ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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National Pollutant Discharge Elimination System (NPDES) regulations at 40 CFR 122.48 require that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements that implement the federal and State regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with this Monitoring and Reporting Program. The Executive Officer may amend this Monitoring and Reporting Program pursuant to 40 CFR 122.62, 122.63, and 124.5.

B. The Discharger shall conduct all monitoring in accordance with Attachment D, section III, and all tests must be performed by laboratories certified for the analyses in accordance with the California Water Code Section 13176. Equivalent test methods must be more sensitive than those specified in 40 CFR 136 and must be specified in the permit or in the related discharge authorization letter.

The Discharger shall report with each sample result the Reporting Level (RL) from the Minimum Levels (MLs) listed in Appendix 4 of the State Implementation Policy or SIP (http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/sip2005.pdf). When there is more than one ML value for a given substance, the Discharger may select any one of the analytical methods cited in SIP Appendix 4 for compliance determination, or any other method described in 40 CFR part 136 or approved by the USEPA (such as the 1600 series) if authorized by the Regional Water Board Executive Officer. However, the ML must be below the trigger level and water quality objective. If no ML value is below the trigger level and water quality objective, then the method must achieve an ML no greater than the lowest ML value indicated in SIP Appendix 4. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. The number and frequency of bypasses and accidental spills shall be recorded.

D. A copy of this Order, a complete copy of the Notice of Intent (NOI) filed, documentation of the Authorization to Initiate Discharge received from the Regional Water Board, a full copy of the Operation and Maintenance (O&M) Manual, and any other documents relevant to the operation and maintenance of the treatment facility shall be stored at or near the treatment facility, and made available to the Regional Water Board upon request. Dischargers shall inspect their facilities as frequently as required by the O&M Manual.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name (if applicable)	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
---	INF-001	At a point in the extraction system immediately prior to inflow to the treatment unit.
001	EFF-001	At a point in the discharge line immediately following treatment and before it joins or is diluted by any other waste stream, body of water, or substance.
---	RSW-001U	At a point 50 feet upstream from the point of discharge into the receiving water, or if access is limited, at the first point upstream which is accessible.
---	RSW-001D	At a point 50 feet downstream from the point of discharge into the receiving water, or if access is limited, at the first point downstream which is accessible.
---	REU-001	At a point immediately prior to reuse location; not applicable if effluent is not reused or reclaimed.
---	LDE-001	At a point immediately prior to land discharge; not applicable if land discharge of groundwater is the same as effluent.

III. INFLUENT MONITORING REQUIREMENTS

For aquifer reclamation program well discharges (Category 1) and RO concentrate discharges (Category 2), no influent monitoring is required by the Order, unless effluent violation trigger constituent values are exceeded in the previous self-monitoring report. In that event, influent monitoring is required as part of an investigation to determine the cause of the exceedance. For structural dewatering discharges (Category 3), influent monitoring is required if recommended by the Professional Engineer in charge of the operation and maintenance of the treatment system.

IV. EFFLUENT MONITORING REQUIREMENTS

Dischargers shall perform sampling and analyses according to the schedule in Table E-2 for Aquifer Reclamation Program Well Discharges (Category 1); Table E-3 for RO Concentrate Discharges (Category 2); and/or Table E-4 for Structural Dewatering Discharges (Category 3) in accordance with the following conditions:

A. Samples of effluent shall be collected on days coincident with influent sampling (if applicable).

B. When any type of bypass occurs, grab samples shall be collected on a daily basis for all constituents at all affected discharge points that have effluent limits for the duration of the bypass.

C. If the analytical results show violation of any effluent limitation, the Discharger shall take a confirmation effluent sample, together with receiving water samples (see third column of Table E-2) within 24 hours of knowledge of violation of effluent limit. The Discharger must have the confirmation sample analyzed by expedited methods and obtain results within 24 hours of sample collection. If the analytical results are also in violation of the effluent limit,

the Discharger shall terminate the discharge until it has corrected the cause of violation. In this case, both the initial and confirmed results are violations. However, if the confirmation effluent sampling shows compliance, the Regional Water Board will consider only the initial exceedance as a violation.

V. WHOLE EFFLUENT ACUTE TOXICITY TESTING REQUIREMENTS

The Discharger shall monitor acute toxicity at EFF-001 as follows:

A. Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms to 96-hour static renewal bioassays at Monitoring Location EFF-001.

B. Test organisms shall be rainbow trout unless the Executive Officer specifies otherwise in writing.

C. All bioassays shall be performed according to the most up-to-date protocols in 40 CFR 136m currently in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5th Edition.

D. If specific identifiable substances in the discharge can be demonstrated by the Discharger as being rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limitation may be determined after the test samples are adjusted to remove the influence of those substances. Written approval from the Executive Officer must be obtained to authorize such an adjustment.

E. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia, (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If a violation of acute toxicity requirements occurs, the bioassay test shall be repeated with new fish as soon as practical and shall be repeated until a test fish survival rate of 90 percent or greater is observed. If the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new fish and shall continue as soon as practical until an acceptable test is completed (i.e., control fish survival rate is 90 percent or greater).

VI. RECLAMATION MONITORING REQUIREMENTS

The Discharger shall monitor effluent for reuse at Monitoring Location REU-001, as shown on the third column of Table E.2 for Category 1 discharges; Table E.3 for Category 2 discharges; and Table E.4 for Category 3 discharges.

VII. LAND DISCHARGE MONITORING REQUIREMENTS

The Discharger shall monitor effluent for land discharge at Monitoring Location LDE-001, as shown on the third column of Table E.2 for Category 1 discharges; Table E.3 for Category 2 discharges; and Table E.4 for Category 3 discharges.

VIII. RECEIVING WATER AND EFFLUENT MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

The Discharger shall monitor receiving water at Monitoring Locations RSW-001U and RSW-001D as shown on column four of Table E.2 for Category 1 discharges; Table E.3 for Category 2 discharges; and Table E.4 for Category 3 discharges as follows:

A. Receiving water sampling shall occur concurrently with effluent sampling.

B. Receiving water samples shall be collected at each station on each sampling day during the period within 1 hour following low slack water, if relevant. Where sampling at lower slack water period is not practical, sampling shall be performed during higher slack water period. Samples shall be collected within the discharge plume and 50 feet down current of the discharge point so as to be representative, unless otherwise stipulated.

C. Samples should be collected within one foot below the surface of the receiving water body. Explanation shall be provided in the monitoring report if this specification could not be met.

Table E-2. Schedule for Sampling, Measurements, and Analysis for Aquifer Reclamation Program Well Discharges (Category 1)

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Effluent EFF-001. Effluent for Reuse REU-001, or Effluent for Land Discharge LDE-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise			
Flow Rate	MGD	D (meter or calculation based on time and pump capacity)	--
Acute Whole Effluent Toxicity	% Survival	Y	--
pH	Standard Units	Q	--
Hardness (as $CaCO_3$)	mg/L	Y	--
Total Solids	mg/L	Q	--
Total Dissolved Solids	mg/L	Q	--
Temperature	ºC	Q	--
Salinity	ppt	Q	--
Turbidity in Nephelometric Turbidity Units (NTU)	NTU	Q	Q
Chlorine (applicable to facilities that treat effluent with chlorine)	mg/L	D	--
Chlorides	mg/L	Q	--
Dissolved Oxygen	mg/L	Q	--
Conductivity	mmhoms/cm	Q	--
Antimony, Total (see note 1)	µg/L	Y	--
Arsenic, Total (see note 1)	µg/L	Y	--
Beryllium, Total (see note 1)	µg/L	Y	--

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Effluent EFF-001. Effluent for Reuse REU-001, or Effluent for Land Discharge LDE-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise			
Cadmium, Total (see note 1)	µg/L	Y	--
Hexavalent Chromium (see note 1)	µg/L	Y	--
Total Chromium (see note 1)	µg/L	Y	--
Copper, Total (see note 1)	µg/L	Y	--
Cyanide, Total (see note 1)	µg/L	Y	--
Lead, Total (see note 1)	µg/L	Y	--
Mercury, Total (see note 1)	µg/L	Y	--
Nickel, Total (see note 1)	µg/L	Y	--
Selenium, Total (see note 1)	µg/L	Y	--
Silver, Total (see note 1)	µg/L	Y	--
Thallium, Total (see note 1)	µg/L	Y	--
Zinc, Total (see note 1)	µg/L	Y	--
Volatile Organic Compounds	µg/L	1/Permit Term from each outfall	--
Semi Volatile Organic Compounds except Polynuclear Aromatic Hydrocarbons	µg/L	1/Permit Term from each outfall	--
Polynuclear Aromatic Hydrocarbons	µg/L	1/Permit Term from each outfall	--
Other Pollutants not listed above but there is evidence to be present in the influent and/or effluent and being treated. Examples are Benzene, Toluene, Ethylbenzene, and/or Total Xylenes, EPA 8020; and Total Petroleum Hydrocarbons as Gasoline and as Diesel, EPA 8015 Modified	µg/L	Q	--
All Applicable Standard Observations (see note 2)	No Units	Quarterly or whenever attending the Facility	Quarterly or whenever sampling the receiving water

Note 1: The Discharger shall appropriately select analytical procedures that will compensate for salinity in the sample matrix. Inorganic compounds samples shall be analyzed for total (unfiltered) constituents with the reporting levels not exceeding the following: 0.002 µg/L for Mercury and 1.0 µg/L for Cyanide. For all other inorganic compounds, the minimum levels shall not exceed the following if Inductively Coupled Plasma Mass Spectrometry (ICP-MS) analytical technique is utilized: 0.25 µg/L for Cadmium and Silver, 1.0 µg/L for Nickel, Thallium and Zinc; 2.0 µg/L for Arsenic and Selenium; and 0.5 µg/L for Antimony, Beryllium; Total Chromium, Copper, and Lead (SIP Appendix 4 Minimum Levels (http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/sip2005.pdf)). If the Discharger exceeds the trigger for mercury of 0.025, the Discharger shall sample and analyze the additional samples using ultra-clean techniques as described in USEPA methods 1669 and 1631 to eliminate the possibility of artifactual contamination of the sample.

Note 2: Standard Observations are explained in Provisions IX.C through IX.E of this document.

Definitions:
ug/L = microgram per liter or parts per billion (ppb), g/day = grams per day, gpm = gallons per minute, mg/L = milligram per liter or parts per million (ppm), gpd = gallons per day, MFL = million fibers per liter, GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; ICP = Inductively Coupled Plasma; and ICPMS = Inductively Coupled Plasma/Mass Spectrometry.

Legend:
D: Once each day.
Q: Once each quarter.
Y: Once each year.

Table E-3. Schedule for Sampling, Measurements, and Analysis for RO Concentrate Discharges (Category 2)

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Effluent EFF-001. Effluent for Reuse REU-001, or Effluent for Land Discharge LDE-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise			
Flow Rate	MGD	D (meter or calculation based on time and pump capacity)	--
Acute Whole Effluent Toxicity	% Survival	M/Q	--
pH	Standard Units	M	--
Hardness (as $CaCO_3$)	mg/L	Q	--
Total Solids	mg/L	M	--
Total Dissolved Solids	mg/L	M	--
Temperature	ºC	Q	--
Salinity	ppt	M	--
Turbidity in Nephelometric Turbidity Unit (NTU)	NTU	M	Q
Chlorine (applicable to facilities that treat effluent with chlorine)	mg/L	D	--
Chlorides	mg/L	M	--
Dissolved Oxygen	mg/L	M	--
Conductivity	mmhoms/cm	M	--
Antimony, Total (see note 1)	µg/L	Q	--
Arsenic, Total (see note 1)	µg/L	Q	--
Beryllium, Total (see note 1)	µg/L	Q	--
Cadmium, Total (see note 1)	µg/L	Q	--
Hexavalent Chromium (see note 1)	µg/L	Q	--
Total Chromium (see note 1)	µg/L	Q	--
Copper, Total (see note 1)	µg/L	Q	--
Cyanide, Total (see note 1)	µg/L	Q	--
Lead, Total (see note 1)	µg/L	Q	--
Mercury, Total (see note 1)	µg/L	Q	--
Nickel, Total (see note 1)	µg/L	Q	--
Selenium, Total (see note 1)	µg/L	Q	--
Silver, Total (see note 1)	µg/L	Q	--
Thallium, Total (see note 1)	µg/L	Q	--
Zinc, Total (see note 1)	µg/L	Q	--
Volatile Organic Compounds	µg/L	1/within the first year	--
Semi Volatile Organic Compounds except Polynuclear Aromatic Hydrocarbons	µg/L	1/within the first year	--

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Effluent EFF-001. Effluent for Reuse REU-001, or Effluent for Land Discharge LDE-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise			
Polynuclear Aromatic Hydrocarbons	µg/L	1/within the first year	--
Other Pollutants not listed above but where there is evidence to be present in the influent and/or effluent and being treated.	µg/L	Q	--
All Applicable Standard Observations (see note 2)	No Units	Quarterly or whenever attending the Facility	Quarterly or whenever sampling the receiving water
Note 1: The Discharger shall appropriately select analytical procedures that will compensate for salinity in the sample matrix. Inorganic compounds samples shall be analyzed for total (unfiltered) constituents with the reporting levels not exceeding the following: 0.002 µg/L for Mercury and 1.0 µg/L for Cyanide. For all other inorganic compounds, the minimum levels shall not exceed the following if Inductively Coupled Plasma Mass Spectrometry (ICP-MS) analytical technique is utilized: 0.25 µg/L for Cadmium and Silver, 1.0 µg/L for Nickel, Thallium and Zinc; 2.0 µg/L for Arsenic and Selenium; and 0.5 µg/L for Antimony, Beryllium; Total Chromium, Copper, and Lead (SIP Appendix 4 Minimum Levels (http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/sip2005.pdf)). If the Discharger exceeds the trigger for mercury of 0.025, the Discharger shall sample and analyze the additional samples using ultra-clean techniques as described in USEPA methods 1669 and 1631 to eliminate the possibility of artifactual contamination of the sample. Note 2: Standard Observations are explained in Provisions IX.C through IX.E of this document.			
Definitions: ug/L = microgram per liter or parts per billion (ppb), g/day = grams per day, gpm = gallons per minute, mg/L = milligram per liter or parts per million (ppm), gpd = gallons per day, MFL = million fibers per liter, GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; ICP = Inductively Coupled Plasma; and ICPMS = Inductively Coupled Plasma/Mass Spectrometry.			
Legend: D: Once each day. M: Once each month. Q: Once each quarter. Y: Once each year. M/Q: Monthly for the first year of operation, Quarterly thereafter.			

Table E-4. Schedule for Sampling, Measurements, and Analysis (see note 3) for Structural Dewatering Discharges (Category 3)

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Effluent EFF-001. Effluent for Reuse REU-001, or Effluent for Land Discharge LDE-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise			
Discharge Flow	MGD	Daily (meter or calculation based on time and pump capacity)	--
Acute Whole Effluent Toxicity	% Survival	Once during the first year of operation and if at least 90% survival rate for the first year, then every three years thereafter.	--
pH	Standard Units	Monthly during the first year of operation and if in full compliance during the first year, then once a quarter thereafter	--
Hardness (as $CaCO_3$)	mg/L	1/Year	--
Total Solids (applicable to facilities that treat effluent to remove any form of solids)	mg/L	Monthly	--
Total Dissolved Solids	mg/L	1/Year	--

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Effluent EFF-001. Effluent for Reuse REU-001, or Effluent for Land Discharge LDE-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise			
Temperature	ºC	1/Year	--
Salinity	ppt	1/Year	--
Turbidity in Nephelometric Turbidity Unit (NTU) (applicable to facilities that treat effluent to remove any form of solids)	NTU	Monthly during the first year of operation and if in full compliance during the first year, then once a quarter thereafter	1/Every 3 Years
Chlorine (applicable to facilities that treat effluent with chlorine)	mg/L	Daily	--
Chlorides	mg/L	1/Year	--
Dissolved Oxygen	mg/L	1/Year	--
Conductivity	mmhoms/cm	1/Year	--
Antimony, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Arsenic, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Beryllium, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Cadmium, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Hexavalent Chromium (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Total Chromium (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Copper, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Cyanide, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Lead, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Mercury, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Nickel, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Selenium, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Silver, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Thallium, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Effluent EFF-001. Effluent for Reuse REU-001, or Effluent for Land Discharge LDE-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise			
Zinc, Total (see note 1)	µg/L	1/Year during the first year of operation and if not detected or triggered then 1/Every 3 Years thereafter.	--
Volatile Organic Compounds	µg/L	Once within the first year of operation	--
Semi Volatile Organic Compounds except Polynuclear Aromatic Hydrocarbons	µg/L	Once within the first year of operation	--
Polynuclear Aromatic Hydrocarbons	µg/L	Once within the first year of operation	--
Other Pollutants not listed above but there is evidence to be present in the influent and/or effluent and being treated.	µg/L	Quarterly for the first year of operation and if not detected or triggered then once every three years thereafter	--
All Applicable Standard Observations (see note 2)	No Units	Quarterly or whenever attending the Facility	Quarterly or whenever sampling the receiving water
Note 1: The Discharger shall appropriately select analytical procedures that will compensate for salinity in the sample matrix. Inorganic compounds samples shall be analyzed for total (unfiltered) constituents with the reporting levels not exceeding the following: 0.002 µg/L for Mercury and 1.0 µg/L for Cyanide. For all other inorganic compounds, the minimum levels shall not exceed the following if Inductively Coupled Plasma Mass Spectrometry (ICP-MS) analytical technique is utilized: 0.25 µg/L for Cadmium and Silver, 1.0 µg/L for Nickel, Thallium and Zinc; 2.0 µg/L for Arsenic and Selenium; and 0.5 µg/L for Antimony, Beryllium; Total Chromium, Copper, and Lead (SIP Appendix 4 Minimum Levels (http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/sip2005.pdf)). If the Discharger exceeds the trigger for mercury of 0.025, the Discharger shall sample and analyze the additional samples using ultra-clean techniques as described in USEPA methods 1669 and 1631 to eliminate the possibility of artifactual contamination of the sample. Note 2: Standard Observations are explained in Provisions IX.C through IX.E of this document. Note 3: The monitoring program in this table is the minimum requirements. The Professional Engineer in charge of the treatment system operation may require more frequent monitoring program with additional monitoring parameters.			
Definitions: ug/L = microgram per liter or parts per billion (ppb), g/day = grams per day, gpm = gallons per minute, mg/L = milligram per liter or parts per million (ppm), gpd = gallons per day, MFL = million fibers per liter GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; ICP = Inductively Coupled Plasma; and ICPMS = Inductively Coupled Plasma/Mass Spectrometry.			

Table E-5. Additional Monitoring Requirements: Applicable when Limit or Trigger Value is Exceeded in Previous Sample Set

Monitoring outlined in Table E-5 is required for up to two quarters (as specified below) following an exceedance of an effluent limit or trigger value.

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Influent INF-001	Minimum Sampling Frequency for Effluent EFF-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise				
		The monitoring requirements in these two columns apply when any constituent in the effluent of a discharge, as monitored per Table E-2, E-3 or E-4, exceeds the corresponding trigger as listed in Table 2 of the Order.		
Flow Rate	MGD	--	D (meter or calculation based	--

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Influent INF-001	Minimum Sampling Frequency for Effluent EFF-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise				
			on time and pump capacity)	
Acute Whole Effluent Toxicity	% Survival	--	V	--
pH	Standard Units	V	V	V, Q [4]
Hardness (as $CaCO_3$)	mg/L	--	--	Q [5]
Total Solids	mg/L	--	--	Q [4]
Total Dissolved Solids	mg/L	3 per Q	3 per Q	3 per Q [3]
Temperature	°C	--	--	Q [4]
Salinity	ppt	--	M [4]	M [4]
Turbidity in Nephelometric Turbidity Unit (NTU)	NTU	3 per Q	3 per Q	3 per Q [3]
Chlorine (applicable to facilities that treat effluent with chlorine)	mg/L	--	V	--
Chlorides	mg/L	3 per Q	3 per Q	3 per Q [3]
Dissolved Oxygen	mg/L	--	--	3 per Q [3]
Conductivity	mmhoms/cm	3 per Q	3 per Q	3 per Q [3]
Antimony, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Arsenic, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Beryllium, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Cadmium, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Hexavalent Chromium (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Total Chromium (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Copper, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Cyanide, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Lead, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Mercury, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Nickel, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Selenium, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Silver, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Thallium, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Zinc, Total (see note 1)	µg/L	3 per Q	3 per Q	3 per Q [3]
Volatile Organic Compounds	µg/L	3 per Q	3 per Q	3 per Q [3]
Semi Volatile Organic Compounds except Polynuclear Aromatic Hydrocarbons	µg/L	3 per Q	3 per Q	3 per Q [3]
Polynuclear Aromatic Hydrocarbons	µg/L	3 per Q	3 per Q	3 per Q [3]
All Applicable Standard Observations (see note 2)	No Units	Q or whenever attending the Facility	Q or whenever attending the facility	Q or whenever sampling the receiving water
Note 1: The Discharger shall appropriately select analytical procedures that will compensate for salinity in the sample matrix. Inorganic				

Required Analytical Test Method Number, Technique, Standard Methods (SM), USEPA Method Number (EPA), 40 CFR Part (or equivalent)/Sampling Station	Units	Minimum Sampling Frequency for Influent INF-001	Minimum Sampling Frequency for Effluent EFF-001	Minimum Sampling Frequency for Receiving Surface Water RSW-001U and RSW-001D
Type of Sample is "Grab" unless noted otherwise				
compounds samples shall be analyzed for total (unfiltered) constituents with the reporting levels not exceeding the following: 0.002 µg/L for Mercury and 1.0 µg/L for Cyanide. For all other inorganic compounds, the minimum levels shall not exceed the following if Inductively Coupled Plasma Mass Spectrometry (ICP-MS) analytical technique is utilized: 0.25 µg/L for Cadmium and Silver, 1.0 µg/L for Nickel, Thallium and Zinc; 2.0 µg/L for Arsenic and Selenium; and 0.5 µg/L for Antimony, Beryllium; Total Chromium, Copper, and Lead (SIP Appendix 4 Minimum Levels (http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/sip2005.pdf)). If the Discharger exceeds the trigger for mercury of 0.025, the Discharger shall sample and analyze the additional samples using ultra-clean techniques as described in USEPA methods 1669 and 1631 to eliminate the possibility of artifactual contamination of the sample. Note 2: Standard Observations are explained in Provisions IX.C through IX.E of this document. Note 3: In addition to the monitoring required, during the same period, the Discharger shall take three additional samples (three up-gradient receiving surface water (RSW-001U) and three down-gradient receiving surface water (RSW-001D) for each exceeded constituent. Note 4: This parameter should be monitored if changes in this parameter may cause changes in the concentration of the triggered constituent. Note 5: Sampling should be performed when Cadmium, Chromium (total), Copper, Lead, Nickel, Silver, or Zinc triggers are exceeded.				
Definitions: ug/L = microgram per liter or parts per billion (ppb), g/day = grams per day, gpm = gallons per minute, mg/L = milligram per liter or parts per million (ppm), gpd = gallons per day, MFL = million fibers per liter GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; ICP = Inductively Coupled Plasma; and ICPMS = Inductively Coupled Plasma/Mass Spectrometry.				
Legend: D: Once each day. M: Once each month. Q: Once each quarter. V: Sampling should be performed within 24 hours after an effluent limit violation is confirmed in EFF-001.				

IX. OTHER MONITORING REQUIREMENTS

A. Chemical Additives Monitoring: If applicable, monitoring related to chemical usage shall be conducted by the Discharger as required in its treatment system design specification and Operation and Maintenance Manual.

B. Standard Observations for Receiving Water

1. Floating and suspended materials (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.

2. Discoloration and turbidity: description of color, source, and size of affected area.

3. Odor: presence or absence, characterization, source, distance of travel, and wind direction.

4. Beneficial water use: presence of water-associated waterfowl or wildlife, fisherperson, and other recreational activities in the vicinity of each sampling station.

5. Hydrographic condition, if relevant:

   a. Time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time of sample and collection).

b. Depth of water columns and sampling depths.

6. Weather condition:

a. Air temperature.

b. Wind direction and estimated velocity.

c. Total precipitation during the five days prior to observation.

C. Standard Observations for Onsite Usage of Reclaimed Water

1. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.

2. Discoloration and turbidity: description of color, source, and size of affected area.

3. Odor: presence or absence, characterization, source, distance of travel, and wind direction.

4. Weather condition:

a. Air temperature.

b. Wind direction and estimated velocity.

c. Total precipitation during the previous five days and on the day of observation.

5. Deposits, discolorations, and/or plugging in the conveyance system that could adversely affect the system reliability and performance.

6. Operation of the valves, outlets, sprinkler heads, and/or pressure shutoff valves in conveyance system.

D. Standard Observations for Groundwater Treatment and/or Pumping System

1. Odor: presence or absence, characterization, source, distance of travel, and wind direction.

2. Weather condition: wind direction and estimated velocity.

3. Deposits, discolorations, and/or plugging in the treatment system (stripping tower, carbon filters, etc.) that could adversely affect the system reliability and performance.

4. Operation of the float and/or pressure shutoff valves installed to prevent system overflow or bypass.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and record keeping.

B. Self-Monitoring Reports (SMRs)

1. **SMR Format.** At any time during the term of this Order, the State or Regional Water Board may notify the Discharger to electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS website will provide additional directions for SMR submittal in the event of a service interruption for electronic submittal.

2. **SMR Due Dates and Contents.** The Discharger shall submit SMRs within 45 days after the end of each calendar quarter, with the contents specified below:

   a. The Discharger shall attach a cover letter to the SMRs. The information contained in the cover letter shall clearly identify number of permit violations; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation. In the cover letter, the Discharger shall also document the volume of the effluent reused during that reporting period.

   b. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with the effluent limitations. The Discharger shall not include laboratory reports unless requested.

   c. SMRs must be submitted to the Regional Water Board signed and certified as required by the Standard Provisions (Attachment D) to the address listed below:

      California Regional Water Quality Control Board
      San Francisco Bay Region
      1515 Clay Street, Suite 1400
      Oakland, CA 94612
      Attn: NPDES Wastewater Division
      Extracted Brackish Groundwater General NPDES NO. CAG912004

   d. SMRs shall also include a description of operation and maintenance (O&M) of the groundwater extraction and treatment system consistent with the O&M manual, which shall be available to all personnel who are responsible for operation and maintenance activities.

   e. SMRs shall include the results of analyses and observations as follows:

      (1) Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

      (2) A table identifying by method number the analytical procedures used for analyses. Any special methods shall be identified and should have prior approval of the Regional Water Board's Executive Officer.

      (3) Laboratory results shall be summarized in tabular form but actual laboratory reports do not need to be included in the report. A summary of quality assurance/quality

control activities data such as field, travel, and laboratory blanks shall be reported for each analyzed constituent or group of constituents.

(4) A summary of the monitoring data to include information such as source of the sample (influent, effluent, or receiving water); the constituents; the methods of analysis used; the laboratory reporting limits in µg/L; the sample results (µg/L); the date sampled; and the date sample was analyzed.

(5) Flow (in gpm) and mass removal data (in kilograms).

(6) Summary of treatment system status during the reporting period (e.g., in operation/on standby) and reason(s) for non-routine treatment system shut down.

(7) The Discharger shall submit annual SMRs by February 15 of each year, covering the previous calendar year. The annual SMR shall contain all data required for the fourth quarter in addition to summary data required for annual reporting. This report may be submitted in lieu of the SMR for the fourth quarter of a calendar year.

(8) Annual SMRs shall contain tabular summary of the monitoring data obtained during the previous year. In addition, the annual SMR shall contain a comprehensive discussion of the compliance record and the corrective actions taken or planned that may be needed to bring the Discharger into full compliance with the waste discharge requirements including any trigger study required by Special Provision VI.C.6 and the progress in satisfaction of Special Provisions VI.C.7 and VI.C.8 of this Order. The annual SMR shall document that the annual fee has been paid.

(9) If, during any calendar quarter, a Discharger becomes aware that any monitoring data obtained for compliance with this Order may be invalid, the Discharger shall submit a claim of invalid monitoring data, as uploaded on CIWQS with a confirmation email to the Regional Water Board staff in charge of this permit, within 45 days after end of that calendar quarter. The Discharger shall include with this claim, the name, phone number, and email of its assigned staff to investigate the cause(s) of errors and the corrective actions taken, or date when actions will be completed to eliminate or reduce future data errors. The Discharger shall also provide, in this claim, a date that the O&M manual will be updated to include errors prevention measures. These preventive measures shall include but not be limited to accelerated monitoring (e.g., twice a month monitoring for at least one month) to provide valid monitoring data indicating the effectiveness of the proposed preventive measures.

f. Additional Specifications for Submitting SMRs to CIWQS — If the Discharger submits SMRs to CIWQS, it shall submit analytical results and other information using one of the following methods:

Table E-6. SMR Reporting for CIWQS

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	Attached File
All parameters identified in influent, effluent, and receiving water monitoring tables (except	Required for All Results	

Dissolved Oxygen and Temperature)		
Dissolved Oxygen Temperature	Required for Monthly Maximum and Minimum Results Only [(1)]	Discharger may use this method for all results or keep records
Cyanide Arsenic Cadmium Chromium Copper Lead Mercury Nickel Selenium Silver Zinc Dioxins and Furans (by U.S. EPA Method 1613)	Required for All Results [(2)]	
Antimony Beryllium Thallium Pollutants by U.S. EPA Methods 601, 602, 608, 610, 614, 624, and 625	Not Required (unless identified in influent, effluent, or receiving water monitoring tables), but encouraged [(1)]	Discharger may use this method and submit results with application for permit reissuance, unless data submitted by CDF/EDF upload
Analytical Method	Not Required (Discharger may select "data unavailable") [(1)]	
Collection Time Analysis Time	Not Required (Discharger may select "0:00") [(1)]	

Footnotes for Table E-6:

[1] The Discharger shall continue to monitor at the minimum frequency specified in the monitoring tables, keep records of the measurements, and make the records available upon request.

[2] These parameters require EDF/CDF data upload or manual entry regardless of whether monitoring is required by this Monitoring and Reporting Program or other provisions of this Order (except for biosolids, sludge, or ash provisions).

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-7. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Effective startup date	All
Daily	Effective startup date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
Weekly	Effective startup date	Effective startup day through one week after Effective startup date
Monthly	First day of calendar month following the last day of the startup date	1st day of calendar month through last day of calendar month

Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) the last day of the startup date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
Semiannually	Closest of January 1 or July 1 following (or on) the last day of the startup date	January 1 through June 30 July 1 through December 31
Annually	January 1 following (or on) the last day of the start -up date	January 1 through December 31
Once Every 3 Years	Permit effective date	Once within 3 years of the effective date of the permit
Once per Permit Term (1/5 years)	Permit effective date	Once during the permit term within 12 months prior to applying for permit reissuance

4. RL and MDL Reporting. The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy ($\pm$ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

   d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

C. Discharge Monitoring Reports (DMRs) - Not Applicable

D. Other Reports

1. Trigger Study Report: The Discharger shall report the results of any trigger study required by Special Provision – VI.C.6 and the progress in satisfaction of compliance schedule dates specified in Special Provisions VI.C.7, VI.C.8, and VI.C.9 of this Order.

2. Spill Reports: If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the Discharger shall report such a discharge to this Regional Water Board, at (510) 622-2369 and to Cal/EMA at (800) 852-7550 within 24 hours of becoming aware of the spill. A written report shall be uploaded on CIWQS, with an confirmation email to staff, within five (5) working days and shall contain information relative to:

a. Nature of waste or pollutant,

b. Quantity involved,

c. Duration of incident,

d. Cause of spilling,

e. Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any,

f. Estimated size of affected area,

g. Nature of effects (i.e., fish kill, discoloration of receiving water, etc.),

h. Corrective measures that have been taken or planned, and a schedule of these activities, and

i. Persons/agencies notified.

3. Reports of Treatment Unit Bypass and Permit Violation: In the event the Discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions or intends to permit a treatment unit bypass due to:

a. Maintenance work, power failures, or breakdown of waste treatment equipment,

b. Accidents caused by human error or negligence,

c. The self-monitoring program results exceeding effluent limitations,

d. Any activity that would result in a frequent or routine discharge of any toxic pollutant not limited by this Order, or

e. Other causes, such as acts of nature.

The Discharger shall notify the Regional Water Board within 24 hours of when the Discharger or Discharger's agent has knowledge of the incident and confirm this notification in writing and

uploaded on CIWQS with a confirmation email to Regional Water Board staff, within 5 working days of the initial notification. The written report shall include time, date, duration and estimated volume of waste bypassed, method used in estimating volume and person notified of the incident. The report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

If a violation of the effluent limitations should occur, the Discharger shall direct the effluent to a holding tank, or the extraction and treatment system shall be shut down. The confirmation sampling shall be conducted when the discharge is directed to a holding tank and contained or right before the extraction and treatment system is shut down. The content of the holding tank shall be retreated until the retreated effluent is in compliance, be discharged to a sanitary sewer system, or be disposed in accord with the provisions of applicable California Code of Regulations. The Discharger shall obtain permission from the sanitary sewer agency for any temporary or permanent discharges to the sanitary sewer.