# APPENDIX J CONCEPTUAL SITE MODEL <br> TPP MEMORANDUM REMEDIAL INVESTIGATION / FEASIBILITY STUDY FORMER CAMP MAXEY TEXAS 

# CONCEPTUAL SITE MODEL* 

 FOR
# REMEDIAL INVESTIGATION / FEASIBLITY STUDY FORMER CAMP MAXEY, TEXAS 

CONTRACT NO. W912DY-04-D-0009
TASK ORDER NO. 0010

Prepared For:
U.S. Army Engineering \& Support Center

CEHNC-CT
4820 University Square
Huntsville, Alabama 35816-1822


Prepared By:
Explosive Ordnance Technologies, Inc. (EOTI)
105 W. Tennessee Ave.
Oak Ridge, Tennessee 37830


May 29, 2008

[^0]
## Conceptual Site Model Information Profiles

Site Profile

| Information Needs | Preliminary Information |
| :--- | :--- |
| Installation Location | Lamar County, Texas; Paris, Texas |
| Installation Name | Camp Maxey |
| Installation Location | $\begin{array}{l}\text { The former Camp Maxey site is located in northeast Texas, } \\ \text { approximately 9 miles north of Paris, Texas, 1 mile west of Powderly, } \\ \text { Texas, and U.S. Highway 271. }\end{array}$ |
| Installation History | $\begin{array}{l}\text { From 1942 to 1945, Camp Maxey was a United States Army post utilized } \\ \text { for training infantry in World War II (WWII). Following the conclusion } \\ \text { of the war, the facility was inactivated in October 1945, and was declared } \\ \text { surplus in 1947. } \\ \text { Camp Maxey had a troop capacity of approximately 45,000 men. Three }\end{array}$ |
| infantry divisions were trained at the installation. Training exercises at |  |
| former Camp Maxey included the following live weapons training: |  |
| pistols, carbines, rifles, tommy guns, automatic rifles, machine guns, |  |
| mortars, bazookas, anti-tank guns, and artillery. Training also included |  |
| laying land mines and setting "booby traps." "Non-divisional units" also |  |
| trained at former Camp Maxey, including artillery, tanks, tank destroyers, |  |
| cavalry, ordnance, quartermaster, signal corps, engineers, medical and |  |
| military police. A non-divisional chemical warfare training school was |  |$\}$| established at former Camp Maxey as well. After October 1944, the |
| :--- |
| facility was designated an Infantry Advanced Replacement Training |
| Center for training of additional troop replacements for existing divisions. |
| Before the end of the war, Camp Maxey also housed the largest prisoner |
| of war camp in the United States. |
| The camp was deactivated in 1945 and declared surplus in 1947. Land |
| was conveyed to the state of Texas and sold to private owners. Later, |
| some of the land was returned to the ownership of the federal government |
| for construction of the Pat Mayse Dam on Sanders Creek. |
| Currently, the installation is used by the State of Texas for a National |
| Guard post, 7,468 acres are occupied by Pat Mayse Lake, over 20,000 |
| acres surrounding the lake are occupied by a USACE-flood control and |
| recreation area and a State of Texas Wildlife Management Area, and the |
| remaining portion of the former camp lands are now privately owned and |
| are used for residential, agricultural, and recreational activities. |$|$

## Site Profile

| Information Needs | Preliminary Information |
| :--- | :--- |
| Installation Area and | The former Camp Maxey is a 41,128-acre property. Between 1942 and <br> 1945, as many as 87 live fire ranges were in operation. The ranges <br> arrayed in a circular pattern surrounding two major impact areas: East <br> Impact Area and West Impact Area. A cantonment area was located <br> on the southeast portion of the former camp. <br> For the purpose of generating the 2004 Archives Search Report <br> Supplement, the ranges were grouped into five range complexes. <br> Range Complex 1, a mortar range complex, is located on the northeast <br> corner of the installation and overlaps Range Complex 2. Range <br> Complex 2, consisting of many small arms ranges, is located on the <br> northeast corner of the installation, covering a large portion of the East <br> Impact Area. Range Complex 3 is a small complex located to the <br> southwest of the East Impact Area, and consisted of hand grenade <br> ranges. Range Complex 4 is located over most of the West Impact <br> Area and consisted of an artillery range, mortar ranges, and other <br> training areas. Range Complex 5 is located in the northwest corner of <br> the installation, overlapping Range Complex 4, and consisted of small <br> arms ranges and practice hand grenade ranges. | | Following the surplus of Camp Maxey, Pat Mayse Lake was formed |
| :--- |
| following the construction of a dam at Sanders Creek in 1967. The |
| lake occupies 7,468 acres and covers a large portion of the northern |
| end of the former installation. The lake is currently owned and |
| managed by the U.S. Army Corps of Engineers (USACE) and is used |
| for a variety of recreational purposes. |

## Site Profile

| Information Needs | Preliminary Information |
| :--- | :--- |
| Installation <br> Boundaries | N: Farm Road 197 <br> S: Undeveloped land and rural properties and Camp Maxey Texas <br> Army National Guard training facility. <br> W: Undeveloped land and rural properties and Farm Road 1499 <br> E: U.S. Highway 271 |
| Landowners | The current landowners include the federal government, the State of <br> Texas, and private land owners. <br> The State of Texas utilizes part of the former camp for a National <br> Guard post, which is located in the east portion of the camp over part <br> of the East Impact Area. The State of Texas also utilizes land for Pat <br> Mayse State Park and Wildlife Management Area located in the <br> northern and western portions of the park. <br> Undeveloped acreage surrounding the lake is occupied by a USACE- <br> flood control and recreation area. <br> The remaining former camp lands, located mainly in the southern <br> portion of the installation, are now privately owned and are used for <br> residential, agricultural, and recreational activities. |
| Range/Site Security | Much of the former ranges and impact areas are not restricted from the <br> general public. Much of the East Impact Area is covered by Pat Mayse <br> Lake and the Texas national Guard facility, preventing access to some <br> former range areas by the general public. The West Impact Area is <br> covered by Pat Mayse Lake, park areas, and wildlife management <br> areas, and is open to the general public. |
| Approximately 15\% of the former Camp Maxey land area is now |  |
| privately owned. Pat Mayse State Park, Pat Mayse Lake, and the |  |
| associated recreational areas are open to the public. Some all-terrain |  |
| vehicle (ATV) trails, within undeveloped areas maintained by USACE, |  |
| have been closed since 1997 due to the presence of MEC. |  |$|$

## Conceptual Site Model Information Profiles

Munitions/Release Profile

| Information Needs |
| :--- |
| Range and Range <br> Complex Descriptions |

Due to the large number of ranges located at the former installation, ranges have been grouped into complexes based on common types of munitions used (mortars, artillery, small arms ammunition) and geographic considerations (East vs. West impact areas, etc.). The range complexes presented here are the same as those generated in the 2004 Archives Search Report Supplement.
Range Complex 1: Total of 2,536 acres ( $1,040.7$ land acres; $1,495.3$ water acres) comprised of three mortar ranges; firing points were located on the northwest corner of the East Impact Area along the current location of the Pat Mayse Dam; range layouts included a firing point (firing line) generally oriented to fire southwest, the impact area located a minimum of 600 yards from the firing point, and a 600 -yard safety danger zone (SDZ) applied to each side and to the downrange distance; a portion of this complex is now occupied by Pat Mayse Lake.

Range Complex 2: 5,045 acres (4,186 land acres; 859 water acres) comprised of 32 small arms ranges arrayed around the East Impact Area; located in the northeast corner of the site including the northeastern portion of Pat Mayse Lake and Pat Mayse Dam; small arms ranges were oriented with firing points surrounding the East Impact Area with firing directions toward the center of the East Impact Area. The small arms utilized in Range Complex 2 included rifles, pistols, and sub-machine guns. Much of the area in Range Complex 2 south of the lake is now utilized in the Texas National Guard training facility, which is considered an active installation, and is not included as part of the Camp Maxey FUDS investigation. Range Complex 1 overlaps with the area of Range Complex 2 within the East Impact Area.
Range Complex 3: 61 acres (54 land acres; 7 water acres) comprised of three hand grenade ranges; located on the southwest corner of the East Impact Area; an SDZ of about 600 feet would have been established around the entire range. The grenade ranges consisted of an individual throwing bay or a trench with targets and an impact area approximately 25 yards to the front of the throwing line.
Range Complex 4: 3,718 acres (3,031 land acres; 687 water acres) comprised of five ranges/training areas located in the West Impact Area oriented to fire to the west-northwest (one artillery range, two mortar ranges, and two village training areas); located in the western portion of the site and includes the southern end of Pat Mayse Lake. The artillery range consists of an impact area and danger areas to the rear, sides and front. The mortar ranges consist of a firing point generally oriented to fire to the west and northwest, an impact area located a minimum of 600 yards from the firing point, and a 600 -yard

Munitions/Release Profile

| Information Needs | Preliminary Information |
| :---: | :---: |
|  | SDZ applied to each side and to the downrange distance. The village training areas were mock villages designed for training for house-tohouse fighting. These village training courses permitted a $180^{\circ}$ field of fire and the ammunition was limited to M2, caliber .30, or others that do not require an SDZ that exceeds 4,000 yards. <br> Range Complex 5: 4,382 acres (3,920 land acres; 462 water acres) comprised of 16 small arms and practice hand grenade ranges associated with the West Impact Area; located in the northwest corner of former Camp Maxey and includes the southern end of Pat Mayse Lake. The ranges in this complex were oriented with firing points surrounding the West Impact Area with firing directions toward the center of the West Impact Area. Range Complex 5 overlaps significantly with Range Complex 4 in the West Impact Area. <br> Ranges not included in Complexes: Total of 493 acres (290 land acres; 203 water acres) comprised of three rifle grenade ranges, two grenade assault course ranges, one mines and booby traps range, one Pillbox training area, one cave training area, and one high explosives rocket launching range. These ranges are located on the west side of the East Impact Area, and to the southeast and east of the West Impact Area with firing directions generally toward the center of their respective Impact Areas. <br> Note: A MEC survey and sampling effort conducted in 1998 and summarized in the Engineering Evaluation/Cost Analysis (EE/CA) conducted in 2000 divided the former Camp Maxey facility into 17 sectors for the evaluation of MEC presence. These included the following: <br> - East Impact Area A, B, C, D, and E <br> - West Impact Area A, B, C, and D <br> - Grenade Area <br> - Bivouac Area A, B, and C <br> - North Training Area <br> - South Training Area <br> - Gas Chamber Area <br> - Remaining Area <br> These sectors overlap to varying degrees with the range complexes delineated in the 2004 ASR supplement. They are noted in this CSM for reference purposes. |
| Types of Munitions Used | Range Complex 1: mortars (4.2-inch, 81 millimeter (mm)) <br> Range Complex 2: small arms (general small arms including . 22 |

Munitions/Release Profile

| Information Needs | Preliminary Information |
| :--- | :--- |
|  | caliber, .30 caliber and less, and .45 caliber), practice hand grenades <br> Range Complex 3: hand grenades and Mk II hand grenades <br> Range Complex 4: small arms, practice hand grenades, large caliber <br> (105 mm, high explosive (HE)), HE mortars (4.2-inch, 81 mm), <br> pyrotechnics, flares, signals, simulators or screening smoke (other than <br> white phosphorus) <br> Range Complex 5: small arms (.50 caliber and machine gun) M21 <br> practice hand grenades <br> Ranges not included in Complexes: grenades (live rifle, anti-tank, |
| live hand, Mk II, practice rifle, practice rocket, practice 2.36-inch), |  |
| practice landmines (mine, anti-tank), flares, signals, simulators or |  |
| screening smoke (other than white phosphorus), small arms, practice |  |
| rifle ground rockets, live ground rockets (high explosive, anti-tank |  |
| (HEAT), 2.36-inch) |  |,


| Conceptual Site Model Information Profiles |  |
| :---: | :--- |
| Munitions/Release Profile |  |$|$| Information Needs | Preliminary Information |
| :---: | :--- |
|  | the site. Migration of MEC within Pat Mayse Lake is possible due to a <br> storm event, potential dredging, and recreational activities such as <br> boating and diving. <br> Migration of MC may occur naturally through surface soil erosion, <br> plant or animal uptake, or by human activities such as maintenance and <br> site work. If soil erosion and subsequent surface runoff carries MC <br> into Pat Mayse Lake, migration of MC through surface water and <br> sediment contact, or indirect or direct ingestion can occur as well. <br> Migration of MC may occur through groundwater; however, it is not a <br> concern as the shallow groundwater in the area is not a source of <br> potable water. |

## Physical Profile

| Information Needs | Preliminary Information |
| :--- | :--- |
| Climate | The climate at the site can be characterized as humid and subtropical, <br> predominantly continental in winter and marine in summer. Rainfall is <br> distributed through the year, and the average annual rainfall is 47.7 inches. <br> The average mean annual temperature in the region is 65 degrees <br> Fahrenheit ( $\left.{ }^{\circ} \mathrm{F}\right) ;$ the average mean monthly temperature varies from 44 F <br> in January to 85ㄷ in July. |
| Topography | The former Camp Maxey lies within the Gulf Coastal Plain which is <br> generally a gently undulating plain characterized by uplands of low <br> relief and broad river valleys. Elevations generally range from 450 to <br> 1,000 feet above mean sea level (amsl) in the area. The surface <br> elevation of Pat Mayse Lake is approximately 451 ftamsl. The <br> topography of the West Impact Area is gently sloping down to the east, <br> toward Pat Mayse Lake, with elevations ranging from 450 to 540 <br> ftamsl. The topography of the East Impact Area is gently sloping down <br> to the north toward Pat Mayse Lake, with elevations ranging from 450 <br> to 540 ftamsl. |
| Geology | The geology of the former Camp Maxey area is dominated by Cretaceous <br> sediments. The majority of the sediments were deposited in a marine |
| setting and the Pennsylvanian-Cretaceous unconformity indicating a long |  |
| period of emergence and erosion. |  |
| There are two stratigraphic units of the Gulf Series that outcrop in the |  |
| former Camp Maxey area: the Eagle Ford Group and the Bonham |  |
| Formation. The Eagle Ford Formation outcrops in the northern part of |  |
| former Camp Maxey. It is approximately 350 feet thick and consists of |  |
| shale which is interbedded by thin platy beds of sandstone and sandy |  |
| limestone. The Bonham Formation outcrops in the southern part of |  |
| former Camp Maxey. It ranges from 375 to 530 feet thick and consists of |  |
| marl and clay. |  |$|$

## Physical Profile

| Information Needs | Preliminary Information |
| :--- | :--- |
| Soil, continued | to 5 percent. |
| Hydrogeology | The predominant soil types found within the West Impact Area and the <br> central part of the site are include the Freestone-Hicota Complex and the <br> Whakana-Porum Complex. |
|  | The Woodbine Group of Cretaceous age, provides water for all <br> purposes in the Camp Maxey area. The Woodbine Group is divided <br> into three water-bearing parts which vary in productivity and quality: <br> the upper, middle, and lower. The lower Woodbine is the most <br> productive and contains the best water quality. The Woodbine Group <br> ranges in thickness from 230 feet to 700 feet. The depth to water is <br> approximately 100 feet in the Woodbine Group in this area. <br> The underlying Trinity Group of Cretaceous age is the largest and most <br> prolific aquifer in the area; however, in the former Camp Maxey area, <br> water within this aquifer is generally too saline for potable use. The <br> Trinity Group is made up of the Antlers, Paluxy, and Twin Mountain <br> Formations. It ranges in thickness from 100 feet to 1200 feet. The <br> depth to water varies between 100 and 200 feet in the Trinity Group in <br> Lamar County. |
| Hydrology | The majority of the former Camp Maxey lies within the Sanders Creek <br> watershed and drainage basin. A dam built for flood-control and <br> municipal and industrial water supply on Sanders Creek forms the Pat <br> Mayse Lake, which is the primary surface water body on the site. <br> Within the former Camp Maxey, many small surface drainages flow <br> into Pat Mayse Lake including Little Creek, Spring Branch, Craddock <br> Creek, Summer Branch, Sand Branch, Dead Man Branch, Presses <br> Creek, and Stillhouse Creek. |
| Surface water in the area generally drains to the northeast. Sanders |  |
| Creek empties into the Red River two miles to the north. |  |$|$


| Conceptual Site Model Information Profiles  <br> Information Needs Preliminary Information and Exposure Profile |  |
| :--- | :--- |
| Current Land Use | Current land use at the former Camp Maxey includes the Camp Maxey <br> Texas Army National Guard training facility, Pat Mayse Lake, Pat <br> Mayse State Park, undeveloped land open to the public for recreation <br> activities including hunting, camping, and hiking, the Pat Mayse <br> Wildlife Management Area, and privately owned land used for rural <br> residential, farming, and ranching purposes. |
| Current Human <br> Receptors | Human receptors that may access the site include military personnel at <br> the Texas National Guard installation, visitors to the Pat Mayse Wildlife <br> Management Area, recreational users of the lake, state park, or <br> undeveloped areas, and residents on privately owned land. |
| Current Activities <br> (frequency, nature of <br> activity) | Current activities include recreational activities such as boating, diving, <br> fishing, and swimming at Pat Mayse Lake, recreational activities such as <br> hunting, camping, hiking, and ATV riding in the undeveloped areas or in <br> the state park, any maintenance activities in the state park or wildlife <br> management area, and farming and ranching activities in the privately <br> owned land. Training activities are currently conducted at the Texas <br> National Guard facility; however, this is considered an active installation <br> and these areas are not included as part of the Camp Maxey FUDS <br> investigation. |
|  | No change in land use is planned for the federal- and state-owned lands. <br> Private landowners potentially may develop portions of their properties <br> for various purposes (e.g., farming/ranching, new home construction, <br> etc.), to include intrusive construction work. |
| Potential Future |  |
| Land Use |  |


| Conceptual Site Model Information Profiles |  |
| :--- | :--- |
|  | Land Use and Exposure Profile |


| Conceptual Site Model Information Profiles |  |
| :--- | :--- |
| Information Needs | Ecological Profile |$\left|\right.$| Preliminary Information |
| :--- |
| Fauna |
| $\begin{array}{l}\text { Fauna existing within former Camp Maxey includes mammals, birds, } \\ \text { reptiles, amphibians, and aquatic organisms. The former camp } \\ \text { provides a suitable habitat for these various forms of wildlife due to its } \\ \text { undisturbed nature. The Interior Least Tern is listed as endangered on } \\ \text { both the state and federal lists. The American Peregrine Falcon is } \\ \text { listed as endangered on the state list. The Bald Eagle is listed as } \\ \text { threatened on both the state and federal lists. The Arctic Peregrine } \\ \text { Falcon is listed as threatened on the state list. These four birds species } \\ \text { have been identified in Lamar County. Previous surveys identified the } \\ \text { Bald Eagle and Arctic Peregrine Falcon near Pat Mayse Lake. These } \\ \text { birds species may visit the site in the winter as flyovers or migrants. } \\ \text { Pat Mayse Lake is considered to be a suitable habitat for the Interior } \\ \text { Least Tern as well. No other state-listed endangered or threatened } \\ \text { species for Lamar County have been identified at the former camp. }\end{array}$ |
| Habitat Type | \(\left.\begin{array}{l}The undisturbed nature of this site has allowed much of the native <br>

habitat acreage to remain. The site includes forested upland, wetlands, <br>
and aquatic habitats.\end{array}\right|\)






[^0]:    *This is a living (or dynamic) document which may be continually edited and updated throughout the life of the project and is not intended for public release.

