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**Central Valley Regional Water Quality Control Board**

28 April 2015

Mr. Kent Hawley  
9 CES/CEVR  
6601 B Street  
Beale Air Force Base, CA 95903-1708

***NOTICE OF APPLICABILITY, GENERAL ORDER NO. R5-2015-0012 - UNITED STATES AIR FORCE – BEALE AIR FORCE BASE, SITE SS023, YUBA COUNTY***

The United States Air Force – Beale Air Force Base (Discharger) submitted a Notice of Intent, dated 24 July 2014, requesting coverage under General Order No. R5-2008-0149, General Waste Discharge Requirements for In-Situ Groundwater Remediation at Sites with Volatile Organic Compounds, Nitrogen Compounds, Perchlorate, Pesticides, Semi-Volatile Compounds and/or Petroleum Compounds. In February, 2015, the General Order for In-situ Groundwater Remediation was updated. Based on information in your submittal, it is our determination that this project meets the requirements of General Order No. R5-2015-0012, General Waste Discharge Requirements for In-Situ Groundwater Remediation and Discharge of Treated Groundwater to Land. All of the requirements contained in the general order are applicable to your project. You are assigned Order No. R5-2015-0012-006.

**Project Location:**

The project is at Beale Air Force Base in Yuba County,  
Township/Range/Section: T 15N R5E S9 Mount Diablo B&M

**Project Description:**

Operations at Site SS023, Beale Air Force Base caused pollution of soil and groundwater. The primary pollutants of concern are volatile organic compounds (VOCs), which include trichloroethene (TCE) and tetrachloroethene (PCE). The source of groundwater contamination at Site SS023 were leaks and spills from transformers and grease rack activities. Previous remedial actions at this Site included soil excavation and several interim groundwater cleanup actions.

In 2000, approximately 654 tons of polychlorinated biphenyl (PCB) contaminated soil and concrete were removed from the Site. From 2001 to 2003, a pilot-scale groundwater treatment system was installed, which consisted of dynamic underground

stripping with hydrous pyrolysis oxidation to address VOCs in groundwater. In 2004, a full-scale ozone air sparge system was installed and operated until 2013. The ozone air sparge system was designed to address TCE concentrations above 500 µg/L. Confirmation samples of groundwater collected in 2013, indicated a residual mass of VOCs remained at this Site and was not adequately addressed by the ozone air sparge system. The maximum concentrations of TCE and PCE detected in groundwater were 956 micrograms per liter (µg/L) and 89 µg/L, respectively.

The targeted treatment areas for this project are downgradient of the area that was excavated in 2000 and includes portions of the groundwater plume not addressed by previous groundwater cleanup actions. The Discharger proposes to inject sodium permanganate in two areas in which concentrations of TCE have been detected at or above 100 µg/L. The injection will occur into the saturated zone, will extend from 15 to 50 feet below ground surface, and will be conducted in 6 locations within a 2,500 square foot area. The design concentration of sodium permanganate will be 10,875 mg/L and will occur in two events over a two-year period.

The Discharger will conduct analytical sampling and reporting, which is described in the attached Groundwater Monitoring and Reporting Program. If the Discharger desires to conduct longer-term in-situ remediation of the groundwater, a revised Notice of Intent must be submitted and a new Notice of Applicability prepared prior to proceeding with the additional remediation.

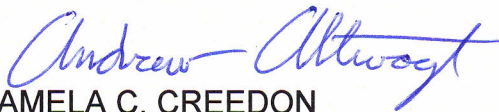
The Tentative Notice of Applicability was issued for 30-day public review on 18 September 2014. No comments were received.

**General Information:**

1. The project will be operated in accordance with the requirements contained in the General Order and in accordance with the information submitted in the Notice of Intent.
2. The Discharger shall comply with the General Order No. R5-2015-0012.
3. Injection of materials other than those specified in the Notice of Intent into the subsurface is prohibited, unless analysis, as specified in the Order No. R5-2012-0012, of the injectant is provided and approval is given by Board staff.
4. Failure to abide by the conditions of the General Order could result in an enforcement action as authorized by provisions of the California Water Code.
5. The Discharger shall comply with the attached Monitoring and Reporting Order No. R5-2008-0149-054, and any revisions thereto as ordered by the Executive Officer.

6. The Discharger has provided a Contingency Plan that would be implemented if dissolved chromium or any other dissolved metals included in the monitoring program are detected above the baseline concentration or the maximum contaminant level (MCL) in downgradient compliance monitoring wells.
7. The injection of sodium permanganate solution and other strongly oxidizing agents has the potential, in some geologic settings, to convert naturally occurring chromium to a soluble form of chromium known as chromium VI. The California Office of Environmental and Human Health Assessment has determined that chromium VI is a toxic substance, and has issued a public health goal for chromium VI of 0.02 parts per billion in drinking water. General Order R5-2015-0012 prohibits the creation of conditions of pollution, contamination, or nuisance. Treatment technologies that covert naturally occurring chromium to chromium VI may be deemed in violation of this prohibition. If chromium VI byproducts are created during treatment, the Board may require the cleanup and abatement attributable to those byproducts.

If you have any questions regarding this matter, please contact Mark Clardy at (916) 464-4651 or by email him at [mark.clardy@waterboards.ca.gov](mailto:mark.clardy@waterboards.ca.gov).

  
For PAMELA C. CREEDON  
Executive Officer  
Attachments

Monitoring and Reporting Order R5-2015-0012-006  
General Order No. R5-2015-0012

cc:

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