LHAAP-47, PLANT AREA 3
SOLID ROCKET MOTOR FUEL PRODUCTION

Site History

LHAAP-47, historically known as Plant 3, is located in the north-central portion of the former Longhorn Army Ammunition Plant, covering an area of approximately 275 acres. Plant 3 produced rocket motors from 1954 until the early 1980s when operations were converted to produce pyrotechnic and illumination devices. Production activities continued through 1997. Industrial solid wastes and possibly hazardous wastes such as parts cleaners and spent solvents may have been generated by these activities. Fifty waste process sumps and three waste rack sumps were located within the LHAAP-47 site . The soil, groundwater, surface water, and sediment at the LHAAP-47 site have been the subject of numerous investigations to identify potential contamination. Jacobs Engineering conducted Phase I, Phase II, and Phase III remedial investigations in 1993, 1995, and 1998, respectively, and additional remedial investigations from 1996 through 2001. In 1999, the Army installed plastic liner material around Building 25-C over perchlorate-contaminated soils to prevent migration of perchlorate to Goose Prairie Creek.

Site Characteristics

The surface features at the LHAAP-47 site are a mixture of asphalt-paved roads, parking areas, remnants of building foundations, old buildings, and areas covered with dense vegetation. The topography in this area is relatively flat with surface water drainage flowing into tributaries of Goose Prairie Creek, which eventually enters Caddo Lake.

The soil at the LHAAP-47 site consists of layers of silty clay, underlain by silty sand to clayey sand. Below this are rocks of the Wilcox Group, generally consisting of interbedded silts and clays.

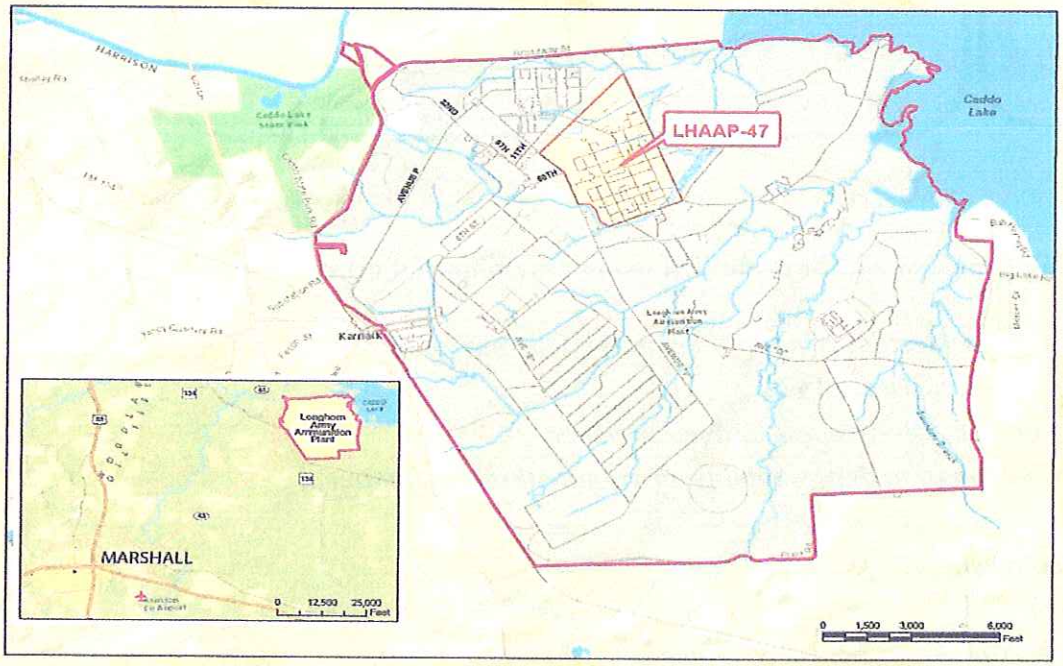
Groundwater at the site is divided into four zones: shallow, shallow/intermediate, intermediate and deep. The shallow and intermediate groundwater zones are interconnected over much of the site except in the east-central portion of the site where they are separated by a clay layer. The groundwater flow direction in the shallow and intermediate saturated zones is to the northeast, with groundwater in the deep zone flowing to the north-northeast.

Risk Assessment

Baseline human health risk assessment (BHHRA) and screening level ecological risk assessment (SLERA) studies were conducted for LHAAP-47 in 2003 to determine current and future effects of contaminants on human health and the environment and determine whether further ecological risk assessment was needed. In 2007, a baseline ecological risk assessment (BERA) was conducted to further assess potential risks to the environment.

The BERA concluded contaminant levels at the site posed no unacceptable ecological risk. The BHHRA concluded the concentrations of contaminants in soil at the site did not pose a cancer risk or non-cancer hazard to the hypothetical future maintenance worker under an industrial scenario. However, groundwater posed unacceptable cancer risk and non-cancer hazard, requiring remediation for the protection of the hypothetical future maintenance worker .

Surface water impacts resulting from leaching of perchlorate-contaminated soils were addressed in 1999 with a temporary measure where plastic liner was installed over perchlorate-contaminated soils at Building 25-C, to prevent leaching of perchlorate.



Chemicals of Concern

Investigations conducted at LHAAP-47 have identified perchlorate in soil near Building 25C as a potential source for groundwater perchlorate contamination. Chemicals of concern (COCs) identified in shallow, shallow/intermediate, and intermediate groundwater zones include perchlorate, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and 2,4,6-trinitrotoluene (TNT).

Remedial Alternatives for LHAAP-47

The RAOs for LHAAP-47, which address contamination associated with the media at the site and takes into account the future uses of LHAAP streams, land, and groundwater include:

1) Protection of human health by preventing human exposure to the contaminated groundwater.

2) Protection of human health by preventing further potential degradation of groundwater and surface water.

3) Protection of human health by preventing degradation of surface water from groundwater contaminated with COCs.

4) Return of groundwater to its potential beneficial use as drinking water, wherever practicable.

Alternative 1

No Action

Estimated Present Worth: $0

Alternative 2

Excavation, In-situ Bioremediation, Monitored Natural Attenuation and Land Use Controls

Estimated Present Worth: $5.09 million

Alternative 3

Excavation, Recirculating Bioremediation, Monitored Natural Attenuation and Land Use Controls

Estimated Present Worth: $7.62 million

Alternative 4

Excavation, Groundwater Pump and Treat, In-situ Bioremediation, Monitored Natural Attenuation, and Land Use Controls

Estimated Present Worth: $7.90 million

The four remedial alternatives will be evaluated using nine required criteria to select a remedy.

1) ***Overall protection of human health and the environment***
2) ***Compliance with ARARs***
3) ***Long-term effectiveness and permanence***
4) ***Reduction of toxicity, mobility, or volume through treatment***
5) ***Short-term effectiveness***
6) ***Implementability***
7) ***Cost***
8) ***State/support agency acceptance***
9) ***Community acceptance***