



2020 | YEAR in REVIEW

JPL Groundwater Cleanup Project

This 2020 Year in Review is part of NASA's ongoing efforts to keep the public informed about the progress of groundwater cleanup efforts at and in the vicinity of NASA's Jet Propulsion Laboratory (JPL).

BACKGROUND

The groundwater chemicals being removed from JPL-area groundwater are volatile organic compounds (VOCs) and the chemical compound perchlorate. The chemicals originated from long-discontinued liquid and solid waste disposal practices during the 1940s and 1950s when wastes from JPL drains and sinks were disposed of in brick-lined seepage pits – a waste management practice that was common at the time. Today, chemical wastes are either recycled or sent off facility for treatment and disposal at permitted hazardous waste facilities. NASA is cleaning up the site under the Federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly known as Superfund.

NASA Groundwater Cleanup Advances at JPL

In 2020, a year marked by the COVID-19 pandemic – a year like no other – NASA continued to meet health and safety requirements at JPL. We also continued JPL-area groundwater cleanup activities and, importantly, our efforts to keep the public informed.

Throughout the year, NASA continued to follow the final cleanup plan outlined in the 2018 Record of Decision (ROD) approved by federal and state government agencies and described as “the best approach to reaching the cleanup goals and to maintaining protection of human health and the environment.” During restrictions in place due to the pandemic, NASA staff who met mission essential requirements were able to continue with critical operations and maintenance of the on-site JPL groundwater treatment system. Staff on-site were required to complete JPL's COVID-19 health and safety training and protocols, including daily health screening surveys.

During 2020, operations continued at the on-site JPL groundwater treatment plant and at two off-site NASA-funded treatment plants.

► At the “source area” on JPL property

After 15 years of using a biological perchlorate-removal technology, considerably lower levels of perchlorate had been achieved in the source area groundwater. Given those lower levels, NASA completed the transition to an ion exchange perchlorate-removal technology, proven to be more effective at treating low levels of the chemical compound. A new groundwater extraction well was also added at the source area.

Concurrent with these efforts, the source area treatment system continued to operate in 2020, having removed more than 2,109 pounds of perchlorate from groundwater and more than 48.5 pounds of VOCs beneath JPL since system startup in January 2005. The total amount of unwanted chemicals in groundwater beneath JPL has been reduced by more than 98 percent.

While chemical removal has been significant, the levels are still above the stringent cleanup goal set forth in the ROD. Continued operation of the system to achieve that cleanup goal in groundwater is expected to take another five to ten years. This is typical in groundwater remediation because chemical removal becomes more difficult as concentrations decrease. It takes a long time to flush enough water through the aquifer to achieve the very low cleanup goals (in the parts-per-billion concentration).

Unwanted chemicals in groundwater beneath JPL have now been reduced by more than 98%.

“Community outreach remains a cornerstone of our Program.”

► **In the Arroyo Seco**

The Monk Hill Treatment System (MHTS) – at roughly the center of the affected area – consists of four City of Pasadena drinking water wells and a treatment plant located on Windsor Avenue. Since system startup in 2011, the MHTS removed more than 1,326 pounds of perchlorate from groundwater and more than 202 pounds of VOCs. Chemical levels in groundwater extracted by the MHTS have been reduced by more than 90 percent. NASA and Pasadena Water and Power (PWP) continued in 2020 with plans to construct a new NASA-funded MHTS drinking water well located in the northern portion of the Arroyo. The new well would increase removal of targeted chemicals by an estimated 40 percent, which would significantly reduce the time needed to clean up the aquifer.

► **At Lincoln Avenue Water Company (LAWC) drinking water wells in Altadena on the outer edge of the affected area.**

The LAWC system, now with three drinking water wells since a third NASA-funded well was put into operation in late 2017, has removed more than 1,395 pounds of perchlorate and more than 326 pounds of VOCs since startup in 2004. Chemical concentrations in the LAWC groundwater have now been reduced by more than 70 percent.

Continued Groundwater Monitoring

NASA chemical-level testing also continued at the 25 JPL-area monitoring wells. With monitoring wells on and in the vicinity of JPL, NASA is able to demonstrate that the treatment systems in place continue to be effective in remediating the affected groundwater. Quarterly monitoring reports for 2020 and earlier years are posted to the groundwater cleanup website. NASA also continued weekly monitoring of perchlorate levels in wells at the nearby Rubio Cañon Land and Water Association.

Community Outreach

As a cornerstone of its program, NASA is committed to ongoing open communication in all groundwater cleanup activities at JPL.

During 2020, NASA community outreach included:

Continued updating of and maintenance for the CERCLA website, including an update to the CERCLA Program Backgrounder. The backgrounder offers a complete overview of the Program and includes information on NASA’s final cleanup plan referred to as its final Record of Decision (ROD), which was approved in 2018 by the U.S. Environmental Protection Agency (U.S. EPA) and California State agencies that together oversee the cleanup effort.

Creation of and posting to the website’s home page of a new story on NASA’s community outreach commitment at JPL during the cleanup.

A new factsheet on perchlorate - After the U.S. EPA in 2020 declined to set a standard for perchlorate levels in drinking water, NASA prepared and posted to the cleanup website an updated factsheet called “Perchlorate – Past and Present.” The factsheet noted, that while there is not a federal drinking water standard, NASA is committed to meeting California’s perchlorate MCL of 6 ppb, (parts per billion) as part of NASA’s overall groundwater cleanup at JPL. NASA also revised its perchlorate FAQs question-and-answer after the EPA’s decision on a federal perchlorate standard.

Posting to the website of the 2019 JPL CERCLA Program Year-in-Review and e-mailing it to elected officials and Interested stakeholders.

Coordinated communications related to COVID-19 regarding the JPL CERCLA Program and placed a COVID-19 update on the CERCLA website noting that the three treatment systems associated with the JPL Groundwater Cleanup “continue to operate in accordance with approved plans and permits.”

Performed mailing list maintenance/updates.

In November of 2020, NASA Groundwater Cleanup Project Manager Steve Slaten gave a CERCLA Program update presentation to members of the Hahamongna Watershed Park Advisory Committee. The Hahamongna Watershed Park is located near JPL in La Cañada Flintridge.

For information, contact

Steve Slaten

NASA Groundwater Cleanup Project Manager
Phone (818) 393-6683 • **Email** sslaten@nasa.gov

NASA Management Office/JPL 180-801
 4800 Oak Grove Drive, Pasadena, California 91109
Project Website <https://jplwater.nasa.gov>

Merrilee Fellows

Phone (202) 746-4308
Email mfellows@nasa.gov

Environmental Management Division
 NASA Headquarters
 Washington, D.C. 20546

Para Más Información En Español, llame a Angel Castillo
 NASA JPL, Teléfono (818) 354-1585