EXHIBIT 1
SCOPE OF WORK

INVESTIGATION AND OPERATION, MAINTENANCE AND MONITORING SUPPORT SERVICES

PERCHLORATE AND VOC MONITORING, GROUNDWATER TREATMENT SYSTEM AND UNIT 5 INVESTIGATION
(December 21, 2021)

PROJECT OVERVIEW

San Bernardino County's (County's) Groundwater Treatment System (GWTS) is operated by the City of Rialto at Rialto Well No. 3 (CR-3) to treat perchlorate and volatile organic compounds (VOCs) that are related to properties at and adjacent to the County's Mid Valley Sanitary Landfill (MVSL), and to make treated water potable for use by the Cities of Rialto and Colton. In the "Four-Party Agreement" (Agreement) between the Cities of Rialto and Colton, Emhart Industries (Emhart), and the County, the CR-3 GWTS is being expanded to enable concurrent treatment of Emhart-related perchlorate and VOC impacts to groundwater associated with a 160-acre parcel positioned northeast of the MVSL. This expanded groundwater treatment project is known as the "Combined Remedy". County-related groundwater impacts are known as the Western Perchlorate Plume, and Emhart-related impacts are known as the Eastern Perchlorate Plume.

While all groundwater pumped and treated at the Combined Remedy treatment plant will be delivered to the City of Rialto (Rialto), the City of Colton will receive water from Rialto equal to the volume of water pumped by Emhart for its plume containment remedy. Approximately 200 acre-feet per year of groundwater (AFY) will also be delivered to Colton as part of a separate Agreement between the County and Colton.

With respect to the GWTS, the Agreement stipulates that:

- The Combined Remedy will operate under a Domestic Water Supply Permit held by Rialto from the California Division of Drinking Water (DDW). Rialto will be paid an Operations and Maintenance (O&M) fee by the County and Emhart to operate the Combined Remedy. [Note that Rialto has contracted with Rialto Water Services (a division of Veolia North America) to operate the Combined Remedy].

- Emhart and the County will each stipulate to Rialto the groundwater production rates that each party needs for their respective plume containment responsibilities. The County's periodic requests regarding GWTS pumping locations and rates operations will

first be announced to the City who will then instruct Veolia to implement these pumping patterns. [Note that Emhart is expected to request fairly "steady-state pumping rates during the year while the County's requested pumping pattern includes seasonal adjustments to assure that water is sufficient for the City's high demand summer period].

- The County identifies required pumping rates for its Miro-2 and Miro-3 plume containment production wells as well as for pumping at CR-3. [Note that the Agreement also allows Emhart to stipulate pumping at CR-3 for its own purposes and at its own costs]. Emhart identifies the pumping rate required for its EW-1 plume containment production well.

- The County and Emhart are each separately required to fund repairs and replacement of treatment plant and production well equipment that they have each installed to address their separate responsibilities to remediate the Western and Eastern Perchlorate Plumes. Equipment repairs and replacement will be overseen by Rialto as part of O&M, and funds to perform this work will be provided to Rialto by the County and Emhart.

- Rialto is required to fund repairs and replacement of equipment related to normal operation of the City's CR-3 production well.

- Costs to operate the Combined Remedy treatment plant are shared between the County and Emhart based on the volumes that each separately pumps for their remedies and the concentration of groundwater contaminants in groundwater pumped by the two parties. These costs include energy and treatment media (granulated activated carbon for VOCs and resin for perchlorate).

- The "lifting costs" accrued by the County to pump its two plume containment production wells (Miro-2 and Miro-3) are reimbursed to the County by Rialto once "Peak" energy costs contained in Southern California Edison (SCE) invoices are modified to "Mid-Peak" rates (i.e., the City will not repay Peak charges but will repay Mid-Peak charges).

- The lifting costs accrued by Rialto to pump its CR-3 production well are the City's responsibility except that Peak energy costs are modified to Mid-Peak rates, and the County and Emhart are responsible for the differential between Peak and Mid-Peak rates. [Note that to the extent that Emhart does not stipulate required pumping at CR-3, it is not responsible for differential costs associated with Peak and Mid-Peak rates].

- The Cities of Rialto and Colton are responsible for funding chlorination of water based on the volumes delivered by the Combined Remedy to the two cities.

- The "lifting costs" accrued by Emhart to operate its plume containment production wells (currently just EW-1) are reimbursed to Emhart by Colton.

- Based on their respective responsibilities, costs for each of the four parties will be sorted in an annual "truth-up" that parses over- and underpayment by individual parties.

- Treatment plant sampling and analyses to satisfy the DDW Permit will be performed by Rialto (Veolia) as part of routine O&M.

- Groundwater monitoring well sampling for the County's monitoring well network will be performed by the County (GLA).

- Groundwater monitoring well sampling for Emhart's monitoring well network will be performed by Emhart's consultant.

PROJECT WORK SCOPE

Project work described herein is directed to support the County's GWTS in Rialto, California. Specifically, work will involve both routine and non-routine tasks to assure that the County's objectives are met and that its interests are well-represented.

ROUTINE TASKS

TASK 1 – REVIEW COMBINED REMEDY OPERATIONS

As the Contract Operator, Veolia will perform routine maintenance for the GWTS extraction wells and for the treatment plant and sample the extraction wells and treatment plant in accordance with the DDW Permit. Groundwater monitoring for the County's monitoring network will be performed by SWMD (see Task 2) in accordance with directives from the Regional Water Quality Control Board (RWQCB). As part of its duties, Veolia will also monitor the status of the treatment plant equipment and will arrange for non-routine maintenance (e.g., meter or valve repair/replacement; treatment media change-outs).

GLA's work for this task is expected to involve:

- Discussions with City and Veolia staff to review ongoing operations and any problems that come up.

- Review of City-generated treatment reports to make sure County and Emhart pumping locations and rates are tracked, and that appropriate sampling and analyses have been done to support cost allocation calculations.

- Review of City-prepared monthly summary reports that are submitted to DDW.

- Review of cost allocation calculations that will be performed by Rialto for the energy expended at the GWTS and at CR-3. A single meter measures energy required to lift (pump) groundwater from CR-3 to the ground surface (Rialto's responsibility) and the energy needed to push water through the treatment plant (County and Emhart responsibility). Rialto will calculate the energy cost allocation using a spreadsheet that was developed by GLA and County Counsel.

- Monthly meetings with Rialto, Veolia, Emhart, and SWMD to review ongoing operations, plan for changes in pumping locations and rates, prepare for GWTS repairs and media change-outs, and to explore unforeseen issues that may arise. Meeting notes will be prepared and distributed to SWMD.

- Periodic visits to the site to assess equipment status and to review non-routine maintenance funding requests (e.g., valve replacement or media change-outs).

- Review of system monitoring reports to assess the status of plant equipment (e.g., differential pressure across treatment vessels).

- Provide feedback should Rialto or Veolia have questions regarding system programming or hardware components.

- Review of groundwater pumping locations and rates to verify that they comport with the County's directives for plume containment.

- Review of preventative maintenance work that is performed to keep treatment equipment in good working order.

- Review of the City's cost allocation/sharing calculations to verify that charges to the County are correct.

- Review of SCE charges to the County for pumping at the Miro-3 well and preparation of a spreadsheet summary of charges that the County forwards to Rialto for payment.

- Review of Rialto/Veolia calculations of water volumes wheeled to Colton during the year to make sure that the County's responsibilities are addressed if the County uses the 200 acre-feet of groundwater rights that it may obtain from Colton if it desires.

TASK 1B – COORDINATION WITH EMHART INDUSTRIES

As noted above, Emhart's treatment plant expansion is part of a "Four-Party Agreement" between the cities of Rialto, Colton, Emhart and the County, and it has involved installation of

additional treatment equipment to address Emhart's pumping needs through the treatment plant to comply with USEPA directives to Emhart regarding the Eastern Perchlorate Plume. Since the expanded GWTS will act as a single plant, coordination of plant operations with Veolia and Emhart will be important to verify that the County's objectives are being met. In order for full connection between Emhart's new equipment and the County's existing equipment, several issues will need to be resolved. At a minimum, these include:

- Discussions with Emhart's consultant to make sure that the GWTS's operational logic is adjusted as necessary.

- The GWTS's programmable logic controller (PLC) will need to be reprogrammed to include the new, more complicated combined remedy operations.

- Perimeter security wall construction will largely be completed by the City, but its design and installation must meet County needs.

- Internal security must be addressed to safeguard treatment equipment and wells. GLA will review these plans, but construction and operational costs will be shared between the County and Emhart.

- Emhart is currently preparing permitting documents for the Combined Remedy. These documents affect the County's GWTS goals. GLA will review these documents and provide comments to the County for distribution to Emhart and Rialto.

- Periodic discussions with Emhart to review operational issues that come up and changes to both operational/maintenance procedures and treatment equipment that may optimize the Combined Remedy.

- Review of media change-out vendor selection and activities, and associated charges for appropriate County / Emhart split.

- Review and selection of appropriate method to "make-up" water needed for Colton when either the treatment plant or Emhart's EW-1 well are not operational.

TASK 1C – MEDIA REPLACEMENT REVIEW AND COORDINATION

This is an interim task that will be performed while the O&M work for the combined remedy is finalized with Emhart and Rialto. GLA will work with Rialto and Emhart to make sure that the media vendors that are selected during initial startup of the combined remedy provide appropriate costs.

TASK 2 - GROUNDWATER MONITORING & REPORTING

Monitoring Program - Groundwater monitoring and reporting will be performed for the Rialto GWTS in accordance with procedures detailed in the project Operations, Maintenance, and Monitoring Plan (OMMP) (GLA, 2016; 2021 [pending]) and as directed by the RWQCB (2015; 2021 [pending]).

As described in the 2016 OMMP, groundwater monitoring and reporting is currently performed on a bi-monthly basis. All GWTS monitoring wells are sampled in January and July, and select wells are sampled during the other four bi-monthly sampling events. All monitoring activities are completed in accordance with procedures approved by the RWQCB (GLA, 2011a, 2011b; RWQCB, 2012, 2015).

The County is currently preparing the 2021 OMMP which identifies streamlined monitoring that recognizes the +20-year wealth of Western Perchlorate Plume monitoring data. It proposes a change from bi-monthly monitoring to quarterly monitoring (with one network-wide annual monitoring event), and eliminates testing for constituents that have not been present in groundwater during the historical monitoring period. We estimate that project savings would be greater than $500,000 during the three years of the extended contract if the RWQCB approves these changes.

As indicated below, many of the wells and piezometers were constructed with separate "shallow" (i.e., "[S]") and "deep" (i.e., "[D]") well screen and casing segments within a single well bore to permit monitoring of multiple groundwater zones. Some wells were constructed as triple-cluster wells that monitor the Intermediate Aquifer (designated [B]) and also shallow and deep intervals of the Regional Aquifer (designated [C1] and [C2]). Several monitoring wells are multiport wells that permit sampling at six to seven discrete vertical elevations within each well.

In addition to extraction wells CR-3, Miro-2 and Miro-3, the County's GWTS includes 32 existing monitoring wells. Note that three more wells are expected to be required by the RWQCB to support development of the Unit 5 expansion area at the MVSL, bringing the total number of monitoring wells for the project to 35 wells. Since many of the wells are dual-nested wells and multiport wells, the total number of monitoring points is 111, with 42 single or nested monitoring points and 69 multiport monitoring points. Well locations are listed below and depicted on Figure 1 (attached).

RIALTO GROUNDWATER MONITORING NETWORK

Well ID	General Location	Sampling Intervals	Monitoring Frequency	Sampling Technique
F-3	Source Proximate	1	Semiannual (2x/yr)	HS
F-6	Source Proximate	1	Semiannual (2x/yr)	ESP
F-6A (S)(D)	Source Proximate	2	Semiannual (2x/yr)	DB
F-32	West Side	1	Semiannual (2x/yr)	DB
F-35 (S)(D)	Southwest	2	Semiannual (2x/yr)	DB
F-36 (S)(D)	Southwest	2	Semiannual (2x/yr)	DB
N-1 (S)(D)	East Side*	2	Semiannual (2x/yr)	HS/DB
N-2 (S)(D)	East Side*	2	Semiannual (2x/yr)	HS/DB
N-3 (S)(D)	Source Proximate	2	Semiannual (2x/yr)	QED/DB
N-5	Source Proximate	1	Semiannual (2x/yr)	QED
N-6 (S)(D)	East Side*	2	Semiannual (2x/yr)	DB
N-7 (S)(D)	West Side	2	Semiannual (2x/yr)	DB
N-8 (S)(D)	Center Plume	2	Semiannual (2x/yr)	QED/DB
N-9 (S)(D)	Center Plume	2	Semiannual (2x/yr)	DB
N-10 (S)(D)	Center Plume	2	Semiannual (2x/yr)	QED/DB
N-11 (S)(D)	East Side*	2	Semiannual (2x/yr)	HS/DB
N-12	Center Plume	1	Semiannual (2x/yr)	HS
N-13 (S)(D)	Center Plume	2	Bi-Monthly (6x/yr)	QED/DB
N-14 (S)(D)	Center Plume	2	Bi-Monthly (6x/yr)	QED/DB
N-15 (S)(D)**	Southeast**	2	Semiannual (2x/yr)	QED/DB
N-16 (B)	West Side	1	Semiannual (2x/yr)	DB
N-19R (B)(C1)(C2)	Source Proximate	3	Semiannual (2x/yr)	QED/HS
N-20 (6 Zones)	West Side	6	Semiannual (2x/yr)	Westbay
N-21 (S)(D)**	South	2	Bi-Monthly (6x/yr)	HS
Unit 5 Cluster#1 (S)(D)***	Source Proximate	2	Semiannual (2x/yr)	Westbay
M-1 (S)(D)	Center Plume	2	Semiannual (2x/yr)	QED
M-2 (7 Zones)**	South**	7	Bi-Monthly (6x/yr)	Westbay
M-3R (7 Zones)	Center Plume	7	Bi-Monthly (6x/yr)	Westbay
M-4 (S)(D)	West Side	2	Bi-Monthly (6x/yr)	Westbay
M-5 (7 Zones)	West Side	7	Bi-Monthly (6x/yr)	Westbay
M-6 (7 Zones)	East Side	7	Bi-Monthly (6x/yr)	Westbay
M-7 (7 Zones)	West Side	7	Bi-Monthly (6x/yr)	Westbay
M-8 (7 Zones)	West Side	7	Bi-Monthly (6x/yr)	Westbay
M-9 (7-Zones)**	South	7	Bi-Monthly (6x/yr)	Westbay
Unit 5 Multi #1 (7 Zones)***	Source Proximate	7	Semiannual (2x/yr)	Westbay
Unit 5 Multi #2 (7 Zones)***	Source Proximate	7	Semiannual (2x/yr)	Westbay

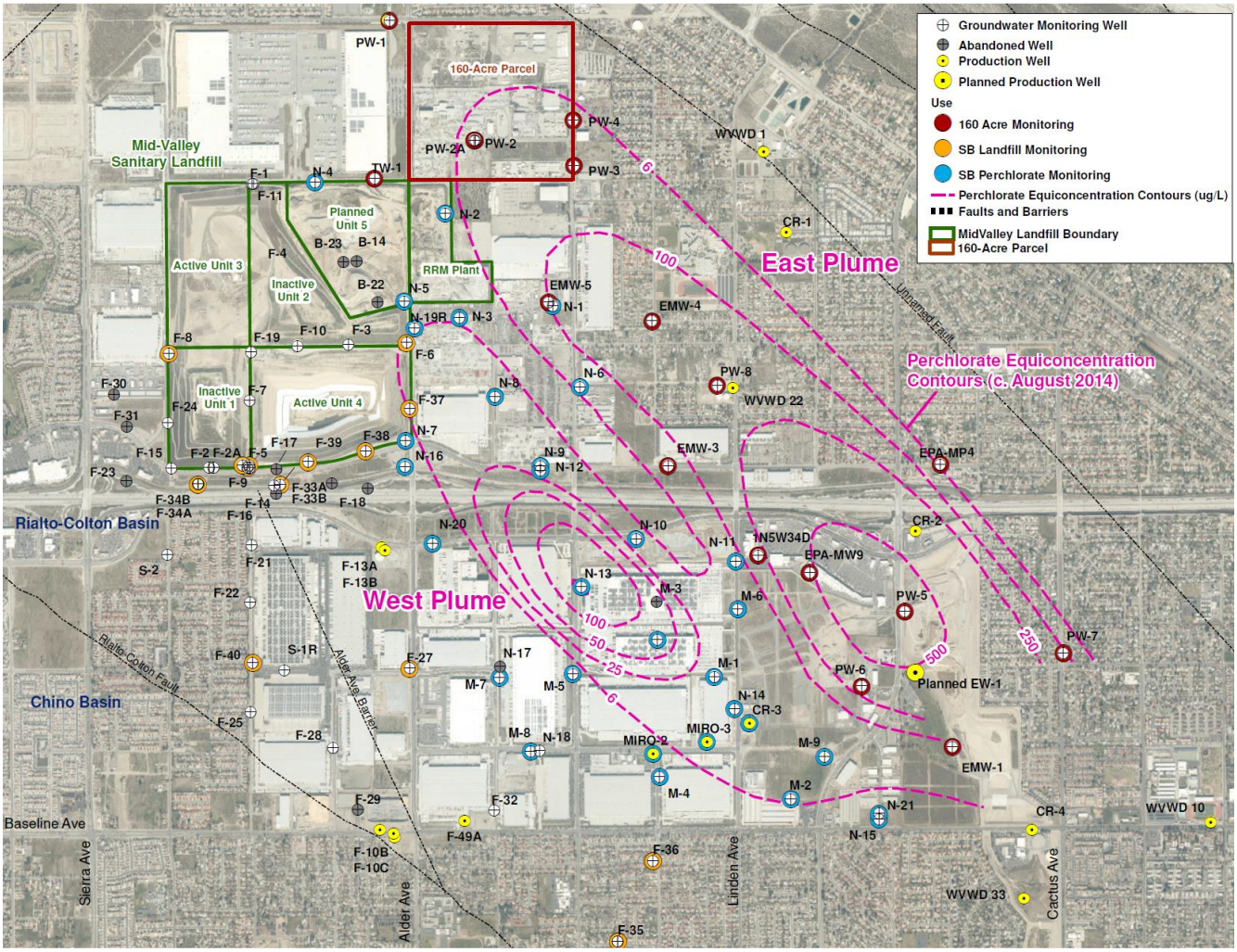
DB- disposable bailer; ESP- electric submersible pump; HS- Hydrasleeve; QED- bladder pump; Westbay; proprietary vessels.

*- Considered within Eastern Perchlorate Plume.

** - Downgradient of extraction wells.

*** - Planned for Unit 5 Expansion Project

Figure 1
Rialto GWTS Well Locations



<u>Groundwater Sampling</u> – Approximately one to two weeks prior to mobilization for each sampling event, GLA will order sample containers from our subcontractor, BC Laboratories (BC). GLA's sampling personnel will ensure that all sample bottles are "clean-certified" from the laboratory or supplier. Sample containers that appear dirty, used, or otherwise compromised will not be used. Sample bottles containing preservatives will be appropriately marked. Sample shipping containers, coolers, ice packs, and any other materials that may contact sample bottles will be regularly inspected for cleanliness, durability, and functionality. Damaged coolers will not be used, as they may compromise sample integrity. Sample containers will be provided by BC and will be stored in an area that is free from dust and exposure to organic chemicals.

Before sampling, each well will be inspected and any well-head problems will be noted on the field log. Significant problems with the well-head, such as those that prevent sampling or compromise the integrity of the well, will be reported to SWMD (verbally and in writing) within

24 hours of observation. Prior to sampling a well, the depth to groundwater will be measured to the nearest 0.01 foot from an established well datum (e.g., top of casing) using either a decontaminated electric sounding device or bubbler depending on the nature of any dedicated equipment present in the well. The depth to water will then be used to calculate the water surface elevations in the wells, and to calculate appropriate purge volumes for those wells not equipped with low-flow purge equipment. During each sampling event, in order to evaluate groundwater flow conditions, groundwater depths will be measured on the same day if possible in all accessible site wells.

Single samples will be collected from each monitoring point and these samples will be analyzed for the monitoring parameters specified in the RWQCB-approved OMMP. Groundwater samples will be collected following the procedures outlined in the *Practical Guide for Groundwater Sampling* (Barcelona, et al., 1985), *RCRA Groundwater Monitoring Technical Enforcement Guidance Document* (U.S. EPA, 1986), and *Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures* (Puls and Barcelona, U.S. EPA, 1995).

Samples are collected using four methods: (1) single or dual "cluster" wells with dedicated pumps are purged and sampled using those pumps; (2) grab samples are obtained from small diameter (2-inch) wells using virgin, disposable Teflon bailers; (3) grab samples are obtained from single or dual "cluster" wells that do not have dedicated pumps using HydraSleeve™ sampling techniques in accordance with protocols identified by the Interstate Technology Regulatory Counsel (ITRC, 2007), and (4) multiport wells are sampled using proprietary (Westbay Instruments)equipment that induces laminar flow of groundwater into stainless steel collection vessels. Multi-port well sampling equipment is decontaminated before and between sampling (using the protocols described above) and this process generates relatively small volumes of water.

Where wells are purged prior to sampling, purged water will be collected and monitored, and purging rates will be low enough so as not to induce turbulent flow within the well. As a well is purged, indicator parameters (pH, temperature, specific conductance, dissolved oxygen, salinity, and turbidity) will be monitored and recorded until they have stabilized to within about 10 percent of the preceding measurements and show no discernible upward or downward trend. For sampling locations where pumps are not used, samples will be collected in laboratory-supplied clean containers, and appropriate field instruments will be used as water is discharged to the containers for field measurements of indicator parameters. As approved by the RWQCB, the small volumes of water that are purged from wells will be contained in truck-mounted polyethylene tanks and discharged to the water disposal pit at the CR-3 treatment plant.

GLA recognizes that many of the field parameters (such as pH and dissolved oxygen) have a very short holding time, and therefore careful calibration of field instruments will be maintained. GLA will accomplish this calibration daily following manufacturer's recommendations.

All groundwater samples will be poured from the pump discharge or bailer directly into the sample containers by pouring the sample down the sides of the container with as little turbulence as possible. Sampling containers will be filled in order of volatility (volatile organic compounds first, then semi-volatile organic compounds, pesticides, herbicides, general chemistry, and metals). Vials for volatile organic analyses will be filled completely to fill all the air space, capped, turned upside down, and tapped to check for air bubbles.

Trip blanks will accompany sample containers from the laboratory, through the field operations, and return to the laboratory as a QC check to determine if contamination has been introduced from the sample containers or laboratory water. One trip blank, one equipment blank, and one field blank will be obtained per day of sampling. For wells without dedicated pump systems, equipment blanks will consist of distilled, deionized, reagent-grade laboratory water passed through representative sampling equipment (e.g., bailers and bottom emptying devices) as a test of equipment decontamination. Finally, field blanks will be collected by pouring laboratory provided reagent-grade water directly into a set of sample vials as a test of site-specific environmental conditions. Field blanks will be collected at a frequency of one per day. Based on our experience with this program, and the ability of the laboratory to provide adequate internal QA/QC, duplicate samples will be collected at a frequency of one per semi-annual monitoring event.

After a sample has been collected, it will be stored in a field ice chest where ice cubes or "blue ice" packs will be used to cool and maintain the samples. To prevent breakage, bubble wrap or an alternative material will be placed around the samples so they do not touch each other or the side of the shipping container. Each sample will be catalogued on appropriate Chain-of-Custody documentation after it has been collected, and these Chain-of-Custody records, and other appropriate paperwork, will be sealed in a plastic bag taped to the lid of the shipping container and will accompany each sample to the analytical laboratory. It is anticipated that samples will be provided to the laboratory courier at the end of each sampling day, and the field sampler will be responsible for the care and custody of the samples until they are shipped or otherwise delivered to the laboratory custodian.

As discussed in the following sections, GLA will review analytical data promptly upon receipt of certificates of analysis to assess possible departures from historical data or trends.

Responses for Sampling/Laboratory Contamination - While GLA strives to collect samples that are representative of field conditions, "false positive" or anomalous results are an expected artifact of any sampling program. When analytical results indicate that samples may have been impacted by field or laboratory conditions the results of the accompanying QA/QC samples will be evaluated to determine if the samples could have been contaminated during the sample collection or analytical processes. When field contamination is suspected, the sampling procedures will be reviewed with the sampling crew and/or analytical laboratory to minimize the potential for a repeat of the error. [For example, if gasoline components are detected in the samples and the field blank, it is possible that the samples were collected downwind of a gasoline-powered engine, and correction may include verification that samples are collected upwind of a potential contaminant source.]

In the case of suspected laboratory contamination, GLA will review the data to identify possible contaminant sources, and will meet with the analytical laboratory to discuss the historical data and potential false positive results. The laboratory will be required to identify the cause of laboratory-related sample contamination, and will be required to implement a program to reduce the possibility of future contamination. In any event, if the "false positive" cannot be readily dismissed, as a result of analytical or field QA/QC procedures, GLA will perform a retest of that monitoring point as required.

Verification Sampling - For purposes of verification, two discrete retest samples will be collected from each monitoring point where field and/or laboratory contamination is suspected using the same sampling and analytical protocols that were employed to obtain the primary sample. Retest samples will be collected within 30 days of determination of a possible anomaly, and will be analyzed only for those constituents that were associated with the anomaly. If the compound is not detected at similar levels in either of the retest samples, then a false positive detection will be concluded for the primary sample.

Data Validation - Data evaluation represents the most significant aspect of the monitoring and reporting program since without valid data, conclusions regarding plume conditions cannot be justified. Once validated, the data will provide a basis for interpretation of site conditions at a level that satisfies RWQCB requirements.

The data validation process will include implementation of all the QA/QC procedures that are identified in the RWQCB-approved Quality Assurance Project Plan (QAPP) that was prepared for this project (GLA, 2010). The overall organization and content of the QAPP follows the guidelines in the EPA document entitled, EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations (EPA QA/R-5, Draft Final, 1993). The QAPP was prepared to assure that data produced by the laboratory is scientifically sound, valid, defensible, and of known, acceptable, and documented quality.

Data Quality Objectives (DQOs) have been established to facilitate the production of statistically validated data in an efficient manner. The DQO process assures that the type, quantity, and quality of environmental data used in decision making is appropriate for the intended application. Data quality for this project is judged in terms of its precision, accuracy, completeness, comparability and representativeness. The laboratory DQOs established for each of these valuations is 90% where at least ten QC sample results are reported. The following sections separately summarize the DQOs as they relate groundwater samples that will be collected for the Rialto GWTS monitoring project.

> Accuracy - Accuracy is the degree of agreement between a measurement or average of measurements and an accepted reference or "true" value and, as such, is a measure of bias in the system. The Accuracy of a measurement system is impacted by the errors introduced through the preservation, handling, sample matrix, sample preparation, and analytical techniques. Acceptance limits are based upon previously established laboratory performance for similar samples. In this approach, control limits are established to reflect the minimum and maximum recoveries expected for individual

measurements for an in-control system. Recoveries outside the established limits indicate some assignable cause (other than normal measurement error), and the possible need for corrective action. This could include recalibration of the instrument, reanalysis of the QC sample, reanalysis of the samples in the batch, or flagging the QA/QC data as suspect if the problems cannot be resolved.

For this project, laboratory control sample (LCS), matrix spike (MS), and surrogate spike recoveries are the primary indicators of Accuracy. For the LCS, MS and surrogate spike samples, the laboratory introduces a known amount of chemicals to a laboratory QC sample and then compares the known chemical concentration with the measured concentration. As indicated in the laboratory certificates of analysis, each monitoring parameter has different control limits between known and measured concentrations.

Precision - Precision gauges the agreement among individual measurements of the same property under similar "prescribed" conditions. Control limits are established by the laboratory to define (quantify) Precision for duplicate laboratory control samples (LCSD) and duplicate matrix spike (MSD) samples from a preparation batch. Precision is confirmed when the relative percentage difference (RPD) for duplicate results fall within control limits. Project RPD control limits are indicated on the laboratory certificates of analysis.

Completeness - Completeness is a measure of the amount of successful analyses obtained from a sampling program compared to the amount expected to be obtained under correct, normal conditions. Successful analyses are derived from samples that arrived at the laboratory intact and accompanied by a completed chain-of-custody, were appropriately preserved, and contained sufficient volume to allow the requested analyses to be performed. Furthermore, the analyses must have been completed within specified holding times and in such a manner that the other analytical QC measures are met.

Comparability - Comparability involves an assessment of the confidence with which one data set can be compared to another data set measuring the same property. Although comparability cannot generally be quantified, the samples that will be collected for this project will be obtained in accordance with the project Sampling Plan and will be analyzed according to laboratory-specific Standard Operating Procedures (SOPs) that are consistent with federally established guidelines. Comparability is further facilitated by consistent laboratory analytical methods and basis of analyses (detection limits and volume, for example), consistency in the reporting units, and analysis of standard reference materials.

Representativeness - Representativeness involves an assessment of the degree to which analytical results accurately and precisely represent the characteristics of a population and is evaluated using field and laboratory method blank data. While laboratory and field blank samples should yield non-detect results, occasionally blank samples yield detectable concentrations which may reflect bias in the primary sample analytical results. However, if the detectable concentrations in blank samples are less than 10% of

the primary sample results, the primary sample results are considered acceptable.

Trend Analyses – Trend analyses will be performed to evaluate changes in plume concentrations and trajectories. Two methods will be employed. First groundwater analytical data for TCE and perchlorate will be plotted on time-series graphs along with measured groundwater elevations. Second, recognized computer program software will be used to identify both short-term and long-term trends for perchlorate and TCE using the Sen's Slope statistical method.

GWTS Operations - Based on the County's RWQCB-approved OMMP, a seasonal pumping pattern is being implemented with high pumping rates during the City's 5-month long high summer demand period and lower pumping rates during the remainder of the year. A summary of the GWTS operable status will be compiled and presented in each bi-monthly report. The status summaries will identify:

- Number of operable and inoperable days along with an explanation for the causes of any "down periods" and the steps that were taken to repair or service the treatment plant equipment.

- The total volume of groundwater pumped and treated.

- The range of perchlorate and TCE concentrations measured in samples obtained from GWTS extraction wells and the associated mass of contaminants that were removed from water.

Plume Containment Evaluation - In accordance with the OMMP, Western Plume containment will be evaluated using a variety of methods:

Data Review – The adequacy of the data collected during each monitoring period will be assessed to evaluate the ability of the GWTS to meet the project remedial action objectives (RAOs) identified in the Western Plume RI/FS (GLA, 2005b). Data collected should be consistent with earlier assessments of hydrogeologic and plume transport conditions in the project area, and with the site conceptual model. Deviations will be discussed along with an evaluation of the on-going plume containment strategy.

Field-Based Calculations of Plume Containment – Groundwater elevation measurements obtained at the GWTS monitoring wells will be used to develop equipotential contours to depict groundwater flow directions in and around the GWTS. This information will be used to verify that the Western Plume flows toward GWTS extraction wells.

Calculated Plume Containment Pumping Requirements - Equations provided in the USEPA guidance document (2008) will be used to calculate pumping rates required to contain the plume and to provide a low and high estimate of the width of the plume that is being captured by GWTS extraction. Using the USEPA equations, and based on the current groundwater gradient and the geometry of the Western Plume, the

pumping rate required to contain the plume will be calculated and compared to actual GWTS pumping rates.

Compatibility of Field Measured and Modeled Plume Behavior - Monitoring data collected during the monitoring periods will be evaluated with respect to conditions identified in the County's groundwater model (GLA, 2016) to determine whether adjustments to the model should be made to account for new conditions not anticipated by the model. Monitoring results will be evaluated with respect to concentration trends to evaluate plume trajectory and cleanup efficiency. Modeling will also be performed to assess the modeled plume capture width under current groundwater conditions and pumping stresses, and these results will be compared with both calculated and field measured conditions.

Summary - A summary evaluation will be made to assess the adequacy of the existing understanding of plume migration rates and trajectories, and to evaluate the effectiveness of on-going plume containment operations. This assessment will address the plume's target capture zone and the current pumping strategy for plume containment. Criteria for modifying these items in the future will be identified.

Monitoring Report Preparation

Prior to submittal of any work product to SWMD, GLA will provide comprehensive senior peer review of all deliverable technical documents. In addition, SWMD will approve all project work scopes and will also review all deliverables in draft form so that the final submittals are responsive to SWMD needs. A draft copy of each report will be submitted to the SWMD approximately two weeks prior to the RWQCB submittal date. GLA will distribute the reports on behalf of SWMD to the RWQCB, Rialto, DDW and other agencies as may be directed by SWMD.

Semi-Annual Monitoring Reports - The RWQCB has directed that all GWTS groundwater monitoring wells be sampled and reports be prepared for January and July sampling events each year. Each semi-annual monitoring report will contain the following:

- Executive summary
- Table of contents
- Introduction
- Background
- Hydrogeologic Setting
- Groundwater Monitoring Network
- Monitoring Activities
- QA/QC Summary
- Monitoring Results
- Discussion of Monitoring Results
- Groundwater Treatment System Operations
- Plume Containment Evaluation
- Closure

- References
- Tabulated Summaries of Measured Current and Historical Groundwater Elevations
- Tabulated Summaries of Current and Historical Laboratory Analytical Results
- Figures Depicting Groundwater Flow Directions
- Figures Depicting Perchlorate and TCE Distributions
- Tabulated Summaries of GWTS Operations and Sampling Results
- Figures Depicting Plume Capture Conditions

Bi-Monthly Monitoring Reports - The RWQCB has directed that select GWTS groundwater monitoring wells be sampled bi-monthly to support assessment of on-going plume containment efforts. These reports will include the following:

- Introduction
- Hydraulic Capture Analyses
- Groundwater Sampling
- Conclusions
- Tabulated Summaries of Measured Current and Historical Groundwater Elevations
- Figure Depicting Groundwater Well Locations and Flow Directions
- Tabulated Summaries of GWTS Operations and Sampling Results

TASK 3 – PROJECT ADMINISTRATION

Project administration includes tracking project progress and expenditures, review of contractor invoices, responses to SWMD and agency requests for information, and preparation of monthly invoices to SWMD.

NON-ROUTINE TASKS

Task 4 – GWTS SAMPLING

This is an interim task that will be performed while the O&M work for the combined remedy is finalized with Emhart and Rialto. It involves payment of the analytical costs that the City currently accrues to sample the Treatment Plant. Once the O&M work is defined and the four parties agree, the City will bill Emhart and the County directly for these analytical charges.

TASK 5 – GWTS EQUIPMENT REPAIRS AND REPLACEMENT

The GWTS equipment was purchased and installed by the County between 2005 and 2010, and continuing operability of the system is the County's responsibility. Though Rialto/Veolia will perform preventative maintenance, GWTS equipment will require non-routine maintenance, repairs, and replacement.

Many GWTS equipment parts are old and important replacement parts may be difficult, if not impossible, to obtain. The time and monies allocated for this task recognize that the GWTS has

operated for more than 17 years and that it is not possible to accurately predict the timing or scope of needed repairs.

Examples of equipment that may require repairs or replacement include:

- Faulty valves and meters.
- Damaged bag filter units.
- UV unit parts and repairs.
- Variable Frequency Drive parts and repairs.
- Treatment vessel parts and repairs.
- Logic system parts and repairs.
- Well Pump and motor parts and repairs.

TASK 6 – MVSL UNIT 5 PREDEVELOPMENT INVESTIGATION SUPPORT SERVICES

This task supports the Predevelopment Investigation planned for the Unit 5 expansion area immediately east of the MVSL. Major subtasks associated with this work include:

A. Preparation of a drilling contractor specification package. SWMD will issue the specifications and directly hire the drilling contractor for the project.
B. Logistical assistance to obtain drilling permits, survey proposed boring locations, and recalculate the depths required for drilling at each location.
C. Boring and well construction oversight. GLA will continuously observe all drilling contractor operations and will prepare boring logs and well construction summary logs for integration in a project report that will ultimately be submitted to the SARWQCB.
D. Laboratory analyses of soil and groundwater samples. GLA will assure that the testing program described in the project work plan is followed and that data are routinely reviewed, verified, and tabulated.
E. Preparation of the PI report. GLA will prepare a technical report that describes the methods used and results of the field and laboratory investigation.
F. Agency Liaison. GLA will work with the County to routinely communicate with RWQCB staff to keep them informed concerning project progress. Importantly, GLA will obtain approvals from RWQCB staff for project monitoring well configurations.

These major tasks are further described below:

Task 6A – Contractor Bid Assistance

- Prepare Technical Specifications for exploratory drilling, soil and groundwater sampling, and nested and multi-port monitoring well construction.
- Prepare well contractor bid documents and assist with distribution to qualified well contractors.
- Assist with review of well contractor bid responses and selection of a project well contractor.

Task 6B – Field Work Logistical Support

- Prepare and submit 18 soil boring and three monitoring well permit applications for submittal to the County of San Bernardino Department of Environmental Health Services.
- Retain and coordinate the services of a state-licensed Land Surveyor to confirm each of the 21 drilling locations and identify the pre-2000 ground surface elevation (i.e., original grade [OG]).
- Provide Dig Alert notification assistance that includes field marking to indicate drilling locations.
- Establish Health and Safety Plan (HASP) monitoring stations to support field work at the various drilling locations and to assess dust generation during completion of the work.

Task 6C – Borings & Well Construction Oversight

All boring and well construction work will be performed under the direction of a state-certified Hydrogeologist. Monitoring well construction will be performed directly for SWMD by a state-licensed (C-57) water well contractor in accordance with standards identified in DWR Bulletin No. 74-90. Well drilling and construction activities will be documented by supervised and qualified field geologists who will log borings, record well construction information, and retain groundwater samples for laboratory analyses. Task work involves:

- Provide a qualified field geologist for each drill rig mobilized for the project who will be responsible for collecting samples during drilling, will prepare boring and well construction summary logs, and will generally document all work that is performed.
- Provide a field assistant who will aid each field geologist during drilling and sampling work that occurs in the first 30 feet of subgrade below OG.
- Conduct weekly site visits by a project Hydrogeologist who will monitor and review work being performed by field geologists and the field assistant.
- Monitor all geophysical surveys conducted by the well contractor.
- Preparation of conceptual well construction plans for RWQCB approval that indicate where well screens and sampling ports will be located within completed wells.
- Provide full-time construction quality assurance during well construction activities.
- Collect a single round of samples from each newly constructed groundwater monitoring well in accordance with the Rialto Perchlorate Project sampling and analysis plan that has been approved by the RWQCB.

Task 6D – Laboratory Testing, Data Review, and Tabulation

- Obtain the services of a qualified analytical laboratory to perform soil and groundwater analyses in accordance with the project's work plan.
- Coordinate with the analytical laboratory to deliver all necessary containers and shipping coolers required for soil and groundwater sampling.
- Provide support staff responsible for receiving and cataloging analytical laboratory data as it is made available by the project laboratory.

- Perform an analysis of project analytical results to evaluate compliance with the Data Quality Objectives that are included in the Quality Assurance Project Plan that is employed for the County's Rialto Perchlorate and VOC monitoring program.
- Review and assessment of laboratory results.

Task 6E – Technical Reporting

- Preparation of a draft written report that describes the methods used to drill and construct the wells, the lithologic materials and groundwater conditions that were encountered during drilling and well construction, the configuration of the wells, and the results of soil and groundwater sample analyses.
- Identify areas that may be impacted by historical operations on the property with descriptions of the follow-on work that the County will complete to prepare for excavation activities.
- Preparation of a final written report that integrates County comments and edits.
- Upload the report to Geotracker.

Task 6F – Regulatory Liaison

- Represent the County in discussions and meetings with the RWQCB.
- Prepare supporting documents and exhibits as necessary.