California Regional Water Quality Control Board

Los Angeles Region

Linda S. Adams.
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Arnold Schwarzenegger
Governor

December 16, 2010

Ms. Janet Frentzel
AMB Property Corporation
Pier 1, Bay 1
San Francisco, California 94111

SUBJECT: ENROLLMENT UNDER GENERAL WASTE DISCHARGE REQUIREMENTS (ORDER NO. R4-2007-0019), PROPOSED IN-SITU GROUNDWATER TREATMENT BY INJECTING A CALCIUM POLYSULFIDE SOLUTION

SITE: FORMER COSMODYNE FACILITY, 2920 COLUMBIA ST., TORRANCE, CA (SCP NO. 1172, SITE ID NO. 2040161, CI-9656)

Dear Ms. Frentzel:

California Regional Water Quality Control Board, Los Angeles Region (Regional Board) staff have completed our review of your application for coverage under General Waste Discharge Requirements (WDR) for the injection of a 29% calcium polysulfide solution (CPS) to assess the feasibility of in-situ chemical reduction of hexavalent to trivalent chromium and to support reduction of volatile organic compounds (VOCs)-impacted groundwater, primarily trichloroethylene (TCE)-impacted, at the above referenced site (Site). We have determined that the proposed discharge meets the conditions specified in Regional Board Order No R4-2007-0019, "*Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites*," adopted by this Regional Board on March 1, 2007.

Based on the information provided, we have no objections to you including the proposed injection under the above-referenced WDR permit. Enclosed are Waste Discharge Requirements for the Site, consisting of Regional Board Order No. R4-2007-0019 (Series No. 146) and Monitoring and Reporting Program No CI-9656.

The "Monitoring and Reporting Program" requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2007-0019. 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-9656", which will assure that the reports are directed to the appropriate file and staff. Also, please do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

If you have any questions regarding this project, please contact Mr. Robert Ehe at (213) 576-6740 (**rehe@waterboards.ca.gov**).

Sincerely,

Samuel Unger

Samuel Unger, P.E.
Executive Officer

Attachments:
Site Plan (showing proposed injection/monitoring wells, Figure 2)

Enclosures:
1) General Waste Discharge Requirements, Order No. R4-2007-0019 and Standard Provisions
2) Monitoring and Reporting Program, CI No. 9656
3) Fact Sheet

cc: Dr. Timothy Marshall, URS Corporation

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
MONITORING AND REPORTING PROGRAM NO. CI-9656
FOR
FORMER COSMODYNE FACILITY
2920 COLUMBIA STREET, TORRANCE, CALIFORNIA
(CPS INJECTION FOR GROUNDWATER CLEANUP)
(ORDER NO. R4-2007-0019, SERIES NO. 146)
(SCP NO. 1172)

I. REPORTING REQUIREMENTS

A. AMB Property Corporation (hereinafter Discharger) shall implement this monitoring program on the effective date (December 16, 2010) of Regional Board Order No. R4-2007-0019. The first monitoring report under this program, for January-March 2011, shall be received at the Regional Board by **April 15, 2011**. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

Monitoring Period	Report Due
January – March	April 15
April – June	July 15
July – September	October 15
October – December	January 15

B. If there is no discharge or injection during any reporting period, the report shall so state. Monitoring reports must be addressed to the Regional Board, Attention: Information Technology Unit.

C. By March 1st of each year, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall explain the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements (WDRs).

D. For any analyses performed for which no procedure is specified in the USEPA guidelines or in the MRP, the constituent or parameter analyzed and the method or procedure used must be specified in the monitoring report.

E. Each monitoring report shall specify the analytical method used, the MDL (Method Detection Limit, as defined in title 40 of the Code of Federal Regulations, Part 136) and the ML (Minimum Level) for each constituent. For the purpose of reporting compliance, analytical data shall be reported by one of the following methods, as appropriate:

1. An actual numerical value for sample results greater than or equal to the ML; or

2. "DNQ (Detected, but Not Quantified) " if results are greater than or equal to the laboratory's MDL but less than the ML; or,

3. "ND (Not Detected)" for sample results less than the laboratory's MDL with the MDL indicated for the analytical method used.

Analytical data reported as "less than" for the purpose of reporting compliance with permit limitations shall be the same or lower than the permit limit(s) established for the given parameter.

Current MLs (Attachment 4) are those published by the State Water Resources Control Board in the *Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP),* 2005.

F. The method limits (MLs) employed for effluent analyses shall be lower than the permit limits established for a given parameter, unless the Discharger can demonstrate that a particular ML is not attainable and obtains approval for a higher ML from the Regional Board Executive Officer (Executive Officer). The Regional Water Board, in consultation with the State Water Board Quality Assurance Program, may establish a ML that is not contained in Attachment 4 of the SIP. When the Discharger uses a method whose quantification practices are not consistent with the definition of an ML in the SIP, the Discharger, the Regional Water Board, and the State Water Board shall agree on a lowest quantifiable limit and that limit will substitute for the ML for reporting and compliance determination purposes. For those chemicals having no MLs listed in the SIP (e.g., fuel oxygenates), the Discharger shall meet the requirements specified in the Regional Board's laboratory report form revised in June 2000: refer to, http://www.waterboards.ca.gov/losangeles/publications_forms/forms/lab_report.shtml.

G. The Discharger shall submit a list of the analytical methods employed for each test. All analyses shall be accompanied by the chain of custody, including but not limited to date and time of sampling, sample identification, and name of person

who performed sampling, date of analysis, name of person who performed analysis, method detection limits, analytical methods, copy of laboratory certification, and a perjury statement executed by the person responsible for the laboratory. The analytical laboratory shall have an acceptable written quality assurance (QA) plan for laboratory. When requested by the Regional Board, the Discharger shall provide the associated laboratory quality assurance/quality control (QA/QC) procedures.

H. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with WDRs. This section shall be located at the front of the report and shall clearly list all non-compliance with WDRs.

I. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

J. If the Discharger performs analyses on any groundwater samples more frequently than required by this Order using approved analytical methods, the results of those analyses shall be included in the report.

K. State Water Resources Control Board (State Water Board) adopted regulations requiring the electronic submittals of information over the internet using the State Water Board GeoTracker data management system. You are required to comply by uploading all reports and correspondence prepared to date on to the GeoTracker data management system. The text of the regulations can be found at the URL:
http://www.waterboards.ca.gov/ust/cleanup/electronic_reporting/docs/final_electronic_regsdec04.pdf

L. The Discharger shall comply with requirements contained in Section G of Order No. R4-2007-0019 "*Monitoring and Reporting Requirements*" in addition to the aforementioned requirements.

II. CALCIUM POLYSULFIDE SOLUTION INJECTION MONITORING REQUIREMENTS

The quarterly reports shall contain the following information regarding injection activities:

1. Location map showing placement locations for the locations of proposed injection well and monitoring wells, used for the calcium polysulfide solution (CPS) injections (refer to attached Figure 2).
2. Written and tabular summary defining the quantity of CPS injected per month to the groundwater and a summary describing the days on which the injection system has been operating.

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total CPS delivered per injection	Kilograms/day	--	• Quarterly

III. GROUNDWATER MONITORING PROGRAM

The Discharger shall conduct a groundwater monitoring program at the site. Groundwater samples shall be collected from the existing and proposed monitoring wells (existing MW-3 and MW-6, and proposed injection observation wells TP-1, TP-2, TP-3, and TP-4) and injection well (MW-1). The locations of these wells are shown in the attached Figure 2. Groundwater samples shall be collected from the above listed wells in accordance with the following monitoring program:

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total Chromium and Hexavalent Chromium	µg/L[1]	Grab	• One week before injection • Quarterly thereafter
Volatile Organic Compounds (VOCs) (EPA Method 8260B)	µg/L	Grab	• One week before injection • Quarterly thereafter
Oxidation-reduction potential	milivolts		• One week before injection • Quarterly thereafter

Dissolved Oxygen (field measurement)	µg/L	Grab	• One week before injection • Quarterly thereafter
Title 22 metals	µg/L	Grab	• One time [2]
pH	pH units	Grab	• One week before injection • Quarterly thereafter
Temperature	^{0}F/^{0}C	Grab	• One week before injection • Quarterly thereafter
General Minerals-complete suite	mg/L [3]	Grab	• Quarterly
Groundwater Elevation	Feet, mean sea level and below ground surface[c]	In situ	• One week before injection • Quarterly thereafter

[1] µg/L - micrograms per liter
[2] One time sampling event before injection. If detected, monthly monitoring is required for three months after the injection; thereafter quarterly monitoring is required.
[3] mg/L – milligrams per liter

All groundwater monitoring reports must include, at a minimum, the following:

a. Well identification, date and time of sampling;
b. Sampler identification, and laboratory identification;
c. Quarterly observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

IV. MONITORING FREQUENCIES

Monitoring frequencies may be adjusted to a less frequent basis or parameters dropped by the Executive Officer if the Discharger makes a request and the Executive Officer determines that the request is adequately supported by statistical trends of monitoring data submitted.

V. CERTIFICATION STATEMENT

Each report shall contain the following declaration:

"I certify under penalty of law that this document, including all attachments

and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the _____day of _____ at _____.

_____(Signature)

_____(Title)"

VI. PUBLIC DOCUMENTS

These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by: Samuel Unger

Samuel Unger, P.E.
Executive Officer

Date: December 16, 2010

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, California 90013

FACT SHEET
WASTE DISCHARGE REQUIREMENTS FOR FORMER COSMODYNE FACILITY 2920 COLUMBIA STREET, TORRANCE, CALIFORNIA

IN-SITU CHEMICAL TREATMENT USING CALCIUM POLYSULFIDE SOLUTION

ORDER NO. R4-2007-0019 (SERIES NO. 146)
CI-9656, SCP NO. 1172

FACILITY ADDRESS
2920 Columbia Street
Torrance, California

FACILITY MAILING ADDRESS
Ms. Janet Frentzel
AMB Property Corporation
Pier 1, Bay 1
San Francisco, California 94111

PROJECT DESCRIPTION

Site Description: The above-referenced former Cosmodyne facility was an industrial/manufacturing operation between 1959 and 2004. The facility was on an approximately nine-acre property located in an industrial area at 2920 Columbia Street, Torrance, California (Site). It was sold to Headlands Realty Corporation c/o AMB Property Corporation (Discharger) in 2005, and was redeveloped into its current use as a business park.

Chemicals of Concern: Previous subsurface investigations have concluded the chemicals of concern at the Site were mainly volatile organic compounds (VOCs) and hexavalent chromium which impacted underlying soil, soil vapor, and groundwater. The main source of VOCs contaminants to groundwater are in the soil vapor zones located in the middle portion of the property extending from the surface toward groundwater. Groundwater underlying the Site is detected at approximately 85 to 90 feet below ground surface (bgs).

Site Assessment/Cleanup Status: In October 2005, a maximum concentration of trichloroethylene (TCE) in on-site groundwater was detected of 1,200 micrograms per liter (µg/L). This is 240 times the maximum contaminant level (MCL) for TCE in drinking water, as established by the California Department of Health Services (CDHS). In July 2005, hexavalent chromium was detected at a maximum concentration in on-site groundwater of 2,100 µg/L. Hexavalent chromium is regulated by the CDHS under the 50 µg/L MCL for total chromium in drinking water, this is 42 times this MCL. Between 2006 and 2009, remedial action was conducted using soil vapor extraction system with five triple-nested extraction wells at the Site, removing approximately 464 pounds of VOCs from the subsurface.

In March 2009, thirty-one soil samples collected and analyzed from four borings at the Site to determine residual concentrations of VOCs. While concentrations for VOCs in the upper zones did not exceed cleanup standards, high concentrations of TCE were detected in soil from two borings at a depth of 70 feet bgs at 1,100 micrograms per kilogram (µg/kg) and of 190 µg/kg, both underlying the on-site source area. Also, ninety-one soil samples have been collected and analyzed for total chromium during several investigations at the Site. Fifty-seven of these were analyzed for hexavalent chromium, which a maximum concentration detected of 1,400 µg/kg. Following an excavation and removal action in 2005 of chromium impacted shallow soil, sampling and analysis detected residual concentrations of total chromium in soil at the Site are below remedial goals and are not considered a threat for further migration towards groundwater.

VOLUME AND DESCRIPTION OF INJECTION OF CPS

Injection Description: Discharger proposes the injection of calcium polysulfide solution (CPS) to groundwater for an in-situ reduction of hexavalent to trivalent chromium will take advantage of natural chromium precipitation with hydroxides to remove the trivalent chromium. CPS injection also produces a strong reducing environment that has the potential to support VOC reduction. The proposed injection program will be focused on groundwater with concentrations of hexavalent chromium exceeding 10 times the MCL for total chromium MCL of 50 µg/L and TCE concentrations greater than 20 times the MCL of 5 µg/L. Therefore, the area in the southeastern corner of the property near well MW-1 extending to well MW-3 (and south of well MW-2) will be targeted for saturated zone chemical injection; with injection of CPS at groundwater monitoring well MWl, and with monitoring wells TP-1 to TP-4, MW-3 and MW-6 used to assess treatment radius and effectiveness.

Volume: Undiluted CPS (29% concentration) will be injected using a pump followed by potable water injection from a fire hydrant to spread the CPS further into the aquifer formation. The CPS and water flow rates will be measured to assess the injected volumes of each material. Approximately 4,000 gallons of 29% CPS followed by 90,000 gallons of potable water will be injected into well MW-1. Chemicals and potable water will be injected into well MW-1 until an estimated 30 to 40-foot radius of influence is achieved as indicated by a reduction in oxidation-reduction potential or an increase in pH levels in adjacent. Monitoring wells within 60 feet of the CPS injection point will be monitored for changes in pH, oxidation-reduction potential, and dissolved oxygen concentrations using field monitors to identify the effective radius of influence from the injection.