

# LHAAP-04

## Former Pilot Wastewater Treatment Plant

### Site History

The Former Pilot Wastewater Treatment Plant at LHAAP-04 began industrial wastewater treatment operations in 1984 and historical operations resulted in environmental impacts to soil and groundwater. Demolition of the Former Pilot Wastewater Treatment Facility structures, tanks, and piping, and the disposal of associated wastes were completed in the summer of 1997 as part of Resource Conservation and Recovery Act (RCRA) closure of the plant. Numerous sampling events were conducted from 1993 through 2008 to identify contamination from past operations and its impact to soil. Soil contaminated with perchlorate and mercury was removed in 2009, eliminating the principle threat at the site.

### Site Characteristics

LHAAP-04, the Former Pilot Wastewater Treatment Plant, is located in the central portion of LHAAP at the northwest corner of 6<sup>th</sup> and 60<sup>th</sup> Streets near the former fire station and covers approximately 0.5 acre. LHAAP-04 is surrounded by light duty roads. The LHAAP-04 site is situated on an outcrop of the Wilcox Group which generally consists of a few feet of residually derived soils overlying interbedded silts and clays. Based on the potentiometric surface map for LHAAP -04, the groundwater flow direction in the shallow saturated zone is to the northeast.

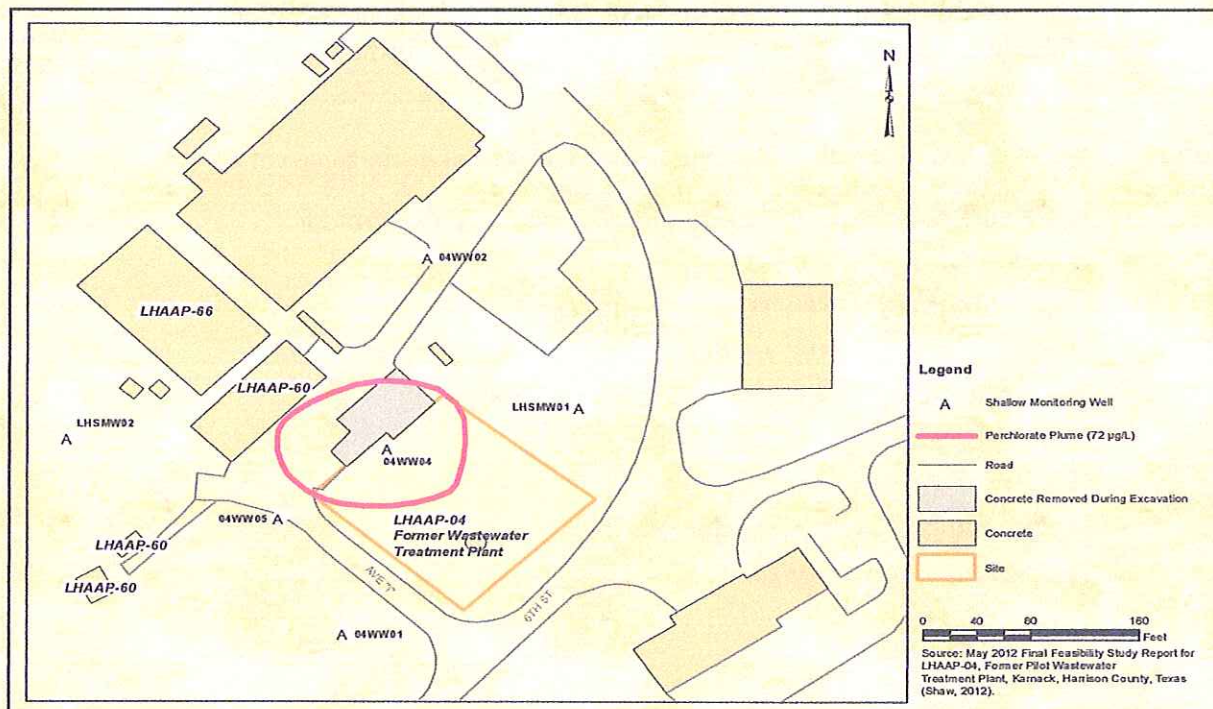
### Risk Assessment

Baseline human health risk assessment (BHHRA) and baseline ecological risk assessment (BERA) studies were conducted for LHAAP-04 to determine current and future effects of contaminants on human health and the environment. Additional soil and groundwater data was collected and analyzed after completion of the risk assessments.

The baseline ecological risk assessment (BERA) concluded that no unacceptable risk was present in the Industrial Sub-Area of which LHAAP-04 is a part, and therefore, no further action is needed at LHAAP-04 for protection of ecological receptors (Shaw, 2007).

Soil samples collected after the BHHRA were observed to contain perchlorate and mercury concentrations posing unacceptable risk or hazards to human health. These soils with high perchlorate and mercury concentrations were removed and sent to an off-site landfill in 2009. Soil remaining after completion of the removal activity does not pose unacceptable risk or hazard to human health based on exposure pathway for a future maintenance worker in an industrial scenario.

Groundwater data collected after the risk assessment indicated that perchlorate concentrations in the groundwater exceed acceptable concentrations, so are presumed to pose an unacceptable risk to human health and require remediation.



### Chemicals of Concern

Various sampling events were conducted at LHAAP-04 from 1993 through 2008 to assess contamination from past operations and its impact to the soil and/or groundwater. The chemical of concern (COC) for LHAAP-04 is perchlorate, which was found at concentrations exceeding acceptable levels in the shallow groundwater zone.



# Remedial Alternatives for LHAAP-04

The RAOs for LHAAP-04, 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) Protect human health by preventing exposure to groundwater contaminated with perchlorate.
- 2) Protect human health and the environment by preventing groundwater contaminated with perchlorate from migrating into nearby surface water.
- 3) Return groundwater to its potential beneficial use, wherever practicable, within a reasonable time period given the particular site circumstances.

## Alternative 1

No Action

Estimated Present  
Worth: \$0

## Alternative 2

Monitored  
Natural  
Attenuation  
and Land Use  
Controls

Estimated Present  
Worth: \$565,000

## Alternative 3

In-situ  
Bioremediation  
and  
Land Use Controls

Estimated Present  
Worth: \$638,000

## Alternative 4

Groundwater  
Extraction,  
On-Site Treatment,  
and Land Use  
Controls

Estimated Present  
Worth: \$730,000

## Alternative 5

Interceptor  
Collection Trenches,  
Groundwater  
Extraction and  
Treatment, Long-  
Term Operation and  
Land Use Controls  
Estimated Present  
Worth: \$783,000

The five 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*