Raytheon

Command, Control, Communication and Information Systems
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October 22, 2002

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

Re: Expansion of Pilot Study
Release Abatement Measure Plan Modification
Former Raytheon Facility
430 Boston Post Road
Wayland, Massachusetts (the "Site")
RTN 3-13574, Permit No. 133939

Dear Mr. Jeff Ritter:

A month ago, Raytheon Company (Raytheon) submitted for public comment a draft Release Abatement Measure (RAM) Plan Modification outlining the continuation of an in-situ chemical oxidation (ISCO) pilot-scale treatment for chlorinated hydrocarbons in groundwater at the Site. Based on feedback from the Public Involvement Plan (PIP) participants, Raytheon has revised the RAM Plan Modification and has submitted it to the Massachusetts Department of Environmental Protection (DEP). A summary of the final RAM Plan Modification is enclosed and a copy of it is available at the Wayland Public Library and the Wayland Board of Health Office. A more detailed response to public comments will be submitted separately.

ISCO is a process that breaks down chlorinated volatile organic compounds in the groundwater into harmless end-products, such as carbon dioxide, water and chloride. A chemical oxidant is injected into the ground to stimulate the chemical breakdown. The entire process, which takes place below ground (in situ), is safe to the environment.

Raytheon looks forward to your continued participation in this important project.

Sincerely,

Ronald C. Slager, Jr.
Raytheon Company
Restoration Program Manager
1001 Boston Post Road
M/S 1-2-1567
Marlborough, MA 01752

Enclosure

cc: Mr. John Drobinski, ERM, 399 Boylston Street, 6th Floor, Boston, MA 02116
Massachusetts Department of Environmental Protection –Wilmington, MA 01887
Wayland Board of Health (PIP Repository)
Wayland Public Library (PIP Repository)
PIP Participants

Summary
Release Abatement Measure Plan - Modification
(Release Abatement Measure - RTN 3-13574, Permit No. 133939)

Raytheon Company (Raytheon) is continuing 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. ISCO is a process that breaks down CVOCs in the groundwater into harmless end-products, such as carbon dioxide, water and chloride. A chemical oxidant is injected into the ground to stimulate the chemical breakdown. The entire process, which takes place below ground (in situ), is safe to the environment.

Raytheon initiated two pilot studies in October of 2001. These pilot studies evaluated different injection methods and oxidant concentrations. In one pilot study, 250 gallons of 4% sodium permanganate was injected via gravity feed into existing monitoring well MW-43S. The second pilot involved the pressurized injection of 2,500 gallons of 2% potassium permanganate near the MW-33 monitoring well cluster. The results of these pilot studies are presented in the RAM Status Reports, dated 31 January 2002 and 25 July 2002. These reports indicate a decrease in CVOC concentrations ranging from 84% within 5 feet of the gravity feed injection point to 67% within 20 feet of the pressurized injection point. The modification to the RAM Plan proposes additional treatment of the MW-43 pilot area using a pressurized injection of sodium permanganate using six application points to provide overlapping areas of treatment.

The following activities will be conducted as part of the RAM Modification:

- Install additional monitoring points: The purpose of this task is to provide a detailed well network to evaluate the vertical and horizontal effectiveness of the additional treatment. As part of this task:
    - Three deep monitoring wells are proposed to be installed adjacent to existing shallower wells; and,
    - Two wells are proposed to be installed in accessible areas beneath the existing building.
- Establish baseline groundwater data: The purpose of this task is to establish baseline conditions (i.e., pre-application) for groundwater flow and quality within the pilot test area prior to injection.
- Inject Permanganate: Approximately 10,000 gallons of dilute sodium permanganate will be injected under pressure. This injection will be conducted in several vertical locations from 15 to 30 feet depth at six application points.
- Install confirmatory soil borings: Four soil cores will be collected in the pilot area to conduct a detailed evaluation of the extent (vertically and laterally from the application points) of permanganate distribution in soil.
- Post-injection groundwater monitoring: The purpose of this task is to monitor groundwater flow and quality within the pilot test areas after conducting the injections. This information will be compared to historical and baseline date to evaluate the effects of the application.

A more detailed summary of the RAM Plan Modification Report can be found at the Wayland Public Library and the Wayland Board of Health.