

Experts
question safety
of massive
groundwater
pumping for
basements in
Palo Alto

A RIVER RUNS UNDER IT

by Sarah Trauben
and Georgia Wells

Day-in, day-out from April through October, residents of Old Palo Alto have noticed the incessant pumping of water — estimated at up to 13 million gallons taken from one property alone.

In the last two years, eight property owners have built basements in or near the pricey neighborhood, according to Mike Nafziger, a Public Works Department senior engineer.

The catch is that the high water table in the area forces “dewatering” of millions of gallons of groundwater before a basement can be built. Yet because the aquifers flowing under Palo Alto are billions of gallons the impact of pumping is relatively small, according to one city official. At most it would cause a temporary depression in the water table, he said.

Noise annoyance aside, some residents are concerned about what’s in the groundwater and whether pumping it out actually draws a toxic plume from the Stanford Research Park closer to their residential neighborhood.

The plume, which mainly stems from an underground tank that for years leaked trichloroethylene (TCE) as well as other chemicals, was first discovered in 1981 and was listed as a Superfund site in 1990. The most prevalent chemical, TCE, is a known carcinogen and solvent for cleaning metal equipment. It is already the subject of ongoing study and clean-up effort.

There are regulatory safeguards at various levels of government. But testing of pumped groundwater is optional and sporadic, and the multiple agencies involved create a potential for gaps.

City officials don’t appear to be worried.

The pumping is legal and approved by the city’s Public Works Department and Palo Alto’s Regional Water Quality Control Plant in the baylands.

But sucking water out of shallow wells to “dewater” a site so a basement excavation can occur ranges from 30 to 50 gallons per minute, 24 hours a day for between

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Is pumping groundwater helping spread contaminated plume?



the vapor intrusion and monitoring questions.

The city's Department of Public Works and the city's Regional Water Quality Control Plant evaluate construction plans that involve dewatering. They can — but often don't — require contractors to test water for contaminants before pumping it into storm drains, according to Phil Bobel, Public Works' acting assistant director for engineering.

"If it's in the vicinity of known contamination plumes, then we require them to do tests for the contaminating substances in question," Bobel said.

In addition, the regional water board and Hewlett-Packard jointly supervise the plume's clean-up and containment.

"Any time we have a groundwater-pumping project, we send it off to them, and whatever they comment on we incorporate into our environmental review process," city Planning Director Curtis Williams said.

The Palo Alto wastewater-treatment operation reserves the right to test water before contractors discharge it into city storm drains, according to Torke. But no testing was required this year, he said.

'Multiple pumps in the center of these (Superfund clean-up) sites are pulling in an equal or greater amount of water every day. A small project, a half a mile away, is unlikely to change anything.'

—Ken Torke, City of Palo Alto environmental-control programs manager



Ken Torke, environmental-control programs manager for the City of Palo Alto, stands outside one of the water treatment tanks at the Regional Water Quality Control Plant.

"They were not near enough to sites of known groundwater contamination," Torke said.

All basement applications must have a soil-type and groundwater report, which he said help determine the volume and duration of pumping.

"The volume of water potentially involved depends on the soil type," Richard Woodard, principal engineer at San Carlos-based Romig Engineering, said. Romig has done a number of the "geotechnical" reports in Palo Alto that relate to pumping.

"If it's clay, water will come but at a reasonable rate. If the soil is more permeable, the dewatering will continue throughout the project," he said. While no testing was required for Page's basement project, it is less than 1,500 feet from the plume edge, as estimated by the regional water board's 2010 report. Torke said previous nearby testing had shown no contamination.

Groundwater pumping is unlikely to pull the contamination beyond its existing known boundaries, Torke said.

"When you think of millions of gallons of water, it seems like an Olympic swimming pool, but the plume itself is probably on the order of billions of gallons of water," he said.

Furthermore, the city officials said that pumping, which moves groundwater, doesn't necessarily move contaminants at the same rate.

Chlorinated solvents such as TCE "are heavier than the groundwater that they've seeped into, so they tend to sit at the impermeable bottom of the shallow aquifer," Torke said.

"These plumes tend to move more

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