



2019 | YEAR in REVIEW

JPL Groundwater Cleanup Project

Enhancement Efforts Ongoing for Cleanup Systems at Source Area and in Arroyo Seco

This 2019 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 addressed 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-JPL for treatment and disposal at permitted hazardous waste facilities. NASA continues to meet or exceed all environmental regulations.

In 2019, NASA Remained Committed to Restoring Affected Area Groundwater Resources.

The year 2019 was the first full year following approval by the US Environmental Protection Agency (US EPA) and California state agencies of NASA's milestone final cleanup plan, referred to as the final Record of Decision (ROD). The parties agreed in the ROD that continuing the operation of the three groundwater treatment plants at and near JPL is the best approach to reaching the cleanup goals and "maintaining protection of human health and the environment." During 2019, NASA worked to improve efficiency in existing operations and to reduce the timeframe needed to clean up the aquifer.

In 2019, NASA progress continued with cleanup operations at all three systems as discussed below. Additionally, NASA continued planning and enhancement efforts on operations at the "source area" onsite at JPL and in the Arroyo Seco, located approximately in the middle of the affected area.

On JPL property at the "source area." After 14 years of system operations at JPL, with considerably lower levels of perchlorate in the source area groundwater, a new ion exchange perchlorate-removal technology and a new groundwater extraction well were installed during 2019. The new ion exchange technology is proven to be more effective than the previous technology, a fluidized bed reactor system, at treating low levels of perchlorate. The perchlorate levels have dropped significantly due to the success of the previous system. By year's end, the new well and technology were undergoing "start-up and shakedown" testing. Together, the new well and technology are intended to more efficiently remove chemicals from the source area treatment zone and enhance removal of all unwanted chemicals beneath JPL.

Concurrent with these efforts, the source area treatment system continued to operate in 2019, removing 2080 pounds of perchlorate from groundwater and 48 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 97 percent.

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

In the Arroyo Seco, the Monk Hill Treatment System (MHTS) consists of four City of Pasadena drinking water wells and a treatment plant located on Windsor Avenue. NASA and Pasadena Water and Power (PWP) continued in 2019 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. Since system startup in 2011, the MHTS has removed 1260 pounds of perchlorate from groundwater and 180 pounds of VOCs. Chemical levels in groundwater extracted by the MHTS have been reduced by more than 90 percent.

At Lincoln Avenue Water Company (LAWC) drinking water wells in Altadena, at the outer edges 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 1350 pounds of perchlorate and 310 pounds of VOCs since startup in 2004. Chemical concentrations in the LAWC groundwater have now been reduced by more than 70 percent.

The total amount of unwanted chemicals in groundwater beneath JPL has been reduced by more than **97%**

Community Outreach

“ NASA is committed to transparency in all groundwater cleanup activities at JPL, and community outreach remains a cornerstone of our program.”

Continued Groundwater Monitoring

With 25 monitoring wells on and in the vicinity of JPL, NASA demonstrated that the treatment systems in place continue to be effective in remediating the affected groundwater. Quarterly monitoring reports continued to be filed in 2019 and posted at the groundwater cleanup website: <https://jplwater.nasa.gov>. NASA also continued weekly monitoring of perchlorate levels in wells at the nearby Rubio Cañon Land and Water Association (RCLWA).

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Continued updates for re-design of and maintenance of the CERCLA website, <https://jplwater.nasa.gov>, including document updates, software/programming updates, and website content and structure modifications.

A project “backgrounder” was updated and moved to a prominent location on the website’s re-designed home page.

Distributed the 2018 Year-in-Review to JPL staff and to hundreds of other stakeholders, and placed it on the CERCLA website.

Steve Slaten presented on the status of the JPL CERCLA Program at the March 23 Altadena Town Council “Town Hall” meeting.

Continued to respond to requests for information by area residents and officials.

Initiated development of a JPL CERCLA Program presentation to the Council of Arroyo Seco Agencies, which invited Steve Slaten as a speaker. The presentation was originally scheduled for October 24, and then was moved to January 23, 2020.

Project Manager Steve Slaten was interviewed by a local newspaper, the Crescenta Valley Weekly, regarding the CERCLA cleanup. The article ran on February 21. Steve was also interviewed by the La Canada Outlook. That story was published on March 14.

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