



California Regional Water Quality Control Board

Los Angeles Region



Linda S. Adams
Cal/EPA Secretary

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Arnold Schwarzenegger
Governor

February 23, 2009

Mr. Daniel S. Samorano, P.E.
Project Manager
Raytheon Company
1151 East Hermans Road
TU, Bldg 826
Tucson, AZ 85706

CONDITIONAL APPROVAL OF CORRECTIVE ACTION PLAN ADDENDUM #3 WORK PLAN FOR ADDITIONAL ENHANCED IN SITU BIOREMEDIATION AND IN SITU CHEMICAL REDUCTION ACTIVITIES – FORMER RAYTHEON FACILITY (HUGHES MISSILE SYSTEM COMPANY), 8433 FALLBROOK AVENUE, CANOGA PARK, CALIFORNIA (SCP NO. 0693, SITE ID NO. 2043T00)

Dear Mr. Samorano:

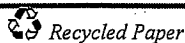
Los Angeles Regional Water Quality Control Board (Regional Board) staff received and reviewed the *Corrective Action Plan Addendum #3 Work Plan for Additional Enhanced In Situ Bioremediation and In Situ Chemical Reduction Activities* (Work Plan), dated September 2008, prepared by TN & Associates, Inc. for the referenced site. The Work Plan proposes to implement an additional Enhanced In Situ Bioremediation (EISB) program to reduce volatile organic compounds (VOCs) concentrations and to implement In Situ Chemical Reduction (ISCR) technology for the reduction of hexavalent chromium (Cr^{+6}) concentrations.

A pilot test was performed to evaluate the ability of EISB to reduce chlorinated ethenes in groundwater between September 2003 and June 2004. Based on the successful results of the pilot test, a full-scale EISB program was implemented to accelerate degradation of chlorinated ethenes, particularly 1,1-dichloroethene (DCE), in shallow groundwater between October 2005 and July 2008.

To further treat DCE and trichloroethene (TCE) in shallow groundwater, the additional EISB program is proposed for three separate treatment areas referred to herein as: 1) Northwest Area, 2) Former Tank T3 Area, and 3) Former Bldg 269 Area. The target remediation depths for each area vary, but are generally between depths of 30 to 60 feet (ft) below ground surface (bgs). The EISB program will involve the injection of a carbon source/electron donor in these areas, which should induce sulfate reduction, reduce the dissolved oxygen (DO), and oxidation-reduction potential (ORP), and enhance the rate of anaerobic dechlorination of DCE and TCE in groundwater.

In addition to the VOC concentrations in groundwater at the site, there is a small area with elevated concentrations of Cr^{+6} in the immediate vicinity of the former hazardous waste storage area (Former HWSA), located in the northwest portion of the site. The ISCR technology is proposed to reduce Cr^{+6} concentrations in groundwater by injecting a reducing agent, calcium polysulfide, into the saturated zone between 35 and 55 ft bgs in the Former HWSA footprint. The reducing agent should transform the Cr^{+6} to the less toxic and less mobile trivalent chromium (Cr^{+3}).

California Environmental Protection Agency



Our mission is to preserve and enhance the quality of California's water resources for the benefit of present and future generations.

The Work Plan is approved with the following conditions:

1. A site-specific Health and Safety Plan shall be available at the site and implemented during all field activities.
2. Prior to start of work, all necessary permits shall be obtained from appropriate agencies. Copies of the agency-approved permits must be included in the final report submitted to the Regional Board.
3. Contaminated soil and water generated, if any, during drilling and sampling shall be managed in accordance with appropriate regulations.
4. Properly manifest and dispose of all wastes generated during field activities in conformation with the State and Federal regulations. Copies of the manifest for waste disposal shall be included in the final report submitted to the Regional Board.
5. Notify Regional Board staff at least 1 week before you start the proposed fieldwork.
6. The well installation report shall be submitted to the Regional Board within 60 days following the completion of the construction and development of the injection wells and groundwater monitoring wells.
7. A final report, providing the results of the proposed Work Plan, shall be submitted to the Regional Board within 90 days after completion of the Work Plan implementation. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the technology application, conclusions regarding the effectiveness of the technology, and groundwater remediation activities.

Please note that existing General Waste Discharge Requirements (WDR) Order No. R4-2005-0030 and Monitoring and Reporting Program (MRP) No. CI-8947, that was issued to you on September 20, 2005, was for implementation of a previous full-scale EISB application on site. Therefore, the implementation of this additional EISB and ISCR at the site requires a revision of general WDR Order No. R4-2005-0030 and MRP No. CI-8947 from this Regional Board. Please submit a complete Application/Report of Waste Discharge (Form 200) for Regional Board review and approval. An electronic copy of Form 200 can be found on the Internet at: <http://www.waterboards.ca.gov/sbforms/docs/form200.pdf>.

On March 1, 2007, the Regional Board adopted the general WDR Order No. R4-2007-0019 for groundwater remediation at petroleum hydrocarbon fuel, volatile organic compound and/or hexavalent chromium impacted sites which supersedes WDR Order No. R4-2005-0030. The coverage under general WDR Order No. R4-2007-0019 will be issued to you in a separate letter. Requirements for the monitoring and sampling parameters, frequency, and reporting periods will be stated in the revised MRP No. CI-8947 when the revised general WDR is issued. Please note that the revised MRP No. CI-8947 may be different from your proposed sampling and reporting plan. In addition, the EISB and ISCR injection activities shall not occur at the site prior to the approval date of the revised general WDR coverage by this Regional Board.

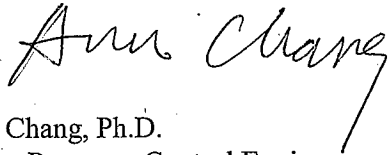
Mr. Daniel S. Samorano
Raytheon Company

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Should you have any questions, please contact me at (213) 620-6070.

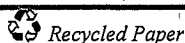
Sincerely,



Ann Chang, Ph.D.
Water Resource Control Engineer
Site Cleanup Unit I

cc: Mr. Stefan Cajina, California Department of Public Health
Mr. Chris Nagler, Watermaster, California Department of Water Resources
Mr. Bernard Franklin, Los Angeles County, Department of Public Health
Mr. Hoover Ng, Water Replenishment District- Southern California
Mr. James Pappas, Department of Toxic Substances Control
Mr. Rod Collins, Department of Toxic Substances Control
Mr. Jacques Marcillac, TN & Associates, Inc.
Mr. William Preston Bowling, Aerospace Cancer Museum and Education
Ms. Christina Walsh, Cleanuprocketdyne.org
Ms. Bonnie Klea
Ms. Chris Rowe

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