
MEMORANDUM

[REDACTED]
FROM: JOEL I. CEHN

SUBJECT: 2011 SUMMER TESTING RESULTS

DATE: AUGUST 22, 2011
[REDACTED]

BACKGROUND

Environmental testing of the Brandeis Bardin Campus (BBC) occurs periodically. The last testing was performed during December, 2009. This summer's testing included the groundwater wells near the southwest property line. Water from those wells can only be collected by Boeing's contractor, so I accompanied them (MWH) for the sampling on July 11th.

Also tested were natural springs on the property, which are sometimes used for watering livestock. Finally, food crops grown in the various gardens were also tested, along with similar items purchased from the local Von's market (for comparison).

Testing of soils was done in 2009 and was not repeated this time.

SUMMARY OF TESTING RESULTS

Tritium in Water

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 only show tritium in one spring in the southwest corner of the property (see map, Figure 1, location: "Springs"). The level measured is 16 picocuries per liter of water (pCi/L). This compares to 69 pCi/L measured from this same spring in 1995. The reduction over this period is consistent with Boeing's test data. The drop is due to two factors: radioactive decay of tritium and dispersion of tritium in the groundwater. These measured levels are safe; they are well below the drinking water limit (20,000 pCi/L).

Perchlorate in Crops

Two gardens were growing vegetables during July: the garden at the main gate, and the "organic garden" on the road to the House of the Book. Other gardens did not contain

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producing plants. The vegetables collected and tested are shown in Table 1. Perchlorate was not clearly detected above the lab's reporting limit of 2 parts per billion (ppb). The lab tentatively found perchlorate in the two squash samples:

Von's squash – 1.3 ppb

Main Gate Garden squash – 0.5 ppb.

Perchlorate is naturally present in the environment at these low levels. These results match what was found during the 2007 testing.

Metals in Crops

Crops were tested for the following metals: Arsenic, Barium, Beryllium, Cadmium, Chromium, Lead, Mercury, Selenium. Some of these have been found to contaminate soils at Boeing. Previous testing of BBC soils was negative for elevated levels. This summer's testing of crops was negative for the presence of all metals except barium. This metal is naturally present and was also found in the sample from Von's Market.

Radioactivity in Crops

The crop samples were also tested for radioactivity. The only thing found was potassium-40, a natural component of potassium. Again, the levels in the market samples matched the levels in the BBC samples.

CONCLUSIONS AND RECOMMENDATIONS

The only change observed in this summer's testing is a reduction in the levels of tritium in groundwater. Tritium was released by Boeing decades ago and levels are slowly dropping. Although the groundwater is not used for human consumption, the tested locations are safe for drinking.

Vegetables grown at BBC were tested and found to be free of contamination. These too, are safe to consume.

I am enclosing copies of the lab reports. Contact me if you have any questions.

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Table 1. Gardens Tested


Locations	Code	Produce Tested
Main Gate Garden	(MG)	Corn, squash, tomatoes
Organic Garden	(OG)	Tomatoes
Local Market	(VN)	Tomatoes, squash

Table 2. Water Wells Tested

Well/Spring	Location*
Spring OS-9	Central area
Spring OS-2	Southwest corner of property
Spring OS-3	Southwest corner of property
Spring OS-7	Southwest corner of property
RD-59A, Shallow aquifer	Southwest corner of property
RD-59B, Intermediate aquifer	Southwest corner of property
RD-59C, Deep aquifer	Southwest corner of property

* See Figure 1, map.



Key:  Garden

Testing Locations for soil,
water, and/or vegetation.

THE BRANDEIS-BARDIN INSTITUTE PROPERTIES ENVIRONMENTAL TESTING

0 1,000 2,000
Feet

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.

