2011 YEAR IN REVIEW

Completion of NASA-Funded Pasadena Treatment Plant Marks Key Milestone in NASA's Jet Propulsion Laboratory (JPL) Groundwater Cleanup

As the year 2011 drew to a close, a local water resource was restored to use, as four previously closed and now upgraded water production wells in Pasadena were returned to service thanks to a new NASA-funded groundwater treatment plant near the City of Pasadena's Windsor Reservoir. This is the third NASA-funded treatment system associated with the JPL groundwater cleanup program and demonstrates NASA's ongoing commitment to restore groundwater resources to the area.

This City-owned-and-operated Monk Hill Treatment System (MHTS) plant is capable of removing perchlorate and volatile organic compounds (VOCs) from the groundwater at a treatment rate of 7,000 gallons-per-minute (gpm). Perchlorate is removed using an ion exchange process, and VOCs are removed using liquid-phase granular activated carbon (LGAC). With the treatment plant's completion and with a California Department of Public Health (DPH) drinking water permit issued on March 17, 2011, PWP again was serving clean water to its customers from the wells.

A ribbon-cutting ceremony was held on Oct. 20, 2011 officially dedicating the new MHTS. Present at the ceremony were Pasadena Mayor Bill Bogaard, Pasadena Water & Power (PWP) General Manager Phyllis Currie, Assistant Administrator of the NASA Office of Strategic Infrastructure Olga Dominguez and NASA Cleanup Project Manager Steve Slaten, as well as United States Environmental Protection Agency (US EPA) Region 9 Superfund Division Director Jane Diamond, US EPA Remedial Project Manager Judy Huang, and California Assemblyman Anthony Portantino.

NASA and PWP collaboratively oversaw the design and construction of the new treatment system and encouraged public involvement in the process. Landscaping features suggested by Windsor Reservoir neighbors were incorporated into the final plant design. NASA also assisted PWP in preparing for a February 24, 2011 DPH public hearing, which was held as part of issuing the DPH drinking water permit.

Source Area Treatment System

NASA's source area treatment system, located within the JPL facility, continued in 2011 to clean up groundwater in the area with the highest chemical concentrations. Since commencement of the project, about 1,651 pounds of perchlorate have been removed from groundwater beneath JPL, using a fluidized bed reactor system with naturally occurring microorganisms that break down the chemical compound. Approximately 39 pounds of VOCs in the groundwater beneath the source area have also been removed, using the same LGAC technology that is being used in the new MHTS. LGAC uses carbon particles to absorb VOCs in groundwater. The used carbon is subsequently disposed of at a licensed facility.

Lincoln Avenue Water Company (LAWC) System

The LAWC system, which treats water pumped from two LAWC production wells at a rate of 2,000 gpm, continued removing chemicals from the leading edge of the affected area. This system also allows LAWC to continue to provide clean drinking water to its customers. Using the same ion exchange technology as used by the MHTS, 806 pounds of perchlorate had been removed from LAWC groundwater by the end of 2011. The ion exchange process runs groundwater through tanks filled with resin beads. When perchlorate contacts the beads, perchlorate is exchanged with chloride, and the beads to which the perchlorate adheres are extracted from the water and disposed of or recycled at a licensed facility. Similar to the Source Area Treatment System and the MHTS, LGAC is used to remove VOCs at the LAWC system. The system has removed 178 pounds of VOCs from area groundwater since system startup in 2004.

Five-Year Cleanup Review

An important activity this past year was NASA's first "Five-Year Review" of the groundwater cleanup remedies undertaken at and in the vicinity of JPL to determine if those remedies continue to be protective of human health and the environment. The review is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the law under which NASA is conducting all cleanup activities associated with past practices at JPL.

There are six components to the five-year review: (1) community involvement and notification, (2) document review, (3) data review and analysis, (4) site inspection, (5) interviews with managers of the water providers where NASA has funded treatment systems, and (6) a determination of the protectiveness of the cleanup actions.

The methods, finding, and conclusions of this review will be documented in a "Five-Year Review Report" that will be made available to the public in early 2012. This report and a Five-Year Review Report Summary Fact Sheet will also be posted on the water cleanup Web site, http://jplwater.nasa.gov, and in hard copy form at the Altadena Public Library, the La Cañada Flintridge Public Library, and the JPL Employee Library. At the Pasadena Central Library, those interested can link from any library computer to an online Information Repository.

JPL CERCLA Program Newsletter

In December 2011, NASA published a Groundwater Cleanup Update newsletter, with stories on and photos of the new MHTS, a story on the Five-Year Review, and a timeline covering important dates and milestones in the JPL CERCLA Program, going back to the early 1980s. The newsletter was also posted on the Program Web site and may be viewed at http://go.usa.gov/N7W.

Cleanup Web Site Updates

NASA continued to update its groundwater cleanup Web site (http://jplwater.nasa.gov), including providing Pasadena plant construction updates and photos. Also updated was a separate Spanish-language section of the Web site.

NASA's Work with Federal and State Regulatory Agencies

Throughout the year, NASA worked closely with federal and state regulatory agencies that supervise the cleanup. Those agencies include: the US EPA, the Regional Water Quality Control Board, Los Angeles Region, and the California Department of Toxic Substances Control. In addition, NASA worked with the City of Pasadena and its Water & Power department, as well as with representatives from LAWC, Rubio Cañon Land and Water Association, and other stakeholders.

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