La Canada Flintridge Outlook

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# JPL Expedites Perchlorate Cleanup

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**LCF Outlook**

Emerging technologies, as well as cooperation between NASA's Jet Propulsion Laboratory in La Cañada Flintridge and water companies in the area, have resulted in the possibility speeding up the clean-up process of several local groundwater wells found to be contaminated with the dangerous chemical perchlorate.

Perchlorate, a byproduct of solid rocket fuel, had been improperly disposed by U.S. Army technicians in the 1950s on JPL property when the facility was still being run by the military. Since then, the chemical has seeped into the groundwater table beneath JPL, creating a plume that has spread and led to the closure of several wells used by agencies to provide drinking water to Pasadena and Altadena residents.

According to a report issued by the U.S. Environmental Protection Agency, high doses of perchlorate ingestion by humans can affect thyroid gland function, which helps to regulate metabolism. "Impairment of thyroid function in expectant mothers may affect the fetus and newborn and result in effects including delayed development and decreased learning capability," the report stated, adding that perchlorate can also be linked to thyroid tumors.

During a presentation last month to the LCF City Council by Steve Slayton, one of the engineers in charge of the cleanup effort at JPL, Slayton explained that due to the topography of the area, the perchlo-

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rate plume had spread to the east of the JPL campus. This led to high perchlorate levels detected in the Altadena and Pasadena wells, but no measurable levels in wells within La Cañada Flintridge that provide part of the city's drinking water supply.

Slayton also detailed the planned cleanup process, which would proceed in two phases: first, large uptake pumps would begin removing groundwater from the water table beneath the JPL campus, where most of the plume is localized. The water removed would be put through a multiple filtration process and then re-injected into the water table once all traces of the chemical are removed.

The second step, however would have been longer and more costly. This would have involved cleaning up groundwater from wells outside of the JPL campus, the construction of large pumps to remove the contaminated water and pipes running through the Arroyo Seco all the way to JPL, where the facilities already constructed would filter the water and either re-inject it back into the water table or give it back to Altadena and Pasadena for municipal water uses.

However, recent improvements in ion exchange technology have led to NASA making a new cleanup proposal that would reduce the cost of cleanup and expedite the process by as much as a year.

With ion exchange technology, special resins are used to run the contaminated groundwater through. The resins absorb the perchlorate and are replaced with new resin beads as they become saturated. "This technique is much more effective than traditional filtration methods," said a NASA spokeswoman.

More importantly, the resin filtration system is easy to deploy and could be installed in existing Pasadena Department of Water and Power and Lincoln Avenue Water Company facilities, using existing pipes to transport the water from the extraction wells to the facilities and eliminating the need for construction of unsightly, cumbersome and expensive pipes through the Arroyo.

Furthermore, large-volume injection pumps would not have to be constructed on the JPL campus and the processed water would be available immediately for municipal use by the agencies where the filtration will take place.

"The Lincoln Avenue Water Company is putting in their ion-exchange plant and it should go online this month, so we can start containing this plume and cleaning up this water this very month, instead of months or even years from now," said the spokesperson, who added that, while NASA is providing the funding for the installation and operation of this and a future clean-up plant in Pasadena, the water agencies involved "deserve a lot of credit" for expediting the process.

"Cost is not the issue here," the spokeswoman pointed out. "We are just interested in containing this situation as soon as possible." She added that there are already nine other ion-exchange projects currently operating in the state, so the permitting process is expected to go much quicker than it would have for the initial, more cumbersome cleanup proposal.

Lincoln Avenue Water Company serves residents of northwest Altadena from roughly Lake Avenue East to the Arroyo Seco.