

**STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION**

**STAFF REPORT FOR REGULAR MEETING OF FEBRUARY 1-2, 2012**  
Prepared on January 5, 2012

**ITEM NUMBER: 10**

**SUBJECT: Low Threat and General Discharge Cases**

**DISCUSSION**

The following items serve as notification that the subject sites have been enrolled under the noted general order.

**General Permit for Discharges with Low Threat to Water Quality, Order No. R3-2011-0223**

California American Water, Carmel Valley Drinking Water Well Network, Monterey County  
[Mike Higgins 805/542-4649]

On October 10, 2011, California American Water (Discharger) submitted a Notice of Intent and fee for enrollment under the General Permit. The Discharger owns and operates water supply wells in the Carmel Valley Drinking Water Well Network. The Discharger plans to intermittently discharge groundwater from the wells and dechlorinated drinking water from storage tanks and associated piping.

Staff enrolled the Discharger under the General Permit with a revised monitoring and reporting program specific to the discharge in December 2011. Staff finds the discharge poses a low threat to surface water quality as follows: the wastewater contains low levels of potential pollutants as to be expected from native groundwater, the discharge is low flow, and the Discharger will mitigate threats of erosion by means of discharge pipe diffusers or other measures.

Soquel Creek Water District, Polo Grounds Well Rehabilitation, Santa Cruz County  
[Mike Higgins 805/542-4649]

On November 1, 2011, Soquel Creek Water District (Discharger) submitted a Notice of Intent and fee for enrollment under the General Permit. The Discharger owns and operates a water supply well at 2255 Huntington Drive in Aptos, Santa Cruz County. The Discharger plans to rehabilitate an existing water supply well and to install a new pump and discharge column. The Discharger will flush the well for a minimum of one day for about two hours but may discharge for up to four days for two hours each day. The discharge to Valencia Creek Polo Grounds' storm drain system will be dechlorinated groundwater

Staff enrolled the Discharger under the General Permit with a revised monitoring and reporting program specific to the discharge. Staff finds the discharge poses a low threat to surface water quality as follows: the wastewater contains low levels of potential

pollutants as to be expected from native groundwater, the discharge is low flow, and the Discharger will mitigate threats of erosion by means of discharge pipe diffusers or other measures.

California American Water, Chualar Wells Nos. 3 and 4, Monterey County  
[Mike Higgins 805/542-4649]

On October 10, 2011, California American Water (Discharger) submitted a Notice of Intent and fee for enrollment under the General Permit. The Discharger owns and operates two water supply wells (Nos. 3 and 4) adjacent to Chualar's eastern boundary. The Discharger plans to intermittently discharge groundwater from the wells and dechlorinated drinking water from storage tanks and associated piping.

Staff proposes to enroll the Discharger under the General Permit with a revised monitoring and reporting program specific to the discharge. Staff finds the discharge poses a low threat to surface water quality as follows: the wastewater contains low levels of potential pollutants as to be expected from native groundwater, the discharge is low flow, and the Discharger will mitigate threats of erosion by means of discharge pipe diffusers or other measures.

**Statewide General Waste Discharge Requirements for Small Domestic Wastewater Systems, Order No. 97-10-DWQ**

The Rancho Cielo Youth Campus, Salinas, Monterey County  
[Tom Kukol 805/549-3689]

The Rancho Cielo Youth Campus, located at 710 Old Stage Road in Salinas, discharges domestic waste from an educational facility that operates year-round with most of the activity occurring during the school year between the months of August through May. As part of an expansion, the Rancho Cielo Youth Campus proposes to upgrade its wastewater systems by installing a centralized enhanced wastewater treatment and disposal system. At full occupancy, the expanded facility is projected to have peak daily wastewater flows of 6,530 gallons per day. The proposed enhanced treatment system will utilize a two-stage trickling filter design to achieve secondary level treatment of the wastewater, including nitrification and denitrification. The onsite disposal system includes both a dual subsurface leachfield and subsurface drip dispersal. The leachfields include an expansion area. Subsurface drip dispersal provides an additional 150% of disposal capacity.

On January 9, 2012, Water Board staff enrolled the facility under the statewide General WDRs. Only domestic wastewater treatment and disposal systems with a maximum average daily flow of 20,000 gallons or less can be regulated by these General WDRs.

The proposed discharge will comply with Water Board standards, prohibitions, and requirements to protect water quality. The Rancho Cielo Youth Campus is required to comply with the Monitoring and Reporting Program included with Order No. 97-10-DWQ.

**General Waste Discharge Requirements for Discharges of Winery Waste, Order No. R3-2008-0018**

Miramar Vineyards, 12255 New Avenue, San Martin, Santa Clara County  
[Cecile DeMartini 805/542-4782]

Water Board staff enrolled Miramar Vineyards under the Small Winery Waiver pursuant to the General Order on December 28, 2011. Miramar Vineyards is located at 12255 New Avenue in San Martin, Santa Clara County. Miramar Vineyards expects to produce up to 400 cases of wine annually. Peak process wastewater flows will be approximately 80 gallons per day. Miramar Vineyard staff will dispose of process wastewater onto six acres associated with the vineyard. Groundwater depth is greater than 100 feet beneath the vineyard. The Central Coast Water Board may revoke this waiver and prescribe waste discharge requirements at any time if Miramar Vineyards fails to comply with the prohibitions, recommendations, and specifications of the General Order. Miramar Winery is required to notify the Central Coast Water Board if it expands beyond the current level of production.

**General Waiver of Waste Discharge Requirements for Specific Types of Discharges, Resolution No. R3-2008-0010**

Raytheon B-2 Facility, 75 Coromar Drive, Goleta, Santa Barbara County  
[Dean Thomas 805/549-3690]

On November 4, 2011, Central Coast Water Board staff enrolled Raytheon Network Centric Systems, Inc., the responsible party for Raytheon B-2 facility (Facility) under Resolution No. R3-2008-0010, the General Waiver for Specific Types of Discharges (General Waiver); specifically, Attachment A, Section D, "Addition of Materials for In-situ Bioremediation". Raytheon performed research and development of various electronic components at the Facility from the early 1960s to the present, and these activities resulted in the discharge of pollutants. Staff concurred with Raytheon's remedial action plan (RAP) which includes injection of sodium lactate (a commonly used carbon substrate), with the option of later adding bacteria cultures to accelerate bioremediation of trichloroethene (TCE) and other volatile organic compound (VOC) in groundwater (if initial monitoring results suggest slow progress); Raytheon's consultant will conduct these injections consistent with conditions in the General Waiver. Injection of sodium lactate with bacteria is a proven treatment technology effective in degrading TCE in groundwater. Water Board staff has approved implementation of this treatment strategy at numerous sites in our region with good success in degrading the target pollutants. The proposed discharge complies with the General Waiver conditions. The site cleanup history and a discussion regarding the injection are summarized below.

The B-2 Facility is located at 75 Coromar Drive in Goleta, California. Raytheon has complied with all Water Board requirements, and completed a number of investigation and cleanup activities related to TCE and associated VOC pollution, including the following:

- Site investigations via soil borings, soil vapor sampling, groundwater sampling, and membrane interface probes;
- Installation of onsite and offsite groundwater monitoring wells in shallow and deep aquifer zones to characterize the lateral and vertical extent of VOCs;

- Subsurface electrical resistance heating and dual-phase extraction (groundwater and vapor extraction), which has reduced TCE and other VOC concentrations in groundwater by between 76 to 99 percent (based on well location), and likely removed nearly all of the non-aqueous phase pollutant mass.

Sodium lactate is a non-toxic, low viscosity liquid that is injected into groundwater to speed up naturally occurring biological degradation of chlorinated solvents. While the dual-phase extraction was successful at removing over 90% of the VOC mass, VOC concentrations in the majority of Facility wells remain above drinking water standards. Therefore, Raytheon plans to take advantage of the residual heat left in the ground (from resistance heating) to spur bioremediation of VOCs in onsite groundwater, and plans to begin injection of sodium lactate in late January 2012. The approved RAP also includes measures to inject vegetable oil (a longer lasting carbon substrate), should this be necessary. Raytheon will monitor and report performance results in quarterly monitoring reports.

Santa Cruz Industries, 411 Swift Street, Santa Cruz, Santa Cruz County  
[Dean Thomas 805/549-3690]

On December 9, 2011, Central Coast Water Board staff enrolled Eklof Inc., the responsible party for the former Santa Cruz Industries site (Site), under the General Waiver; specifically, Attachment A, Section D, "Addition of Materials for In-situ Bioremediation". The former Santa Cruz Industries was a metal plating facility and ceased operations in 1988 after 34 years of plating. The plating operations resulted in a release of solvents to soil and groundwater below the Site, which now consists of a multi-tenant commercial facility including a martial arts studio, a commercial kitchen, a carpet warehouse, an ice cream parlor, a gift shop, and a winery. The impacted groundwater bearing zone extends laterally approximately 460 feet from the source area, occurs from approximately five to eight feet below ground surface, and appears to be bounded below by bedrock. Solvent pollution in groundwater includes perchloroethene (PCE), 1,1,1-trichloroethane (1,1,1-TCA), and their associated breakdown products. Groundwater is also impacted by heavy metals. Water Board staff concurred with the the Eklof's In-Situ Emulsified Zero-Valent Iron (EZVI) Bioremediation Pilot Study Work Plan (Work Plan) that includes injection of EZVI using direct-push borings to remediate the solvents and metals. EZVI, a technology developed by NASA, consists of an emulsified mixture of approximately 51% water, 38% vegetable oil, 10% iron particles, and 1% emulsifier by weight. Free-phase solvent is chemically destroyed by reacting with the iron while the vegetable oil promotes reducing conditions and provides a carbon source for bacteria to degrade solvents. Injection of vegetable oil, a long lasting carbon substrate for dechlorinating bacteria, is a commonly used and proven technology that has been effective in degrading PCE dissolved in groundwater. The induced reducing conditions cause most heavy metals to become insoluble and precipitate out of the groundwater. Central Coast Water Board staff has approved implementation of this treatment technology at various sites in our region, including sites at Vandenberg Air Force Base. Emulsified iron, which targets free-phase solvent, is less commonly used; however there are good case study examples that have shown success.<sup>1</sup>

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<sup>1</sup> Krug, T. et al., April 2010. Emulsified Zero-Valent Nano-Scale Iron Treatment of Chlorinated Solvent DNAPL Source Areas. Environmental Security Technology Certification Program.

Central Coast Water Board staff concluded that the proposed discharge complies with the General Waiver conditions. The site investigative history, cleanup history, and a discussion regarding the proposed injections are summarized below.

- Since 1992, the discharger has conducted site investigations via soil borings, soil vapor sampling, and groundwater sampling;
- The responsible party has installed onsite and offsite groundwater monitoring wells to characterize the lateral extent of solvents, currently 14 monitoring wells characterize the plume;
- Between 1996 and 1999 the responsible party removed over 500 pounds of solvents using dual-phase extraction wells (soil-vapor suction and groundwater extraction);
- Between 2008 and 2010, the responsible party injected chemical oxidizers in the source area and a carbon substrate developed by Regenesis as a downgradient barrier. The injections locally reduced solvent concentrations but to a limited effect.

The responsible party plans to conduct EZVI injections in early 2012, with the mobilization effort consisting of 78 injection points on 15-foot centers for a total of 13,650 pounds of EZVI material injected within and around the building footprint at 411 Swift Street. The responsible party will monitor the air quality (under direct oversight of the County Health Department) and install engineering controls as an added precaution (i.e., ventilation within the buildings), in case the injections cause vapors to enter the buildings overlying the source area. Additional injections over the next two years may be necessary to complete the cleanup, should the initial injections not adequately remediate the solvents and metals. The responsible party will report performance results in quarterly monitoring reports.

Whittaker, 2751 San Juan Road, Hollister, San Benito County  
[Kristina Seley 805/549-3121]

On December 12, 2011, Central Coast Water Board staff enrolled Whittaker Corporation (Whittaker) under the General Waiver. Whittaker's proposal to inject chemicals to remediate two onsite source areas is in compliance with all of the requirements of the General Waiver, Attachment A, Section D "Addition of Materials for In-situ Bioremediation." As a condition of Corrective Action Plan approval, Whittaker is required to conduct performance monitoring to evaluate the effectiveness of the injections. Details regarding the two injections are further described below.

At Building 23 source area, Whittaker proposed in-situ reductive dechlorination to remediate TCE in groundwater. Whittaker will inject Adventus North America EHC<sup>®</sup> (a combination of zero valent iron and an electron donor) and bacteria (KB-1) into one injection location near a well that has detected TCE at a maximum concentration of 1,700 micrograms per liter. Whittaker estimated it will inject 1,650 kilograms of slurried EHC<sup>®</sup> and 24 liters of bacteria (dehalococcoides) to break down the TCE across a 25-foot interval at the top of the saturated zone. Whittaker noted that EHC<sup>®</sup> injections have been successful at many sites and the bacteria addition has been used to improve performance of dechlorination at about 50 sites in California, to date.

At Building 13 source area, Whittaker proposed in-situ biological reduction to remediate perchlorate in soil. At Building 13, Whittaker will inject calcium magnesium acetate (CMA), an electron donor solution, over a 40-foot by 70-foot area with a depth of 13 feet. Whittaker estimated it will inject a 10% solution of CMA which will slowly infiltrate into the soil through four horizontal wells. Each well will receive about 900 gallons of solution quarterly, for one year. This technology was successful at degrading perchlorate at another source area on the site.

Former Nottingham Company, 13577 Blackie Road (aka 10775 Cara Mia Parkway), Castroville, Monterey County [Wei Liu 805/ 542-4648]

On August 9, 2011, Ground Zero Analysis, Inc. (Ground Zero) submitted a *Feasibility Study and Corrective Action Plan for ISCO [in-situ chemical oxidation] Pilot Test (CAP)*, proposing a pilot test to evaluate the infiltration of a hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) solution to decrease dissolved-phase hydrocarbon concentrations at the subject site. Central Coast Water Board staff requested the Corrective Action Plan (CAP) to in an effort to select more effective remedial alternatives. The use of hydrogen peroxide has proven effective under similar geologic and groundwater chemistry conditions at a number of underground tank sites in the region.

The injection of hydrogen peroxide solution to the subsurface must comply with the General Waiver. On October 3, 2011, Ground Zero submitted a *Baseline Soil and Groundwater Sampling Report (Report)*, providing the necessary information to fully comply with the requirements of the General Waiver.

On November 1, 2011, Central Coast Water Board staff issued a Notice of Applicability to Ms. Linda Ausonio-Grier, the responsible party's representative, for enrollment under the General Waiver. This staff report serves as a notification to the Central Coast Water Board that Water Board staff has issued a Notice of Applicability to Ms. Linda Ausonio-Grier to implement the CAP. If this pilot test proves successful, full-scale ISCO implementation activities will also be covered under this General Waiver enrollment.

Shell Oil Products US, 150 S. La Cumbre Road, Santa Barbara, Santa Barbara County (Chris Adair 805-549-3761)

On November 17, 2011, Central Coast Water Board staff enrolled Shell Oil Products US (Shell), the responsible party for the subject underground storage tank site, under the General Waiver. Shell proposes to conduct an in-situ chemical oxidation (ISCO) pilot test using activated sodium persulfate and hydrogen peroxide solution injections to remediate petroleum hydrocarbons in groundwater at the site. This technology has proven effective under similar geologic and groundwater chemistry conditions at a number of underground tank sites in the region.

The injection of chemicals to the subsurface requires coverage under the General Waiver. URS Corporation submitted an application for the General Waiver, on behalf of Shell on November 8, 2011. The application provided the necessary information to fully comply with the requirements for enrollment under the General Waiver. The Santa Barbara County Fire Prevention Division (SBCFPD) staff approved the proposed pilot test workplan on November 4, 2011.

This staff report serves as a notification to the Central Coast Water Board that Water Board staff has issued a Notice of Applicability to Shell for the ISCO pilot testing using activated sodium persulfate and hydrogen peroxide solution at the site. If this pilot test proves successful and the SBCFPD approves full-scale ISCO implementation, these activities will also be covered under this General Waiver enrollment.

Shell Oil Products US, 1000 Coast Village Road, Montecito, Santa Barbara County  
(Chris Adair 805-549-3761)

On November 17, 2011, Central Coast Water Board staff enrolled Shell , the responsible party for the subject underground storage tank site, under the General Waiver. Shell proposes to conduct ISCO pilot testing using activated sodium persulfate solution injections to remediate petroleum hydrocarbons in soil and groundwater at the site. This technology has proven effective under similar geologic and groundwater chemistry conditions at a number of underground tank sites in the region.

The injection of chemicals to the subsurface requires coverage under the General Waiver. URS Corporation submitted an application for the General Waiver, on behalf of Shell on November 4, 2011. The application provided the necessary information to fully comply with the requirements for enrollment under the General Waiver. The Santa Barbara County Fire Prevention Division (SBCFPD) staff approved the proposed pilot test workplan on November 2, 2011.

This staff report serves as a notification to the Central Coast Water Board that Water Board staff has issued a Notice of Applicability to Shell the ISCO pilot testing using activated sodium persulfate solution at this site. If this pilot test proves successful and the SBCFPD approves the full-scale ISCO implementation, these activities will also be covered under this General Waiver enrollment.

Chevron Environmental Management Company, 165 N. Fairview Avenue, Goleta,  
Santa Barbara County (Chris Adair 805-549-3761)

Stantec Consulting (Stantec) on behalf of Chevron Environmental Management Company (Chevron) proposes to conduct pilot testing of hydrogen peroxide mixed with sodium nitrate and disodium phosphate nutrients at the subject underground storage tank site. Stantec proposes to inject the hydrogen peroxide solution into wells VW-2S and VW-4SD during nine weekly events. During each weekly event, Stantec proposes to inject approximately 15 gallons of hydrogen peroxide and nutrient solution into each well at a controlled rate to stimulate aerobic biodegradation of dissolved petroleum hydrocarbon contaminants. This technology has proven effective under similar geologic and groundwater chemistry conditions at a number of underground tank sites in the region.

The injection of chemicals to the subsurface requires compliance with the Central Coast Water Board's General Waiver. Stantec Consulting submitted an application for the General Waiver, on behalf of Chevron on November 9, 2011. The application provides the necessary information to fully comply with the requirements for enrollment under the General Waiver. On December 1, 2011, Central Coast Water Board staff enrolled Chevron under the General Waiver. Santa Barbara County Fire Prevention Division (SBCFPD) staff approved the proposed pilot test workplan on June 9, 2011.

This staff report serves as a notification to the Central Coast Water Board that Water Board staff has issued a Notice of Applicability to Chevron for the pilot testing of hydrogen peroxide and nutrients solution at the site. If this pilot test proves successful and the SBCFPD approves the full-scale implementation of hydrogen peroxide and nutrient injections, these activities will also be covered under this General Waiver enrollment.

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