

Prepared for:

CG Roxane, LLC
1210 South Highway 395
Olancha, California 93549

ADDITIONAL SITE INVESTIGATION WORK PLAN

**Olancha Spring Water Bottling Facility
1210 South U.S. Highway 395
Olancha, California**

Prepared by:

Geosyntec 
consultants

engineers | scientists | innovators

924 Anacapa Street, Suite 4A
Santa Barbara, California 93105

Project Number: SB0746

December 29, 2015

ADDITIONAL SITE INVESTIGATION WORK PLAN

Olancha Spring Water Bottling Facility

**1210 South U.S. Highway 395
Olancha, California**

Prepared for:

Crystal Geyser Roxane

December 29, 2015



Mark Grivetti, P.G., C.E.G., C.Hg.
Geosyntec Consultants
Principal Hydrogeologist



Ryan Smith, P.G., C.Hg.
Geosyntec Consultants
Project Hydrogeologist

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1
2.0 GENERAL SITE DESCRIPTION.....	2
3.0 PREVIOUS ENVIRONMENTAL SITE STUDIES	3
4.0 HYDROGEOLOGICAL SITE CONCEPTUAL MODEL	7
5.0 INVESTIGATION OBJECTIVES AND DESIGN.....	10
6.0 FIELD METHODOLOGY	11
6.1 Pre-field Preparation.....	11
6.2 Direct Push Drilling and Soil Sampling	11
6.3 Groundwater Monitoring Well Installation	12
6.4 Groundwater Sampling and Groundwater Level Measurements	13
6.5 Laboratory Analyses.....	13
6.6 Investigative Derived Waste.....	14
7.0 SCHEDULE AND REPORT PREPARATION	16
8.0 REFERENCES	17

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

Figure 1: Site Location Map

Figure 2: Site Plan

Figure 3: Arsenic and Antimony Concentrations 3rd Quarter 2015

Figure 4: TDS, SO₄, Cl, Na, Alkalinity, and PO₄ Concentrations 3rd Quarter 2015

Figure 5: Hydrogeological Conceptual Model Illustration

Figure 6: Proposed Additional Monitoring Wells and Borings

1.0 INTRODUCTION

Geosyntec Consultants, Inc. (Geosyntec), on behalf of Crystal Geyser Roxane (CGR), is submitting the following Additional Site Investigation Work Plan (Plan) for the CGR Bottling Facility (site) located at 1210 South U.S. Highway 395, near Olancho, California (**Figure 1**). The Plan presents the proposed methodology for additional environmental groundwater investigation in response to the Lahonton Regional Water Quality Control Board (RWQCB) Investigative Order Number R6V-2014-0063 (Order) dated July 24, 2014 and an e-mail from Ms. Lisa Scorallo of the RWQCB dated October 26, 2015. The Order was issued by the RWQCB based on waste water discharges that CGR generates as part of their business operations. The October 2015 e-mail presented comments on Geosyntec's Phase 2 Site Investigation (Geosyntec, 2015c) and requested additional work. This Plan is designed to address the requested investigation work plan requirements of the RWQCB Order and comments provided by the RWQCB in their October 26, 2015 e-mail. The Plan is organized as follows:

- Section 1.0 – *Introduction*.
- Section 2.0 – *General Site Description*. A brief description of the site is presented, including the locations of three waste water ponds located on the site.
- Section 3.0 – *Previous Environmental Site Studies*. A summary of the recent environmental investigations is presented.
- Section 4.0. – *Site Conceptual Geology and Hydrogeology*. This section includes a general Hydrogeological Site Conceptual Model for the site.
- Section 5.0. – *Investigation Objectives and Design*. Provides the investigation objectives and a basis for the phased approach to the site investigation.
- Section 6.0. – *Field Methodology*. Procedural information on drilling, soil sampling, well installation, and water sampling is presented.
- Section 7.0 – *Schedule and Report Preparation*. A schedule of the proposed investigation activities and reporting is presented.

2.0 GENERAL SITE DESCRIPTION

The site is an irregularly shaped property that consists of approximately 170 acres adjacent to Highway 395 approximately 3 miles north of Olancho, California (**Figure 1**). CGR operates a spring water bottling facility using groundwater production wells for bottled water supply and for domestic and industrial purposes. The facility consists of two large bottling-production and warehouse buildings, CGR North and CGR South that house CGR's bottling production lines (**Figure 2**). A complete description of the bottling facility processes was submitted in the *Facility Waste Generation and Discharge Systems Report* dated October 16, 2014 (CGR, 2014).

In the past, CGR discharged waste water into three ponds on the site: the Fire Pond (FP); the Arsenic Pond (AP); and the East Pond (EP). The AP has been decommissioned following CGR learning that the AP potentially was releasing liquids into the soil and groundwater, while the EP and FP are still in use and are being permitted under a Waste Discharge Requirements (WDR) industrial discharge permit (in progress). The locations of these ponds are shown on **Figure 2**. The *Facility Waste Generation and Discharges Report* describe waste discharge to these ponds (CGR, 2014). The FP and EP primarily receives ozonated filtered rinse water with small concentrations of ammonia, chlorine and phosphoric acid. The AP previously received water generated during the regeneration process for the arsenic filtration system. This investigation and past environmental investigations are primarily focused on potential impacts to soil and groundwater caused by discharge to these ponds.

3.0 PREVIOUS ENVIRONMENTAL SITE STUDIES

There have been numerous hydrogeological site studies relating to the CGR spring water bottling operations. These hydrogeological studies and associated reports were listed in Geosyntec's report dated August 14, 2015 (Geosyntec, 2015c). More recently, several workplans and investigation reports prepared in response to the RWQCB Order have been prepared. The workplans and reports are as follows:

- Facility Waste Generation and Discharges Report, October 16, 2014. Completed by CGR.
- Site Investigation Workplan, Olancho Spring Water Bottling Facility, Olancho, California. October 17, 2014. Completed by Geosyntec Consultants.
- Supplemental Site Investigation Work Plan, Olancho Spring Water Bottling Facility, Olancho, California. November 20, 2014. Completed by Geosyntec Consultants.
- Phase 1 Site Groundwater Investigation Report, Olancho Spring Water Bottling Facility, Olancho, California. February 16, 2015. Completed by Geosyntec Consultants.
- Site Investigation Work Plan Addendum, Olancho Spring Water Bottling Facility, Olancho, California. May 29, 2015. Completed by Geosyntec Consultants.
- Phase 2 Site Groundwater Investigation Report, Olancho Spring Water Bottling Facility, Olancho, California. August 14, 2015. Completed by Geosyntec Consultants.
- Third Quarter 2015 Groundwater Report, Olancho Spring Water Bottling Facility, Olancho, California. October 15, 2015. Completed by Geosyntec Consultants.

The primary investigation reports are the *Phase 1 Site Groundwater Investigation Report*, dated February 16, 2015 and the *Phase 2 Site Groundwater Investigation Report*, Olancho, dated August 14, 2015. The Phase 1 investigation was completed as a screening evaluation to preliminarily evaluate the groundwater conditions in the areas around the AP, the EP, and the FP, as well as near the cooling tower on the north side of the northern site bottling facility. A total of 10 "grab" groundwater samples were collected to gather screening level data in order to better evaluate groundwater quality conditions and identify appropriate locations for groundwater monitoring wells. Additionally, production waste water samples were collected from both the northern

and southern bottling plants and at water discharge locations of the AP, EP, and FP for characterization and comparison to groundwater quality. The results of the Phase 1 Investigation indicated that the primary constituents of concern in the groundwater in the investigation areas are metals. Of the metals detected, the primary metal of concern exceeding the corresponding Maximum Contaminant Level (MCLs) was arsenic. Additionally, elevated concentrations of sulfate and total dissolved solids (TDS) were also detected at concentrations exceeding their secondary MCLs in borings adjacent to the AP. Based on the data collected during the Phase 1 Site groundwater investigation, installation of groundwater monitoring wells was recommended for the areas surrounding the AP, EP, and FP to verify the Phase 1 screening data. The Plan Addendum dated May 29, 2015 (Geosyntec, 2015b) was approved by the RWQCB in correspondence dated June 29, 2015.

The Phase 2 field investigation was conducted in June and July 2015 to further evaluate the soil, soil vapor, and groundwater conditions in the areas around the AP, the EP, and the FP (Geosyntec, 2015c). The monitoring wells and soil vapor probe sampling location were selected based on data obtained from the Phase 1 Site screening level investigation (Geosyntec, 2015a). Additionally a 3rd Quarter groundwater monitoring event was completed in September 2015 (Geosyntec, 2015d). Results of the Phase 2 investigation and groundwater monitoring are summarized as follows:

- A total of nine groundwater monitoring wells and one temporary soil vapor probes were installed and soil, soil vapor, and groundwater samples were collected and analyzed. The location of the monitoring wells and soil vapor probe are shown in **Figure 2**. The groundwater gradient in the area of the EP and AP was calculated to be 0.006 towards the northeast. Soil sample results indicate that arsenic, cobalt, mercury, and molybdenum were detected at concentrations exceeding one or more published screening level. Of the metals detected in soil, only detections of arsenic and molybdenum exceeded the California median background for soil concentrations (UCR/DTSC, 1996). Arsenic exceeded the median background concentration in soil samples collected across the site indicating relatively high naturally occurring concentrations of arsenic in site soil. Molybdenum exceeded the medium background concentration in one sample collected from boring MW-1. Geosyntec concluded that the distribution and concentrations of the detected metals indicate that there have been no significant impacts to soil due to waste water discharges at the site. However, the RWQCB, in their e-mail dated October 26, 2015, noted that anomalously high metal concentrations were detected in a soil sample collected at location MW-01 (**Figure 2**) relative to other soil samples collected at the site. The MW-01 sample soil was collected

adjacent to and slightly upgradient of the FP at a depth of 15 feet. The source of the metals in the MW-1 soil sample has not been established and Geosyntec does not believe this result is related to CGR's waste water discharges at the site.

- Soil vapor results include samples collected from probe SV-01 located adjacent to the AP and the valve distribution box (**Figure 2**). All soil vapor sample results were much lower than the most stringent screening levels for even residential vapor intrusion concerns. Based on the soil vapor sample results and the soil and groundwater sample results, there has not been a significant release of VOCs in the area around the valve distribution box.
- The groundwater sample analytical results did not contain detections of VOCs or SVOCs indicating there are no significant VOC or SVOC impacts to soil due to waste water discharges at the site.
- The primary groundwater constituents of concern are metals. In particular, antimony and arsenic were detected at concentrations above background levels (assumed to be approximately 16 µg/L to approximately 28 µg/L)¹ and exceeding their MCLs of 6 and 10 µg/L, respectively. **Figure 3** summarizes dissolved antimony and arsenic concentrations from the 3rd quarter 2015 groundwater monitoring event. The elevated occurrences of antimony and arsenic were primarily located in wells located adjacent and downgradient of the AP (wells MW-4, MW-5, and MW-9). A slightly elevated level of dissolved arsenic was also reported in well MW-7 (47.9 ug/L) in the Phase 2 investigation, but concentrations of arsenic concentrations decreased in this well during the 3rd quarter sampling round (**Figure 3**). No other metals in groundwater samples collected from monitoring wells were detected above background levels.
- Elevated concentrations of sulfate and conductivity/TDS were also detected at concentrations exceeding their upper secondary MCLs in monitoring wells located adjacent to the AP. **Figure 4** summarizes TDS, sulfate, chloride, sodium, alkalinity and phosphate concentrations in the site monitoring wells. No other constituents were detected above their primary or upper secondary MCLs in well samples with the exception of residual chlorine, which was detected above its MCL in well MW-7 during the Phase 2 investigation.

¹ Range of arsenic concentrations based on annual sample results in 2012 and 2013 from CGR production wells CGR-1, CGR-3, CGR-5, CGR-6, and CGR-7.

Based on data collected during the Phase 1 and 2 investigations and the 3rd quarter 2015 groundwater monitoring event, there has been a release from the AP that includes the metals arsenic and antimony. The elevated arsenic concentrations detected in wells MW-04, MW-05, and MW-9 are found proximal and downgradient of the AP. The extent of the impacts has not been fully delineated.

4.0 HYDROGEOLOGICAL SITE CONCEPTUAL MODEL

A hydrogeological site conceptual model (SCM), based on the information collected during the Phase 1 and Phase 2 investigations and past hydrogeological investigations, is presented in this section.

The site is located in the southern portion of the Owens Valley Groundwater Basin (DWR, 2003). The basin occupies a structural valley that, in the vicinity of the site, is bounded on the west by the granitic bedrock of the Sierra Nevada Mountains and on the east by the sedimentary bedrock of the Inyo Mountains. To the east of the site and in the middle portion of the valley is the Owens Dry Lake. The Owens Dry Lake is a desert playa where salts are generated at the surface via evaporation processes.

A hydrogeological conceptual model illustration of the site is provided in **Figure 5**. The major groundwater bearing unit in the basin is a thick sequence of alluvium that has been derived from erosion of bedrock in the bordering mountain areas. The alluvium beneath the site is principally derived from the Sierra Nevada Mountains to the west and generally consists of sands and gravels. These alluvial sands and gravels are interbedded or interfingering with finer-grained lacustrine deposits (i.e., lake deposits from the ancient Owens Lake). The sequence of alluvium and lacustrine deposits beneath the site is at least 750 feet thick (JMM, 1993).

The alluvial sand and gravels and lacustrine clays and silts were encountered during drilling investigations at the site. The observed sequence of lacustrine and alluvial sediments beneath the site is the result of deposition associated with ancient fluctuations of water levels in Owens Lake. Alluvial materials derived from the Sierra Nevada Mountains were deposited along the shoreline while fine-grained lacustrine materials were deposited in the shallow lake waters. As the elevation of the lake varied, the shoreline moved laterally, causing interfingering of the coarse alluvial materials and the fine-grained lake deposits. The lacustrine deposits generally consist of silts, clays and very fine sands and have a relatively high organic content. Based on regional models and site drilling logs, the percentage of fine-grained material (lacustrine deposits) generally increases to the east. That is, the occurrence or presence of fine-grained silts and clays in the subsurface increases as one moves from the Sierra Nevada Mountain range towards the Owens Dry Lake. It should also be noted that an ancient shoreline deposit, generally consisting of light brown to white fine to coarse sands with some gravel, is located on the site. The shoreline deposit is shown on **Figure 2**. The AP and the EP are located on the shoreline deposit.

Groundwater beneath the site is mostly derived from precipitation (rainfall) and snowmelt in the Sierra Nevada Mountains to the west. Surface water runs off the Sierra Nevada mountain front and infiltrates the alluvium near the mountain base. Surface water or runoff quickly percolates into the sandy and gravelly alluvium and moves downward to the groundwater table. Some groundwater recharge also may occur from underflow through bedrock fractures and from direct precipitation on the valley floor.

Groundwater in the alluvium flows eastward, away from the Sierra Nevada Mountains and towards the central portion of the basin or towards the Owens Dry Lake. The Owens Lake is a groundwater discharge area where up-flowing groundwater is evaporated and, consequently, evaporite salts are produced.

Shallow groundwater beneath the site occurs under unconfined conditions; although where fine-grained layers are present, local semi-confined conditions may occur. The upper aquifer material beneath the site is referred to as the Shallow Zone. The Shallow Zone is defined herein as the saturated sand and gravel aquifer that overlies the fine grained lacustrine layer that occurs at a depth of approximately 80 feet. All monitoring wells installed during this investigation are completed in the upper-most portion of the Shallow Zone.

The depth to the shallow groundwater table beneath the site gradually decreases towards the east. A small and sometimes subtle escarpment extends from the area north of the site (Cabin Bar Ranch) along an approximate north-south trend to the southern portion of the site. A series of springs occurs along this subtle escarpment. This escarpment is interpreted to be associated with the presence of an underlying fault referred to as the Spring-line fault. The interpreted Spring-line fault location is shown on **Figure 2**. The AP and EP are located east of the fault, whereas the FP is located west the fault. The fault is generally interpreted to act as a leaky groundwater barrier and the aligned springs and seeps are caused by a small rise of shallow groundwater and the subsequent intersection of groundwater with ground surface along the fault. An alternate interpretation is that the rise of groundwater is associated with the increase in fine-grained lacustrine deposits towards the east causing a permeability barrier. However, the linear nature of the spring locations suggests the fault interpretation is more likely. Whatever the cause, it is clear that the easterly groundwater flow is impeded and subsequently produces a rise of the groundwater table resulting in observed springs/seeps along a linear trend in the central and eastern portions of the site. This rise of groundwater in the area, together with the high regional evaporation rate, has created soils with high salt content.

Groundwater quality is an important component for the current groundwater investigation. Generally, concentrations of TDS, sodium, carbonate and metals, including arsenic in the Shallow Zone is expected to increase to the east toward the Owens Dry Lake Bed where up-flow of groundwater and evaporation processes have created salt pans. As noted in previous reports (Geosyntec, 2015a and 2015c) and based on previous investigations at the site, arsenic, at levels above the MCL of 10 µg/L, is well known to be a naturally occurring element in the soil, alluvium, and groundwater in the site region. Generally, elevated arsenic concentrations are characteristic of groundwater derived from the Eastern Nevada watershed. Arsenic concentrations at several of the site groundwater monitoring wells installed in the Phase 2 investigation (2015a) are within the range of expected naturally occurring background concentrations. Site production wells located west of the Spring Line fault, which produce from deeper portions of the Shallow Zone, have arsenic in the approximate range of 16 to 28 µg/L². It is assumed that naturally occurring arsenic concentrations in groundwater increase east of the Spring Line fault and reach very high levels beneath Owens Dry Lake. Shallow groundwater sampling (< ~10 feet) by others beneath the eastern portion of Owens Lake documented arsenic concentrations in the range of 1,400 –163,000 µg/L (Levy et. al., 1999). Levy et. al. also report very high salinity (up to 300,000 mg/L) in the shallow Owens Lake groundwater. It is likely that these elevated concentrations are associated with the fine grained lacustrine deposits and salt deposits. Thus, as the presence of these layers increases, it is expected that naturally occurring arsenic concentrations as well as TDS will likewise increase. However, this expected increase is a general trend and will also be dependent on the volume of fine-grained lacustrine sediment encountered in each area.

As noted in the previous paragraphs, the AP and EP are located east of the Spring Line Fault. The discharge of metals to the AP in particular, has resulted in locally elevated levels of antimony and arsenic in locations proximal and downgradient to the AP and EP. The groundwater gradient in this area is towards the northeast. Therefore, any migration of the groundwater plume is towards the Dry Owens lakebed, where groundwater is extremely saline with elevated natural concentrations of arsenic in the shallow groundwater. Although the shallow groundwater in the Owens Valley Groundwater Basin is designated for beneficial use, the groundwater beneath the Dry Owens Lake proximal to the Site is not currently being produced nor can foreseeably be used as a drinking water resource.

² Range of arsenic concentrations based on annual sample results in 2012 and 2013 from CGR production wells CGR-1, CGR-3, CGR-5, CGR-6, and CGR-7.

5.0 INVESTIGATION OBJECTIVES AND DESIGN

The objectives and investigative design of the field investigation outlined in this Plan are as follows:

- The RWQCB in their October 2015 e-mail noted that anomalously high metal concentrations were detected in a soil sample collected at location MW-01 relative to other soil samples collected at the site. The MW-01 sample soil was collected at a depth of 15 feet. Arsenic and molybdenum exceeded the medium background concentration in the sample collected from MW-01. To further evaluate potential soil metal impacts in the area of MW-01 (northwest of the FP) one additional boring will be completed. The boring will be completed approximately 10 feet southeast of MW-01 (between the MW-01 location and the FP. The additional samples will be collected in order to evaluate whether or not the metals in MW-01 may have come from the FP or if it is more likely that the metals in the MW-01 sample are of a natural origin. The location of the additional boring (B-1) is presented on **Figure 6**.
- The RWQCB in their October 2015 e-mail indicated that further investigation is necessary evaluate the full lateral extent of groundwater impacts. Five additional monitoring wells to further delineate potential impacts to shallow groundwater will be installed. One monitoring well will be located east of the FP (MW-10). Three monitoring wells will be located in the vicinity of the AP (MW-11, MW-12, and MW-13). One monitoring well (MW-14) will be completed southwest of the EP to further evaluate water quality background conditions. The location of the 5 additional monitoring wells is shown on **Figure 6**.
- The RWQCB in their October 2015 e-mail indicated that further investigation of the vertical extent of groundwater impacts is necessary. To preliminary evaluate the potential for impacts to deeper groundwater, monitoring well OW-8US will be sampled. The location of well OW-8US is shown on **Figure 6**. Well OW-8US is screened in a deeper portion (from 55 to 75 feet below ground surface [bgs]) of the shallow groundwater zone. In addition, vertical gradients will be evaluated by measuring groundwater level elevations in MW-11, OW-8US and a deeper monitoring well OW-8U. OW-8U is located in the proposed MW-12 area and is screened in a deeper aquifer from 190 to 230 feet bgs.

6.0 FIELD METHODOLOGY

The field methodology proposed in the plan is outlined in Sections 6.1 through 6.6 below. A Sampling and Analysis Plan (SAP) detailing soil and groundwater sample collection procedures, direct push, and hollow-stem auger drilling procedures, and well installation, development and sampling procedures is presented in the *Site Investigation Work Plan* (Geosyntec 2014).

6.1 Pre-field Preparation

The Health & Safety Plan (HASP) prepared for the Phase 1 and Phase 2 investigations will be reviewed and modified if necessary. The HASP includes an analysis of the site work hazards and potential chemical exposures associated with the field work proposed for this Plan. Sub-contractors working on the project will provide their own personnel with Health & Safety Plans. All site personnel will be required to have forty-hour health and safety training (CFR 1919.120).

Permits for the soil boring near MW-01 are not anticipated to be required for the direct push borings. Permits for the groundwater monitoring wells will be obtained from the County of Inyo as necessary.

6.2 Direct Push Drilling and Soil Sampling

One (1) direct push boring will be completed in the northwest corner of the FP in the vicinity of monitoring well MW-1. The preliminary direct push boring location is shown on **Figure 5**³. A detailed SAP for direct push drilling is presented in Geosyntec (2014). Specifically, the boring will be located approximately 10 feet southeast of MW-01. The exact location of the boring may change slightly depending upon access conditions encountered in the field. The completion of the boring will enable collection of the following data:

- Lithologic data in the shallow soils adjacent to the FP and MW-01;
- A direct push drill rig will be used to core a borehole to approximately the top of groundwater as measured in MW-1. The lithology will be logged in general accordance with the Unified Soil Classification System, under the direct supervision of a California Professional Geologist. Soil samples will be

³ The direct push boring location shown on Figure 2 is preliminary and may be moved slightly based on site access limitations.

collected approximately every 5 feet for laboratory analysis. The soil cores will be inspected for any obvious signs of contamination (staining, odors, PID), and if signs of contamination are present. It is anticipated that three (3) soil samples from the boring will be selected for laboratory analyses; and

- After collection, the soil samples will immediately be placed in a cooler with ice, and will be transported for overnight delivery to a State-certified laboratory under standard Chain-of-Custody documentation.

Following sampling, the borings will be backfilled using medium bentonite chips poured into the borehole in 1-foot lifts and hydrated with water after each lift to seal the borehole.

6.3 Groundwater Monitoring Well Installation

A total of five additional 2-inch diameter PVC monitoring wells will be installed (MW-10 through MW-14). Monitoring wells will be installed using a hollow-stem auger (HSA) drill rig. A HSA drilling, well installation, well development, and groundwater sampling plan is presented in Geosyntec (2014). A summary of the anticipated well design is presented below; however, this design may change depending on lithology encountered during drilling.

A borehole drilled with an 8-inch hollow stem auger will first be completed to a target depth of approximately 10 feet below the top of the static groundwater table. The monitoring wells will then be installed. The monitored wells will be constructed of 2-inch diameter flush threaded Schedule 40 PVC blank casing and 0.010-inch slotted screen. The shallow wells will have a screen interval of approximately 15 feet (approximately 10 feet of screen will be installed below the water table, and 5 feet of screen will be installed above the water table). The annulus between the screen interval and the borehole wall will be filled with #2/10 sand that will extend from the bottom of the borehole to approximately two feet above the top of the screen. The remaining borehole will be sealed using hydrated bentonite pellets above the sand filter pack. The bentonite pellets will be hydrated with water at one-foot lift intervals to provide a surface seal. The sand and bentonite pellets will be installed through the HSA. If the groundwater table is shallower than 10 ft bgs, a 10-foot long well screen will be installed at a minimum depth of 15 ft bgs, so that a minimum of 5 feet of hydrated bentonite seal material can be installed for a surface seal.

During drilling, soil samples will be collected every five feet bgs using a California Modified split-spoon sampler. The field geologist will prepare a boring log describing lithology. The field geologist will record construction details of each well and of all

materials installed in the borehole. The monitoring wells will be completed at the surface with three-foot tall monument well boxes set in a concrete pad. The location and elevation of each monitoring well will be surveyed for position and well head elevation by a licensed California land surveyor.

The wells will be developed following installation. Each well will be developed using a surge block, bailer, and submersible pump. The wells will be developed with a 2-inch diameter submersible pump. See Geosyntec (2014) for detailed well development procedures.

6.4 Groundwater Sampling and Groundwater Level Measurements

Groundwater level measurements and samples will be collected from the five additional monitoring wells and well OW-8US. In addition, groundwater levels will be measured in well OW-8U completed in the deeper aquifer. As part of normal procedure groundwater levels will be measured with an electric water level indicator to the nearest 0.01 foot. In the case of OW-8U, artesian conditions have occurred in the past, and therefore a pressure device may be used to measure groundwater levels.

The additional monitoring wells and well OW-8US will be sampled as part of current quarterly monitoring program in order to sample all site wells as a group. Groundwater samples will be collected using low flow methodology. See Geosyntec (2014) for detailed groundwater sampling procedures. During well purging groundwater will be monitored in the field for pH, temperature, electrical conductivity, dissolved oxygen, oxidation reduction potential, free chlorine and total residual chlorine.

6.5 Laboratory Analyses

Soil and groundwater samples will be sent to Eurofins Calscience Environmental Laboratories in Garden Grove, California. Shipping packages containing the samples will be delivered to the laboratory via overnight delivery. Soil and groundwater samples will be shipped in coolers containing wet ice. All samples will be transferred to the analytical laboratory under proper Chain-of Custody (COC) protocol.

The following constituents will be analyzed in the MW-01 soil sample:

- CAM 17 metals using EPA Methods 6010B/7471A

Note that we are proposing to only analyze the soil samples for metals as other constituents analyzed during the Phase 2 investigation including in nearby monitoring wells (MW-01 and MW-02) do not appear to have concentrations that indicate any pollutant impacts. The previous soil sample collected from the MW-01 boring

contained elevated metals concentrations and, therefore, the soil samples collected from the proposed soil boring (B-1) will be analyzed for metals to evaluate if potential leaks from the FP are contributing to elevated metals concentrations in this area or if the metal concentrations observed in MW-01 are most likely from natural sources.

The following constituents will be analyzed in groundwater samples:

- CAM 17 metals (dissolved only) using EPA Method 6020 ICP/MS
- Priority Pollutants-Organics (VOCs and SVOCs) using EPA Methods 8260B and 8270C
- Total and Fecal Coliform using SM 9221B;
- Methylene Blue Active Substances using SM 5540C;
- General Minerals (sodium, calcium, magnesium, chloride, bicarbonate, and sulfate) using EPA Method 300.0;
- Total Dissolved Solids using SM 2540C;
- Total phosphate and phosphorus using SM 4500; and,
- Total nitrogen, nitrate as nitrogen, ammonia, and Total Kjeldahl nitrogen using SM 4500.

A list of the proposed methods for the analytical schedule and associated minimum reporting limits were provided in Geosyntec (2014). Note that we are proposing only to sample for dissolved metals in groundwater due to the fact that in the past dissolved metal concentrations have been similar to total metal concentrations (Geosyntec, 2015d). In addition, the turbidity in several of the monitoring wells is slightly elevated (i.e., turbidity above 5 NTU) due to the fine grained nature of the saturated materials in the upper Shallow Zone and the limited well development. It is Geosyntec's opinion that the elevated turbidity in the groundwater samples could produce mis-leading and/or inaccurate results.

6.6 Investigative Derived Waste

All soil cuttings from drilling activities will be placed into Department of Transportation (DOT) approved 55-gallon steel drums and clearly labeled. All decontamination water, well development water, and well purge and sampling water will also be placed in DOT approved 55-gallon steel drums, and labeled. The waste drums will be stored on secondary containment pallets at an on-site location pending profile acceptance. A composite soil sample and composite waste water sample will be collected from the drums and analyzed for a waste profile as required by the selected

licensed waste disposal facility. It is anticipated that one composite soil sample will be collected for waste profiling purposes for the selected disposal facility.

7.0 SCHEDULE AND REPORT PREPARATION

Following approval from the RWQCB, the additional field investigation will be initiated. The soil sampling and well installation/development investigation (Sections 6.1- 6.3) will be initiated with 45 days of RWQCB approval. Field work will require approximately 7 days to complete. The new groundwater monitoring wells will be first sampled as part of the quarterly groundwater monitoring program.

An Additional Site Investigation Report will be submitted to the RWQCB. The report will contain a summary of the findings of the investigations, including a description of the lithology, boring logs and well completion logs, well development logs, and results of the laboratory soil analyses. The report will also include site cross-section. The report will also include recommendations for additional field work, if necessary.

The Additional Site Investigation Report will be completed within 45 days following receipt of the sampling data.

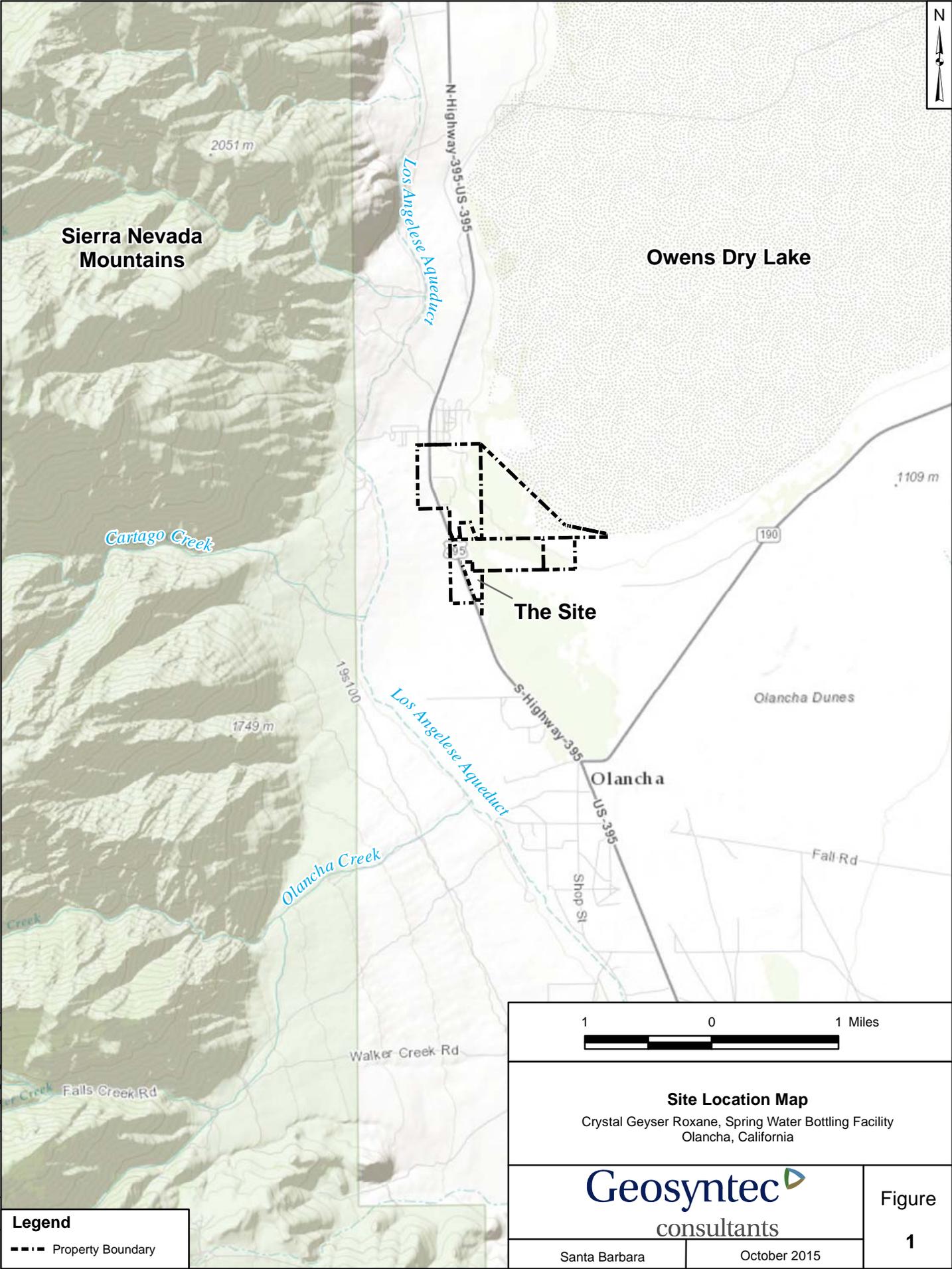
An anticipated schedule is as follows:

- RWQCB approval – January 30, 2016
- Completion of Field Investigation – March 15, 2016
- Completion of 1st Quarter Groundwater Sampling – March 31, 2016
- Submittal of Additional Site Investigation Report – May 15, 2016.

8.0 REFERENCES

- CGR, 2014, Facility Waste Generation and Discharges Report, October 16, 2014.
- Department of Water Resources 2003, California's Groundwater, Bulletin 118.
- Geosyntec 2014, Site Investigation Workplan, Olancha Spring Water Bottling Facility, 1210 South U.S. Highway 395, Olancha, California, October 17, 2014.
- Geosyntec 2015a, Phase 1 Site Groundwater Investigation Report, Olancha Spring Water Bottling Facility, 1210 South U.S. Highway 395, Olancha, California, February 16, 2015.
- Geosyntec 2015b, Site Investigation Work Plan Addendum, Olancha Spring Water Bottling Facility, 1210 South U.S. Highway 395, Olancha, California, May 29, 2015.
- Geosyntec 2015c, Phase 2 Site Groundwater Investigation Report, Olancha Spring Water Bottling Facility, Olancha, California. August 14, 2015.
- Geosyntec 2015d, Third Quarter 2015 Groundwater Report, Olancha Spring Water Bottling Facility, Olancha, California. October 15, 2015.
- D.B. Levy, J.A. Schramke, K.J. Esposito, T.A. Erickson and J.C. Moore 1999, The shallow ground water chemistry of arsenic, fluorine, and major elements: Eastern Owens Lake, California, Appl. Geochem. 14 (1999),
- James M. Montgomery, 1993, Environmental Impact Report/Environmental Assessment for the Anheuser-Busch Companies Los Angeles Brewery Water Supply Study.

FIGURES



Sierra Nevada Mountains

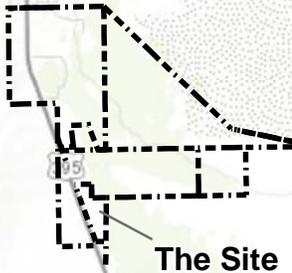
Owens Dry Lake

Cartago Creek

Los Angeles Aqueduct

N-Highway-395 US-395

1109 m



The Site

Olancha Dunes

190

1749 m

Los Angeles Aqueduct

S-Highway-395

Olancha

US-395

Olancha Creek

Shop St

Fall Rd

195100

Walker Creek Rd

Falls Creek Rd

1 0 1 Miles



Site Location Map

Crystal Geyser Roxane, Spring Water Bottling Facility
Olancha, California

Geosyntec
consultants

Figure

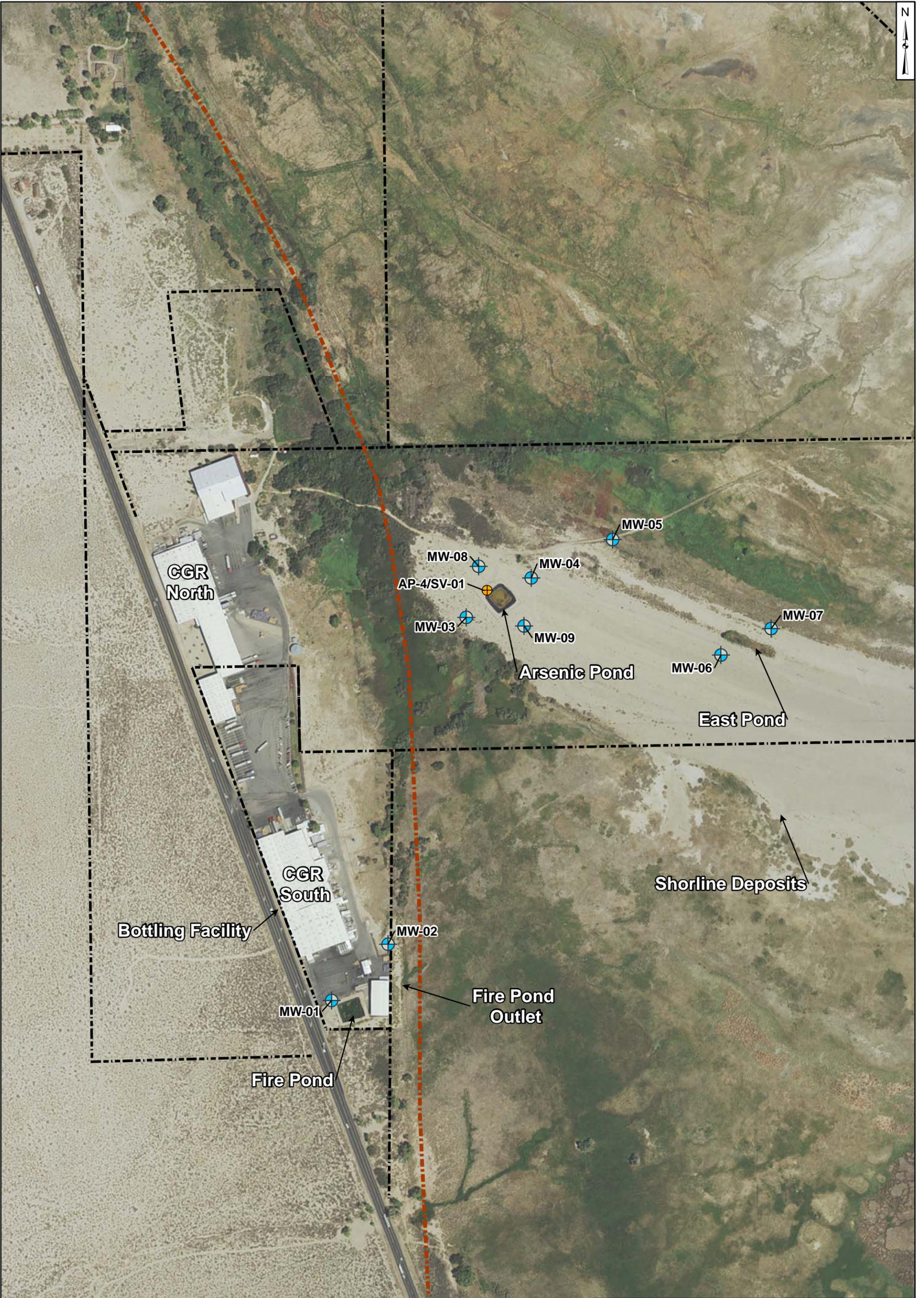
1

Legend

--- Property Boundary

Santa Barbara

October 2015



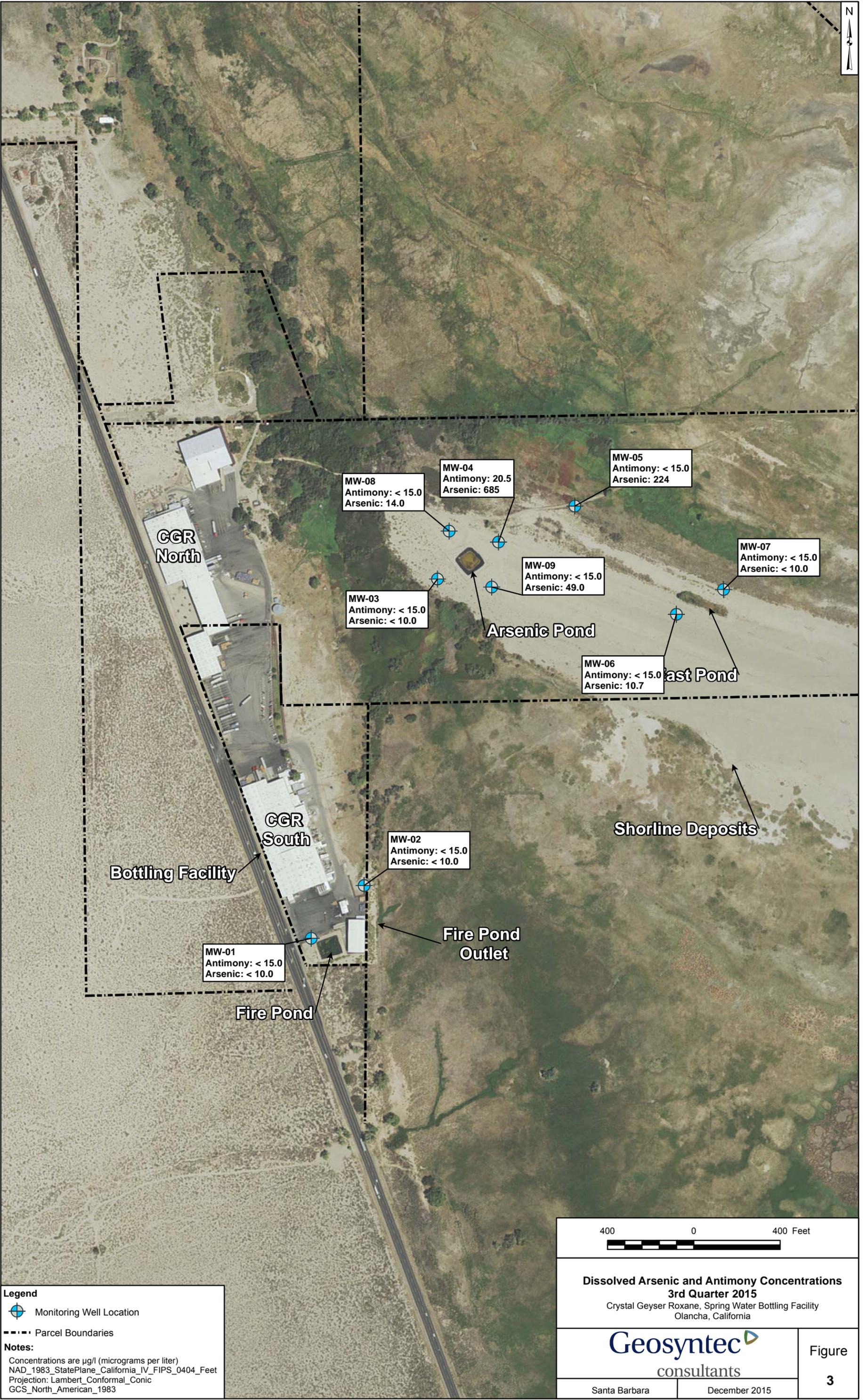
Legend

- Monitoring Well
- Approximate Boring Location
- Spring Line Fault
- Parcel Boundaries

Notes:
 NAD_1983_StatePlane_California_IV_FIPS_0404_Feet
 Projection: Lambert_Conformal_Conic
 GCS_North_American_1983

<p>Site Plan Crystal Geyser Roxane, Spring Water Bottling Facility Olanca, California</p>	
Santa Barbara	December 2015
<p>Figure 2</p>	

S:\GIS\Crystal Geyser\SB0748\Projects\Additional Site Investigation Work_Plan\Fig02_Site_Plan.mxd STM 20151218



MW-08
Antimony: < 15.0
Arsenic: 14.0

MW-04
Antimony: 20.5
Arsenic: 685

MW-05
Antimony: < 15.0
Arsenic: 224

MW-07
Antimony: < 15.0
Arsenic: < 10.0

MW-09
Antimony: < 15.0
Arsenic: 49.0

MW-03
Antimony: < 15.0
Arsenic: < 10.0

MW-06
Antimony: < 15.0
Arsenic: 10.7

MW-02
Antimony: < 15.0
Arsenic: < 10.0

MW-01
Antimony: < 15.0
Arsenic: < 10.0

Legend

- Monitoring Well Location
- Parcel Boundaries

Notes:

Concentrations are µg/l (micrograms per liter)
 NAD_1983_StatePlane_California_IV_FIPS_0404_Feet
 Projection: Lambert_Conformal_Conic
 GCS_North_American_1983

400 0 400 Feet



Dissolved Arsenic and Antimony Concentrations
3rd Quarter 2015
 Crystal Geyser Roxane, Spring Water Bottling Facility
 Olancho, California

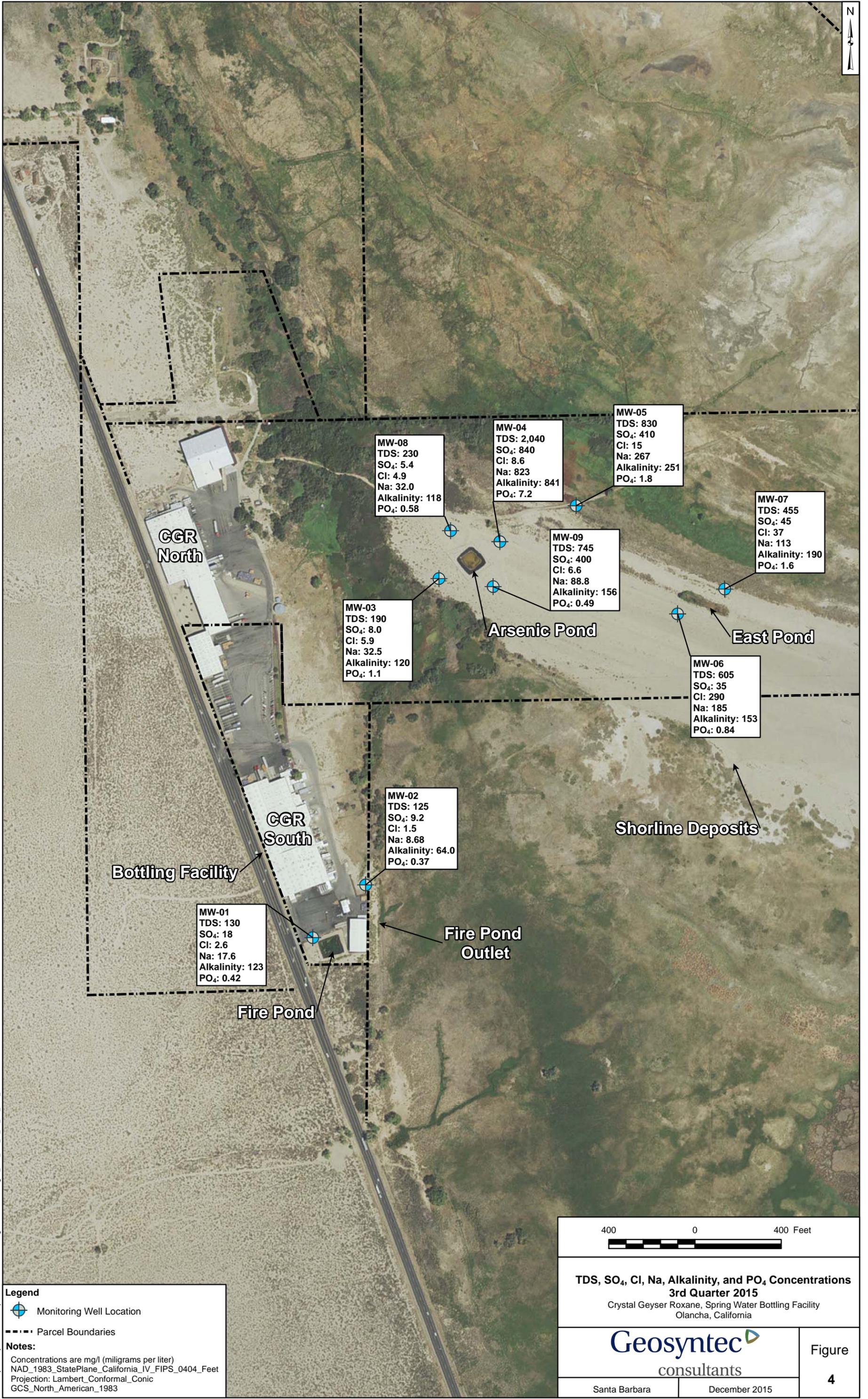
Geosyntec
 consultants

Santa Barbara

December 2015

Figure
3

P:\GIS\Crystal Geyser\SB0746\Projects\Additional Site Investigation Work\Plan\Fig03_As_Sb_Concentrations.mxd STM 20151217



MW-08
 TDS: 230
 SO₄: 5.4
 Cl: 4.9
 Na: 32.0
 Alkalinity: 118
 PO₄: 0.58

MW-04
 TDS: 2,040
 SO₄: 840
 Cl: 8.6
 Na: 823
 Alkalinity: 841
 PO₄: 7.2

MW-05
 TDS: 830
 SO₄: 410
 Cl: 15
 Na: 267
 Alkalinity: 251
 PO₄: 1.8

MW-07
 TDS: 455
 SO₄: 45
 Cl: 37
 Na: 113
 Alkalinity: 190
 PO₄: 1.6

MW-09
 TDS: 745
 SO₄: 400
 Cl: 6.6
 Na: 88.8
 Alkalinity: 156
 PO₄: 0.49

MW-03
 TDS: 190
 SO₄: 8.0
 Cl: 5.9
 Na: 32.5
 Alkalinity: 120
 PO₄: 1.1

MW-06
 TDS: 605
 SO₄: 35
 Cl: 290
 Na: 185
 Alkalinity: 153
 PO₄: 0.84

MW-02
 TDS: 125
 SO₄: 9.2
 Cl: 1.5
 Na: 8.68
 Alkalinity: 64.0
 PO₄: 0.37

MW-01
 TDS: 130
 SO₄: 18
 Cl: 2.6
 Na: 17.6
 Alkalinity: 123
 PO₄: 0.42

Legend
 Monitoring Well Location
 Parcel Boundaries

Notes:
 Concentrations are mg/l (milligrams per liter)
 NAD_1983_StatePlane_California_IV_FIPS_0404_Feet
 Projection: Lambert_Conformal_Conic
 GCS_North_American_1983

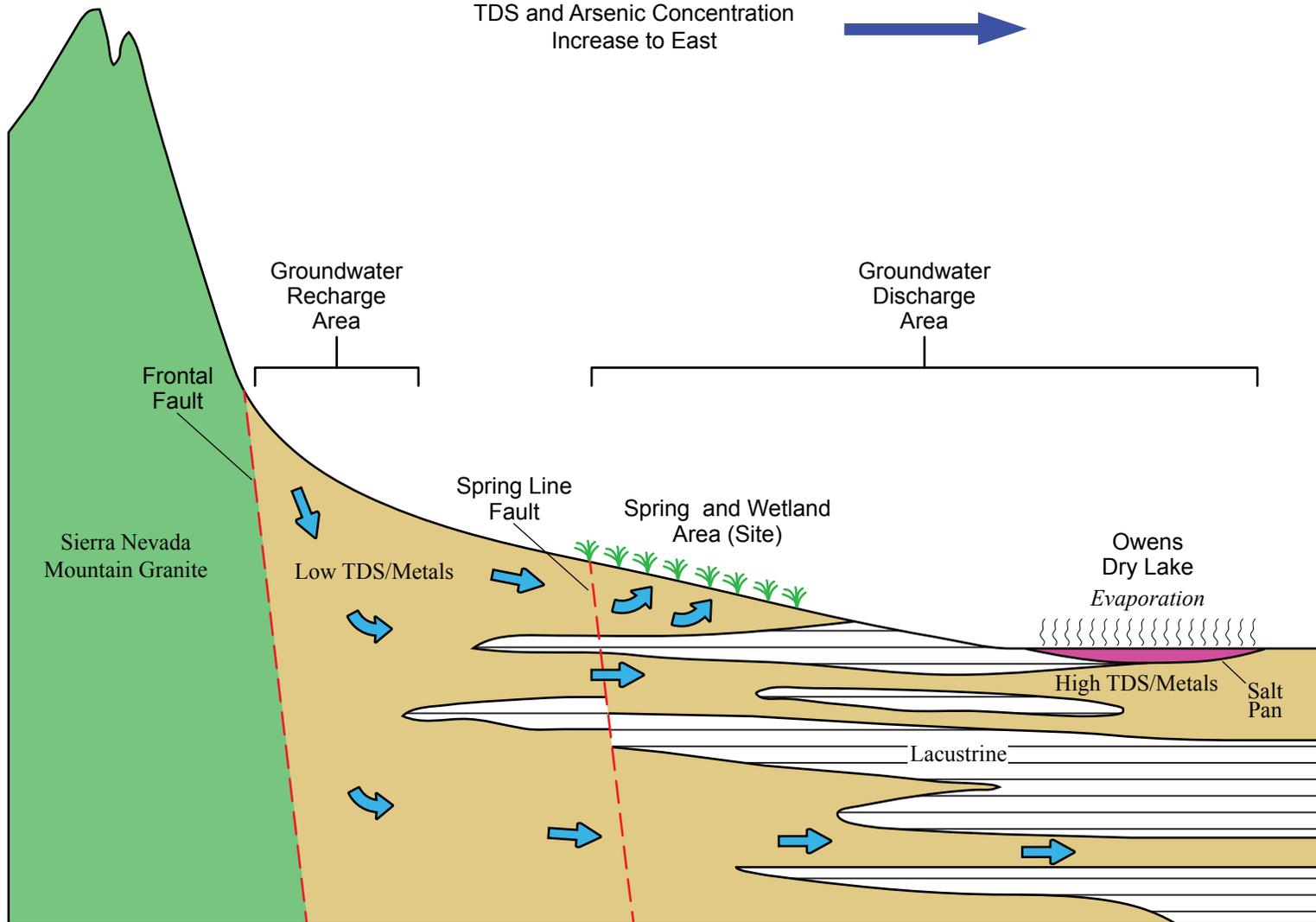
 400 0 400 Feet	
TDS, SO₄, Cl, Na, Alkalinity, and PO₄ Concentrations 3rd Quarter 2015 Crystal Geyser Roxane, Spring Water Bottling Facility Olancho, California	
Santa Barbara	December 2015
Figure 4	

P:\GIS\Crystal Geyser\SBO746\Projects\Additional Site Investigation Work Plan\Fig04_TDS_So4_Cl_Na_Ak_PO4_Concentrations.mxd STM 20151217

W

E

TDS and Arsenic Concentration
Increase to East



NOT TO SCALE

Hydrogeological Conceptual Model Illustration

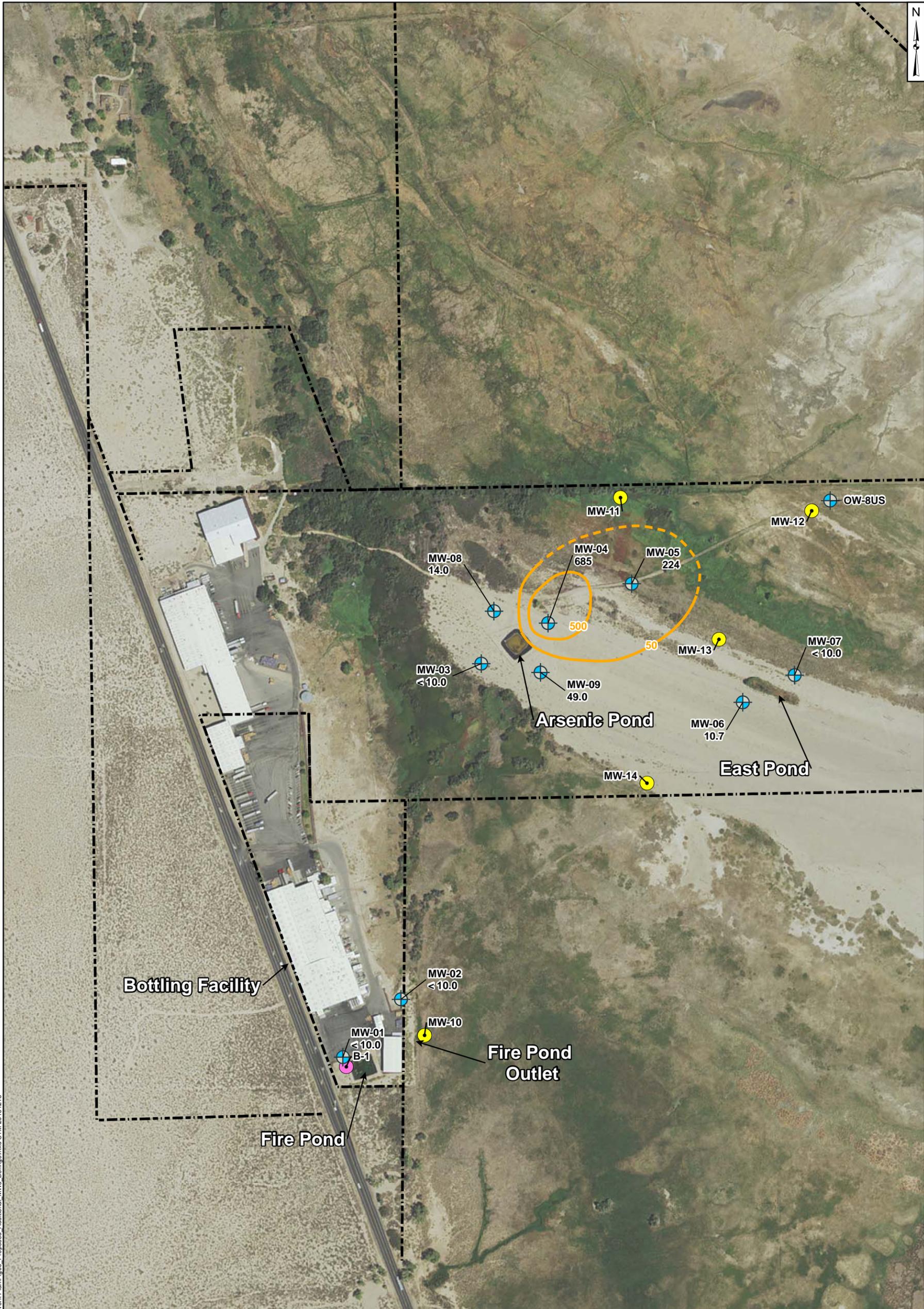
Crystal Geyser Roxane, Spring Water Bottling Facility,
Olancha, California

Geosyntec
consultants

Santa Barbara

December 2015

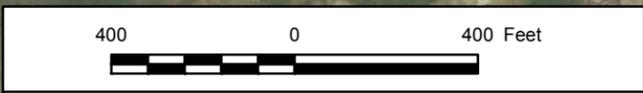
Figure
5



Legend

- Proposed Boring Location
- Proposed Monitoring Well Location
- Monitoring Well
- Arsenic Iso-Concentration Contour
- Arsenic Iso-Concentration Inferred

Notes:
 Units = micrograms per liter (µg/l)
 NAD_1983_StatePlane_California_IV_FIPS_0404_Feet
 Projection: Lambert_Conformal_Conic
 GCS_North_American_1983



Proposed Additional Monitoring Wells and Borings
 Crystal Geyser Roxane, Spring Water Bottling Facility
 Olancho, California

Geosyntec
 consultants

Figure
6

Santa Barbara December 2015

S:\GIS\Crystal Geyser\SS07\46\Projects\Additional Site Investigation Work Plan\Fig06_Proposed Additional MWs Borings.mxd STM 20151218