

December 17, 2003

Mr. Jeff Ritter
Wayland Town Hall
41 Cochituate Road
Wayland, MA 01778

Re: Phase I Initial Site Investigation – Northern Area
and Release Abatement Measure Plan Completion Statement
Former Raytheon Facility
430 Boston Post Road
Wayland, Massachusetts (the "Site")
RTN 3-22408

Dear Mr. Jeff Ritter:

On November 12, 2003, Raytheon Company (Raytheon) submitted for public comment a draft Phase I – Initial Site Investigation (Phase I) Report summarizing assessment activities in the northern portion of the Site and a Release Abatement Measure (RAM) Plan Completion Statement summarizing the results of an in-situ chemical oxidation (ISCO) pilot program conducted to treat chlorinated hydrocarbons in groundwater in the southern portion of the Site. Based on feedback from the Public Involvement Plan (PIP) participants, Raytheon has made some preliminary revisions to the Phase I and has submitted both documents to the Massachusetts Department of Environmental Protection (DEP). A more detailed response to public comments will be submitted separately. A summary of the Phase I and RAM Completion Statement is enclosed and a copy of it is available at the Wayland Public Library and the Wayland Board of Health Office. The document is also located on the Site Webpage:

www.ermne.com
username: raytheon
password: wayland
*case sensitive

Raytheon is committed to improving and protecting the environment and natural resources in your community. Raytheon looks forward to your continued participation in this important project.

Sincerely,



Edwin P. Madera
Raytheon Company
Sr. Environmental Engineer

Enclosure

cc: Mr. John Drobinski, ERM, 399 Boylston Street, 6th Floor, Boston, MA 02116
Mr. Benson Gould, CMG, 600 Charlton Street, Southbridge, MA 01550
Massachusetts DEP, Northeast Regional Office – Boston, MA 01887
Wayland Board of Health (PIP Repository)
Wayland Public Library (PIP Repository)
PIP Participants

Summary
In Situ Chemical Pilot Study Completion Report
(Release Abatement Measure - RTN 3-13302, Permit No. 133939)

Raytheon Company (Raytheon) is completing pilot studies to evaluate the effectiveness of in-situ chemical oxidation (ISCO) in reducing the concentrations of chlorinated volatile organic compounds (CVOCs) in the groundwater. A chemical oxidant is injected into the ground to stimulate this chemical breakdown. The entire process, which takes place below ground (in situ), is safe to the environment.

Raytheon initiated ISCO pilot studies at the site in October 2001 as a Release Abatement Measure (RAM). Raytheon submitted a Modification to the initial RAM Plan in October 2002 to conduct an expanded pilot study in the MW-43 area. This expanded pilot test was designed to evaluate the ability to reduce the concentration of CVOCs using pressurized injection of oxidant (sodium permanganate) and multiple injection points and injection intervals. The activities were selected to provide additional treatment of the subsurface materials while building upon the results from the previous RAM activities.

The completion report provides a discussion of post-injection groundwater flow and quality monitoring within the pilot test areas through October 2003. Future ISCO remedial activities will be conducted to further reduce CVOC concentrations in groundwater as part of Phase IV activities.

The following provides findings of the pilot study:

1. Permanganate ISCO resulted in decreases in TCE concentrations of 92% in the MW-43 Pilot Study Area and 67% in a portion of the MW-33 Pilot Study Area.
2. High pressure injection techniques were more effective than gravity feed injection techniques in that they achieved a significantly larger radius of influence.
3. Low volume, high concentration sodium permanganate injections were more effective than high volume, low concentration potassium permanganate injections to treat source areas.
4. Design of future ISCO injections will incorporate the lessons learned during the pilot studies and will be shared with the PIP.
5. Additional ISCO injections will be conducted in the "southern portion" of the Site in early 2004 under the Phase IV.

A copy of the RAM Completion Report can be found at the public repositories located at the Wayland Public Library, Wayland Board of Health Office and the Site Webpage.

Summary

Phase I – Initial Site Investigation Report

(Former Raytheon Facility, 430 Boston Post Road, Wayland, MA (the "Site"), RTN 3-22408)

Raytheon Company continues to conduct groundwater assessment activities at the Site. These activities are intended to address Public Involvement Plan (PIP) concerns and facilitate development of a groundwater clean up program for the "northern portion" of the Site.

The following provides a summary of the Phase I – Initial Site Investigation report:

- A release of trichloroethene (TCE) from an unknown, historical source has impacted groundwater quality in the "northern portion" of the Site. Natural biodegradation of TCE has resulted in production of additional breakdown chemicals, such as cis-1,2-dichloroethene (cDCE) and vinyl chloride (VC). Tetrachloroethene (PCE) was also detected at relatively low concentrations in groundwater in this portion of the Site. Collectively these compounds are referred to as chlorinated volatile organic compounds (CVOCs). Based on investigations conducted to date, CVOCs in groundwater in the "northern area" migrate to the west toward the Sudbury River and are present at depths ranging from approximately 20 feet to 90 feet below ground surface.
- A release of methyl tert butyl ether (MTBE), a gasoline additive, was detected in the "southern portion" of the Site. Preliminary groundwater assessment activities at the Site indicate a potential source area emanating from an upgradient gasoline service station located at 365 Boston Post Road (RTN 3-17974). It appears that MTBE has migrated in groundwater from the gasoline station site onto the "southern portion" of the Raytheon Site. Pursuant to the Massachusetts Contingency Plan (MCP), Raytheon may file a Downgradient Property Status Submittal to cover MTBE impacts to groundwater in the "southern portion" of the Site.
- Naturally occurring arsenic has impacted groundwater quality in the "western area" of the Site. Naturally occurring arsenic present in soil has been mobilized as a result of natural reducing conditions in groundwater beneath the wetlands bordering the Sudbury River. The presence of arsenic in groundwater in the "western area" of the Site likely represents a background condition.
- The Site has been classified as a Tier IB due to CVOCs located in groundwater within a Zone II Aquifer Protection Area and having a Numerical Ranking Score of 511.
- A Phase II – Comprehensive Site Investigation Scope of Work will be prepared and presented to the public in early 2004.

A copy of the Phase I – Initial Site Investigation report can be found at the public repositories located at the Wayland Public Library and the Wayland Board of Health and the Site Webpage.