Closure Report
For the UST Site 21
Tinker Air Force Base, Oklahoma

Facility Number 55-08120
Case Number 064-1104

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 UST SITE 21

TINKER AIR FORCE BASE, OKLAHOMA

Facility Number 55-08120

Case Number 064-1104

November 1999

Prepared for

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

Prepared by

PARSONS ENGINEERING SCIENCE, INC.

MIDWEST CITY, OKLAHOMA

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
ASTM	American Society for Testing and Materials
AWACS	Airborne Warning and Control System
bgs	below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylene
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
HSZ	Hennessey saturated zone
ISGC	Investigation for Soil and Groundwater Cleanup
ISCR	Initial Site Characterization Report
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
Tetra Tech	Tetra Tech, Inc.
TPH	Total petroleum hydrocarbons
USDA	United States Department of Agriculture
UST's	Underground storage tanks
USZ	Upper saturated zone

SECTION 1

INTRODUCTION

This decision document (DD) supports the no further action alternative for the Underground Storage Tanks (UST) Site 21 at Tinker Air Force Base (AFB), Oklahoma. The purpose of this 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 UST Site 21 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 from the UST Site 21 Oklahoma Risk-Based Corrective Action (ORBCA) Assessment Report (Tetra Tech, 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.

Site 21 is located in the northeastern portion of Tinker AFB and originally consisted of USTs 286 and 287, which supplied fuel for Airborne Warning and Control System (AWACS) support. Tanks 286 and 287 were installed in 1974 and each was a 1,000-gallon steel tank. The tank dispenser pumps are located south of the tanks on a raised concrete fueling island (Tetra Tech, 1997). Both tanks were replaced with vaulted tanks in 1994 and designated as tanks 286R and 287R. The USTs 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 064-1104. Figure 1.2 shows the site location and surrounding buildings.

1.1.1 Adjacent Land Uses

Site 21 and the area within a one-half mile radius is completely within the property boundaries of Tinker AFB. There are numerous on-base facilities in the vicinity of UST Site 21. The closest occupied building to the site is the Small Engine Maintenance Building, Building 238, which is located approximately 75 feet to the west. Building 210 and Building 214 are occupied and located approximately 250 feet to the northwest and north, respectively. The Tinker AFB Flight Operation Facility, Building 240, is located approximately 200 feet south of the site. Interstate 40 is located approximately one-half mile to the north of Site 21.

1.1.2 Nearby Population

The nearest residential development to this site is located off base approximately 4,000 feet north across Interstate 40. This high-density residential development is located within Midwest City and consists of single family and multifamily housing. Several commercial business establishments are also located in this area. The nearest on-base residential population consists of Air Force personnel located in base housing facilities about two miles west of the site. The base accommodates seven dormitories and 730 family housing units. The nearest commercial on-base workers occupy Buildings 210 (Hydraulic and Pneumatic Components Repair), 214 (Engine Testing), 230 (552d Logistics Group Maintenance Complex), 238 (Small Engine Maintenance) and 240 (Base Flight Operations).

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 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. Valleys of secondary streams may exhibit a sag and swale appearance indicating the erosion of residual soil that is 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 (Parsons ES, 1999).

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 Crutcho Creek, Kuhlman Creek, Soldier Creek, and Elm Creek. Soldier Creek and Crutcho Creek are perennial streams. Soldier Creek, which would be intermittent at the base under natural conditions, is perennial due to discharges from drainage features and cooling towers associated with Building 3001. Soldier Creek flows into Crutcho Creek, which discharges into the North Canadian River located approximately six miles north of Tinker AFB. Crutcho 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 (Parsons ES, 1999).

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 is considered to be a single aquifer because these units were deposited under similar conditions. 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 (Parsons ES, 1999).

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. The closest Tinker AFB water supply well to the site is located approximately 3,000 feet to the northwest, near Building 410 (Civil Engineering).

1.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

1.2.1 History

UST Site 21 originally consisted of USTs 286 and 287, which supplied fuel for AWACS support. Tanks 286 and 287 were installed in 1974 and each was a 1,000-gallon steel tank. The dispenser pumps were located south of the tanks on a raised concrete fueling island. Both tanks were leak tested annually and passed tightness testing in 1992 and 1993; however, corrosion tests conducted in 1988 indicated that the tanks were not adequately protected. In November 1994, following completion of the Initial Site Characterization Report (ISCR) and prior to the Investigation for Soil and Groundwater Clean up Report (ISGC) conducted in June 1995, these tanks were removed and replaced. The soils were excavated from an area approximately 15 feet by 18 feet wide by 12 feet deep and disposed. The tanks were replaced with vaulted, steel tanks having spill and overfill prevention devices. The vaulted replacement tanks were installed to the east of the former tank pit, which was lined with 40-mil plastic and backfilled. Tank 286R (replacement) contains JP-4 and supplies the east dispenser, while tank 287R contains diesel fuel and supplies the west dispenser (Tetra Tech, 1997). A detailed site layout and history of the site can be found in the ORBCA Summary Report for the site (Tetra Tech, 1997).

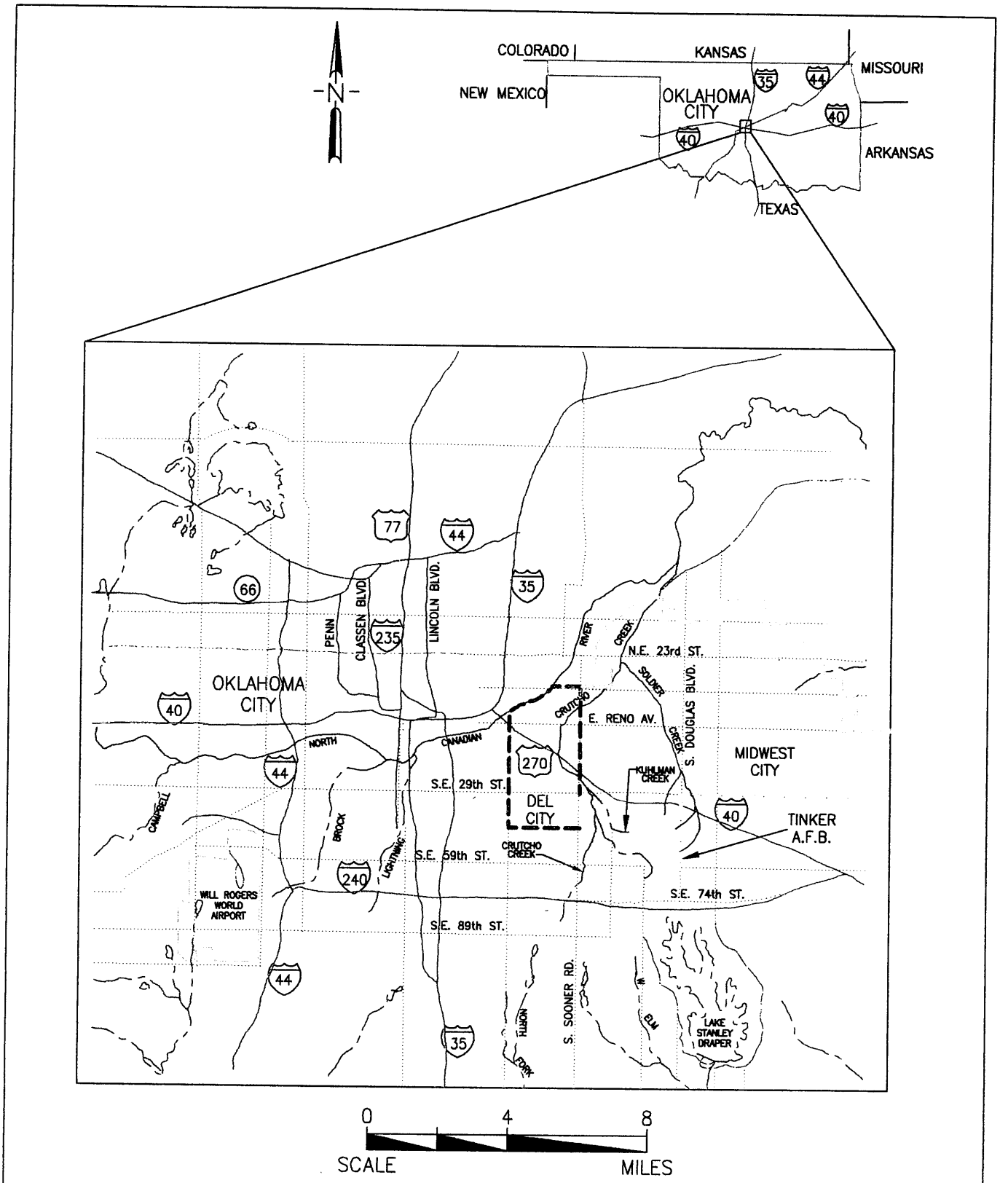
In accordance with the OAC 165:25-3-74, an ORBCA Tier 1/1A, review of the site was performed in 1997 (Tetra Tech, 1997). ORBCA assessments are conducted in conformance with the American Society for Testing and Materials (ASTM) Method E1739 for Risk Based Corrective Action (RBCA). The investigation of the soil and groundwater at the site indicated that subsurface contamination was below laboratory detection limits or did not exceed the Tier 1/1A levels for fuel compounds and chemicals of concern (COC) 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 UST Site 21 ORBCA Report (Tetra Tech, 1997), the OCC concluded that no further action was required and closed the case on October 11, 1999 in accordance with OAC 165:25-3-79. In summary, all OCC comments and requirements were implemented or fulfilled for this site.

1.3 COMMUNITY PARTICIPATION

There has been no community involvement in the ORBCA investigation conducted at UST Site 21 at Tinker AFB, Oklahoma.



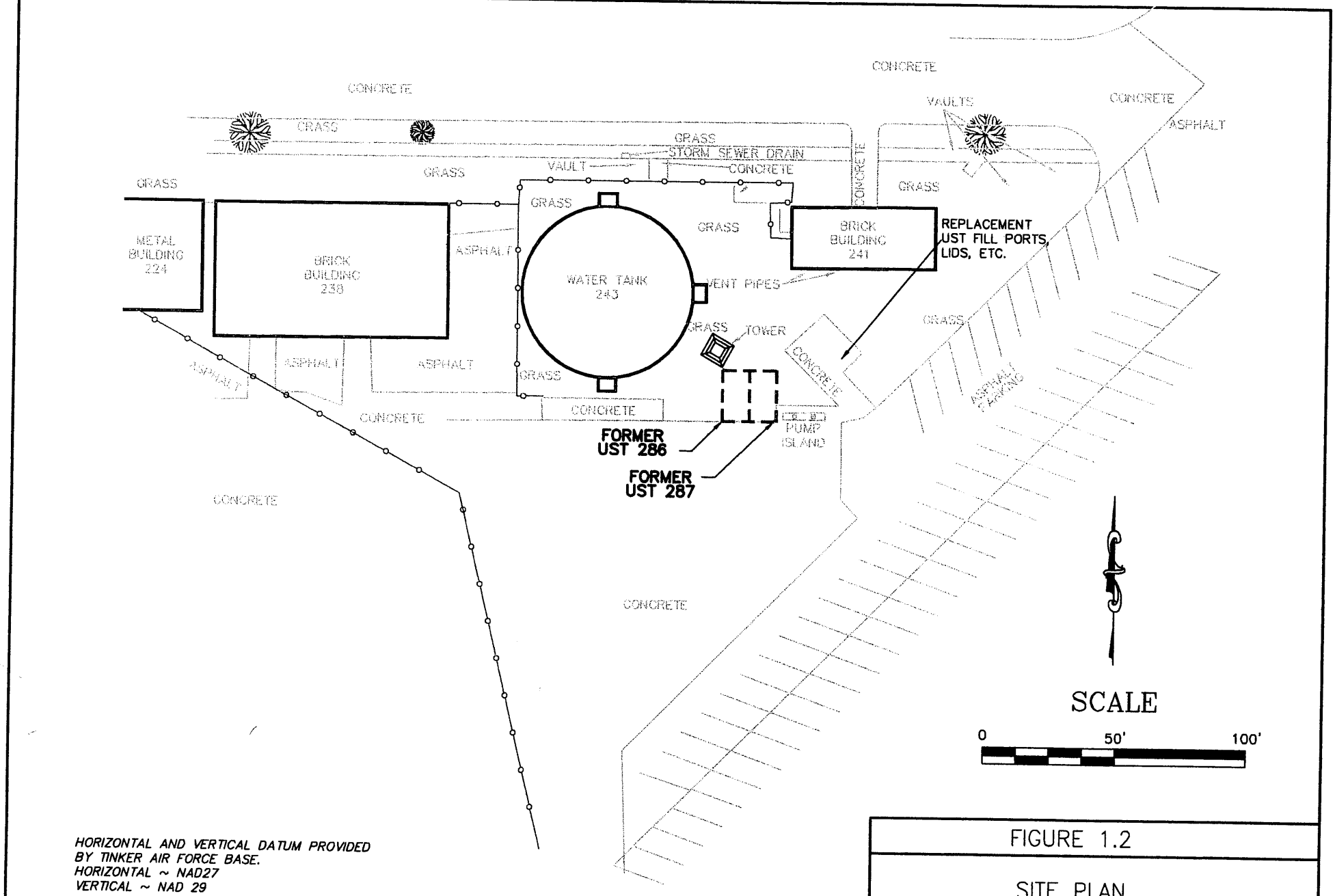
LEGEND
- HIGHWAY OR INTERSTATE
- MAJOR ROAD
- RIVER OR CREEK
- MUNICIPAL BOUNDARIES
- TINKER AFB

FIGURE 1.1

TINKER AIR FORCE BASE
LOCATION MAP

TINKER A.F.B., OKLAHOMA

C:_jobs\729906\Fig 1-1



HORIZONTAL AND VERTICAL DATUM PROVIDED BY TINKER AIR FORCE BASE.
HORIZONTAL ~ NAD27
VERTICAL ~ NAD 29

MONUMENTS USED:
PR09
SE26

Note:
Original data from
Tetra Tech, Inc. 4/96

FIGURE 1.2

SITE PLAN
UST SITE 21

TINKER A.F.B., OKLAHOMA

729906-21 Fig 1-2.DWG

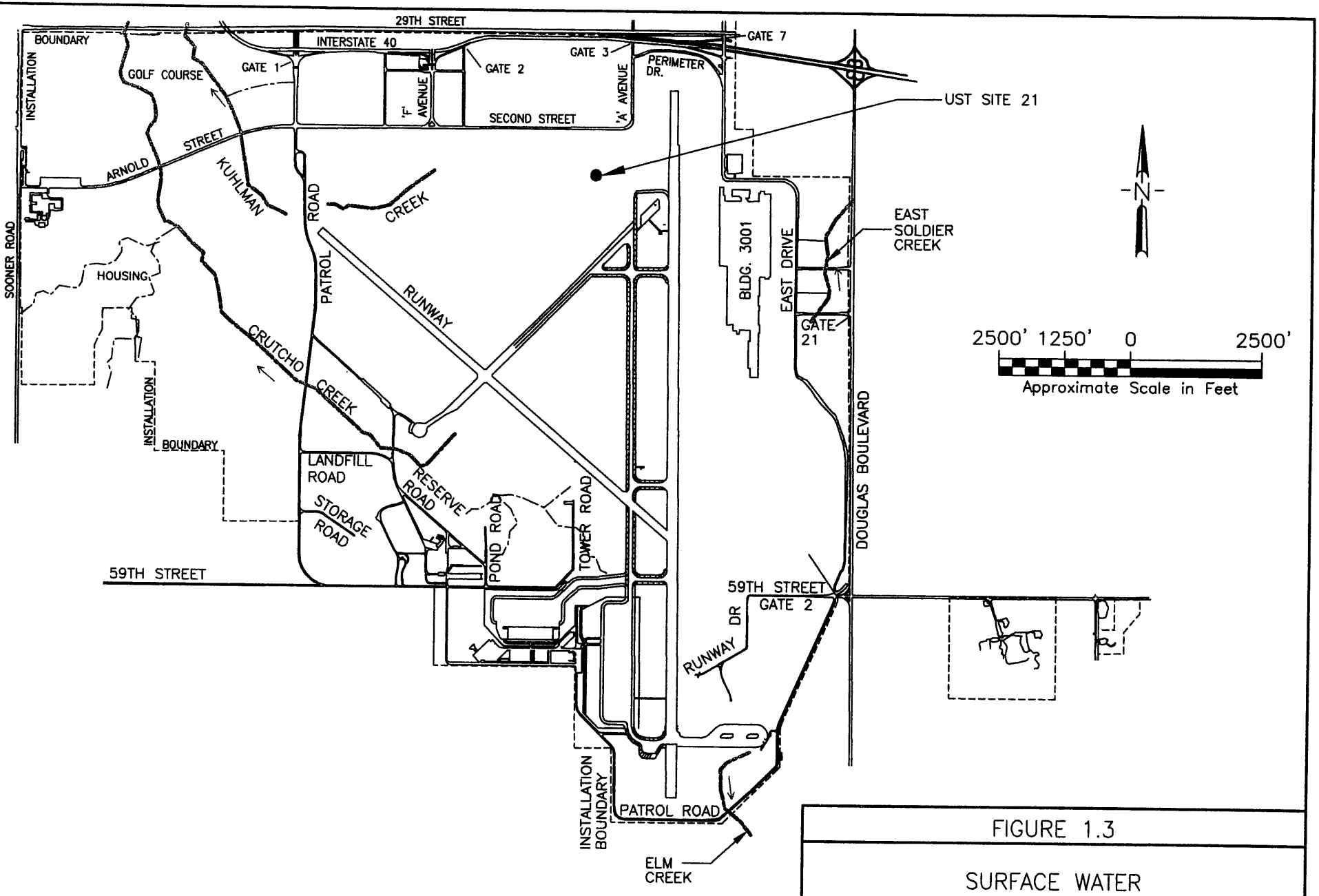


FIGURE 1.3

SURFACE WATER
DRAINAGE PATHS

TINKER A.F.B., OKLAHOMA

c:\729906\729906-21 Fig-3

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, the 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 with 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 (Parsons ES, 1999).

2.2 GEOLOGY AND SOIL

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, terrace deposits, and the bedrock units which include the Hennessey Group, the Permian Garber Sandstone and Wellington Formation. Quaternary alluvium, present along portions of Crutcho Creek and Soldier Creek, consists of unconsolidated, interfingered 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. The bedrock units are composed of a sequence of sandstones, siltstones, and shales. These formations are about 900 feet thick (Parsons ES, 1999).

Subsurface soils around UST Site 21 generally consist of reddish brown clays to a depth of approximately 20 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.

2.2.1 Soil Contamination

Analytical data from 53 soil samples collected during the investigations of the site revealed that the magnitude of contamination at this site is low. Figure 2-1 illustrates the locations of the soil borings. Samples were analyzed for benzene, toluene, ethylbenzene, xylene (BTEX), and Total Petroleum Hydrocarbons (TPH), (both Diesel Range Organics (DRO) and Gasoline Range Organics (GRO)). 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 121. Table 2-1 summarizes the analytical data for the OCC COCs: benzene, toluene, ethylbenzene, xylene, and TPH (GRO and DRO). Contaminated soils were found approximately 1 to 5.5 feet bgs and were confined to an area northeast of a storm drain located approximately 140 feet southwest of the former tank pit. Maximum BTEX concentrations found in the soils during the ISGC were 1.2 mg/kg, 5.08 mg/kg, 8.31 mg/kg, and 60.5 mg/kg, respectively. The maximum GRO concentration was 6,250 mg/kg at 2.7 feet bgs in soil boring B6. The maximum DRO concentration was 15,000 mg/kg at 3ft in soil boring B18 (Tetra Tech, 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 conceptual model provides both an approximation of depth to water and an estimated direction of groundwater movement (Parsons ES, 1999). The groundwater and hydrogeologic system in the vicinity of UST Site 21 has been investigated and evaluated as part of a basewide groundwater study by the IT Corporation (IT, 1999).

Approximately 1,150 groundwater monitoring wells have been installed at the base during remedial investigations. The conceptual hydrologic model, based largely on data from these wells, divides the groundwater system under Tinker AFB into three principal aquifer zones: an upper saturated zone (USZ), a lower saturated zone (LSZ), and a producing zone (PZ). The PZ starts at an average depth of 200 to 250 feet bgs at Tinker AFB. In addition, a less extensive zone, the Hennessey saturated zone (HSZ), has also been identified above the USZ on a portion of the base. Numerous shallow, thin saturated beds of siltstone and sandstone may exist within the HSZ throughout the base (Parsons ES, 1999).

The USZ and LSZ are recognized over the entire Base. The USZ exists mainly under water table (unconfined) conditions basewide, although subunits appear to be partially confined locally. The LSZ is unconfined on the east side of the base, but becomes

confined on the west side of the base. The USZ and LSZ are separated by a low permeability shale interval of variable thickness. The shale interval acts as the lower confining bed for the USZ in the vicinity of the UST Site 21 (Parsons ES, 1999). Groundwater flow in the USZ at UST Site 21 is to the southwest and the average depth to groundwater is 4.5 ft bgs. Hydraulic conductivity in this unit has been measured at 4.54 ft/day (Tetra Tech, 1997). Tinker reports that the water levels at this site are higher than in nearby wells, and may be influenced by mounding of the water due to leaky water lines. A large above ground water tank and associated distribution system are located northwest of the former tank pit.

2.3.1 Groundwater Contamination

As part of the site investigation, three soil borings were completed as monitoring wells. The well screen intervals ranged from approximately 3.5 to 13.5 feet bgs. Figure 2-1 illustrates the locations of the monitoring wells. These monitoring wells were sampled in September 1995, and analyzed for BTEX and TPH (GRO and DRO). Table 2-2 summarizes the analytical data for the COC's. Analytical data from the monitoring wells show maximum BTEX values of 0.0037 mg/l for benzene, 0.0009 mg/l for ethylbenzene, and 0.00145 mg/l of xylenes. Toluene was not detected above the detection limit of 0.001 mg/kg. The maximum total TPH level was 1.356 mg/L (Tetra Tech, 1997).

2.4. SURFACE WATER

Tinker's Natural Resources Management Plan, indicates that the site is at the boundary of the Kuhlman Creek and Soldier Creek Tributary 2 Watersheds, so the site may drain northeast toward Soldier Creek and west by way of storm drains to Kuhlman Creek (Krupovage, 1991).

2.5 RECEPTORS

Human receptors in the vicinity of UST Site 21 are divided into two groups, on base and off base receptors. Base residential housing is located approximately two miles southwest of the site. The base dormitories are located within 2 miles of the site. Commercial on-base workers occupy Buildings 210, 214, 230, 238, and 240 daily from 07:00 to 16:00. The closest off-base residence or commercial facility is located 4,000 feet north of the site. This is within the residential area of Midwest City. There is only one base supply water well within a one-mile radius of UST Site 21. The on-base water well is about 3,000 feet northwest of the site, near Building 460 (Base Headquarters). All of the base wells are completed from the production zone of the Garber-Wellington, which is a confined aquifer. The nearest off base water well is over one mile northwest of the site.

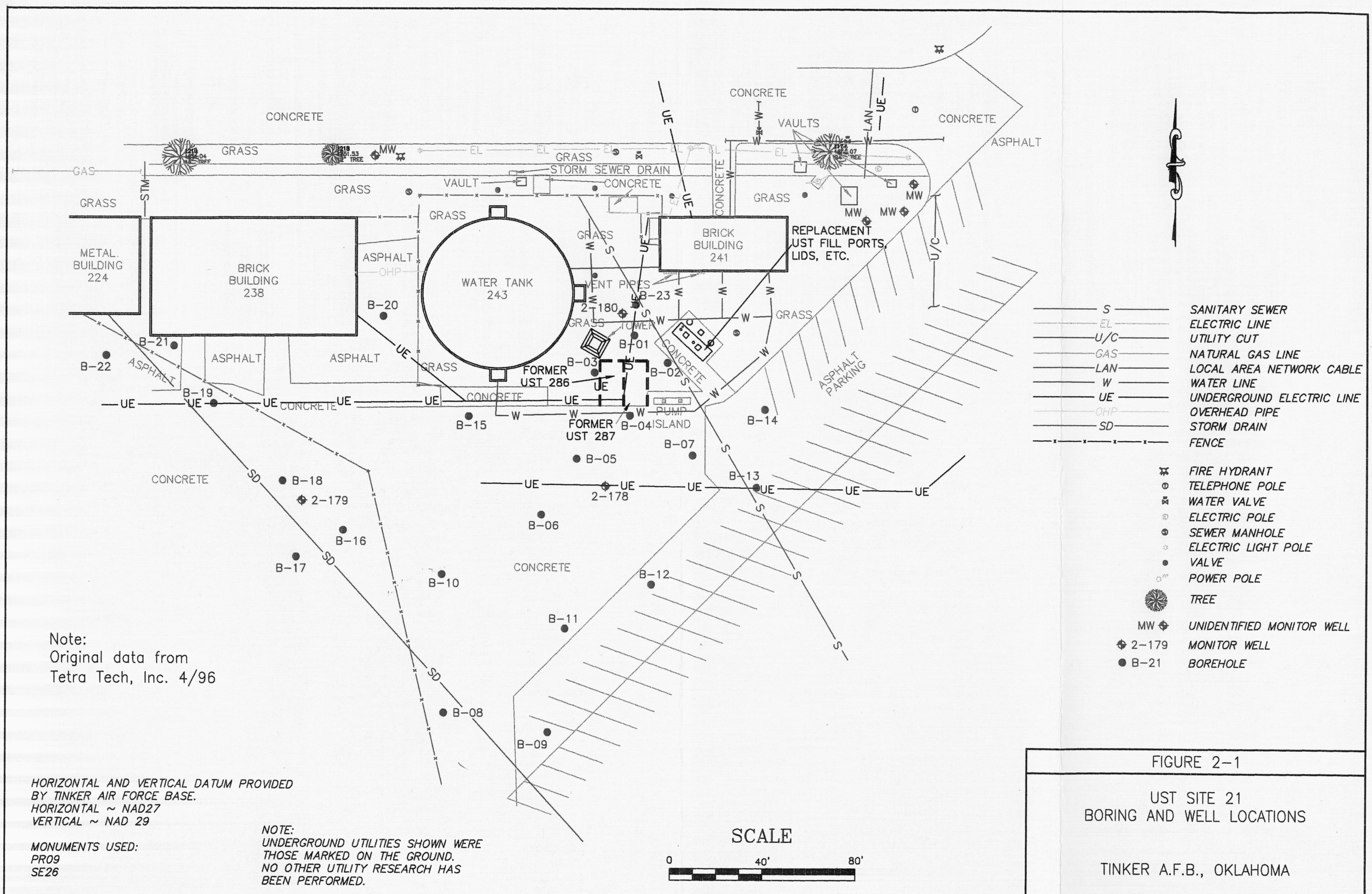


FIGURE 2-1

UST SITE 21
BORING AND WELL LOCATIONS

TINKER A.F.B., OKLAHOMA

729906-21 Fig 2-1

Table 2.1
Analytical Data Summary for Soil

MW-N0./Sample Location	Sampling Date	Sample Depth [ft.]	Benzene [mg/kg]	Toluene [mg/kg]	Ethylbenzene [mg/kg]	Xylene [mg/kg]	TPH/GRO [mg/kg]	TPH/DRO [mg/kg]
BW21-B1-3	18 Feb. 94	3-4ft	ND	ND	ND	0.197	326	8
ReplicateB1-3	18 Feb. 94	3-4ft	ND	ND	ND	0.0034	132	9.50
BW21-B2-2	18 Feb. 94	2-3ft	ND	ND	ND	ND	ND	ND
BW21-B2-12	18 Feb. 94	12-13 ft	ND	ND	ND	ND	0.0058	ND
BW11-B3-2.5	22 Feb. 94	2.5-3ft	ND	ND	ND	ND	ND	ND
BW21-B3-5	22 Feb. 94	5 - 5.5ft	ND	0.101	0.0971	0.282	11.20	66.50
BW21-B4-3	22 Feb. 94	3 -3.5	0.0056	ND	0.0011	0.0019	ND	ND
BW21-B4-5	22 Feb. 94	5-5.5ft	ND	ND	ND	ND	0.19	ND
BW21-B5-2.7	05 Jun. 95	27-3.5ft	ND	ND	ND	8.20	6,250	6,790
BW21-B5-Z2	05 Jun. 95	22- 7.5ft	ND	ND	ND	ND	26	137
BW21-B5-15	05 Jun. 95	15-16ft	ND	ND	ND	0.002	0.698	ND
BW21-B6-3	6 Jun. 95	3 - 3.5	ND	ND	ND	ND	1,150	904
BW21-B6-11.5	06 Jun. 95	1L5-12ft	ND	ND	ND	ND	60.80	5
Replic. B6-11.5	06 Jun. 95	11.5 - 12ft	ND	ND	ND	0.0739	15.40	21
BW21-B6-19	06 Jun. 95	19-20 ft	ND	ND	ND	ND	ND	ND
BW21-B7-1.7	07Jun.95	1.7-2ft	ND	ND	0.0769	0.924	207	49.20
BW21-B7-19.5	07 Jun. 95	19.5 - 20ft	ND	ND	ND	ND	0.0444	ND
BW21-B8-3.2	07 Jun. 95	3.2 - 3.5ft	ND	ND	ND	ND	0.0121	ND
BW21-B8-16	07 Jun. 95	16 - 16.5ft	ND	ND	ND	ND	ND	ND
BW21-B9-1.5	07 Jun. 95	1.5-2ft	ND)	ND	ND	ND	0.0173	ND
BW21-B9-21	07 Jun. 95	21 - 21.5ft	ND	ND	ND	ND	ND	ND
BW21-Bl0-I	08 Jun.	1 - 1.5ft	ND	ND	ND	0.0726	41.8	17
BW21-B10-1	08 Jun. 95	19.5 - 20ft	ND	ND	ND	ND	ND	ND
BW21-B11-2	8 Jun. 95	2 - 2.5ft	ND	ND	ND	ND	16.70	ND
BW21-B12-2	08 Jun. 95	2-2.5ft	ND	ND	ND	ND	0.0141	ND
BW21-B12-19.5	08 Jun. 95	19.5 - 20ft	ND	ND	ND	ND	ND	ND
BW21-B13-2	12 Jun. 95	2-2.5ft	ND	ND	ND	ND	ND	ND

Table 2.1 (Continued)
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]	TPH/GRO [mg/kg]	TPH/DRO [mg/kg]
BW21-B13-16	12 Jun. 95	16 - 16. 5ft	ND	ND	ND	ND	0.0256	ND
BW21-B14-2	12 Jun. 95	2-3ft	ND	ND	ND	ND	ND	ND
Replic B14-2	12 Jun. 95	2-3ft	ND	ND	ND	ND	ND	ND
Bw2l-B14-7	12 Jun. 95	7-8ft	ND	ND	ND	ND	ND	Z8
BW21-B15-2	12 Jun. 95	2-25ft	ND	ND	ND	ND	765	ND
BW2I-B15-18	12 Jun. 95	18 - 18.5ft	ND	ND	ND	ND	0.0638	6.90
BW21-B16-3	13 Jun. 95	3 - 3.5ft	ND	1.13	1.04	20.30	610	9,680
BW21-B16-17	13 Jun. 95	17-17.5ft	ND	ND	ND	D	334	Z6
BW21-B17-3	13 Jun. 95	3 - 3.5ft	ND	ND	ND	ND	764	ND
BW21-B17-8	13 Jun. 95	8- 8.5ft	ND	ND	ND	ND	0.0167	ND
BW21-B1g-3	13 Jun. 95	3 - 3.5ft	1.20	1.62	6.81	60.50	42.30	15,000
BW21-B18-5.5	13 Jun. 9s	5.5 - 6ft	ND	ND	ND	0.0009	0.0155	ND
BW21-B18-17	13-Jun. 95	17- 17.5ft	ND	ND	ND	ND	0.0232	1.30
BW21-b19-2	13 Jun. 95	2 - 2 5ft	ND	2.06	5.52	36.5	3,620	2,710
BW21-B19-5	13-Jun. 96	5 - 5.5ft	ND	5.08	8.31	49.30	4560	1,820
BW21-B19-14	14 Jun. 95	14-14.5 ft	ND	ND	ND	ND	0.10	1.50
BW1-B20-2	14 Jun. 95	2-3ft	ND	ND	ND	ND	ND	ND
Relic B20-2	14 Jun. 95	2-3ft	ND	ND	ND	ND	0.159	ND
BW21-B20-18	14 Jun. 95	18 -19.5	ND	ND	ND	ND	0.0087	ND
BW21-B21-3	14 Jun. 95	3 -3.5	ND	ND	ND	ND	ND	ND
BW21-B21-17.5	14 Jun. 95	17.5 - 18ft	ND	ND	ND	ND	0.008	ND
BW21-B22-1	14 Jun. 95	1- 1.5ft	ND	ND	ND	ND	70.30	5.80
BW21-B22-17.5	14 Jun. 95	17.5-18ft	ND	ND	ND	ND	0.0284	ND
BW21-B23-3.5	15 Jun. 95	3.5 - 4ft	ND	ND	ND	ND	0.0221	ND
BW21-B23-17	15 Jun. 95	17-17.5 ft	ND	ND	ND	ND	0.0567	ND
BW21-B11-19.5	08 Jun. 95	19.5-20ft	ND	ND	ND	ND	ND	ND

Table 2.2 Analytical Data Summary for Groundwater

MW No./Sample Location	Installation Date	Screen Interval	Sampling Date	Benzene [mg/l]	Toluene [mg/l]	Ethylbenzene [mg/l]	Xylene [mg/l]	TPH/GRO [mg/l]	TPH/DRO [mg/l]
2-178	21 Jun.-95	3.5-13.5	13 Sep. 95	0.00155	ND	0.0009	0.00145	0.516	0.84
2.179	21 Jun..95	3.5-13.5	13 Sep. 95	0.0037	ND	0.0005	ND	0.032	ND
2-180	22 Jun.-95	3.5-13.5	13 Sep. 95	ND	ND	ND	ND	ND	ND

SECTION 3

RISK DETERMINATION

The ORBCA investigation of the soil and groundwater at UST Site 21 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 (Tetra Tech, 1997).

SECTION 4

NO FURTHER ACTION

Based on the analytical results, risk to human health and the environment is low; therefore, a 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 site to pose any threat to human health or the environment. Current site conditions and environmental testing data indicate that no further action is warranted at UST Site 21. Additionally, the secured nature of the site and the limited exposure pathways support this alternative.

The groundwater in the USZ and underlying zones remains under the regulatory jurisdiction and enforcement of the ODEQ. The groundwater beneath this site is being addressed under RCRA requirements. The monitoring wells installed during the UST Site 21 investigation will continue to be used for groundwater monitoring in this area. Any further actions associated with the groundwater will be coordinated though the ODEQ.

SECTION 5

REFERENCES

Krupovage, J.R., July 1991, Natural Resources Management Plan, 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.

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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 11, 1999

Case ID #064-1104
Facility ID #55-08120

CERTIFIED MAIL, RETURN RECEIPT REQUESTED
CERTIFICATE NUMBER Z 402 838 964

OC-ALC/EMR
Attn: Ms. Cathy Scheirman, Chief
7701 2nd Street, Suite 204
Tinker AFB, OK 73145-9100

RE: Facility Name and Location:

UST Site 21
Bldg. 241 Area
Tinker AFB, OK

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 Joseph Lopez at (405) 522-1446 between 8:00 a.m. and 4:30 p.m. Monday through Friday. Please reference the appropriate OCC Facility Number and Case Number on all correspondence.

Sincerely,

Neil R. Garrett

Neil R. Garrett
Project Environmental Analyst Supervisor

cc: Tetra Tech
Attn: Ms. Jenna Mead
10 E. Cambridge Circle Dr., Ste. 130
Kansas City, KS 66103

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.

NG:la