

INFORMATION SHEET

ORDER NO. R5-2008-XXXX

WASTE DISCHARGE REQUIREMENTS

CITY OF FRESNO, UNITED STATES ARMY CORPS OF ENGINEERS,

UNITED STATES NATIONAL GUARD, AND THE BOEING COMPANY

OLD HAMMER FIELD

FRESNO COUNTY

Background

The City of Fresno, the United States Army Corps of Engineers, the United States National Guard Bureau, and The Boeing Company will operate a groundwater extraction, treatment, and injection system at the Toe of the Plume related to Old Hammer Field.

The proposed treatment system is for the project area referred to as the Toe of the Plume, which is the farthest downgradient extent of the trichloroethene (TCE) groundwater plume emanating from Old Hammer Field (the Fresno Yosemite International Airport). The Toe of the Plume treatment area is approximately bounded by Chestnut and Willow Avenues to the west and east, respectively, Olive Avenue to the north, and Freeway 180 to the south. Historically, groundwater at the Toe of the Plume has contained up to 26 µg/L of TCE. Depth to groundwater in the Toe of the Plume area is approximately 110 feet below ground surface with groundwater flow in a southwesterly direction.

The treatment system for the extracted groundwater is proposed to be located behind the private residence at 4895 East Tyler Avenue. TCE will be removed by filtration through two 20,000-pound GAC vessels in series prior to discharge to the injection wells. It is anticipated the TCE concentrations in the extracted groundwater stream will initially be approximately 7 µg/L at a pumping rate of 300 gpm; however, the system is designed for a maximum capacity of 600 gpm. The GAC vessels have been sized based upon this anticipated TCE concentration and maximum pumping rate. According to the consultant (ERM West) that designed the treatment system, TCE concentrations in the treated effluent will be less than the practical quantitation limit (PQL), which is 0.5 µg/L. At the maximum pumping rate of 600 gpm, carbon usage is anticipated to be 35 pounds per day, with change-out being required after approximately 570 days (19 months). The project, therefore, will extract TCE-impacted groundwater, treat the groundwater to remove the TCE, and then inject the treated groundwater into the same aquifer from which it was extracted. While providing cleanup, the treatment system will also be providing plume migration control.

Four impacted sand-bearing stratigraphic units, informally labeled by the Discharger as the C, D, E, and F zones, have been identified based on lateral traceability using electric and soil core logs. These zones range in depth from approximately 150 feet to nearly 300 feet below ground surface. The groundwater extraction and treatment system will be targeting groundwater in these four zones. One extraction well, HFEW-1, has been installed, and if monitoring data indicates the need, a second extraction well will be installed. Two injection wells, HFIW-1 and HFIW-2, have been installed. A third injection well will be installed if data so indicate. The injection wells have been placed downgradient/sidegradient to, and within

approximately 1,000 to 1,200 feet of the extraction wells. Nine multi-zone wells monitor the Toe of the Plume.

Effluent and Treatment Limits

The maximum daily flow will not exceed 900,000 gpd (approximately 600 gpm), which is based on maximum anticipated pumping rate of the extraction wells (as determined from an aquifer pumping test). Treated groundwater (groundwater to be injected into the aquifer from which it was extracted) shall have a monthly median no greater than 0.5 µg/L (the PQL) and a daily maximum of 5.0 µg/L (the maximum contaminant level) of TCE. The PQL is the commonly achievable level for best practicable treatment or control for TCE. These effluent limits are consistent with the General Order for Land Disposal of Groundwater or Surface Water from Cleanup of Petroleum Pollution (Order No. R5-2003-0044) and were based on similar constituents between the proposed order and Order No. R5-2003-0044.

Antidegradation Analysis

Because the treated groundwater originates from the aquifer that it is to be injected back into, the geochemical aspects of the two waters (treated versus non-treated groundwater) should not differ significantly. The primary concern with injection of the treated water will be possible influences on the groundwater plume migration outside of the extraction well(s) capture zone. If operated as designed and in compliance with WDRs, the extraction well(s), treatment system, and injection wells will not cause migration of the TCE plume outside of the capture zone of the extraction wells and will not cause degradation of the underlying groundwater.

Monitoring

The proposed Order will include a monitoring and reporting program. Although the geochemical aspects of the treated and untreated waters are not expected to differ significantly, for assurance purposes, background concentrations for calcium, iron, magnesium, manganese, potassium, sodium, chloride, nitrate, and total dissolved solids will be determined. Should the treated water that is injected into the aquifer differ by greater than 20% from the background concentrations, then the discharger will prepare a report analyzing possible causes for the difference, and possible corrective actions, if necessary.

Influent and effluent sampling, in addition to sampling the port between the two GAC vessels, will be conducted on a periodic basis to assure that no breakthrough of the second in series vessel occurs. Effluent concentrations of TCE, the primary constituent of concern, and other volatile organic compounds (VOCs) typically listed in a standard USEPA Method 8260B analysis, shall not exceed the practical quantitation limit (PQL) of each specific VOC analyzed under the standard USEPA 8260B analysis for the 30-day median. Currently, the standard PQL for TCE is 0.5 µg/L. The daily maximum shall not exceed the Maximum Contaminant Level (MCL) for TCE and other specific VOCs listed under the standard USEPA 8260B analysis. The MCL for TCE is 5.0 µg/L.

Given the engineering completed for the system, and the concentration of contaminants to be treated, and the track record of similar treatment systems, it is anticipated that the quarterly

monitoring proposed for the cleanup will be adequate to ensure no breakthrough of the carbon vessels will occur. Sampling will be conducted weekly during the first month after system startup, monthly for the next two months, and then quarterly thereafter. During quarterly monitoring, therefore, the 30-day median effluent limitation will only come into effect if an exceedence occurs, at which time additional sampling is required.

Groundwater level measurements and sampling of the monitoring wells, extraction wells, injection wells, and piezometers at the Toe of the Plume will be utilized to monitor the influence of the treatment system on the groundwater plume.

CEQA

A mitigated negative declaration was submitted to the State Clearinghouse on 9 June 2008 by the City of Fresno Planning and Development Department. The review period for the mitigated negative declaration ended 8 July 2008. Mitigated measures include impacts to air quality, noise, potential exposure to hazardous materials, and the creation of aesthetically offensive conditions. No public comments were received on the document. The mitigated negative declaration concludes "that the proposed land uses will not result in a significant indirect adverse environmental effect" and it is "determined that there is no substantial evidence in the record that the proposed project may have a significant effect on the environment." The Notice of Determination was filed with the Fresno County Clerk by the City of Fresno Planning and Development Department of 5 August 2008. The Regional Water Board reviewed and considered the mitigated negative declaration prepared by the City of Fresno.

Reopener

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.