Via e-mail only

Mr. Roger Smith

24 January 2023

Glenn Springs Holdings, Inc.
Roger_Smith@oxy.com

TENTATIVE NOTICE OF APPLICABILITY OF GENERAL ORDER 2015-0012-0XX, IN-SITU GROUNDWATER REMEDIATION AND DISCHARGE OF TREATED GROUNDWATER TO LAND, FORMER OCCIDENTAL CHEMICAL CORPORATION FACILITY, LATHROP, SAN JOAQUIN COUNTY

On 25 April 2022, Geosyntec Consultants, Inc. of Rancho Cordova, California (Geosyntec) submitted on behalf of Glenn Springs Holdings, Inc. (GSH or Discharger), a *Notice of Intent* (NOI) for the Former Occidental Chemical Corporation (OCC) manufacturing facility in Lathrop, California (Site), requesting coverage under Central Valley Regional Water Quality Control Board (Central Valley Water Board) Order No. R5-2015-0012, *Waste Discharge Requirements General Order for In-Situ Groundwater Remediation and Discharge of Treated Groundwater to Land* (General Order) to obtain a permit to use biocide to control biofouling in the existing and future groundwater extraction wells associated with the groundwater and extraction systems (GETSs) operating at the Site. Based on information in the submittal, Central Valley Water Board staff has determined that this project meets the required conditions to be covered under the General Order and that all the requirements contained in the General Order apply to this project. The project is assigned Order No. R5-2015-0012-0XX.

Project Location:

The project is located at 16777 Howland Road in the City of Lathrop, San Joaquin County. Township 22N, Range 03W, Section 22 Mount Diablo Baseline & Meridian. Assessor's Parcel Number (APN) 198-180-01, 02, 03, 04, 05, and 06 and 198-140-03, and 04.

Project Description:

OCC operated an agricultural chemical production facility at the Site from 1964 to 1982. The Site is bordered on all sides by industrial or undeveloped property and farmland. Residential properties are located to the north of the Site, starting approximately 350 feet north of the northern boundary of the Site. The primary chemicals of concern (COCs) in soil and groundwater have been identified as 1,2-dibromo-3-chloropropane (DBCP –a soil fumigant pesticide); ethylene dibromide (EDB –used in the formulation of pesticides and fertilizers); and 2,3,4,5-

tetrahydrothiophene-1,1-dioxide (sulfolane ─used as a chemical solvent to clean manufacturing equipment).

Two groundwater treatment systems are currently active at the Site. The GETS began operation in 1982 to treat COCs in groundwater from extraction wells located at the Site. This system is comprised of four granular activated carbon (GAC) vessels oriented as two two-vessel treatment series. The lead vessel of each series operates as a fixed-film biological reactor to biologically degrade sulfolane, and both the lead and lag vessels act as GAC adsorbers to remove fumigants. The GETS is designed to treat flow rates of approximately 650 gallons per minute (gpm). GSH added a second treatment system, the moving bed bioreactor (MBBR), in 2021 to treat sulfolane in groundwater from extraction wells located in the eastern portion of the Site. The MBBR system consists of two aerobic moving bed biological reactors that biologically degrade sulfolane. The MBBR is designed to treat a nominal flow rate of 500 gpm. Treated water from the GETS and MBBR is reinjected into multiple injection wells located at the Site. There are three injection wells (IW-01, IW-3R, and IW-04) screened below the Corcoran Clay. Above the Corcoran Clay, there are two existing injection wells, INJ-13 and EW-07, and two proposed wells, IW-05 and IW-06.

The extraction, treatment, and injection by both systems is conducted in accordance with Waste Discharge Requirements (WDR) Order R5-2021-0011, issued by Central Valley Water Board on 4 March 2021.

On 25 April 2022, GSH submitted an NOI for coverage under the General Order to obtain a permit to use biocide to control biofouling in the existing and future groundwater injection wells associated with the GETS and MBBR systems operating at the Site.

GSH proposes to use biocide to manage biofouling in the injection infrastructure (pipelines and injection wells) that service the GETS and the MBBR. Fouling of the injection wells has been an ongoing issue at the Site, causing reduced injection rates and more frequent injection well maintenance events resulting in system downtime which affects the overall effectiveness of the remedy. In early 2022, Geosyntec compared solids and water samples from the injection wells with the effluent samples from the GETS and MBBR to assess the fouling mechanisms prevalent in the conveyance and injection network at the Site. The evaluation suggested that the fouling occurring at the Site is predominantly due to biological activity, primarily from iron-oxidizing anaerobic bacteria and secondarily due to aerobic nitrifying bacteria. The biocide addition at the effluent of the GETS and MBBR is intended to control biofouling within the injection network and supplement injection well rehabilitation activities to reduce operational downtime associated with well rehabilitation activities. Consequently, GSH anticipates the implementation of biocide addition at both systems will enhance the effectiveness of the overall groundwater remedy at the Site.

The proposed chlorine dioxide dosing approach includes pulsed addition into the GETS and MBBR effluent daily for approximately 2-hours per dosing event, resulting in biocide dosing into all operational and proposed injection wells within the injection network. Although a daily biocide dosing approach is being proposed, the dosing will be

optimized based on field observations that may result in a reduced frequency or duration of biocide addition. GHS proposes to generate biocide onsite using vendor-packaged systems utilizing industrial grade 25% sodium chlorite, 30% hydrochloric acid, and water as a carrier fluid. GSH will mix the solutions with water in a reaction chamber to generate chlorine dioxide and will place the mixture directly in line with the effluent of each system. Sodium chlorite and hydrochloric acid solutions will be dosed in precise ratios and the flow paced with the MBBR and GETS effluent flow meters. GSH also proposes to install downstream chlorine residual analyzers to confirm the target level of biocide residual is achieved and for feedback control of the chlorine dioxide dose. Based on literature and general groundwater chemistry at the Site, a low residual chlorine dioxide dosage of 2 to 5 milligrams per liter (mg/L) is expected to control biological growth in the injection network effectively.

The General Order requires establishing background groundwater concentrations as a point of reference for evaluating impacts on groundwater following the proposed injections. Therefore, on 24 May 2022, in a meeting with Geosyntec, Central Valley Water Board staff requested GSH to develop an approach for establishing background concentrations of the amendment and related constituents in compliance wells identified in the NOI.

Based on the proposed biocide (chlorine dioxide), the applicable constituents for which background concentrations needed to be established included chloride, sodium, and total and dissolved iron. Sufficient chloride data was available from Site wells screened above and below the Corcoran Clay to calculate the upper prediction limit (UPL), which was used to establish a background concentration for chloride. However, a limited data set is available for sodium and total and dissolved iron. Therefore, Central Valley Water Board staff recommended Geosyntec collect additional samples for sodium and total dissolved iron. Consequently, Geosyntec analyzed additional samples from Site monitoring wells for these constituents monthly between August and October of 2022, prior to the start of biocide injections. Geosyntec collected these data during one portion of the year and Board staff requested the data be evaluated for potential seasonal variations.

In a 12 October 2022 e-mail, Geosyntec proposed using Total Dissolved Solids (TDS)─ which is routinely monitored at the Site─ as a surrogate to evaluate for seasonal variability of other constituents. In an e-mail dated 2 November 2022, Central Valley Water Board staff concurred with GSH's draft proposal and the general approach for establishing the background concentrations.

On 15 November 2022, GSH submitted the *Proposal for Establishment of Background Concentration Values* (Proposal), for establishing background concentrations. In a 15 November 2022 letter, Central Valley Water Board staff concurred with the Proposal and the background concentration values for chloride, sodium, and total and dissolved iron.

As part of this Order, groundwater monitoring will be performed according to the attached Monitoring and Reporting Program (MRP) to confirm that amendment

injections are not adversely impacting groundwater quality and to monitor the remedy's effectiveness.

General Information:

1. GSH need to operate the project in accordance with the requirements contained in General Order No. R5-2015-0012 and in accordance with the information submitted in the Work Plan, NOI, Proposal, and specified in this Notice of Applicability (NOA).

2. The required annual fee (as specified in the annual billing you will receive from the State Water Resources Control Board) shall be submitted until this NOA is officially revoked.

3. Injection of materials other than biocide and tap water into the subsurface is prohibited.

4. The General Order requires a contingency plan for corrective actions be implemented if the water quality exceeds the requirements of the Order at the points of compliance. The General Order prohibits concentrations of metals, total dissolved solids (TDS), or electrical conductivity more than 20% greater than their respective baseline levels. Should corrective actions be necessary to revert the adverse effects of the biocide, GSH shall immediately submit a contingency work plan for regulatory review and approval. Once approved by the Central Valley Water Board staff, the Discharger will immediately implement the regulatory-approved contingency plan. 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 Program, Order No. R5-2015-0012-0XX, and any revisions thereto as ordered by the Executive Officer.

If you have any questions regarding this matter, you may contact Kristi Shelton at (916) 464-4819 or via e-mail at kristin.shelton@waterboards.ca.gov.

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(for) PATRICK PULUPA, Executive Officer

Attachment: **Draft** Monitoring and Reporting Program R5-2015-0012-0XX

Cc (via e-mail):
Mr. Srinivasa Varadhan, Geosyntec
Mr. Scott Forbess, Geosyntec
Ms. Lisa Waskom, Glenn Springs Holdings, Inc.
Mr. Garrett Backus, San Joaquin County Environmental Management Department, Stockton
Mr. Greg Gibson, Public Works Department, City of Lathrop
Ms. Lauren Sipich, Arcadis