



LAUNCH COMPLEX 39B REMEDIATION FACT SHEET

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION KENNEDY SPACE CENTER BREVARD COUNTY, FLORIDA

Location

Launch Complex 39B is a National Historic Site located within KSC on the east central Atlantic Coast of Florida on Merritt Island in Brevard County. LC39B is the northernmost of the two space shuttle launch sites along the eastern boundary of KSC.

History

The Launch Complex 39B is the northernmost of the two NASA operated space shuttle launch sites. The area was undeveloped prior to the mid-1960s when construction for the Apollo Space Program commenced. The pad structure was retrofitted to support Space Transportation System (STS) operations in 1975.

In 1998 a RCRA Facility Investigation (RFI) was conducted and soil/sediment, surface water, and groundwater samples were collected. The RFI results indicated that metals, PCBs, and polynuclear aromatic hydrocarbons (PAHs) were present in soil and chlorinated volatile organic compounds (CVOCs), pentachlorophenol, and metals were present in groundwater.

From 2000-2003 additional RFI activities included: sampling and analysis of soil and groundwater, which indicated that dense non-aqueous phase liquid (DNAPL) was not present; installation of wells; and the collection of sediment and surface water, which indicated that the area extent of inorganic constituents exceeding screening criteria outside the pad fence is limited. Trichloroethene and inorganic constituents exceeded the Surface Water Cleanup Target Level (SWCTLs).

From 2003-2004 an Interim Measure was conducted to remove soil impacted with PCBs. In

addition, a post RFI/pre-CMS indicated a high concentration groundwater plume and metals in groundwater above SWCTLs. Based on these results it was determined that groundwater at the site must be treated to prevent surface-water impacts due to the migration of contaminated groundwater.

A detailed evaluation performed for the Corrective Measure Study (CMS) determined the final remedy for the LC39B would include passive bioaugmentation with downgradient extraction, monitored natural attenuation, and engineering controls in conjunction with best management practices.

Passive Bioaugmentation with Downgradient Extraction

Passive bioaugmentation with downgradient extraction involves the direct injection of nutrients followed by microbial cultures into a network of injection wells installed throughout the targeted treatment zone. The groundwater will be extracted from the toe of the plume adjacent to the outstanding Florida waters (OFW) to mitigate the release of CVOC to the OFW. The extracted groundwater will be pumped directly to injection wells to assist with the movement of the nutrients and microbial cultures in the subsurface. A solar array will be used to power the equipment. This will be implemented on the high concentration plume area.

Monitored Natural Attenuation

Monitored natural attenuation relies on naturally occurring processes (chemical, physical, and biological) to reduce CVOC concentrations over time. This will be implemented on the low concentration plume area.

Engineering Controls and Best Management Practices

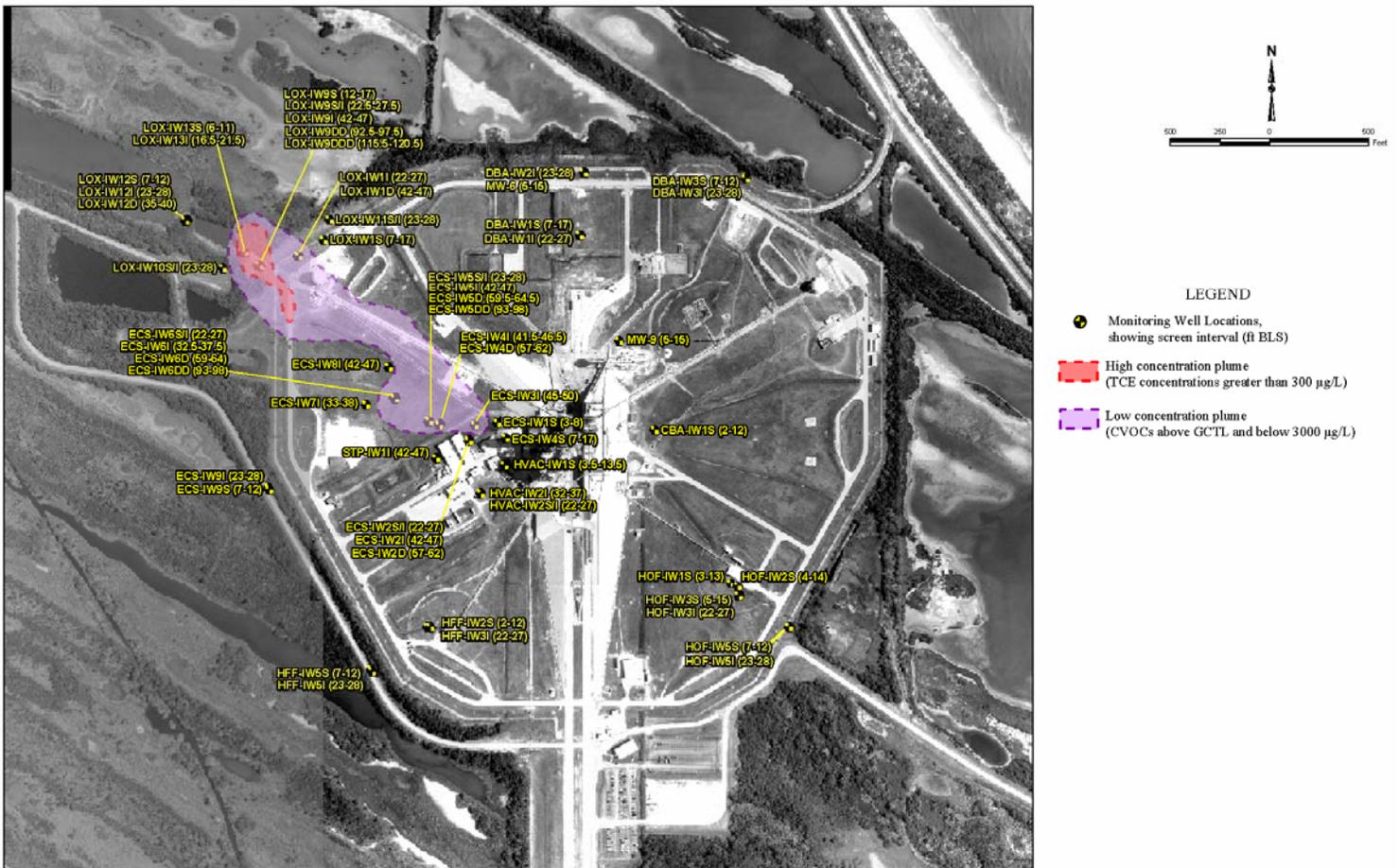
A combination of best management practices and installation of strategically located engineering controls will be performed at the site. The Engineering controls will minimize the potential for impacted sediment transport from the swales to off-site locations. An engineering control to reduce bed load transport provides a mechanism for the settling of suspended load. Sediment traps will be placed near the outfall of select swale/ditch systems which will collect sediment transported as bed load. This remedy will control potential migration of metals present in swale soil to the OFW.

Institutional Controls

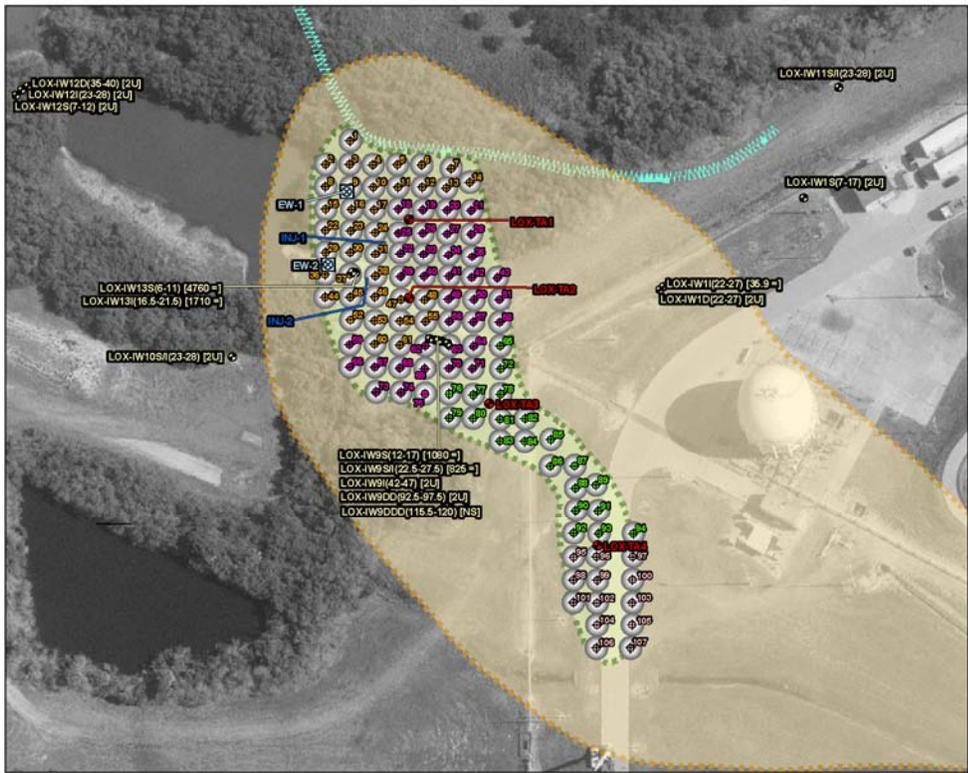
To assure that the groundwater is not being used for drinking water during the groundwater treatment period, an institutional control for this facility has been implemented. In addition institutional controls are being implemented to prohibit residential exposure to site surface swale soil.

Conclusion

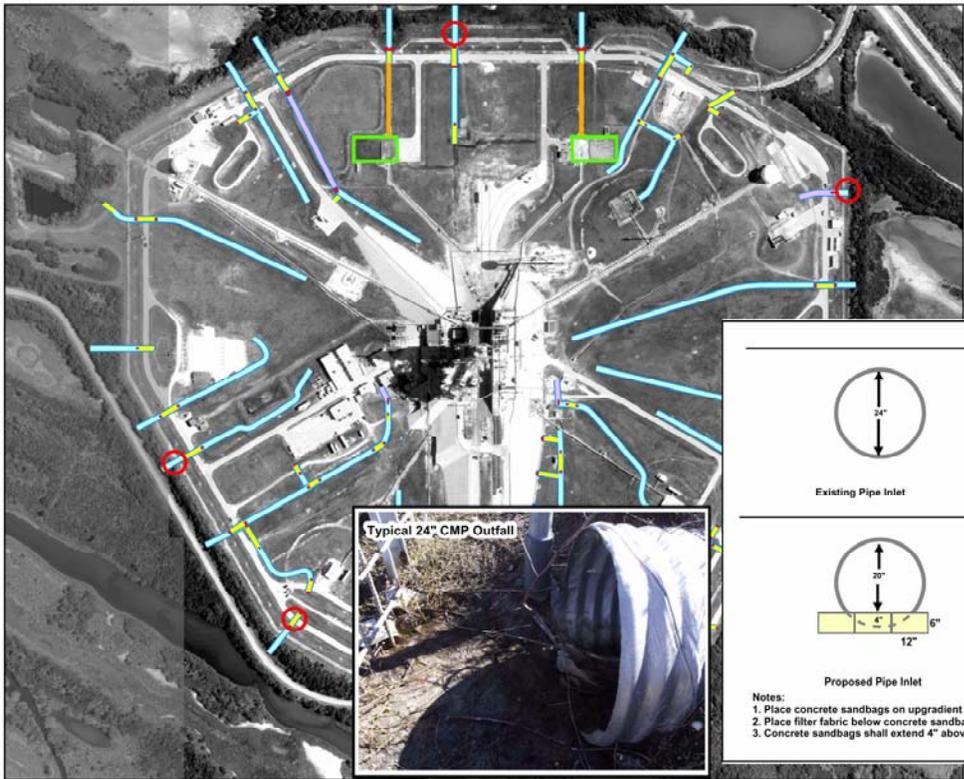
Groundwater quality will be monitored and evaluated to ensure remedy is protective of human health and the environment.



High Concentration and Low Concentration Plume Zones



High Concentration Plume Area Treatment Layout



Sediment Control System