

JULY 2016

# FieldNOTE

An Update on NASA's Cleanup Efforts at the Santa Susana Field Laboratory



## NASA Makes Progress with Groundwater Characterization



Work crews begin the installation of a groundwater monitoring well in the Expendable Launch Vehicle (ELV) area of SSFL.

In order to solve a problem, you have to fully understand it. That has been the goal of NASA's groundwater characterization efforts in NASA areas at SSFL. In 2014, NASA began fieldwork to investigate Areas of Impacted Groundwater (AIGs) to further identify the nature and extent of contamination and fill in data gaps from earlier investigations. There are four AIGs, consisting of groundwater plumes that resulted from historical site activities. Now, with newly gathered, comprehensive groundwater assessments, NASA is refining its understanding of the groundwater conditions to help forecast the effectiveness of potential remedies and develop a final cleanup plan. NASA used a number of geological and hydrogeological methodologies during its investigation, but the primary tools were comprehensive groundwater monitoring and aquifer injection testing.

### Comprehensive Groundwater Monitoring

Monitoring wells measure how deep the groundwater is, and where any contamination might exist. Think of these wells as a tool to view a vertical cross-section of the earth below the ground surface. NASA has installed 23 monitoring wells

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## New SSFL Project Director Named

NASA has appointed Peter Zorba as Project Director for NASA's environmental cleanup at SSFL. Zorba joined the SSFL team as the onsite Project Manager in 2011 and his organizational leadership brought renewed momentum to NASA's cleanup efforts. During his tenure, NASA made important progress in the field to characterize the soil and groundwater, improve stormwater controls, conduct interim soil cleanup, study treatment technologies, and begin removing obsolete NASA structures onsite. He has also been instrumental in efforts to protect cultural and biological resources. In 2013, Zorba received the NASA Silver Achievement Medal for exceptional leadership in developing a team of NASA employees and contractors to carry out site cleanup.



Peter Zorba, SSFL Project Director

To Zorba, strong leadership and good environmental stewardship have always gone hand-in-hand. Prior to his service at SSFL, he was the Environmental Engineer and Compliance Officer for the City of Lancaster, where his duties included developing local environmental policy, Brownfield remediation, supporting hazardous waste management and working with city crews to preserve local wildlife habitats. He has a Bachelor of Science degree in Soil Science, with a Philosophy Minor from California Polytechnic State University, San Luis Obispo. Zorba has a long history with environmental remediation and has worked on cleanup projects at multiple Superfund sites in California, a former missile assembly and rocket engine testing facility in Colorado, and an industrial cleanup site in Russia. He is a reserve officer in the Marine Corps and served

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since the AIG work began in 2014, adding to the 147 existing wells in NASA areas. Eighteen of the 23 new wells are Flexible Liner Underground Technologies (FLUTe) wells. These specialized wells have multiple ports so a single well can measure the groundwater at multiple depths. FLUTe wells allow hydrogeologists to see where fractures are and measure groundwater at each fracture point. NASA selected this well type because of the amount of fractured bedrock and because it reduces the total number of wells needed, saving time and money.

## Aquifer Injection Testing

The geological setting at SSFL has a complex system of fractures and faults, which can strongly influence groundwater flow and contaminant migration. NASA conducted aquifer injection tests to determine the properties of these systems. During an aquifer injection test, water is injected into a well at a controlled rate and groundwater levels are measured in surrounding observation wells. The results are helping NASA understand how fracture networks interconnect and whether the fractures act as barriers or conduits to groundwater flow.

“We are really turning a corner as we wrap up the characterization phase,” said Peter Zorba, NASA Project Director. “We are confident we have a more comprehensive understanding of the site’s geology and are moving swiftly to apply the results to our cleanup plans.” NASA recently completed groundwater characterization fieldwork and is currently reviewing the data. The characterization process will conclude with the submittal of a RCRA Facility Investigation (RFI) report to the Department of Toxic Substances Control (DTSC) later this year. ■

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two tours in Iraq before returning to the environmental field in 2006. As Project Director, Zorba will continue to move NASA on its path toward cleanup. “We’ve worked hard to put together a great team and met many important milestones, and I look forward to building on that momentum,” he said.

One of Zorba’s first priorities is to finish the characterization work in NASA areas. The soil characterization is now complete and the Final Soil Data Summary Report is expected later this year. Groundwater characterization fieldwork just wrapped up, and the process of reviewing data is now underway. NASA expects to conclude groundwater characterization by the end of this year (see page 1). Another priority of Zorba’s is to complete demolition activities necessary to implement cleanup. Phase 2 of demolition is currently in progress and NASA expects to finish the final phase by the end of 2017.

Zorba is also concerned with stewardship. “We are privileged to administer land that has one of the last remaining wildlife habitat corridors in the region, as well as some of the finest examples of Native American petroglyphs and pictographs in the world,” said Zorba. “Protecting these resources is paramount.”

Zorba said as Project Director he strives to keep a perspective that includes the past, present, and future. “The early work at Santa Susana helped win the Space Race and put us on the Moon. We are proud of what NASA accomplished then, and I want to maintain that legacy of excellence as we conduct our cleanup.” ■

## NASA Prepares for Wildfire Season



*Two water tanks are staged in Area II for use as an emergency water supply.*

NASA has taken a number of proactive steps to reduce the risk and potential impacts of another dry summer and high fire season. A central part of NASA’s preparation included clearing brush and vegetation that could act as a fuel supply for wildfire. As part of Ventura County’s Fire Hazard Reduction Program, NASA removed brush and vegetation around buildings and along internal roadways to give firefighters a defensible space in the event of an advancing wildfire.

In addition to brush clearing, NASA staged two 20,000-gallon potable water tanks in the central part of Area II. The tanks were installed at the recommendation of the Ventura County Fire Department during the coordination of NASA’s demolition program in 2014. As part of the ongoing demolition work earlier this year, NASA’s portion of the SSFL-wide potable water system was taken offline. The new water tanks, installed in February, have hydrant connections and can be used as an emergency water supply. ■

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