) under the Environmental Resources Program Information Management System (ERPIMS) data management program. The ERPIMS site identification code number is 214. Table 2-1 summarizes the analytical data for the OCC chemicals of concern (COC): benzene, toluene, ethylbenzene, xylene, naphthalene, and TPH (GRO and DRO). Benzene, toluene, and xylenes were not found above detection limits (0.006 mg/kg). Ethylbenzene was detected in one sample (214SB4 2-7') at a concentration of 0.014 mg/kg. The maximum concentration of volatile naphthalene detected was 0.056 mg/kg. SVOC naphthalene maximum detection was 0.90 mg/kg. TPH DRO was detected in one sample (214SB1 27-32') at a concentration of 10.4 mg/kg. TPH GRO levels were detected from 0.005 to 16.2 mg/kg with the highest concentration detected in 214SB4 2-7'. Miscellaneous range hydrocarbons C7-C14 were detected at concentrations ranging from 5.9 to 21.4 mg/kg. The highest concentrations were detected in 214SB-3 and SB-4. The majority of the contaminants detected were found in the 1 to 20 foot interval. TPH GRO and DRO detections were not found below depths of 22 feet and 32 feet, respectively. VOC naphthalene was detected at a depth of 43 feet in 214SB-13. The sample concentration was 0.020 mg/kg. No other OCC regulated COCs were found below this depth (Parsons ES, 1997)

2.3 HYDROGEOLOGY

The groundwater conceptual model of Tinker AFB was formed by the integration of geologic and hydrologic data from across the base. The hydrogeologic system at Tinker AFB is complex, and the model provides both an approximation of depth to water and an estimated direction of groundwater movement (Woodward Clyde, 1996). The groundwater and hydrogeologic system in the vicinity of the 2108 Fuel Storage System has been investigated and is evaluated as part of a basewide groundwater study by the IT Corporation (IT, 1999).

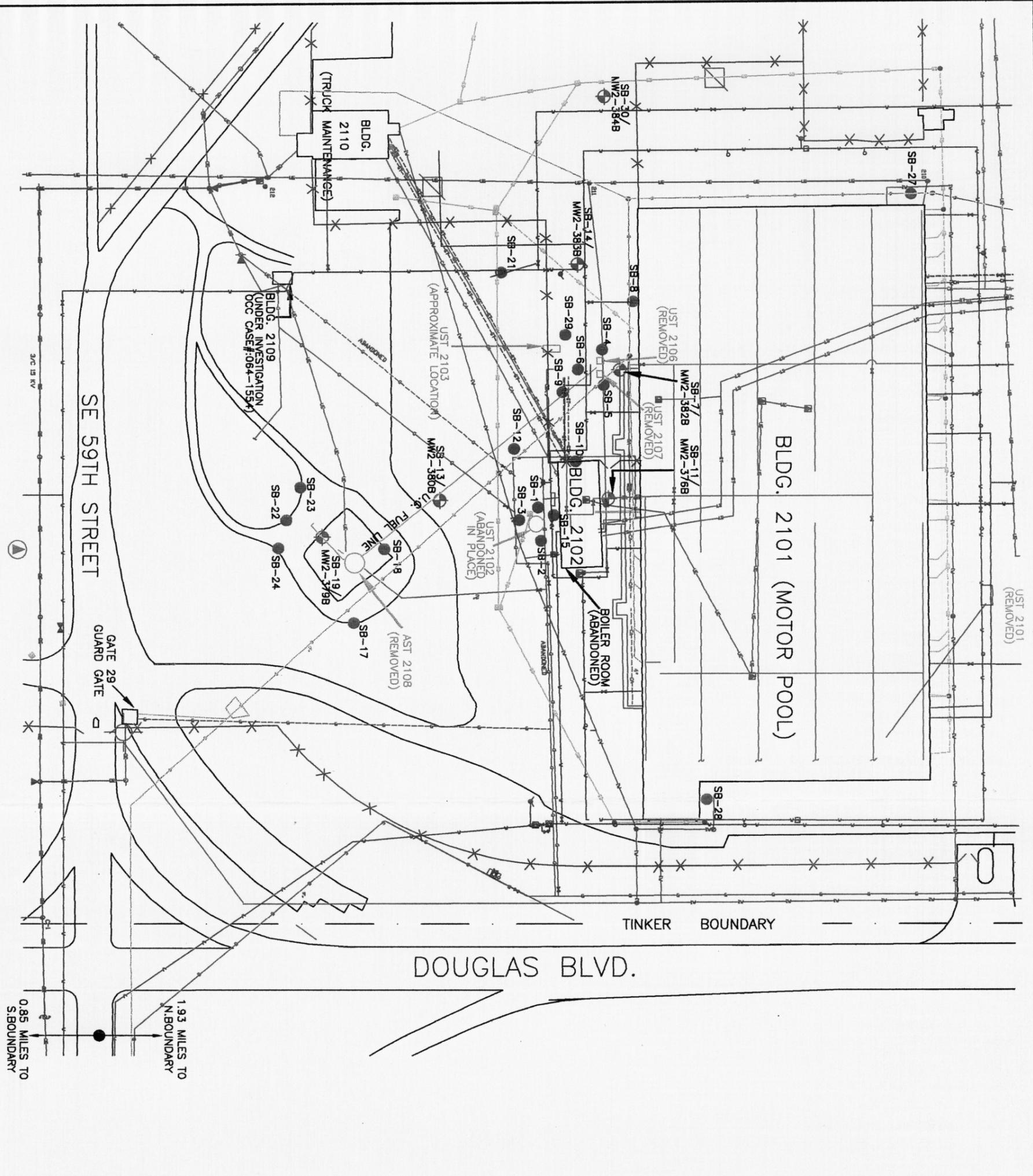
the groundwater sample concentrations exceeded the OCC action levels or the risk based screening levels (RBSLs).

2.4 SURFACE WATER

Surface water at the 2108 Fuel Storage Area drains west toward Crutch Creek. The creek is located approximately one mile from the site and has not been affected by the subject UST's and AST. No surface water or sediment samples were collected as part of the 2108 Fuel Storage Area site investigation.

2.5 RECEPTORS

Human receptors in the vicinity of the 2108 Fuel Storage Area are divided into two groups, on-base and off-base receptors. Base personnel reside in base housing located approximately two miles northwest of the site. The base dormitories are located within 2.5 miles of the site. Commercial on-base workers occupy Building 2110, the Fuel Truck Maintenance Facility, and Building 2101, the Motor Pool, daily from 07:00 to 16:00. The closest off-base residence is located 2,500 feet east of the site, and the area is generally undeveloped. The General Motors Corporation operates an automobile manufacturing plant adjacent to the southern border of Tinker AFB within 1.5 miles of the site. There are 11 base supply wells within a one-mile radius of the 2108 Fuel Storage Area. Tinker AFB water supply well number 23 is located at Building 2109, approximately 275 feet southwest of the former 2108 AST System. The nearest off-base private water well is about 3,500 feet to the northeast of the 2108 site.



UTILITY LEGEND	DEPTH (FT)
CA - COMPRESSED AIR	2
CM - COMMUNICATIONS	2
G - NATURAL GAS	3
IW - INDUSTRIAL WASTEWATER	>6
OE - OVERHEAD ELECTRIC	-
S - SANITARY	4
SD - STORM DRAIN	>6
ST - STEAM	2
UE - UNDERGROUND ELECTRIC	2
W - WATER	2-4

EXPLANATION
● SOIL BORING
⊕ SOIL BORING COMPLETED AS MONITORING WELL IN USZ
⚠ BENCH MARK (CONTROL MONUMENT PR-03) LOCATION: 148363.95N, 2187153.24E ELEVATION: 1306.73
⊗ FENCE

SCALE

0 50' 100' 150' 200' 250'

1.93 MILES TO N. BOUNDARY

0.85 MILES TO S. BOUNDARY

FIGURE 2-1

SITE MAP

2108 FUEL STORAGE AREA

TINKER A.F.B., OKLAHOMA

Table 2.1
Analytical Data Summary for Soil

MW No. Sample Location	Sampling Date	Sample Depth [ft]	Benzene [mg/kg]	Toluene [mg/kg]	Ethylbenzene [mg/kg]	Xylene [mg/kg]	Naphthalene [mg/kg]	TPH/GRO [mg/kg]	TPH/DRO [mg/kg]
214 B-1 2-7	7/29/1997	2.0-7.0	<0.006	<0.006	<0.006	<0.006	<0.006	0.0057	<2
214 B-1 27-32	7/29/1997	27.0-32.0	<0.006	<0.006	<0.006	<0.006	0.002J	<0.010	10.4
214 B-2 12-17	7/29/1997	12.0-17.0	<0.007	<0.007	<0.007	<0.007	<0.007	0.012	<2
214 B-2 17-22	7/29/1997	17.0-22.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 B-3 12-17	7/29/1997	12.0-17.0	<0.006	<0.006	<0.006	<0.006	<0.006	0.0887	<2
214 B-3 27-32	7/30/1997	27.0-32.0	<0.008	<0.008	<0.008	<0.008	<0.008	<0.010	<2
214 B-4 2-7	7/30/1997	2.0-7.0	<0.006	<0.006	0.014	<0.006	0.004J	16.2	<2
214 B-4 29-30	7/30/1997	29.0-30.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<2
214 SB-5-3	7/30/1997	3.0-4.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-5-3 Dup.	7/30/1997	3.0-4.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-5-9	7/30/1997	9.0-10.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<2
214 SB-6-12	7/31/1997	12.0-13.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<2
214 SB-6-31	7/31/1997	31.0-32.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-7-3	8/1/1997	3.0-4.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-7-3 Dup.	8/1/1997	3.0-4.0	<0.006	<0.006	<0.006	<0.006	<0.006	0.0263	<2
214 SB-7-37	8/1/1997	37.0-39.0	<0.005	<0.005	0.012	0.008	0.004J	0.05J	<2
214 SB-8-22	7/31/1997	22.0-23.5	<0.006	<0.006	<0.005	<0.005	0.009	<0.010	<2
214 SB 8-30	7/31/1997	30.0-31.0	<0.005	<0.005	<0.006	<0.006	<0.006	0.026	<2
214 SB-9-18	7/31/1997	18.0-19.0	<0.006	<0.006	<0.005	<0.005	<0.005	<0.010	<2
214 SB-9-31	7/31/1997	31.0-32.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-10-11	8/1/1997	11.0-12.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-10-25	8/1/1997	25.0-26.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-11-11	8/2/1997	11.0-12.0	<0.005	<0.005	<0.005	<0.005	0.007	<0.010	<2
214 SB-11-38	8/2/1997	38.0-39.0	<0.007	<0.007	<0.007	<0.007	0.009	<0.010	<2
214 SB-12-6	8/3/1997	6.0-7.0	<0.006	<0.006	<0.006	<0.006	0.007	<0.010	<2
214 SB-12-29	8/3/1997	29.0-30.0	<0.005	<0.005	<0.005	<0.005	0.016	<0.010	<2
214 SB-13-3.5	8/3/1997	3.5-4.5	<0.006	<0.006	<0.006	<0.006	0.012	<0.010	<2
214 SB-13-43	8/4/1997	43.0-44.0	<0.006	<0.006	<0.006	<0.006	0.02	<0.010	<2
214 SB-14-27	8/4/1997	27.0-28.0	<0.005	<0.005	<0.005	<0.005	0.01	<0.010	<2
214 SB-14-27 DUP	8/4/1997	27.0-28.0	<0.005	<0.005	<0.005	<0.005	0.008	<0.010	<2
214 SB-14-43	8/5/1997	43.0-44.0	<0.006	<0.006	<0.006	<0.006	0.008	<0.010	<2
214 SB-17-19	8/6/1997	19.0-18.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-17-48.5	8/6/1997	48.5-49.5	<0.006	<0.006	<0.006	<0.006	0.008	<0.010	<2

Table 2-1 (Cont'd)
Analytical Data Summary for Soil

MW No./Sample Location	Sampling Date	Sample Depth [ft.]	Benzene [mg/kg]	Toluene [mg/kg]	Ethylbenzene [mg/kg]	Xylene [mg/kg]	Naphthalene [mg/kg]	TPH/GRO [mg/kg]	TPH/DRO [mg/kg]
214 SB-18-11	8/11/1997	11.0-12.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<2
214 SB-18-49	8/11/1997	49.0-50.0	<0.006	<0.005	<0.006	<0.005	<0.006	<0.010	<2
215 SB-19-6	8/11/1997	6.0-7.0	<0.005	<0.005	<0.005	<0.005	0.056	7.87	<2
214 SB-19-6 DUP	8/11/1997	6.0-7.0	<0.690	<0.690	<0.690	<0.690	0.046	7.79	<2
214SB-19-47	8/11/1997	6.0-7.0	<0.006	<0.006	<0.006	<0.006	0.002J	<0.010	<2
214 SB-19-57	8/11/1997	57.0-57.5	<0.006	<0.006	<0.006	<0.006	<0.006	NR	NR
214 SB-21-16	8/13/1997	16.0-17.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-21-26	8/13/1997	26.0-27.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-22-11	8/14/1997	11.0-12.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-22-21	8/14/1997	21.0-22.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<2
214 SB-23-11	8/14/1997	11.0-12.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-23-16	8/14/1997	16.0-17.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-24-2	8/14/1997	2.0-3.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-24-16	8/14/1997	16.0-17.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-24-16 DUP	8/14/1997	16.0-17.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-27-6	8/16/1997	6.0-7.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-27-28	8/16/1997	28.0-29.0	<0.005	<0.005	<0.005	<0.005	0.008	<0.010	<2
214 SB-28-7	8/16/1997	7.0-8.0	<0.006	<0.006	<0.006	<0.006	0.007	<0.010	<2
214 SB-28-38	8/16/1997	38.0-39.0	<0.006	<0.006	<0.006	<0.006	<0.006	8.66J	<2
214 SB-29-13	8/17/1997	13.0-14.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-29-28	8/17/1997	28.0-29.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<2
214 SB-30-3	8/17/1997	3.0-4.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2
214 SB-30-42	8/17/1997	42.0-43.0	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<2

Table 2.2 Analytical Data Summary for Groundwater

MW No./Sample Location	Installation Date	Screen Interval	Sampling Date	Water Level	Benzene [mg/l]	Toluene [mg/l]	Ethylbenzene [mg/l]	Xylene [mg/l]	Napthalene [mg/l]	TPH/GRO [mg/l]	TPH/DRO [mg/l]
MW2-376B	8/2/1997	35.5'-45.5'	9/15/1997	41.16	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.025
MW2-379B	8/12/1997	43'-58'	9/15/1997	47.17	<0.005	0.001J	<0.005	0.014B	<0.005	<0.010	<0.025
MW2-380B	8/4/1997	35'-45'	9/15/1997	51.58	<0.005	<0.005	<0.005	0.008	<0.005	0.007	<0.025
MW2-382B	8/1/1997	35.5'-45.5'	9/15/1997	41.27	<0.005	<0.005	<0.005	0.001JB	<0.005	<0.010	<0.025
MW2-383B	8/4/1997	42'-52'	9/15/1997	41.79	<0.005	<0.005	<0.005	0.002J	<0.005	<0.010	<0.025
MW2-384B	8/17/1997	40'-50'	9/15/1997	42.62	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.025
MW2-110B	11/2/1994	36'-46'	9/15/1997	42.62	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.025

SECTION 3

RISK DETERMINATION

The ORBCA investigation of the soil and groundwater at the 2108 Fuel Storage Area indicates that subsurface contamination does not exceed the risk-based screening levels (Tier 1) or the modified risk-based screening levels (Tier 1A) for OCC regulated contaminants. Sample concentrations were either below action levels established in OAC 165:25-3-65 or did not exceed the ORBCA Tier 1/1A risk-based screening levels for all pathways and receptors identified. In addition, no nuisance conditions were observed. Complete descriptions of these pathways and receptors are presented in the ORBCA report for this site (Parsons ES, 1997).

SECTION 4

NO FURTHER ACTION

The risk to human health and the environment is low, based on the analytical results; therefore, the no action alternative is proposed on the basis that this site is below action levels. No evidence suggests that the groundwater, surface water, soil, or air is sufficiently contaminated by this UST/AST site to pose any threat to human health or the environment. Current site conditions and environmental testing data indicates that no further action is warranted at the 2108 Fuel Storage Area. Additionally, the secured nature of the site and the limited exposure pathways support this alternative.

The groundwater in the USZ, and the underlying zones, remains under the regulatory jurisdiction and enforcement of the ODEQ. The groundwater beneath this site is part of an IRP GWMU and is being addressed under RCRA requirements. The monitoring wells installed during the 2108 Fuel Storage Area investigation will continue to be used for groundwater monitoring in this area of the GWMU. Any further actions associated with the GWMU will be coordinated through the ODEQ.

SECTION 5

REFERENCES

- Brown & Root, 1996, 2108 Tank Closure Report, at Tinker Air Force Base, Oklahoma.
- IT Corporation, September 1999, Basewide Non-NPL Groundwater Phase II RCRA Facility Investigation for Appendix I and II SWMUs, Addendum 1, Volume 1-3, Tinker Air Force Base, Oklahoma.
- Parsons ES, October 1997, Oklahoma Risk-Based Corrective Action Tier 1/1A Summary Report for 2108 Fuel Storage Area at Tinker Air Force Base, Oklahoma.
- Parsons ES, April 1999, Revision 1, Site Investigation Workplan for the Southeast Quadrant Wastewater Collection System, at Tinker Air Force Base, Oklahoma.
- USDA, 1996, Draft-Preliminary Revised Soil Maps and Soil Designations Atlas Sheet #25 for Oklahoma County, Oklahoma.
- Woodward Clyde Federal Services, July 1996, Initial Site Characterization Report and Corrective Action Plan Investigation of UST 2109 at Tinker Air Force Base, Oklahoma City, Oklahoma.

APPENDIX A

CLOSURE NOTICE

BOB ANTHONY
Commissioner

ED APPLE
Commissioner

DENISE A. BODE
Commissioner



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

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

October 13, 1999

Case ID # 064-1795
Facility D # 55-08120
Final Closure

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 710 095 969

OC-ALC/EMR
Attn: Ms. Cathy Scheirman
7701 2nd Street, Suite 204
Tinker AFB, Oklahoma 74145-9100

RE: UST 2108
2110 Motor Pool Facility
Tinker AFB, Oklahoma

Dear Ms. Scheirman:

Based upon the review of the Oklahoma Risk-Based Corrective Action Report, this case is closed. If in the future, levels of Chemicals of Concern are discovered to exceed those determined appropriate for this site, the case will be reopened. A copy of this letter is being sent to your consultant.

If you have any questions, please discuss them with your consultant or call me at (405) 521-3504 between 8:00 a.m. and 4:30 p.m. Monday through Friday. Please reference the appropriate OCC Facility Number and Case Number on all correspondence.

Sincerely,

Joseph E. Lopez
Project Environmental Analyst

JEL/LB:la

cc: Parsons Engineering Science, Inc.
Attn: Mr. John Osweiler
5600 Liberty Parkway, Suite 700C
Midwest City, Oklahoma 73110-2835

NOTE: The applicable Corporation Commission rule is found in the Oklahoma Administrative Code at 165:25-3-79. If you need a copy, please call us and we will send you one.