



# NASA HAS MADE STEADY CLEANUP PROGRESS

## Cleanup Activities

NASA has been managing cleanup activities at the JPL site for three Operable Units

Source area on-facility groundwater (OU1) | On-facility soil (OU2) | Off-facility groundwater (OU3)



### OU1 ON-FACILITY GROUNDWATER CLEANUP

NASA conducted pilot studies and treatability studies (1999 to 2004) to identify the best perchlorate treatment technology.

NASA built and has operated (since 2005) a large-scale pilot treatment system to remove VOCs and perchlorate from beneath JPL.

In 2007, regulators approved an Interim ROD that allowed NASA to expand a pilot system.

**A full-scale 300 gallon per minute treatment system continues to operate.**

#### Benefits

- Successfully treated more than 3,300 acre-feet of groundwater
- Removed more than 42 lbs. of VOCs
- Removed more than 1,800 lbs. of perchlorate
- Decreased perchlorate concentrations in extracted groundwater (currently near 25 µg/L down from 2,300 µg/L) and at wells in the OU1 treatment zone

### OU3 OFF-FACILITY GROUNDWATER CLEANUP

#### LAWC Lincoln Avenue Water Company Treatment System

NASA has funded groundwater treatment at LAWC to remove VOCs since 1992.

In 2004, NASA and LAWC added ion exchange to the LAWC treatment system to remove perchlorate.

**A full-scale 2,000 gallon per minute treatment system is currently operating.**



#### Benefits

- Successfully treated more than 20,400 acre-feet of groundwater
- Removed 231 lbs. of VOCs
- Removed 1,060 lbs. of perchlorate
- Decreased perchlorate concentrations in extracted groundwater by more than 50%
- LAWC is able to use local water supply wells

#### MHTS Monk Hill Treatment System

NASA funded groundwater treatment at four Pasadena wells to remove VOCs beginning in 1990. This system stopped operating in 2002.

In 2011, NASA funded the construction of the MHTS, a groundwater treatment facility to remove VOCs and perchlorate. The City of Pasadena has been operating the MHTS since then to supply water for their drinking water purposes as well as to continue NASA's cleanup of the groundwater.

**A full-scale 7,000 gallon per minute treatment system continues to operate.**

#### Benefits

- Successfully treated 12,800 acre-feet of groundwater
- Removed 92 lbs. of VOCs
- Removed 900 lbs. of perchlorate
- Decreased perchlorate concentrations in extracted groundwater by more than 50%
- Pasadena is able to use local water supply wells

### OU2 ON FACILITY SOIL CLEANUP

Soil Vapor Extraction (SVE) was pilot tested in 1998.

SVE proved effective in removing volatile organic compounds (VOCs) from source area soil.

Based on success with SVE, NASA proceeded to the Final ROD for soil and full-scale SVE operation in 2002.

**Soil cleanup was successfully completed in 2007.**

#### Benefits

- Removed the source of chemicals from on-facility soils
- Prevented further migration of chemicals to groundwater and away from the site

