



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Metropolitan Boston – Northeast Regional Office

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MEMORANDUM FOR THE RECORD

To: Baldwin Pond Wellfield Project File

Thru: Stephen Johnson, Section Chief

From: Larry Immerman, Environmental Analyst

Subject: WAYLAND-Former Raytheon Site
430 Boston Post Road, RTN: 3-13574
Review Of August 08, 2002 Submittal

Date: September 03, 2002

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Introduction

Since November 2001, the Department of Environmental Protection's Site Discovery group (DEP/SD) has been conducting a groundwater quality investigation within the Town of Wayland's Baldwin Pond wellfield. The work is being conducted to locate the source(s) of volatile organic compound (VOC) contamination which has impacted the Baldwin Pond supply wells since 1997. As part of this work, from December 2001 to July 2002, DEP/SD has installed over thirty driven wellpoints within the Zone I and Zone II of the Baldwin Pond wellfield and collected groundwater samples from these wellpoints for VOC screening by gas chromatography at DEP's Northeast Regional Office (NERO), as well as split sampling for quality assurance purposes with DEP's Wall Experiment Station (WES). On June 24 and 26, 2002, personnel with Environmental Resources Management, Inc. (ERM) oversaw the installation of a monitoring well triplet at the former Raytheon site located at 430 Boston Post Road (RTN: 3-13574). On July 11, 2002, personnel with ERM accessed five wellpoints installed by DEP/SD for the purpose of taking groundwater level measurements and collecting groundwater samples for VOC analysis. ERM conducted the above work on behalf of Raytheon as part of their ongoing assessment work at the former Raytheon site. On August 09, 2002, DEP received a submittal from Raytheon dated August 08, 2002, memorializing the June and July 2002 field work conducted at their site. The remainder of this Memorandum is a review of this submittal by the writer.

This information is available in alternate format. Call April McCabe, ADA Coordinator at 1-617-556-1171.

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August 08, 2002 Raytheon Field Work Submittal

The writer has completed a review of an August 08, 2002 report submitted by Raytheon to DEP memorializing field work conducted in June 2002 and July 2002 at the subject site under the supervision of ERM, as follows:

Installation of Monitoring Well Triplet MW-1: On June 24 and 26, 2002, Geosearch Inc., under the direction of ERM, advanced three soil borings to be finished as monitoring wells (MW-1S, MW-1M, and MW-1D) at the northern portion of the site, in the vicinity of the site's private wastewater treatment facility. According to the report, twelve soil samples were collected at five-foot intervals from the deep boring, and one soil sample each from the shallow and medium depth borings, for a total of 14 soil samples. The total depth of the deepest boring was 58 feet below grade, and auger refusal was not indicated in the boring log. Headspace samples were developed from the soil samples at the time of their collection and screened in the field by ERM personnel using a photo-ionization detector (PID) equipped with a 10.2 ev lamp. VOCs were not detected in any of the soil samples screened by the PID. The borings were then completed as 2-inch, inside diameter monitoring wells, as follows:

- Monitoring well MW-1S was set at a depth of 15 feet below grade, with a ten foot long wellscreen set at 5.0 feet to 15 feet below grade. Information from the boring log indicated that the wellscreen was set through geology comprised of sand, silt, and clay.
- Monitoring well MW-1M was set at a depth of 40 feet below grade, with a five foot long wellscreen set at 35 feet to 40 feet below grade. Information from the boring log indicated that the wellscreen was set through geology described as sand and silt.
- Monitoring well MW-1D was set at a depth of 55 feet below grade, with a five foot long wellscreen set at 50 feet to 55 feet below grade. Information contained in the boring log indicated that the wellscreen was set through geology comprised of sand and gravel.

On July 10, 2002, ERM personnel re-gauged top of groundwater at the well triplet, and collected groundwater samples from each well. Groundwater was sampled for physico-chemical properties, including pH, temperature, specific conductance, dissolved oxygen and oxidation-reduction potential (ORP). Groundwater samples were also collected for VOC analysis from each well using low-flow sampling techniques and submitted to a laboratory for analysis using EPA Method 8260. Results of the VOC analysis were reported by the laboratory as non-detect for all VOCs included in the method's target list, for all three of the monitoring well samples.

Sampling of DEP Wellpoints: On July 11, 2002, personnel with ERM accessed five wellpoints (DEP-19S, DEP-19M, DEP-19D, DEP-20, and DEP-21) installed by DEP as part of DEP's Baldwin Pond wellfield site discovery investigation. The wellpoints are situated on Town of Wayland Conservation land, approximately 250 feet to 300 feet to the north and northwest of Raytheon's MW-1 triplet monitoring wells and monitoring well MW-TP-3. At the time of ERM's field visit, top of groundwater was gauged at each wellpoint, and groundwater samples were assessed in the field for pH, temperature, specific conductance, dissolved oxygen and ORP. Groundwater samples were also collected for VOC analysis from each wellpoint using low-flow sampling techniques and submitted to a laboratory for analysis using EPA Method 8260. Results of the VOC analysis reported the presence of chlorinated VOCs in groundwater sampled from DEP-19M, DEP-19D, and DEP-21 similar to those results

identified by DEP during previous sampling rounds (See Table 1). VOCs were not identified in groundwater sampled from DEP-19S and DEP-20 during ERM's July 2002 sampling round.

Table 1 – 2002 Comparison of VOC Data			Results as (ug/l)	
Wellpoint	Contaminant	DEP March 2002	ERM July 2002	Wall August 2002
DEP-19M	cis(1,2)-dichloroethene	36	35	41
	trichloroethene	7.1	7.5	7.7
	tetrachloroethene	TR	0.73	0.57
	vinyl chloride	no data	<1.0	1.2
	trans(1,2)-dichloroethene	no data	<0.75	0.23
	(1,1)-dichloroethane	TR	<0.75	0.21
DEP-20	cis(1,2)-dichloroethene	TR	<0.50	<2.0
	trichloroethene	TR	<0.50	<2.0
	tetrachloroethene	TR	<0.50	<2.0
DEP-21	cis(1,2)-dichloroethene	52	27	31
	trichloroethene	18	5.4	5.4
	tetrachloroethene	2.3	1.0	1.1
DEP-19S	tetrachloroethene	TR	<0.50	NS
DEP-19D	cis(1,2)-dichloroethene	4.3	0.59	NS
	trichloroethene	3.5	0.53	
	tetrachloroethene	TR	<0.50	
	dichloroethane	TR	<0.50	↓

TR = Trace concentration. No data = no data available, compound not included with DEP/NERO method. NS = Wellpoint not included in the August 2002 DEP/Wall sampling round.

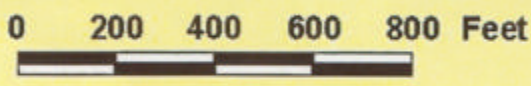
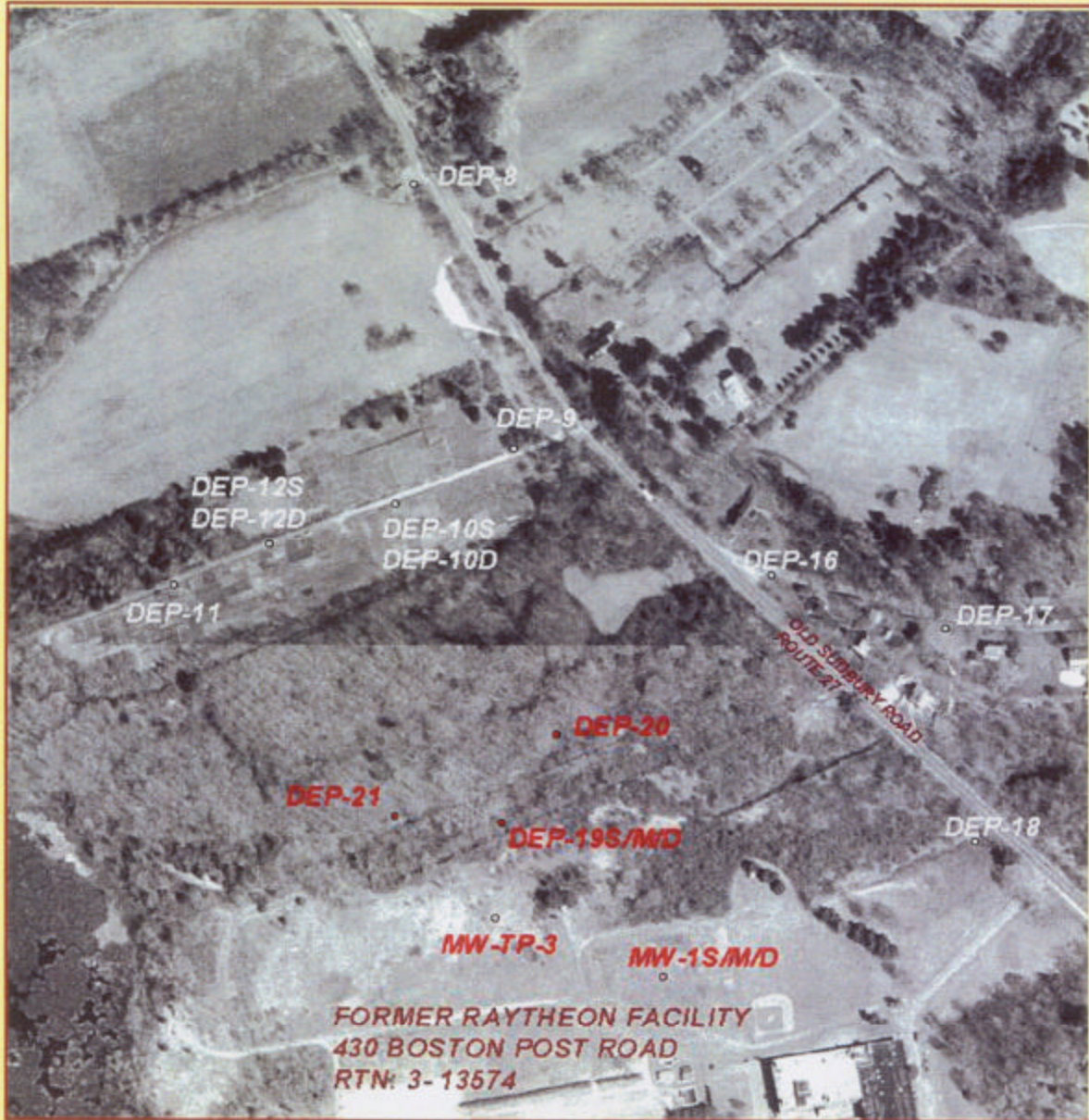
Writer's Comments

Based on the aforementioned information, data obtained by ERM during their July 2002 groundwater sampling round of DEP wellpoints DEP-19M, DEP-20, and DEP-21 were comparable to data reported by DEP in March 2002 and Wall in August 2002, with the exception of vinyl chloride, trans(1,2)-dichloroethene, and (1,1)-dichloroethane detected by Wall at very low levels at DEP-19M. Specifically, vinyl chloride was reported by Wall at 1.2 ug/l, which was slightly above ERM's laboratory reportable level of 1.0 ug/l. Furthermore, trans(1,2)-dichloroethene and (1,1)-dichloroethene were both reported by Wall, but at concentrations which were below ERM's laboratory reportable level for these two compounds. One other additional comment pertaining to the data: the writer noted an error contained in "Table 1" of ERM's August 08, 2002 report, which inadvertently compared DEP's VOC data for wellpoint DEP-21 at the 35 foot-to-40 foot below grade interval with ERM's data for this same wellpoint, but at the 45 foot-to-50 foot below grade interval. The correct concentrations reported by DEP for the 45 foot to 50 foot below grade interval are reflected in "Table 1", of this Memorandum. As a follow-up, on September 03, 2002, the writer contacted Mr. Joe Fiacco at ERM

via telephone, and at that time made him aware of this error. No recommendations for further follow-up actions were included by ERM with their August 08, 2002 submittal.

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TOWN OF WAYLAND-BALDWIN POND DEP-SD WELLFIELD PROJECT SEPTEMBER 2002



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