National Aeronautics and Space Administration

# Groundwater CLEANUP

A NEWSLETTER ON NASA'S CLEANUP EFFORTS AT THE JET PROPULSION LABORATORY

JULY 2014

## NASA Moving from Interim to Final JPL Cleanup Remedy

An important step has been taken – the completion of a Focused Feasibility Study (FFS) – that will help NASA fulfill its commitment to cleaning up groundwater at and in the vicinity of its Jet Propulsion Laboratory (JPL).

Over the past decade, NASA has implemented several so-called "interim" measures, funding the construction and design of three technologically sophisticated treatment plants that today are removing hundreds of pounds of unwanted chemicals from groundwater.

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Para Más Información En Español,
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# history

NASA is cleaning up the JPL site under the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). 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.

1

2

3

The FFS looked carefully at the three NASA-funded systems and the treatment plants associated with them. Pictured at the top left is the Lincoln Avenue Water Company plant in Altadena; the on-JPL "source area" treatment plant is pictured at the top right; and Pasadena's Monk Hill Treatment System plant is shown in late afternoon light beneath the two others.

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The plants are located at:

**1)** the outer edges of the affected area, treating water from two Lincoln Avenue Water Company (LAWC) drinking water wells in Altadena,

**2)** the "source area" beneath JPL, and

**3)** within the affected area near four Pasadena drinking water production wells in the Arroyo Seco.

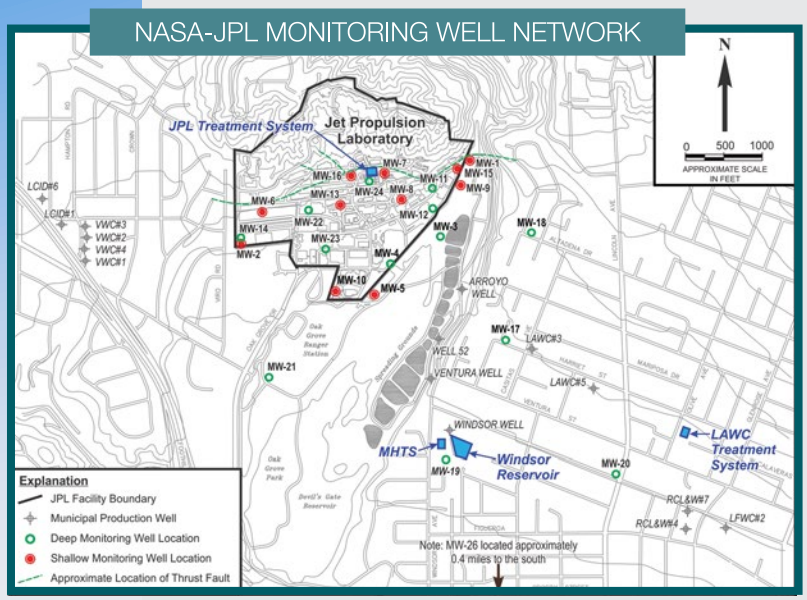
A five-year review regarding the three treatment systems, completed in January 2012 and conducted by NASA and the U.S. Environmental Protection Agency (US EPA), found that all three systems "continue to be protective of human health and the environment."

The new study, the FFS, part of a CERCLA process to determine a "final remedy" (see story on page 3), also evaluated whether these "interim" remedies are protective of human health and the environment. In addition, the FFS evaluated the remedies as to whether they are effective in both the short-term and long-run, cost-effective, technically practicable, and in compliance with applicable or relevant and appropriate requirements (ARARs). The study also examined whether the three existing systems alone or in conjunction with other technologies were necessary to establish a final remedy for groundwater cleanup.

Two groundwater cleanup approaches were considered in the FFS, a CERCLA-required "No Action" alternative and a "Groundwater Extraction Alternative with Aboveground Treatment and ICs (institutional controls)" alternative. "No Action" is defined as "no active remediation of groundwater," while the "Groundwater Extraction Alternative with Aboveground Treatment and ICs" is the current interim remedy.

The Groundwater Extraction Alternative, which includes the three currently operating NASA-funded treatment systems combined with NASA's extensive system of groundwater monitoring (see map at left), was found to be superior to the No Action alternative. ★

NASA-JPL MONITORING WELL NETWORK



next steps

## A "Proposed Plan," a Public Meeting and Comment Period are **NASA's Next CERCLA Steps**

Many steps are involved in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process, an often lengthy and iterative process. Because NASA had earlier implemented a number of interim remedies, a final Focused Feasibility Study (see story on page 1) was done.

With completion of the FFS, NASA moves toward the next step in the CERCLA process – the preparation of a "Proposed Plan." That Plan will outline the agency's "Preferred Alternative" for a final cleanup remedy.

Once completed, the Proposed Plan, together with the FFS, will be available for public review and comment and will be posted on the JPL groundwater cleanup website, http://jplwater.nasa.gov. A public meeting will be held to provide an opportunity for the public to learn about the Proposed Plan and for NASA to receive public comments. The public comment period and public meeting will likely occur later this year. After public review of the Proposed Plan, NASA will respond to public comments and issue a Record of Decision (ROD) detailing the "final remedy."

Before it becomes official, the ROD must be approved by the U.S. Environmental Protection Agency (U.S. EPA), the California Department of Toxic Substances Control (DTSC), and the Los Angeles Regional Water Quality Control Board (LARWQCB), the agencies overseeing NASA's cleanup.★

## Yarissa Martinez Now Heading US EPA Efforts on NASA JPL Cleanup Project

NASA's JPL cleanup is governed by the federal Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the project is overseen with the U.S. Environmental Protection Agency (EPA) as the federal regulator. Since 2003, NASA has worked closely with EPA and, in February, welcomed Yarissa Martinez, P.E., as the agency's new Remedial Project Manager (RPM). Ms. Martinez, an environmental engineer in the Los Angeles EPA office since 2011, succeeded Judy Huang, who moved on to other EPA projects. Ms. Huang had served as RPM on the project since 2009 and was "an important source of guidance, help and input," according to NASA Project Manager Steve Slaten.

A native of Puerto Rico, Ms. Martinez has impressive experience in both the private and public sectors. Her career choice was influenced by an interest in math as a young student and by an appreciation of the outdoors fostered by several years as a Girl Scout.

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Yarissa Martinez, EPA's new Remedial Project Manager, meets with NASA Project Manager Steve Slaten.

She attended Marquette University, braving Wisconsin winters while earning a Bachelor's in Civil Engineering. Ms. Martinez returned to Puerto Rico and was hired by the Puerto Rico Environmental Quality Board (PREQB) to work on the cleanup of that Commonwealth's Island of Vieques, which had been a naval warfare training facility for the U.S. Navy since World War II. Severe solid and hazardous waste contamination resulted from decades of military activities.

Ms. Martinez would spend nearly 10 years on several different projects for the PREQB, "doing pretty much everything that needed to be done," to address public and environmental concerns. Her tasks included observing and managing field work, coordinating laboratory analysis, briefing higher management and engaging in a wide range of community involvement activities.

Ms. Martinez said that when she was first hired her marching orders were to "make sure the community knows we (PREQB) are there for them," and this has informed her view of community involvement. "It takes more than just understanding and following the regulations," she observed. "You have to put yourself in people's shoes," referring to those residents affected by environmental contamination.

Making sure the community knows we are there for them

While she is still learning about the JPL project, the RPM met with her predecessor "to be sure I'd be the right candidate for this job" and was encouraged to take the assignment. Her first impression is that "NASA is working hard to coordinate with local stakeholders and is continuously trying to improve their remedies at the site." This view also extends to community involvement. She observed, "From what NASA has shown me, they understand the importance of outreach." She added, "I look forward to meeting with the community and listening to their concerns first-hand." As NASA has entered a very active period in both the cleanup and accompanying outreach, Yarissa Martinez will likely get her wish.★



## for more information

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**A link to the NASA Cleanup Project Web Site (http://jplwater.nasa.gov) may be found on computers at the**

**Pasadena Central Library**
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Pasadena, CA 91101
**(626) 744-4052**

**Altadena Public Library**
600 E. Mariposa Ave.
Altadena, CA 91001
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**La Cañada Flintridge Public Library**
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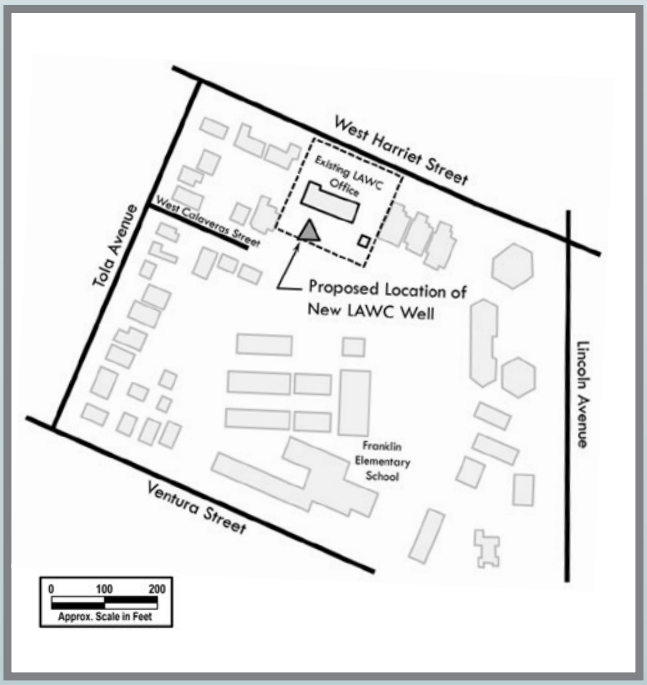
# NASA to Plan Well Optimization and Infrastructure Enhancements to Achieve Greater Efficiencies

NASA Groundwater Cleanup Project Manager Steve Slaten can see opportunities to enhance how the three NASA-funded groundwater treatment systems operate. “By adding new wells and infrastructure, we would have greater efficiency in meeting our cleanup goals.”

Slaten is working with the Lincoln Avenue Water Company (LAWC) and Pasadena Water & Power (PWP) to develop a plan that includes three proposed projects: installing a new well at LAWC, installing a new well as part of PWP’s Monk Hill Treatment System (MHTS) and improving wastewater management at MHTS. The first project to be pursued is a new well for LAWC. The PWP projects would follow in future years. The LAWC and PWP plans have been shared with the regulatory agencies that oversee NASA’s cleanup efforts, and NASA is responding to the input received.

Slaten noted that NASA’s groundwater monitoring and computer modeling data suggest that improving well production capability would improve reliability to effectively contain chemicals at the leading edge of the affected area. A new, deeper well would improve chemical capture and increase the rate at which chemicals can be removed shortening the time needed to meet NASA’s cleanup goal, Slaten said.

NASA has funded operations at the LAWC treatment plant, removing volatile organic compounds (VOCs) since the early 1990s and perchlorate since 2004. These are chemicals that originated from long-discontinued waste disposal practices at JPL. The plant treats groundwater from two LAWC-owned drinking water wells (LAWC #3, installed in 1924, and LAWC #5, installed in 1971).




Additionally, LAWC may realize increased flexibility in the system by having a third well available should a backup ever be needed. What’s more, a new well and associated piping, power and equipment could remain available for use by LAWC in its operations.

NASA is in the process of identifying a location to install such an extraction well on LAWC-owned property. “This is a case where there is limited open or undeveloped land available for the construction of a new production well. The neighborhood has grown up around LAWC over the years,” says Slaten.

NASA recognizes that with neighbors close by, it is important to keep open lines of communication and to work in ways that minimize disturbances. “We’ll meet and talk with neighbors as we move forward.” Slaten says that to help dampen noise from drilling and equipment that would occur during construction, a 24-foot-high wall insulated with noise-absorbing material would surround the work site.

While there is still much planning and work to do before any construction would start, Slaten noted that during construction, “safety would remain our first priority.” NASA would have an approved traffic plan that would be strictly enforced to ensure traffic safety related to construction equipment and workers’ vehicles. The traffic plan thus would benefit the neighbors as well as the workers. NASA would require contractors to adhere to all federal and state emissions regulations for equipment and vehicles and to cover soil generated during construction to control dust and stormwater runoff. There are still many steps to take before work could move forward, and NASA recognizes that solid planning and open communication are vital to successful implementation.★

Safety would remain our first priority

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# Groundwater CLEANUP

A Newsletter on NASA's Cleanup Efforts at the Jet Propulsion Laboratory

**NOTE TO READERS**

**If you prefer to receive future newsletters via email, rather than on paper, please let us know by contacting Merrilee Fellows at mfellows@nasa.gov.**

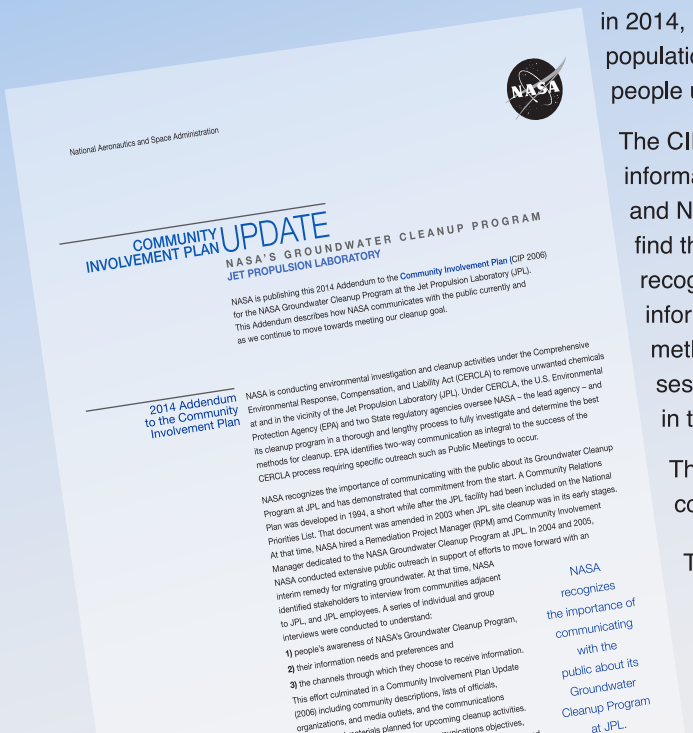
## New Public Outreach Efforts Described in Community Involvement Plan Addendum

A 2014 Community Involvement Plan (CIP) Addendum for NASA's Groundwater Cleanup Project at JPL is available that describes public outreach and communications activities planned during the remainder of the cleanup.

"This addendum demonstrates NASA's commitment to keep current with changes in communities and changes in communications," said NASA Manager for Community Involvement Merrilee Fellows.

First developed in 1994, the document – required of NASA under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) – was amended in 2003 when JPL site cleanup was in its early stages. It was subsequently amended in 2006 to reflect results from 2004 and 2005 community interviews along with Year 2000 U.S. Census data on the three communities surrounding JPL – Pasadena, Altadena, and La Cañada Flintridge. These, like many communities in 2014, are experiencing change – shifts in population, languages spoken, and technologies people use to communicate.

NASA's commitment: to keep current with changes in communities and changes in communications



National Aeronautics and Space Administration

COMMUNITY INVOLVEMENT PLAN UPDATE
NASA'S GROUNDWATER CLEANUP PROGRAM
JET PROPULSION LABORATORY

NASA is publishing this 2014 Addendum to the Community Involvement Plan (CIP 2006) for the NASA Groundwater Cleanup Program at the Jet Propulsion Laboratory (JPL). This Addendum describes how NASA communicates with the public currently and as we continue to move towards meeting our cleanup goal.

2014 Addendum to the Community Involvement Plan

NASA is conducting environmental investigation and cleanup activities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to remove unwanted chemicals at and in the vicinity of the Jet Propulsion Laboratory (JPL). Under CERCLA, the U.S. Environmental Protection Agency (EPA) and two State regulatory agencies oversee NASA – the lead agency – and its cleanup program in a thorough and lengthy process to fully investigate and determine the best methods for cleanup. EPA identifies two-way communication as integral to the success of the CERCLA process requiring specific outreach such as Public Meetings to occur.

NASA recognizes the importance of communicating with the public about its Groundwater Cleanup Program at JPL and has demonstrated that commitment from the start. A Community Relations Plan was developed in 1994, a short while after the JPL facility had been included on the National Priorities List. That document was amended in 2003 when JPL site cleanup was in its early stages. At that time, NASA hired a Remediation Project Manager (RPM) and Community Involvement Manager dedicated to the NASA Groundwater Cleanup Program at JPL. In 2004 and 2005, NASA conducted extensive public outreach in support of efforts to move forward with an interim remedy for migrating groundwater. At that time, NASA identified stakeholders to interview from communities adjacent to JPL, and JPL employees. A series of individual and group interviews were conducted to understand:

1) people's awareness of NASA's Groundwater Cleanup Program,
2) their information needs and preferences and
3) the channels through which they choose to receive information.

This effort culminated in a Community Involvement Plan Update (2006) including community descriptions, lists of officials, organizations, and media outlets, and the communications ... materials planned for upcoming cleanup activities. ... communications objectives.

NASA recognizes the importance of communicating with the public about its Groundwater Cleanup Program at JPL.

The CIP Addendum recognizes that today individuals access news and information using technologies that didn't exist when the CIP was last updated, and NASA will look to take advantage of these new tools as it continues to find the best ways for communicating progress made. For example, NASA recognizes that some audiences rely on social media to send and receive information. Video, Twitter, and online materials combined with traditional methods such as fact sheets, newsletters, and community information sessions are some of the ways NASA will communicate about the cleanup in the years ahead.

The 2014 CIP Addendum also contains an updated appendix with lists of community officials, organizations, and media outlets.★

To see the entire CIP Addendum, please visit http://go.nasa.gov/1IzWDqM.

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NP-2014-06-1018-HQ