California Regional Water Quality Control Board

Los Angeles Region

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

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Alan C. Lloyd, Ph.D
Agency Secretary

Arnold Schwarzenegger
Governor

May 18, 2005

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
CLAIM NO. 7003 3110 0003 3258 4103

Mr. Eric Winquist
1800 Rosecrans Partners, LLC
321 12th Street, Suite 200
Manhattan Beach, CA 90266

Dear Mr. Winquist:

GENERAL WASTE DISCHARGE REQUIREMENTS FOR CALCIUM POLYSULFIDE SOLUTION INJECTION AT PETROLEUM HYDROCARBON FUEL AND/OR VOLATILE ORGANIC COMPOUND IMPACTED SITES – FORMER FAIRCHILD CONTROLS FACILITY, 1800 ROSECRANS AVENUE, MANHATTAN BEACH, CALIFORNIA (FILE NO. 18400900, CI NO. 8891)

We have completed our review of your application for coverage under General Waste Discharge Requirements for the injection of calcium polysulfide solution at the site referenced above in Manhattan Beach, California.

1800 Rosecrans Partners, LLC (hereinafter Discharger) owns a former aerospace site known as Former Fairchild Controls Facility (Site), located at 1800 Rosecrans Avenue, Manhattan Beach, California (Figure 1 and 2) (Latitude: [North] 33.001299, Longitude: [West] 118.379501). The Discharger is remediating contaminated groundwater at the Site, which is located in an area zoned as commercial. The Site currently consists of a commercial and retail shopping center occupying approximately nine acres. The Site is bordered on the north by Rosecrans Avenue, on the west and south by commercial and industrial buildings, and on the east by Aviation Boulevard in Manhattan Beach, California. The property was owned and operated by Fairchild Industries, Inc. (FII) from 1955 to 1989. FII designed and manufactured fluid controls, environmental controls, and aerospace subsystems for spacecraft and aircraft applications. In connection with these activities, FII utilized various chlorinated solvents for cleaning manufactured surfaces, and operated a plating shop with an anodizing tank in its manufacturing operations. Operations at the property included the use of trichloroethene (TCE), tetrachloroethene (PCE), and chromic acid. Moreover, from approximately 1955 to 1987, FII placed waste solvents in an underground tank known as the "waste oil sump". In 1987, the waste oil sump was found to be leaking, and in 1988 the tank was removed. In addition, in the mid-1960s, the anodizing tank was found to be leaking chromic acid.

Site investigations indicate that soil and groundwater have been contaminated with volatile organic compounds (VOCs) and hexavalent chromium. Groundwater samples collected from December 1989 to December 2004 indicate the presence of PCE, TCE, 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), cis-1,2-dichloroethene (cis-1,2-DCE), acetone (ACT), total dichlorobenzene, (TDCB), ethylbenzene (EBN), trichlorotrifluoroethane (freon 113), methyl ethyl ketone (MEK), total trichlorobenzene

(TTCB), xylenes, 1,4-dioxane, N-nitrosodimethylamine, 1,2,3-trichloropropane, perchlorate, and hexavalent chromium. Historic groundwater analytical data show that VOC concentrations ranged from non-detected to 26,000 micrograms per liter (µg/L) of PCE, non-detected to 140,000 µg/L of TCE, non-detected to 180,000 µg/L of 1,1,1-TCA, non-detected to 2,400 µg/L of 1,1-DCA, non-detected to 8,300 µg/L of cis-1,2-DCE, non-detected to 150,000 µg/L of ACT, non-detected to 7397 µg/L of TDCB, non-detected to 15,000 µg/L of EBN, non-detected to 8,000 µg/L of freon 113, non-detect to 26,000 µg/L of MEK, non-detected to 1,500 µg/L of TTCB, non-detected to 64,000 µg/L of total xylenes, non-detected to 370 µg/L of 1,4-dioxane, non-detected to 0.089 µg/L of N-nitrosodimethylamine, non-detected to 0.17 µg/L of 1,2,3-trichloropropane, non-detected to 8.4 µg/L of perchlorate, and non-detected to 56,000 µg/L of hexavalent chromium.

The local geology is generally consistent across the site. Silts and silty clays occur from the ground surface to 10 feet bgs in most areas with deeper discontinuous lenses in scattered locations. Below these fine-grained soils are sands and silty sands with gravels ranging from a depth of approximately 10 to 115 feet bgs onsite. These soils appear to be dipping to the east offsite reaching depths of approximately 140 feet bgs in well GW-20 located approximately 2,500 feet east of the site. The top of a fine-grained silty clay and clay unit, believed to be the Bellflower Aquitard, has been reportedly detected at the base of several deep zone on- and offsite wells (MW-1D, MW-3D, and GW-20) based on well boring log data. The first groundwater-bearing unit beneath the site starts at a depth of approximately 70 feet bgs. This unit is underlain by silty clays of what is believed to be the Bellflower Aquitard at a depth of approximately 115 feet bgs beneath the site. Groundwater within this unit primarily flows to the east, but also has northerly components, especially on east side of Hindry Avenue based on groundwater elevation data from the former Fairchild Controls, former ARCO Station #6164, and TRW sites, which were combined to produce a regional groundwater contour (Figure 3). An east to northeast flow direction is generally consistent with historical data collected at the site. The first groundwater-bearing unit beneath the site also appears to be separated into two distinct zones based on contaminant distribution. Higher concentrations of VOCs and hexavalent chromium are found from 70 to 90 feet bgs (referred to hereafter as the shallow zone), while the lower portion of the unit from 100 to 115 feet bgs (referred to as the deep zone) has concentrations that are roughly 1 to 3 orders of magnitude lower. The hydraulic gradient is approximately 0.005 ft/ft at the Site.

On March 18, 2004, your consultant submitted a Work Plan for Offsite Assessment and Remedial Pilot Study, dated March 16, 2004. In the proposed pilot study, the consultant (URS) proposed to conduct a field pilot study at well EW-6S to evaluate in-situ chemical injection for both hexavalent chromium and VOC reduction in groundwater. The consultant proposes to inject calcium polysulfide (CPS) solution to reduce hexavalent chromium to trivalent chromium, which then takes advantage of natural chromium precipitation with hydroxides to remove the trivalent chromium from groundwater. CPS injection also produces a strong reducing environment that has the potential to lower VOC concentrations with bio-enhancement from a carbon source. Well EW-6S has a total depth of 88.25 feet bgs with a screened interval from about approximately 60 to 88 feet.

Approximately 4,500 gallons of a 29-percent aqueous solution of CPS will be injected into well EW-6S followed by flushing with potable water. The average CPS injection rate is estimated to be about 30 gallons per minute (gpm), but will be adjusted to maintain a fluid level in the

injection well at about 20 feet bgs. If the injection rate required to maintain fluid level in the injection well at 20 feet bgs is below 15 gpm, the well will be capped and pressurized at an injection pressure of less than 50 pounds per square inch (psi). Multiple injections of smaller batches may also be used to reduce potential clogging issues and to provide a better estimate of the actual mass of CPS needed at this site. The chemical injection will be immediately followed by a potable water injection. The purpose of the potable water injection is two-fold: 1) to flush residual CPS solution out into the formation to prevent possible clogging of the well screen by the concentrated CPS solution, and 2) to maintain a local groundwater gradient away from well EW-6S to more effectively disperse the CPS. The potable water injection rate is expected to improve to 50 to 60 gpm as the water moves the concentrated CPS solution farther out into the formation. The potable water source will be a nearby fire hydrant located in a planter about 140 feet southwest of well EW-6S. A total of approximately 70,000 to 100,000 gallons of CPS solution and potable water will be injected into the formation during the pilot test.

Any potential adverse water quality impacts that may result shall be of short-term duration, and shall not impact any existing or prospective uses of groundwater.

Regional Board staff have determined that the proposed discharge meets the conditions specified in Order No. R4-2005-0030, "*General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel and/or Volatile Organic Compound Impacted Sites*," adopted by this Regional Board on May 5, 2005.

Enclosed are your Waste Discharge Requirements, consisting of Regional Board Order No. R4-2005-0030 (Series No. 061) and Monitoring and Reporting Program No. CI-8891 and Standard Provisions. We understand that you will start your project in July 2005, and you will complete this pilot project within six months. Should there be a significant delay in the project (i.e. beyond a completion date of May 18, 2006), you must reapply for WDRs.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment (May 18, 2005) under Regional Board Order No. R4-2005-0030. All monitoring reports shall be sent to the Regional Board, ATTN: Information Technology Unit.

When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to Compliance File No. CI-8891, which will assure that the reports are directed to the appropriate file and staff. Do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

We are sending a copy of Order No. R4-2005-0030 only to the applicant. A copy of the Order will be furnished to anyone who requests it.

If you have any questions, please contact Mr. Orlando H. Gonzalez at (213) 620-2267.

Sincerely,

Jonathan S. Bishop
Executive Officer

Enclosures: 1. Board Order No. R4-2005-0030
2. Monitoring and Reporting Program No. CI-8891

cc: Mr. Ted Johnson, Water Replenishment District of Southern California
Mr. Mark Stewart, West Basin Watermaster, California Department of Water Resources
Mr. Jerome R. Zimmerle, Jr. URS Corporation