



December 15, 2020

Ms. Erika Guerra
Environmental Director – Cement
Lehigh Hanson, Inc.
24001 Stevens Creek Blvd.
Cupertino, CA 95014

SENT VIA EMAIL

Subject: Proposal to Provide Professional Services to Conduct Selenium Fish Tissue Monitoring Study in Santa Clara County, California

Dear Ms. Guerra:

Please accept this proposal from Robertson-Bryan, Inc. (RBI) to provide professional services to develop and implement a monitoring study of selenium in fish tissues in coordination with, and that will be submitted to, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) to support basin planning efforts.

The Regional Water Board has identified discharges, such as those of treated groundwater from Volatile Organic Carbon (VOC) pump-and-treat operations in Santa Clara County, may contain selenium exceeding the California Toxics Rule (CTR) criterion of 5 µg/L. Selenium is bioaccumulative and can cause chronic toxicity in fish and birds when present in excess within tissues (Ohlendorf 2003; Regional Water Board 2009). Tissue selenium concentrations are most predictive of the observed biological endpoint of concern, reproductive toxicity, and tissue-based selenium criteria reflect biological uptake through diet, the predominant pathway for selenium toxicity. For this reason, USEPA (2018a¹) has proposed replacing the CTR concentration-based water quality criterion with tissue-based water quality criteria for fish and birds. Although, for example, discharges of localized groundwater in Santa Clara County have exceeded the CTR criterion at times, tissue monitoring data is needed to determine whether fish or birds in their receiving waters are impaired with regards to selenium. The Regional Water Board is pursuing collection of selenium fish-tissue data for affected waterbodies in Santa Clara County to help determine whether to adopt site-specific selenium objectives based on the proposed USEPA (2018a) criteria.

¹ USEPA. 2018a. *Water Quality Standards; Establishment of a Numeric Criterion for Selenium for the State of California Proposed Rule*. RIN 2040-AF79. U.S. Environmental Protection Agency, Washington, D.C. November 30. Available online at: <https://www.epa.gov/wqs-tech/water-quality-standards-establishment-numeric-criterion-selenium-fresh-waters-california>

To hone the area of study, Regional Water Board staff provided information for groundwater pump-and-treat discharges in Santa Clara County. Four creeks receive multiple pump-and-treat discharges, which are listed below.

- Calabazas Creek – 3 discharges, 280 gallons per minute [gpm] total permitted discharge rate.
- Guadalupe River – 6 discharges, 1,170 gpm total permitted discharge rate.
- Matadero Creek – 2 discharges, 720 gpm total permitted discharge rate.
- Stevens Creek – 5 discharges, 725 gpm total permitted discharge rate. Note that only 3 discharges occur to the freshwater segment of this creek (SUMCO/Phoenix Group, Schlumberger, and Raytheon; 300 gpm, total)

Lehigh is proposing to conduct a selenium fish-tissue monitoring study for the Guadalupe River and a second creek (either Calabazas Creek or Stevens Creek). The Guadalupe River was selected because it receives the greatest volume of pump-and-treat discharges, all the groundwater discharges appear to occur within the freshwater segment of this waterbody, there are many miles of freshwater habitat available to sample, and this waterbody provides the greatest potential to have a variety of freshwater fish. Task 1 (site visit and refine approach) will be used to select the second target creek from among Calabazas Creek and Stevens Creek based on the need to avoid state/federally listed species (e.g., steelhead), habitat availability, site accessibility, and other factors. These two creeks appear to have approximately one (1) mile of (non-concrete lined) habitat between the saline-affected portion of the creeks and upstream groundwater discharges. Each creek receives approximately 300 gpm of discharge to their freshwater segments from three groundwater pump-and-treated operations. This scope of work assumes fish tissue sampling will occur during one (1) event at these two waterbodies and include one (1) upstream reference site on the Guadalupe River.

As required by their National Pollutant Discharge Elimination System (NPDES) permit, Lehigh is pursuing a similar selenium fish tissue study for Permanente Creek, the receiving water for Lehigh's Permanente Quarry and Cement Plant (also located in Santa Clara County). Information developed by Lehigh for Permanente Creek will supplement and directly benefit the Regional Water Board's efforts to identify whether to establish site-specific objectives for regional freshwater waterbodies using the USEPA (2018a) tissue-based selenium criteria.

RBI has significant experience in aquatic resource assessments, selenium aquatic toxicology, biological sampling, and development of site-specific water quality objectives. Our proposed scope of work for this effort is provided below.

I. SCOPE OF WORK

TASK 1. SITE VISIT AND REFINE APPROACH

In task, RBI will collect information necessary to refine the project approach and prepare study documentation (Task 2). It will include time for two RBI staff to visit the Guadalupe River, Calabazas Creek, and Stevens Creek. Time is provided to conduct a preliminary review of waterbody information, species present, fish life histories, creek flows, and pertinent information on groundwater pump-and-treat discharges. Federal and state resources agencies will be contact to identify sampling issues related to the presence of state or federally listed aquatic species. After the site visit and review of background information, RBI will communicate to Lehigh if the approach described herein can be implemented as currently scoped or if changes are needed to the sample locations/timing or other aspects of the project approach. RBI will consult with Lehigh and Regional Water Board staff to seek concurrence on major refinements to the study approach, including selection of the second creek to target for fish sampling. RBI has assumed two conference calls to present and discuss the refined project approach with Lehigh and/or Regional Water Board staff.

TASK 2. QUALITY ASSURANCE PROJECT PLAN (QAPP) & SAMPLING AND ANALYSIS PLAN (SAP)

A detailed Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) will be prepared. A QAPP is required by the State Water Resources Control Board for monitoring data to be considered of sufficient quality to use for Clean Water Act 303(d) listing purposes. Its purpose is to provide a clear, concise, and complete plan describing the data generating activities of a planned environmental project. The QAPP describes the project and its goals, the data to be collected and how it will be collected, decisions to be made with the data collected, and data quality objectives to ensure a known data quality. The SAP, an attachment to the QAPP, will contain maps of site locations, anticipated species, justification for target sample timing, collection techniques, sample types, targeted number of samples per location and by species, avoidance techniques for special status species, field data sheets, contract analytical lab information, etc. The draft QAPP/SAP will be finalized after one round of review by Lehigh and one round of review by Regional Water Board staff.

Deliverables:

- *Draft QAPP/SAP*
- *Final QAPP/SAP*

TASK 3: CDFW & SCVWD PERMITTING

A regional scientific collection permit must be obtained from the California Department of Fish and Wildlife (CDFW) to collect fish samples from the Guadalupe River and the second creek. CDFW may also require coordination with the U.S. Fish and Wildlife Service (USFWS). An encroachment permit must be obtained from the Santa Clara Valley Water District (SCVWD) to access the creeks. Time provided in this task will be used to apply for

these permits and prepare supplemental materials, communicate with agencies, and fulfill reporting requirements.

TASK 4: SAMPLING

Sampling will consist of a single sampling event in which the two waterbodies are each sampled at one (1) primary target segment, approximately one (1) mile in length, intensively for the fish species that are present in the waterbody downstream of groundwater pump-and-treat outfalls. A background segment on the Guadalupe River, upstream of groundwater pump-and-treated outfalls identified by the Regional Water Board, will also be monitored. Sampling will be conducted by two (2) RBI biologists and is assumed to last five (5) consecutive 10-hour days. Fish will be collected from sub-segments at each location, with the target number of composite samples of each target species (if present) being collected at each sub-segment to be described in the QAPP/SAP. Composite samples will be collected according to USEPA guidance and will consist of three to five fish within a similar size range (i.e., the California Office of Environmental Health Hazard Assessment “75 percent rule”; OEHHA 2005). We intend to analyze composites consisting of whole-body fish, which is appropriate for small fish or small individuals of larger fish species. If large individuals of large fish species are collected, consideration will be given to following USEPA guidance on collection and analysis of muscle tissue (fillets). Use of whole-body fish versus fillets will be explained in the QAPP.

This task includes time for laboratory coordination, mobilization, demobilization, obtaining/returning rental equipment (rental vehicle, fish sampling equipment—electroshocker, seines, minnow traps), processing samples, and shipping samples. Fish will be sent to a qualified analytical laboratory for selenium analysis. A water sample will also be collected from the sampling area at the time of sample collection for selenium analysis to support interpretation of fish tissue concentration data.

Direct expenses will cover analytical costs, renting sampling equipment and vehicles, shipping samples, lodging and meals, and other various expenses. A mileage allocation will account for a second vehicle in the event it must be used to ensure proper social distancing during travel.

TASK 5: REPORTING

A report will be prepared to present data on fish tissue selenium concentrations from the collected samples. Data on fish species, fork-length, sex (if possible), location, and total selenium concentrations will be provided in the report. This task includes time to review data and coordinate with the lab on any quality assurance/quality control (QA/QC) issues. All study data will be tabulated in a Microsoft Excel spreadsheet. A draft and final report will be prepared for review and comment by Lehigh and Regional Water Board staff.

Deliverables:

- *Draft Study Report*
- *Final Study Report*

TASK 6: PROJECT MANAGEMENT

Project management time shall primarily be used by the Principal-in-charge and the designated Project Manager to coordinate and direct the project activities to assure that all tasks are conducted efficiently and effectively. In addition, this task provides time for project coordination by phone, email, and fax with other project team members and the Regional Water Board, review of preliminary work products, budget, invoice, and schedule tracking, and other duties to coordinate and administer the project.

TASK 7: CONTINGENCY

Unanticipated efforts and expenses can occur during special field monitoring studies that warrant a project contingency. The time allocated for the contingency will be used if greater effort is needed to coordinate with resource agencies, to extend the sampling window, analyze additional samples, or for other unanticipated costs.

II. SCHEDULE

RBI can begin providing professional services associated with the tasks defined herein upon receipt of a contract or written authorization to proceed. Efforts for Tasks 1–3 should begin as soon as possible so they are complete by August 2021, if possible. Sampling is assumed to occur in September/October 2021. In accordance with this schedule, a final report can be prepared by April 2022. This schedule is tentative and may be adjusted during project planning or due to unforeseen delays during project implementation.

If you have any questions regarding this scope of work, please do not hesitate to contact me at (916) 405-8918. We look forward to supporting Lehigh with this important project.

Sincerely,



Paul D. Bedore, M.S.
Senior Scientist

Attachment 1: Selenium Fish Tissue & Water Analysis Assumptions

ATTACHMENT 1

SELENIUM FISH TISSUE & WATER ANALYSIS ASSUMPTIONS

Fish Tissue & Water Analysis	Guadalupe River		Calabazas or Stevens Creek
	Affected Segment	Background Segment	Affected Segment
<i>Fish Tissue Analysis</i>			
No. Species Targeted (per site)	5	5	5
No. Samples (per species)	5	5	5
Total No. Samples (per site)	25	25	25
Total No. Samples	75		
<i>Selenium Water Analysis</i>			
No. Samples (per site)	1	1	1
Total No. Samples	3		