

LHAAP-35A (58) - Shops Area Remedial Action Operations

Site History

LHAAP-35A (58), also known as the Shops Area, is located in the north-central portion of LHAAP and is approximately 11 acres in size. LHAAP-35A (58) was established in 1942 as part of the installation's initial construction. The facility was used to provide plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical services. LHAAP-35A (58) was active throughout LHAAP's mission and became inactive in 1996-1997, along with the entire installation.

Site Characteristics

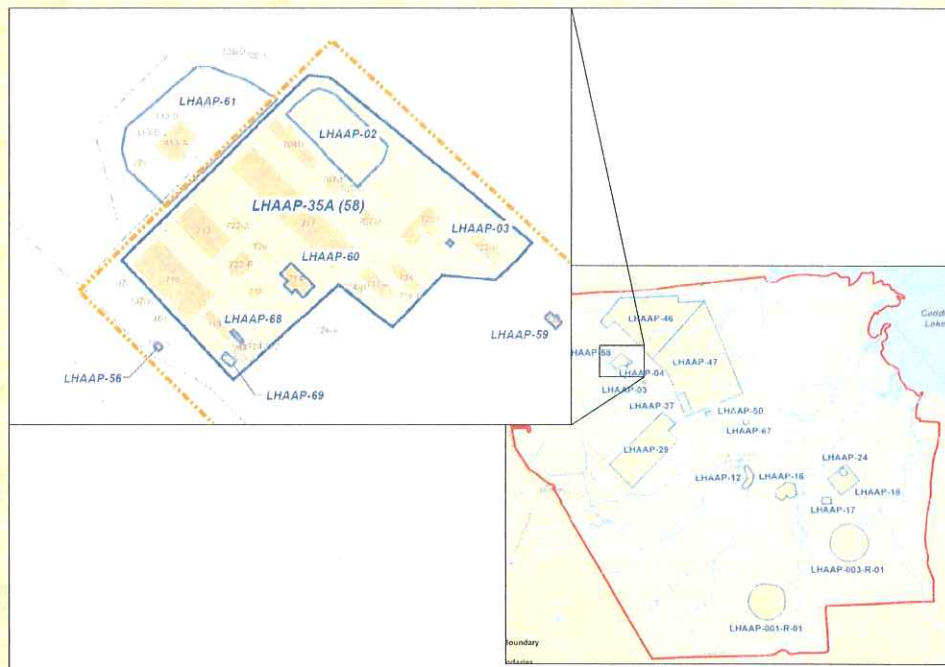
The surface features are a mixture of asphalt-paved roads, a parking area, and areas of wooded and grassy vegetation. The topography is relatively flat with the surface drainage flowing into the tributaries of Goose Prairie Creek. Runoff from the site enters Caddo Lake via Goose Prairie Creek.

Risk Assessment

A baseline human health risk assessment (BHHRA) and baseline ecological risk assessment (BERA) were conducted for LHAAP-35A (58) to determine current and future effects of contaminants on human health and the environment. The findings from these investigations was that the shallow zone groundwater was impacted with volatile organic compounds (VOCs), while the soil and former sump/waste rack sump areas posed no unacceptable threat to human health or the environment.

Chemicals of Concern

Between 1992 and 2008, multiple investigations were conducted in a phased approach to evaluate the nature and extent of contamination at the LHAAP-35A (58) site. The findings from these investigations were that the shallow zone groundwater was impacted with volatile organic compounds (VOCs) tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride (VC). Soil and former sump/waste rack sump areas were found to pose no unacceptable threat to human health or the environment.



LHAAP-35A (58) Location and Site Map

Remedial Action Objectives

The Remedial Action Objectives (RAOs) for LHAAP-35A (58), consistent with the reasonably anticipated future use as a national wildlife refuge, are:

- Protection of human health by preventing human exposure to the contaminated groundwater;
- Protection of human health and the environment by preventing contaminated groundwater from migrating into nearby surface water; and,
- Return of groundwater to its potential beneficial uses as drinking water, wherever practicable.

LHAAP-35A (58) – Shops Area (continued)

Remedial Action Operations

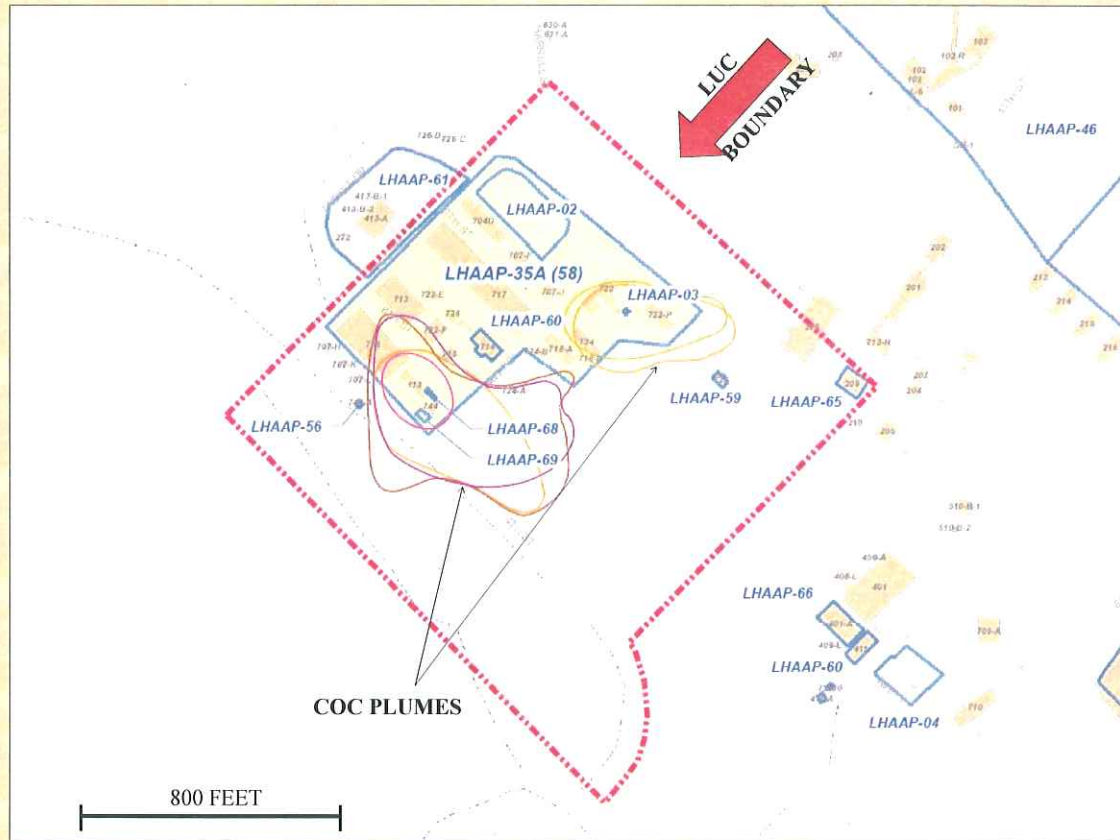
Land Use Control Boundary

The objectives of the Land Use Control (LUC) at LHAAP-35A (58) are to prevent human exposure to groundwater contamination presenting an unacceptable risk to human health and ensure that there is no withdrawal or use of groundwater beneath the site for anything other than environmental monitoring and testing. The LUC will remain in effect until the levels of COCs in groundwater and soil allow for unrestricted use and unlimited exposure (UUUE). Army, with TCEQ and EPA concurrence, has established a LUC area to restrict groundwater use at LHAAP-35A (58), completed a civil survey of that boundary and will record the LUC notification with the Harrison County Courthouse. The following sites are located within the LUC boundary for LHAAP-35A (58): LHAAP-02, LHAAP-03, LHAAP-56, a vehicle 209 wash rack & oil/water separator Building 744-A, LHAAP-59, Storage Building 725, LHAAP-60, LHAAP-65, Former Building 209 (flammable materials storehouse), LHAAP-68, LHAAP-69.

Monitored Natural Attenuation

MNA at the LHAAP-35A (58) site is implemented to monitor COCs and ensure protection of human health and the environment. Performance monitoring to evaluate remedy effectiveness includes groundwater and surface water monitoring. The groundwater monitoring program is designed to evaluate and monitor natural attenuation of COCs in groundwater.

Quarterly groundwater samples were last collected from LHAAP-35A (58) in January 2015, and will be collected again in April 2015.



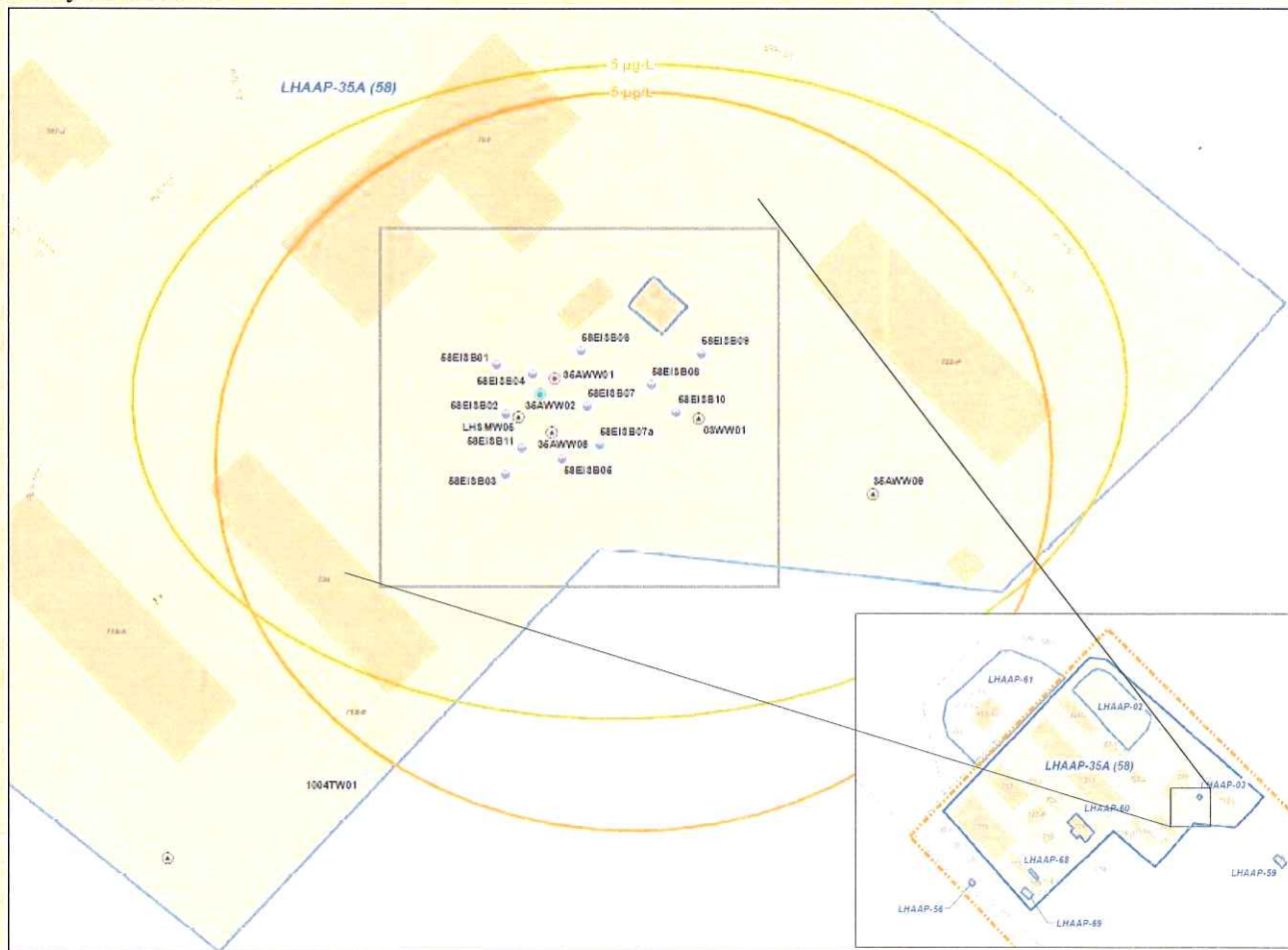
LHAAP-35A (58) Land Use Control Area and COC Plume Footprints

LHAAP-35A (58) – Shops Area (continued) Remedial Action Operations

Enhanced In-situ Bioremediation (EISB)

EISB technology involves biological degradation of contaminants in groundwater via respiratory or metabolic processes through appropriate microbes. The EISB treatment involves injection of carbon substrates (electron donor), nutrients, and, if needed, microbial cultures, into the subsurface.

Treatment via EISB at LHAAP-35A (58) was specified to treat COCs in the eastern plume area to enhance their biological degradation and create subsurface conditions favorable for MNA after completion of the EISB treatment. EISB implementation included selection of carbon substrate, mixing and injection procedures, a baseline sampling event, bioaugmentation (injections of microbial culture), post-injection monitoring and analysis of data.



LHAAP-35A (58) EISB Treatment Area