Prepared for:

Lahontan Regional Water Quality Control Board

2501 Lake Tahoe Blvd

South Lake Tahoe, California 96150

Facility Waste Generation and Discharge Systems Report

Prepared by:

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This Facility Waste Generation and Discharge Systems Report is submitted in accordance with the Lahontan Regional Water Quality Control Board's (LRWQCB) request identified in the July 24, 2014 Investigative Order No. R6V-2014-0063 for Crystal Geyser Roxane, Olancha Water Bottling Facility, Inyo County ("Investigative Order"). The responses contained herein follow the information outlined on pages 7-9 of the Investigative Order. Each LRWQCB data request item is listed followed by CG Roxane's response.

1. **A full narrative description of all Facility processes that generate a waste product that must be disposed of at the Facility site or at an offsite facility. The narrative description shall also identify all pollutants present in the waste and the key waste characteristics (e.g., the presence and concentrations of nutrients such as nitrogen species and phosphorus species, metals, pH, toxicity, and waste designation (in accordance with California Code of Regulations [CCR] Title 27, i.e., designated waste or hazardous waste)).**

A. Background

CG Roxane constructed the Olancha facility in Inyo County, California, ("Facility") in 1990. The Facility was established and remains a food processing operation that bottles spring water. The Facility has been licensed to operate by the California Department of Health, Food and Drug Branch (CDHF&B). The Facility is comprised of two distinct bottling-production and warehousing areas (i.e., "Olancha North" and "Olancha South") which run in north-south direction along Highway 395. See Annex 1: Site Plans. Olancha North and Olancha South each contain three Production Water lines (i.e., #3, #5, #6 and #1, #2, #4, respectively). Olancha North and Olancha South also utilize separate water supply systems for its domestic supply and industrial supply that are both used apart from the Production Water.

Olancha North and Olancha South each generate discharges from both a domestic / industrial water circuit and a production water circuit. These separate circuits are described in more detail below. This section contains a narrative of the processes that generate wastewater. Details on the concentrations and volumes of waste streams, as well as the destination of those waste streams, are included in Section 3 below.

As background, in 2003, the Company installed a sand filter process within the Facility to remove naturally occurring arsenic within the groundwater at the Facility in order to meet revised state and federal drinking water standards. The process was inspected and approved by the CDHF&D prior to use. As more particularly described below, the various sand filter units are periodically (approximately every three to four months) regenerated through an arsenic desorption process and the wastewater discharges to a synthetically lined surface impoundment ("Arsenic Pond"). See Annex 1: Site Plan. At that time, CG Roxane obtained required excavation permits from the County of Inyo in order to construct the Arsenic Pond. The Company considered and mitigated against any potential Archaeological impacts by retaining a qualified archeological and Native American monitor prior to and during construction of the pond. The Company mitigated against any potential, but unforeseen, impacts by siting the Arsenic Pond considerably away from any springs and in an area downgradient from groundwater flow direction.

The Facility handles and stores various solutions and chemicals which are used in its disinfection, sanitization and filter regeneration processes, including those deemed "hazardous materials" such as caustic soda, sulfuric acid, and phosphoric acid. The Facility is authorized and permitted as a Certified Unified Program Agency / Hazardous Materials (CUPA) Facility by the Inyo County Environmental Health Services. As required by state law, the Facility routinely updates and submits a Hazardous Materials Business Plan and Hazardous Materials Inventory to remain CUPA compliant. See Annex 8: CUPA Compliance Documents.

B. *Domestic / Industrial Water Circuit*

There are separate domestic water circuits for Olancha North and Olancha South; however, the treatment process is the same for both circuit locations. Both Olancha North and Olancha South use water from two groundwater wells "CGR-3", (90' bgs) and "CGR-4"

(72' bgs), respectively. See Annex 1: Site Plan. See Annex 2 for CGR-3 and CGR-4 for groundwater analyses. Notably, the naturally occurring arsenic concentrations in groundwater levels from CGR-3 and CGR-4 are 30 µg/l and 15 µg/l, respectively, which are above current drinking water standards.

For both Olancha North and Olancha South, all water is withdrawn from the wells using a stainless steel, submersible pump and delivered to the Facility through a high-density polyethylene ("HDPE") pipe. All water is then filtered through 5 Micron Polyester Filter Bags ("Bag Filter") before being utilized for either (1) onsite domestic water use (i.e., restrooms, break rooms, laboratory sink, hose bibs, or other similar uses) or (2) the industrial cooling towers. Bag Filters are used to remove larger particles (such as silt, sediment, and sand) from the spring water prior to use. The Bag Filter system is equipped with pressure gauges, purges, valves and a sample port to facilitate cleaning, purging and monitoring. Prior to use, the Bag Filters are rinsed using hoses with spring water from the domestic wells (See Chapter 3: Table of Discharges) and the rinseate is collected through a floor drainage system and discharged to the percolation pond ("East Pond") by a pipeline outlet. See Annex 1: Site Plan. The bag filters are periodically replaced. The replaced bag filter is removed and disposed of as solid waste in the trash.

(1) *Domestic Water Use*.

Domestic water use at the Facility consists of the following:

- Restroom facilities
- Drinking water fountains
- Lab Facilities
- Hose Bibs

After the Bag Filter process, the domestic water for both Olancha North and Olancha South is filtered for arsenic through the use of independent arsenic removal units[1]. This

[1] AdEdge Technologies – Model 33-3072-CO-2-315.

process has been approved by the Inyo County Health and Human Services, Public Health Division. These units utilize a special media that removes arsenic from the water. Notably, these units are entirely self-contained and do not generate a waste stream as the arsenic remains attached to the media and contained in the units until the media will be periodically disposed of off-site. The specialized media has not required disposal to date at the facility. It is anticipated that at some date in the future the media may require disposal. At such time, the material will be appropriately handled pursuant to both state and federal law.

Following arsenic removal, the treated water for domestic use is then piped to a plastic tank where it is disinfected with chlorine solution (See Annex 4, MSDS – Liquid Chlorine). The domestic water is tested daily for chlorine at points-of-use (i.e., labs). The chlorine levels are maintained within a value range of 0.2 - 0.8 ppm, which is below the Maximum Contaminant Level (MCL) for drinking water.

Domestic wastewater is then discharged to underground septic tanks through a system of pipes (3 septic units for Olancha South and 1 septic unit for Olancha North). See Annex 6: Layout of Wastewater Discharge Systems. The septic tanks are regularly pumped by a licensed third-party agent[2]. Notably, the septic units do not generate any waste outside of the system itself as they remain entirely self-contained (i.e. they are not connected to leachfields or other disposal outlets).

(2) *<u>Industrial Cooling Towers</u>*.

The industrial cooling towers circulate water in order to remove process heat from various bottling production machinery. There are twelve total cooling tower units in the Facility (7 units for Olancha South and 5 units for Olancha North); each utilizing approximately 2,000 GPD when operational. After the bag filter process, cooling water is "softened" by an ion exchange resin that replaces calcium ion with sodium ion within the spring water. The softeners are associated with each cooling unit. Depending on its location, the unit will

[2] Preferred Septic and Disposal, Inc.

discharge wastewater (i.e., softened spring water) through a continuous draining process to either a drainage system toward the percolation pond or directly to the ground near the cooling towers. The discharge is estimated to have a concentration of less than 40 mg/l of sodium[3] based on the background levels of sodium in the groundwater from CGR-3 and CGR-4 (17 mg/l and 21 mg/l, respectively). Samples taken from water within the cooling tower units measured an average of 354.4 for Electrical Conductivity (EC) and 239.6 for Total Dissolved Solids (TDS) for Olancha South and 345.5 for EC and 239.6 for TDS for Olancha North. Samples could not be taken from discharged waste water as the units are currently not purging water. Notably, it is believed that the values for such discharges will be below the levels found within the units themselves. The background levels for CGR-3 and CGR-4 are 250 for EC and 150 for TDS and 190 for EC and 130 for TDS, respectively.

The ion exchange resin is regularly and automatically regenerated with sodium chloride. The regeneration process utilizes a sea salt solution that is passed through the ion exchange resin to remove the retained calcium.

C. Production Water Circuits

The production water (used in bottling) for Olancha South is sourced from groundwater well "CGR-2" (68' bgs). Production water for Olancha North is sourced from a blending of two groundwater wells: "CGR-2" (68' bgs) and "CGR-7" (106' bgs). See Annex 1: Site Plan. Notably, the naturally occurring groundwater concentrations for arsenic in CGR-2 and CGR-7 are 10 µg/l and 23 µg/l, respectively.

As with the domestic / industrial water circuits, production water is withdrawn from the same wells by stainless steel, submersible pumps and delivered to the respective Facility areas through either HDPE or stainless steel pipelines. At the Facility (North and South), the water is filtered through the same Bag Filter process previously described above. The water is then sent to stainless steel storage tanks for disinfection by ozonation. Olancha

[3] There is no drinking water standard for sodium.

South utilizes two 8,000-gallons storage tanks in parallel. Olancha North utilizes one 8,000-gallon storage tank. Water in those tanks is treated with ozone gas. The ozone concentration is analyzed and regulated by an automated system, which is regularly checked by onsite quality control staff. There are no chemicals used for cleaning or sanitation of the water within the storage tanks. Therefore, when the storage tanks are routinely purged between production periods[4] the discharge is only ozonated spring water, which contains the same compositions and concentrations as when withdrawn. See Chapter 3: Summary of Facility Discharges. The wastewater generated through purging of the tanks is collected through a floor drain and associated underground pipeline system, and discharged to the East Pond by a pipeline outlet. See Annex 6: Layout of Waste Water Discharge Systems.

Depending on the location in the Facility, the ozonated spring water from the storage tanks will pass through one of three Manganese Sand Filters ("Sand Filter")[5]. One Sand Filter (containing two vessels in parallel) is located in Olancha South serving production lines #1, #2, and #4. Two Sand Filters are located in Olancha North. One (containing two vessels in parallel) services lines #3 and #5, and the other (containing one vessel) services line #6. Each Sand Filter is used to remove certain threshold levels of natural occurring arsenic so that the production water meets Federal and State regulatory standards for drinking water. See Annex 10: Sand Filter Drawings.

Following arsenic removal, the production water is then delivered to a .1 Micron IMECA tangential microfiltration system made from ceramic composites (IMECA). There are two IMECA units in Olancha North and one IMECA unit in Olancha South. The purpose of these IMECA units is to serve as a fail-safe filter system in the unlikely event that some particulates are discharged through the Sand Filter. Approximately every 30 minutes during a production cycle, the IMECAs are purged using ozonated water in order to remove any particulate matter from the membrane. This wastewater is collected through a floor drainage system and discharged to the East Pond by a pipeline outlet.

[4] Purging is done in order to avoid water stagnation within the storage tank.
[5] Natural manganese sand, NSF approved.

A routine cleaning of each IMECA occurs approximately three times per year. Each unit has a dedicated Clean-In-Place (CIP) system, consisting of three separate tanks: (1) a tank containing approximately 185 gallons of 2% phosphoric acid solution ("Acid Solution") (See Annex 4: MSDS), (2) a tank containing approximately 185 gallons of 3% sodium hydroxide solution ("Alkaline Solution") (See Annex 4: MSDS), and (3) a water tank sourced from the storage tank. During a given cleaning cycle, the first phase of cleaning involves circulation of the Alkaline Solution into the IMECA system and back to the CIP tank. This is a fully automated closed loop system. Next, a water rinse is delivered from the CIP water tank and used to flush and remove organic deposits (i.e., colloids), if any, from the unit (approximately 800 gallons of water is used to rinse). This rinse water is discharged to the East Pond through a floor drain and associated pipeline system with an outlet[6]. See Annex 2: Layout of Waste Water Discharge System. The second phase of cleaning involves application of the Acidic Solution into to the IMECA unit and back to the CIP tank. This is a fully automated closed loop system. Next, a water rinse is again delivered from the CIP water tank to the unit in order to remove mineral deposits, such as iron, from the unit (approximately 800 gallons of water is used to rinse). This rinse water is discharged to the East Pond through the same floor drainage system and pipeline outlet. A total of 1,600 gallons of ozonated spring water is used to rinse the IMECA during this stage.

The third phase (sanitation) involves three cycles of ozonated water rinse from the storage tank only. This rinse water is discharged to the East Pond though the same floor drainage system and pipeline outlet.

The fourth phase (conditioning) involves three cycles of water from the CIP water tank. This rinse water is discharged to the East Pond though the same process as above.

After the cleaning has been completed, the CIP tanks for each IMECA unit are neutralized and purged according to the following process. All Acid Solution within the tank

[6] The steel value to the arsenic pond is closed and the steel value to the East Pond is opened allowing discharge to the East Pond only.

is individually purged into parallel tanks used for neutralization (or neutralized in situ). In the case of the Acid Solution, the Alkaline Solution is added for neutralization. When the solution has reached a pH value of between 6 and 9, the solution is discharged to the East Pond through a floor drainage system and pipeline outlet. In the same fashion, the Alkaline Solution tank is individually purged into parallel tanks used for neutralization (or neutralized in situ). In the case of the Alkaline Solution, the Acid Solution is added for neutralization. When the solution has reached a pH value of between 6 and 9, the solution is discharged to the East Pond through a floor drainage system and pipeline outlet. The water tank is simply purged and allowed to discharge to the East Pond.

The production water that has passed through the IMECA units is then delivered to a second set of stainless steel storage tanks prior to bottling. These tanks consist of an 8,000-gallon tank in Olancha North and a 2,500-gallon tank for Olancha South that source the Facility's six bottling fillers. The production water in these storage tanks is not treated in anyway. Furthermore, the filler piping circuit (outside of the tanks) does not require internal cleaning or sanitizing.

Depending on the location of an individual production line within the Facility, the production water is then delivered by an internal network of pipelines to two distinct types of bottle fillers: gravimetric or volumetric. Lines #2, #3, #4 and #5 use volumetric fillers that contain a water storage tank within the machine unit. At the end of a production cycle, the production water (i.e., spring water only) within these storage tanks is purged and discharged to the East Pond (except for line #2) through a floor drainage system and the same pipeline outlet[7]. The production water (i.e., spring water only) in the filler machine for line #2 is collected in a floor drain system and discharged to a lined surface impoundment used for fire protection through a pipeline outlet ("Fire Pond"). See Annex 2: Layout of Waste Water Discharge System. Notably, this filler production water, including draining of the raw water storage tank, (together, spring water only) is discharged to the Fire Pond. The Filler from line #2 is the only source of wastewater to the Fire Pond. The Fire Pond contains

[7] Purging is done in order to avoid water stagnation within the tank.

a vertical screened pipe located within the pond itself to allow for overflow. When the water occasionally reaches a certain level within the pond (the level of water in the pond is naturally regulated by evaporation), the pipe captures and discharges water to a small portion of a highly-disturbed cattle grazing field located directly east of Olancha South. This area is incorrectly described as a "nearby wetland/wet meadow habitat" in the Investigative Report[8] as it lacks characteristics necessary for wetland determination, and is naturally and invariably "dry" under conditions that overflow do not occur. See Annex 11: Photograph[9]. Furthermore, contrary to the assertions made in the Investigative Order, there is no presence of "aquatic habitat (wildlife and cold freshwater habitat beneficial uses)"[10] within this discharge area.

A routine cleaning and sanitization of certain production equipment surfaces, such as the fillers (i.e., food contact surfaces), is required under the Food and Drug Administration's ("FDA"), *Good Manufacturing Procedures* ("GMP"). The following two food-grade sanitizing foams are used: Phosphoric Acid (CD 470) and Quaternary Ammonium (Quorum clear V) (See Annex 4: MSDS). Details for the concentrations and quantities of the cleaning and sanitizing foaming solutions are listed in Chapter 3. The sanitizing foams are applied onto requisite surfaces with a spray application and rinsed-off with various hose bibs using domestic water. The rinse water is discharged to the East Pond (except from filler 2 which goes to the Fire Pond) through a floor drainage system and pipeline outlet.

Furthermore, a potassium hydroxide solution (Kleensall) is infrequently used to sanitize Facility surfaces, such as floors (See Annex 4: MSDS). The solution is mainly applied using towels and rags, which are collected and disposed of in solid wastebaskets (See Annex 4: MSDS; Chapter 9). Small food grade machinery parts, such as filler heads, are occasionally soaked in a Peracetic Acid Solution (Vortexx) (See Annex 4: MSDS).

D. Sand Filter Regeneration Process.

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[8] p. 6.
[9] Taken September 30, 2014.
[10] p. 6.

The trigger level of unit saturation for regeneration is set at 5 µg/l. The frequency of regeneration for each unit is dependent upon various factors, such as the volume of water processed during a given period, levels of natural occurring arsenic in the groundwater, etc. See Chapter 3: Table of Discharges. Other than arsenic removal, the production water is not cleaned or sanitized in any way when filtered through the Sand Filter units.

The Sand Filters are periodically regenerated through a "backwash process" for each unit. The backwash process consists of the following multi-step treatment process involving (1) the preparation of solutions in a tank, (2) injection of solutions through the sand filter media, and (3) back flush and forward flush raw water rinsing the sand filter media, and (4) "in-line" neutralization of the solutions prior to discharge to the Arsenic Pond.

Generally, during a given solution injection process, the pH levels for the wastewater are verified at a sample port in the sand filter room by quality control ("QC") personnel. The discharged wastewater from each sand filter unit is neutralized "in-line", as more particularly described below, with a 93% sulfuric acid solution ("Neutralizing Solution") (See Annex 4: MSDS). After application of the Neutralizing Solution, QC personnel will regularly test the waste stream for pH at the Arsenic Pond outlet to insure that proper neutralization has occurred. The target pH value for the wastewater is between 6 and 9 prior to discharge to the Arsenic pond. See Annex 9. In the event that the pH value does not meet the target value, QC personnel are instructed to modify the application of the Neutralizing Solution in order to reach target pH values. In the event that the pH value is less than 2 or above 12.5 during a given batch, QC personnel are instructed to immediately discontinue the regeneration process in order to access necessary corrective action / process modifications.

For sand filter regenerations occurring in Olancha North, the Neutralizing Solution is introduced through an underground, fully-sealed steel distribution in box.[11] For sand filter regenerations occurring in Olancha South, the Neutralizing Solution is introduced via an

[11] P. 6 of Investigation Report.

access drain located on a paved concrete area outside of the Facility's buildings. Both resulting waste streams are delivered from two separate pipelines and connect to a single pipeline that ultimately discharges to the Arsenic Pond from an outlet.

The following is a step-by-step description of the regeneration process:

- Step 1: Purging of Sand Filter / Solution Preparation. As a preliminary step, prior to commencement of the regeneration process, the production water retained in the sand filter is purged to the floor drain and discharged to the East Pond. This wastewater contains ozonated spring water only. Simultaneously, 550 gallons of 30% sodium hydroxide solution ("Caustic Soda) are mixed with 7,000 gallons of raw water within a plastic holding tank ("Solution"). The preparation takes approximately 30 minutes to complete. At completion, the Solution is estimated to have a 2.35% concentration of Caustic Soda.

- Step 2: Solution Injection. The Solution is injected with a pump into the sand filter media from the storage tank and delivered through the sand filter unit media. This solution injection process takes approximately 45 minutes to complete. During such time, the Solution is continuously purged to a floor drain and associated underground pipe connection system which discharges directly to the Arsenic Pond.[12] The waste stream is monitored for pH values regularly by QC personnel, and when necessary, neutralized "in line", as described above, prior to discharge to the Arsenic Pond.

- Step 3: Solution Preparation. Again, 550 gallons of 30% sodium hydroxide solution ("Caustic Soda) and 7,000 gallons of raw water are mixed in the same plastic holding tank ("Solution"). This preparation also takes approximately 30 minutes. The Solution is estimated to have the same 2.35% concentration of Caustic Soda. This step also does not generate any wastewater discharge.

[12] The connection to the East Pond is closed via a steel valve at the transfer box allowing discharge to the Arsenic Pond only. See p. 6 – Investigative Order.

- Step 4: Solution Injection. The Solution is injected into the Sand Filter media through the same pumping mechanism as described above. The injection period takes approximately 45 minutes. During such time, the Solution is continuously purged to the same floor drain and associated underground pipe connection system which discharges directly to the Arsenic Pond. As described above, the waste stream is monitored for pH values regularly by QC personnel, and when necessary, neutralized "in line" prior to discharge to the Arsenic Pond.

- Step 5: Rinsing Preparation. 7000 gallons of raw water only are collected into the same holding tank. There are no solutions added to the water during this step. The rinsing preparation takes approximately 20 minutes. This step also does not generate any wastewater discharge. The waste stream is neutralized "in line", as described above, prior to discharge to the Arsenic Pond.

- Step 6: Rinsing. The Sand Filter media is then rinsed with this raw water for approximately 45 minutes. During this step, the raw water passes through the media and is continuously purged by the Sand Filter unit to the same floor drain / underground pipe connection system which discharges directly to the Arsenic Pond. If necessary, the waste stream is regularly monitored for pH and neutralized "in line", as described above, prior to discharge to the Arsenic Pond.

- Step 7: Rinsing Preparation. Step 5 is repeated. This step does not generate any wastewater discharge.

- Step 8: Rinsing. Step 6 is repeated. If necessary, the waste stream is neutralized as described above.

- Step 9: Solution Preparation. 20 - 50 gallons of 93% sulfuric acid solution ("Acid Solution") are mixed with 7,000 gallons of raw water within the holding tank

("Solution"). The preparation takes approximately 30 minutes to complete. At completion, the Solution is estimated to have a 0.7% concentration of Acid Solution. This step does not generate any wastewater discharge.

- Step 10: Solution Injection. The Acid Solution is injected through the same process as described above. The injection process takes approximately 45 minutes to complete. As before, the Solution is continuously purged to the same floor drain and associated underground pipe connection system which discharges directly to the Arsenic Pond. If necessary, the waste stream is regularly monitored for pH and neutralized "in line", as described above, prior to discharge to the Arsenic Pond.

- Step 11: Rinsing Preparation. 7,000 gallons of raw water are collected in the holding tank for rinsing. This process takes approximately 20 minutes. This process does not generate any wastewater discharge.

- Step 12: Rinsing. The Sand Filter media is again rinsed with this raw water for approximately 45 minutes. During this step, the raw water passing through the media is continuously purged by the Sand Filter unit to the same floor drain and underground pipe connection system which discharges directly to the Arsenic Pond. If necessary, the waste stream is neutralized as described above.

- Step 13: Rinsing Preparation. 3,500 gallons of raw water are collected in the holding tank. This takes approximately 10 minutes. This process does not generate any wastewater.

- Step 14: Rinsing. Step 12 is repeated for approximately 10 minutes. If necessary, the waste stream is neutralized as described above.

E. Miscellaneous Solutions.

In addition to the above-mentioned items, there are various chemicals used within the Facility for its ongoing operations, such as: oil for engines and machines which are collected and deposited into plastic storage containers and hauled off-site by a third-party company[13] (See Annex 4; Chapter 9); solutions to clean manufacturing parts in non-drained injection-blow molding production areas which are collected and hauled off-site[14] (See Annex 4; Chapter 9); hand-sanitizers[15] for personnel which are rinsed-off in the domestic circuit and discharged to the septic tank or dissipate through evaporation; hand-care solution for personnel which are rinsed-off in the domestic circuit and discharged to the septic tank (See Annex 4); ink for printing manufacturing codes on bottles, trays and overwraps are collected and deposited into plastic storage containers and hauled off-site[16] (See Annex 4: MSDS); isopropyl alcohol used on rags to clean surfaces which are collected and disposed of in solid waste baskets (See Annex 4; Chapter 9); and DryEXX conveyer lubricant sprayed on conveyer belts (See Annex 4: MSDS).

None of the above mentioned chemicals are discharged to the ponds or ground at the site.

2. **A schematic diagram depicting all Facility processes that generate a waste product that must be disposed of either at the Facility site or at an offsite facility. The schematic diagram shall also identify and depict the onsite and offsite discharge facilities associated with each waste-generated process.**

Schematic diagrams delineating each production line's wastewater discharge are provided under Annex 5: Schematic Diagrams of Production Lines With Waste Discharges.

Explanations regarding wastewater discharges are described above. The details concerning the frequency, concentration, quantity, destination, nature, and flow rates are summarized in Chapter 3: Summary of Facility Discharges.

[13] Crane's Waste Oil Disposal Company
[14] Safety Clean
[15] Eco-care
[16] Crane's Waste Oil Disposal Company

Explanations regarding use and off-site disposal of other liquids and solid chemicals and solutions are described in Chapter 9 and Annex 7.

3. **A table providing the following information:**
   a. **waste production rates, or discharge volume and frequency, for each waste-generated process;**
   b. **onsite and offsite discharge facilities associated with each waste-generating process;**
   c. **a description of any temporary onsite waste storage facilities associated with each waste-generation process.**

Table X - Summary of Facility Discharges

Location		Flow in gpd	Flow in gpy (260 days)	Nature of waste water	Concentration in the waste water flow	Frequency	Destination
Bag filters / x7		121	31500	Spring water	-	Every two months	East pond
Imeca filter	Purge / x3	18,000	4,680,000	Ozonated water	0.02 to 0.07 ppm	Every hour	East pond
	Cleaning/sanitation / x3	119	31,000	Ozonated water + (phosphoric acid 2% + caustic soda 3% neutralized)	Both products are mixed and neutralized	Up to 6 times per year	East pond
Storage tanks Olancha South		5,000 to 25,000	6,500,000	Ozonated water	0.02 to 0.07 ppm	Every week to every day	East pond
Storage tank Olancha North		3,500 to 17,500	4,550,000	Ozonated water	0.02 to 0.07 ppm	Every week to every day	East pond
Ozone generator (#2)		1,440	374,400	Spring water	-	Every day	East pond
Cooling towers (# 12)		23,000	6,000,000	Softened spring water	-	Every day	East pond
Filler # 1 (0.5)		3,000	780,000	Ozonated water	0.02 to 0.07 ppm	Every day	East pond
Filler # 3 (1.5 l)		18,000	4,680,000	Ozonated water	0.02 to 0.07 ppm	Every day	East pond
Filler # 4 (0.24 l)		12,000	3,120,000	Ozonated water	0.02 to 0.07 ppm	Every day	East pond
Filler # 5 (Gallon)		18,000	4,680,000	Ozonated water	0.02 to 0.07 ppm	Every day	East pond
Filler # 6 (0.5 l)		6,000	1,560,000	Ozonated water	0.02 to 0.07 ppm	Every day	East pond
Filler / x5	Cleaning	100/500	26,000/130,000	Chlorinated water + acidic solution	0.1 g/l of phosphoric acid	Every day	East pond
	Sanitation	100/500	26,000/130,000	Chlorinated water + quaternary ammonium solution	0.3 mg/l of quaternary ammonium	Every day	East pond
Restroom Olancha South		-	70,800	Chlorinated water	0.2 to 0.8 ppm	Every day	Septic tank 1
Restroom Olancha South		-	59,400	Chlorinated water	0.2 to 0.8 ppm	Every day	Septic tank 2
Restroom Olancha South		-	41,400	Chlorinated water	0.2 to 0.8 ppm	Every day	Septic tank 3
Restroom North		-	132,600	Chlorinated water	0.2 to 0.8 ppm	Every day	Septic tank 4
Storage tank Olancha 2		100 to 500	130,000	Ozonated water	0.02 to 0.07 ppm	Every week to every day	Fire pond

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Filler # 2 (0.5)		18,000	4,680,000	Ozonated water	0.02 to 0.07 ppm	Every day	Fire pond
Filler #2	Cleaning	20/100	5,200/26,000	Chlorinated water + acidic solution	0.1 g/l of phosphoric acid	Every day	Fire pond
	Sanitation	20/100	5,200/26,000	Chlorinated water + quaternary ammonium solution	0.3 mg/l of quaternary ammonium	Every day	Fire pond
As removal system South		3,099	805,740	Ozonated and chlorinated water + caustic soda + arsenic	2.2 kg As/year	When necessary	"As" pond
As removal system North		9,523	2,476,000	Ozonated and chlorinated water + caustic soda + arsenic	2.8 kg As/year	When necessary	"As" pond
As removal system OI 6		5,573	1,448,980	Ozonated and chlorinated water + caustic soda + arsenic	1.9 kg As/year	When necessary	"As" pond

Explanations for each waste water type:

-Bag filter: when replaced, the Bag Filters are rinsed in place with clear spring water for 5 minutes at 150 gpm (= 750 gallons)

-Imeca filter: the unit purges every hour = (~6,500 gallons per day).

-Imeca filter: during the CIP process, after circulation of the 185 gallons of 3 % caustic soda within the looped system, the Imeca Filter is rinsed three times with 265 gallons of ozonated water. Next, after circulation of the 185 gallons of 2% phosphoric acid, the Imeca filter is rinsed three times with 265 gallons of ozonated water. Finally, the unit is rinsed with 1,323 gallons of ozonated water. Total rinse water generated is approximately 3,400 gallons.

-Storage tanks: There are 9 production water storage tanks; each storage tank is drained either every day or once a week depending on the production schedule.

-Ozone generator: The generators use domestic water within their cooling system. This is discharge is domestic water.

-Cooling towers: There are a total of twelve cooling towers at the Facility. They are estimated to generate approximately .5 gallons - 1.3 gallons of discharge per minute of water when purging water.

-Filler: the overflow depends on individual characteristics associated with the filler: its type (gravimetric or volumetric), age, speed, and necessary maintenance. A rough estimation is provided in the table.

-Filler cleaning: During cleaning, 0.295 liter of CD-470 (phosphoric acid 170 g/l) is applied to the filler heads with foaming gun. Later, the filler heads are rinsed with chlorinated water for 10 minutes at 3 m3/h (=100 gallons per hour). During sanitization, 0.5 liter of Quorum Clear (quaternary ammonium 300 mg/l) are applied to the filler heads with foaming gun. The filler is subsequently rinsed with chlorinated water for 10 minutes at 3 m3/h (100 gallons per hour).

-Arsenic removal system: the counter (flowmeter) of the filters are monitored during the regeneration process. 30% caustic soda solution is used to remove the arsenic and 93% sulfuric acid to neutralize the pH of the wastewater "in line" prior to discharge to the lined Arsenic Pond (Annex 4: MSDS).

Rq: To calculate the concentration of chemical into the wastewater flow, the volume of rinse water necessary for the entire operation of cleaning/sanitation was estimated.

TABLE X - SUMMARY OF ESTIMATED CONCENTRATIONS OF DISCHARGES TO PONDS:

		Chemicals	Weight per cleaning	Weight per year	Concentration per cleaning	Fire pond	Percolation pond	Arsenic pond
Annual volume in m3		--	--	--	--	18,400	140,800	24,800
Filler Cleaning/ sanitation	Olancha 2	Ammonium quaternary	150 mg	39 g	0.3 mg/l	2 µg/l	--	--
		Phosphoric acid	50 g	13 kg	0.1 g/l	0.7 mg/l	--	--
	Olancha 1, 3, 4, 5 and 6	Ammonium quaternary	750 mg	195 g	0.3 mg/l	--	1.4 µg/l	--
		Phosphoric acid	250 g	65 kg	0.1 g/l	--	0.5 mg/l	--
Micro filter Cleaning/ sanitation	Per unit	Caustic soda neutralized	12075 g Na	--	0.9 g/l Na	--	--	--
		Phosphoric acid neutralized	13571 g PO4	--	1 g/l PO4	--	--	--
	For 3 units and 3 times	Caustic soda neutralized	--	108675 g/l Na	--	--	0.8 mg/l Na	--
		Phosphoric acid neutralized	--	122139 g/l PO4	--	--	0.9 mg/l PO4	--
Arsenic	Olancha 6	Caustic soda	540 kg Na	1.6 t Na	0.3 g/l Na	--	0.3 g/l Na	

removal system	(3 regenerations)	neutralized					
		Sulfuric acid neutralized	1.2 t SO4	3.6 t SO4	2.4 g/l SO4	–	7.2g/l SO4
	Olancha North (4 regenerations)	Caustic soda neutralized	717 kg Na	2.8 t Na	0.2 g/l Na	–	0.2 g/l Na
		Sulfuric acid neutralized	1.5 t SO4	6 t SO4	3 g/l SO4	–	12 g/l SO4
	Olancha South (3 regenerations)	Caustic soda neutralized	717 kg Na	2.1 t Na	0.3 g/l Na	–	0.3 g/l Na
		Sulfuric acid neutralized	1.5 t SO4	4.5 t SO4	3 g/l SO4	–	9 g/l SO4

4. **A properly scaled (easily readable) site plan illustrating all elements of the onsite waste disposal system, as currently constructed. The site plan shall include, but not be limited to, the following information:**
    a. **all facilities/structures storing waste products;**
    b. **all facilities/structures conveying waste products to onsite waste disposal facilities;**
        i. **the size and construction material of each conveyance facility/structure;**
        ii. **the age of each conveyance facility/structure;**
        iii. **the inspiration methodology (e.g., visual, pressure testing) and inspection frequency for each conveyance facility/structure;**
    c. **the waste disposal facilities.**

See Annex 6: Layout of Waste Water Discharge System for scaled site plan.

5. ***Properly scaled plans with plan views and cross-section views of the Facility's current waste disposal facilities. The plans shall also identify for each waste disposal facility:***
    a. ***the capacity of volume and average and maximum discharge rates for each disposal facility;***
    b. ***the materials used to construct each disposal facility (e.g., liner material, subgrade material);***
    c. ***the age of each disposal facility;***
    d. ***the inspection methodology and inspection frequency for each disposal facility; and***
    e. ***soil types and average groundwater elevations or depths beneath each disposal facility.***

See Annex 6: Layout for Waste Water Discharge System for scaled site plan.

See below a table that describes each waste disposal system: i.e., volume, installation date, materials, soil types, etc… The installation dates are approximations based on internal records.

Table X – Summary of Waste Disposal System Discharge

	Length	Width	Depth	Volume	Installation Date	Materials	Soil Type	Inspection
Septic tank Ol. North 4	-	-	-	6,000 g	1995	Fiber glass	silt and clay	External service
Septic tank Ol. South 1	-	-	-	3,000 g	1990	Fiber glass	silt and clay	External service
Septic tank Ol. South 2	-	-	-	3,000 g	1990	Fiber glass	silt and Clay	External service
Septic tank Ol. South 3	-	-	-	6,000 g	1992	Fiber glass	silt and clay	External service
East pond	218'	30'	3'	140,000 g	1990	Sand and clay	silt and clay	Visual, pH and weekly
Overflow fire pond	-	-	-	-	1992	Sand and clay	silt and clay	Visual and daily
Fire pond	95'	75'	4'	210,000 g	1992	Liner	silt and clay	Visual and daily
Arsenic pond	78'	68'	3'	119,000 g	2003	30 mil Herculine liner	silt and clay	Visual and weekly and each regeneration

6. **A maintenance history for the Facility's existing waste conveyance and disposal facilities to include:**
   a. **facility design modifications since original construction (include data (month/year) when modifications were completed); and**

b. **maintenance activities, including but not limited to, solids/sludge/other waste material removal (with waste disposal documentation indicating location and method of disposal), repairs, and replacement. Include the approximate time period (e.g. month/year or season/year) when such maintenance activities occurred.**

The requested information hereunder has been provided under Section 1.

7. **A Facility history (e.g., identifying and describing historical operations, including dates):**

   a. **past/historical waste-generating processes;**

   b. **the waste/pollutants generated by past/historical waste-generating processes;**

   c. **the offsite and onsite disposal sites/facilities for such waste; and**

   d. **the locations and design/construction details (e.g., dimensions, capacity, materials) of the onsite disposal facilities for such waste.**

Below is a description of the main events that have taken place in Olancha plant since start-up in 1990 until the present. For each event, the dates are estimated based on internal records.

Dates	Events	Source of Discharge
1990	Start the plant in Olancha with one production line, Olancha 1 (Olancha South).	-filtration South (no IMECA) -septic tank 1 -1 production line - discharges to East Pond
1992	Install a second production line, Olancha 2 (Olancha South).	-Imeca filter added -2 production lines -Fire Pond Constructed (filler #2

		discharged to Fire Pond) -septic tanks 2 and 3
1995	Build the second unit, Olancha North, with one production line: Olancha 3.	-filtration room North (IMECA) -3 production lines -septic tank 4 -discharges to East Pond Filler #2 discharges to Fire Pond
1998	Put in place a third production line in Olancha South: Olancha 4.	-4 production lines -discharges to East Pond Filler #2 discharges to Fire Pond
2000	Add detached warehouse South	
2001-2002	Start to remove arsenic from spring water, Olancha North and then South. Approval from California Department of Public Health, Food & Drug Branch	-Arsenic Pond - Arsenic regeneration process discharges to Arsenic Pond
2003	Install a production line, Olancha 5, in Olancha North side	-5 production lines -same discharging practices as above
2005	Add another production line, Olancha 6, in Olancha North side	-6 production lines -same discharging practices as above
2007	Add detached warehouse North	

8. **A site plan illustrating the locations of past/historical onsite waste disposal sites/facilities, if any.**

   There are no other historical discharge points other than as described above.

9. **Provide copies of all waste characterization/profiling forms, analytical results, and waste transport and disposal manifests, for all liquid,**

sludge and solid wastes generated at the facility and disposed of offsite. Documentation shall clearly identify the quantities and types of wastes disposed of, and the names and addresses of all waste haulers and receiving facilities.

The Facility has historically generated the following waste:

- Production and Industrial Wastewater – which has been fully described above. See Annex 1 for details.
- Domestic Wastewater – which has been fully described above. See Annex 7 for the estimated volume generated from the four septic tanks during the past year. Notably, the Facility has used Preferred Septic and Disposal, Inc. for the last two decades.
- Solid Waste from Raw Materials (such as cardboard, plastic film, PET bottles, plastic labels, etc.) - All waste from raw materials are recycled by licensed third-party company. See Annex 7 for list of third party disposal agents and estimated amounts of waste. There has never been disposal of solid waste at the Facilities.
- Liquid Industrial Wastes (such as oil, solvent, etc.) – All liquid wastes are disposed of off-site. See Annex 7 for a list of third party disposal agents and estimated amounts of waste. There has never been disposal of these wastes at the Facilities.
- Sold Waste from Domestic Disposal (such as trash) – All solid waste from domestic disposal are disposed of off-site. See Annex 7 for a list of third party disposal agents. There has never been disposal of these wastes at the Facilities.