
MEMORANDUM

[REDACTED]
FROM: JOEL I. CEHN

SUBJECT: NEW WELLS INSTALLATION AND TESTING

DATE: JANUARY 30, 2012
[REDACTED]

BACKGROUND

In 2011, Boeing approached Brandeis for permission to drill additional groundwater testing wells on the property. I understand that Boeing's contractor (University of Guelph, Canada) is studying the aquifer here and needed test data from several untested areas. An access agreement was negotiated, and three well clusters were installed. Each cluster has up to four separate wells, drilled to different depths, down to only about 30 feet (due to limited access). The clusters are shown on the attached aerial map, labeled "New Wells."

Water from those wells can only be collected with special equipment, so I accompanied Boeing's contractors for sampling the first two well clusters on October 26th and 27th. I returned for the sampling of the third cluster on November 21st. We each took groundwater samples from the wells and had them analyzed for chemicals, principally TCE, a known contaminant at Boeing. I also had my water samples analyzed for tritium, also a known contaminant. While on site, I collected additional water samples from the flowing springs in the area. These were also analyzed for tritium.

SUMMARY OF TESTING RESULTS

Tritium in Groundwater

Tritium is the most mobile of the radioactive elements found at Boeing. It has been found in groundwater and vegetation near the property line. Testing is done to gauge its movement in groundwater, which is toward BBC. Results show elevated tritium in one of the new wells in the southwest corner of the property (see map, Figure 1, location: "New Well S19"). The level measured is 19 picocuries per liter of water (pCi/L). This compares to 69 pCi/L measured from a spring this same area in 1995. The reduction over this period is consistent with test data from Boeing's property. The drop is due to two factors radioactive decay of tritium and dispersion and dilution of tritium in the groundwater. The measured levels are safe; they are well below the drinking water limit (20,000 pCi/L).

1/30/2012

TCE in Groundwater

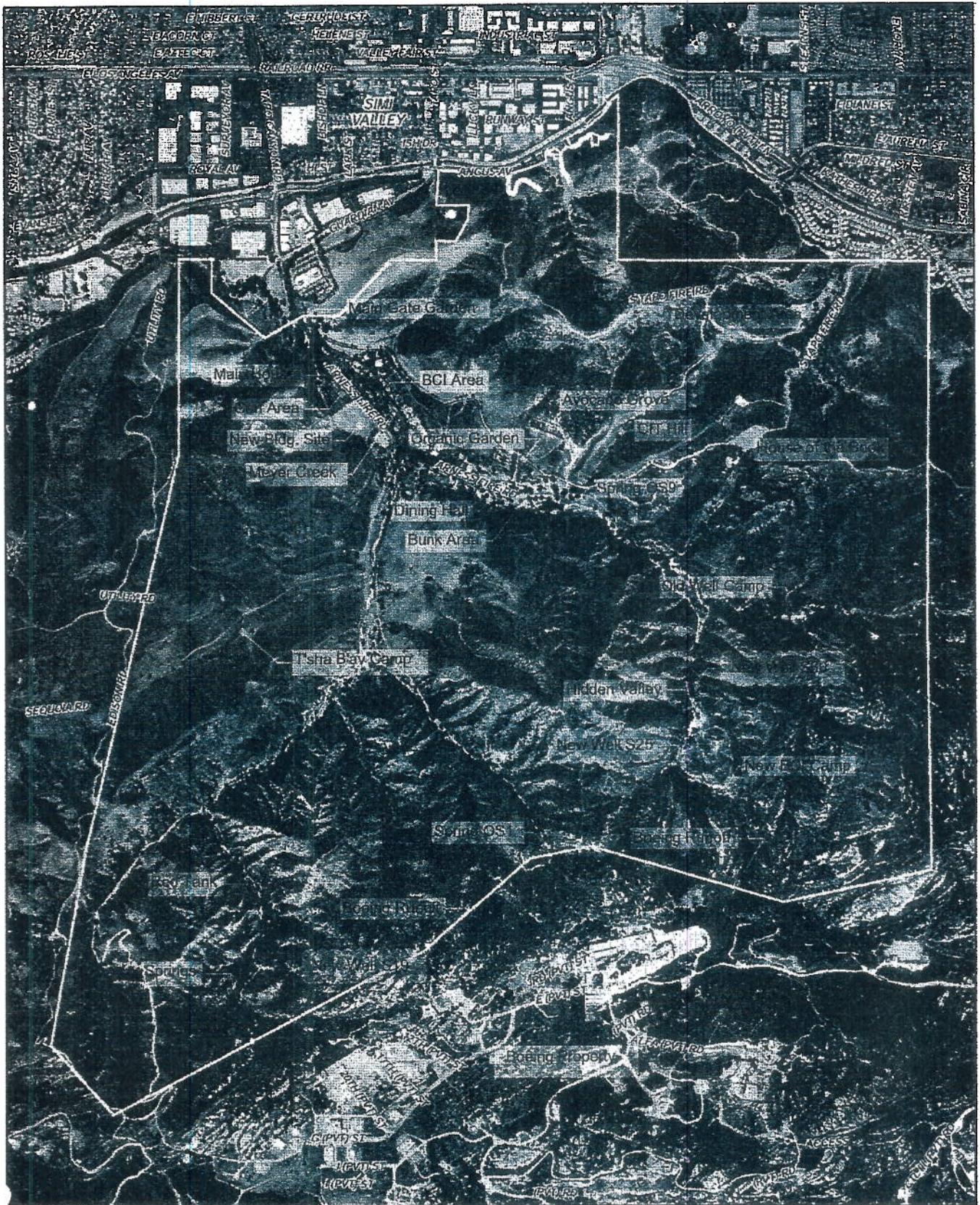
A total of nine groundwater samples were collected and analyzed for trichloroethylene (TCE). All were "non-detect" with a sensitivity of one-quarter part per billion (0.25 ppb); ultra sensitive. We recently received copies of Boeing's results (dated 1/27/12), since they collected samples at the same time. The delay in receiving these has delayed this memo.


Boeing's lab also reported non-detect for TCE in these groundwater samples. The only wrinkle is the possible detection of acetone and toluene in one of my samples, as well as in a "blank" sample (distilled water) that I sent to the lab for quality control. Boeing also reported finding toluene in a different sample. These are not known Boeing contaminants. They are attributing this to contamination during construction or sampling of the wells. My assumption is contamination by the laboratory during analysis, since my "blank" sample did not come from a well. The chemicals detected are commonly used in the labs for cleaning glassware and equipment. I have asked my lab to investigate this possibility.

CONCLUSIONS AND RECOMMENDATIONS

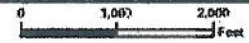
The new wells vary in distance to the property line, from 700 feet to one-half mile. All wells were free of TCE contamination. One of the new wells showed slightly elevated tritium contamination, as did a flowing spring in the same area, consistent with past results.

I recommend continued monitoring of groundwater and springs near the property line with Boeing. Boeing is also planning one more new well clusters in that area. I plan to sample those, with Boeing, when they are ready. I will also follow up on the detection of lab chemicals in several of the water samples. Copies of the lab reports are enclosed. Please contact me if you have any questions.



Key:  Garden
 Testing Locations for soil,
 water, and/or vegetation.

THE BRANDEIS-BARDIN INSTITUTE PROPERTIES ENVIRONMENTAL TESTING



Disclaimer: The County does not warrant the accuracy of this map and no decision involving a risk of economic loss or physical injury should be made in reliance thereon.

