

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2017-XXXX

AMENDING WASTE DISCHARGE REQUIREMENTS ORDER R5-2016-0026
(NPDES PERMIT NO. CA0085197)

AND

RESCINDING CEASE AND DESIST ORDER R5-2015-0042

STERLING CAVIAR LLC
STERLING CAVIAR LLC, ELVERTA
SACRAMENTO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. On 21 April 2016, the Central Valley Water Board adopted Waste Discharge Requirements Order (WDR) R5-2016-0026, renewing NPDES Permit No. CA0085197, which prescribes waste discharge requirements for the Sterling Caviar LLC, Elverta Facility, Sacramento County. For the purposes of this Order, Sterling Caviar LLC is hereafter referred to as "Discharger" and the Elverta Facility is hereafter referred to as "Facility."
2. Order R5-2016-0026 (NPDES Permit) authorizes surface water discharge of up to 3.67 million gallons per day (MGD) of treated wastewater to the Betts-Kismat-Silva (BKS) Preserve wetlands, within Reclamation District 1000 and tributary to the Sacramento River, a water of the United States.
3. The Discharger owns and operates the Facility, an aquaculture operation that is defined under the NPDES program as a concentrated aquatic animal production facility. The Facility produces caviar and an average annual harvestable weight of 313,000 pounds of white sturgeon (*Acipenser transmontanus*), with a maximum harvestable weight of 800,000 pounds for sale as meat. Waste generated at the Facility includes fish fecal material, unconsumed fish food, nutrients, algae, silt, chemicals and therapeutic agents to treat fish and control disease. Wastewater from fish production tanks passes through five drum filters to remove particulates and residual ammonia and a moving media biofilter system to remove dissolved organics.
4. The Discharger has been unable to comply with water quality-based effluent limitations for arsenic and manganese contained in the NPDES Permit. The Central Valley Water Board issued Cease and Desist Orders that have provided a compliance schedule from 15 March 2007 until 1 March 2017. As discussed in the findings below, this Order amends the effluent limitations for manganese and arsenic contained in the NPDES Permit based on new information provided by the Discharger. The Facility is capable of consistently complying with the revised effluent limitations. Consequently, this Order rescinds Cease and Desist Order R5-2015-0042.
5. The Discharger conducted a special study in which dissolved metals and total recoverable metals monitoring samples were collected from January through June 2017 in the effluent and downstream receiving water. The downstream samples were collected at the end of the Discharger's property and at two of the BKS Preserve wetlands discharge locations. The Discharger also collected dissolved metals and total recoverable metals monitoring samples at

its four intake water wells. This Order amends the NPDES permit based on this new information, as discussed in Findings 6 and 7, below.

6. **Manganese.** Order R5-2016-0026 contains water quality-based effluent limitations (WQBELs) for total recoverable manganese of 50 µg/L (average monthly) and 80 µg/L (maximum daily) for protection of the municipal and domestic water supply beneficial use (MUN). The WQBELs are based on the Secondary Maximum Contaminant Level (MCL) - Consumer Acceptance Limit for manganese. The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations that were developed by the State Water Resources Control Board (State Water Board), Division of Drinking Water (DDW). Since adoption of Order R5-2016-0026, DDW has advised that compliance with the dissolved metals fraction in source waters is fully protective of the MUN beneficial use. Furthermore, manganese is not a toxic contaminant, therefore, short-term exceedances do not result in any health consequence, and DDW recommends compliance with the Secondary MCL based on annual average concentrations.

For priority pollutants, the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP) dictates the procedures for conducting the Reasonable Potential Analysis (RPA); however, manganese is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgement in determining the appropriate method for conducting the RPA for this non-priority pollutant constituent. Based on the monitoring results of the special study described in Finding 5, the receiving water monitoring data consistently complies with the Secondary MCL. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance of the Secondary MCL in the receiving water and WQBELs are not needed. Thus, this Order amends the NPDES Permit to remove the WQBELs for manganese.

7. **Arsenic.** The U.S. Environmental Protection Agency and California Primary MCL is 10 µg/L for arsenic. Primary MCLs are established to protect public health from acute and chronic effects of bacteriological, chemical and radiological constituents in drinking water. WQBELs for arsenic are included in Order R5-2016-0026 based on the Primary MCL of 10 µg/L (monthly average) and 18 µg/L (maximum daily). The SIP section 1.4.4 allows for the consideration of intake water credits when developing WQBELs in specific circumstances. When intake water credits are granted, the WQBELs may be established allowing the facility to discharge a mass and concentration of pollutant that is no greater than the mass and concentration found in its intake water. The Central Valley Water Board finds the Facility discharge meets the SIP conditions to allow intake water credits. Therefore, this Order amends Order R5-2016-0026 to modify the WQBELs for arsenic based on the allowance of intake water credits.
8. The relaxation of the effluent limits in Order R5-2016-0026 for arsenic and manganese complies with state and federal antidegradation requirements and meets federal antibacksliding exceptions in accordance with Clean Water Act (CWA) section 303(d)(4)(B) and section 402(o)(2)(B)(i).
9. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) (CEQA) pursuant to Water Code section 13389, since the adoption or modification of a NPDES permit for an existing source is statutorily

exempt and this Order only serves to modify a NPDES permit (*Pacific Water Conditioning Ass'n, Inc. v. City Council of City of Riverside* (1977) 73 Cal.App.3d 546, 555-556.).

10. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to amend WDR Order R5-2016-0026 for this discharge and has provided them with an opportunity to submit their written views and recommendations.

IT IS HEREBY ORDERED THAT:

1. **Effective immediately**, Cease and Desist Order R5-2015-0042 is rescinded.
2. **Effective immediately**, Order R5-2016-0026 is amended as shown in Items a through bb, below.
 - a. **Title Page.** Update information found in the title page of the NPDES Permit to reflect changes made in this amending Order as shown in underline format below:

ORDER R5-2016-0026-01

NPDES NO. CA0085197

**WASTE DISCHARGE REQUIREMENTS
 STERLING CAVIAR LLC
 STERLING CAVIAR LLC, ELVERTA
 SACRAMENTO COUNTY**

I, Pamela C. Creedon, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **21 April 2016** and amended by Order **R5-2017-XXXX** on **XX December 2017**.

- b. **Order Number.** Change the Order number throughout to ORDER R5-2016-0026-01
- c. **Effluent Limitations and Discharge Requirements, Section IV. Final Effluent Limitations – Discharge Point 001.** Under Section IV.A.1.a, Table 4. Removed manganese effluent limitations and modify arsenic effluent limitation values from Table 4, as shown below in underline/strikeout format.

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	standard units	--	--	6.5	8.0
Arsenic	µg/L	<u>4014</u>	<u>4819</u>	--	--

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Manganese	µg/L	50	80		

d. Effluent Limitations and Discharge Requirements, Section VI, Reopener Provisions. Remove Section VI.C.1.c, as shown below in strikeout format.

~~**e. Arsenic and Manganese Compliance Schedule.** Cease and Desist Order R5-2015-0042 includes a compliance schedule for arsenic and manganese with final compliance required by 1 March 2017. The Discharger is evaluating several compliance alternatives that would necessitate a permit amendment, such as de-designation of the municipal supply beneficial use in the BKS Preserve Wetlands, variances, site-specific SIP Case-by-Case Exceptions, etc. This Order may be reopened, as appropriate, to implement the selected compliance alternative.~~

e. Effluent Limitations and Discharge Requirements, Section VI.C.6.a, Other Special Provisions. Modify as shown below in underline/strikeout format.

a. **Aquaculture Chemicals and Drugs.** This permit authorizes the discharge of sodium chloride, hydrogen peroxide, chloramine-T, and oxytetracycline in accordance with the effluent limitations, BMP plan requirements, Monitoring and Reporting requirements and other conditions of this permit. Other aquaculture chemicals or drugs that may enter the wastewater discharge can only be authorized if the Discharger submits a Report of Waste Discharge (ROWD) ~~RWD~~ to the Regional Water Board that contains the following supplemental information, and the Regional Water Board has issued waste discharge requirements or this Order has been reopened and revised:

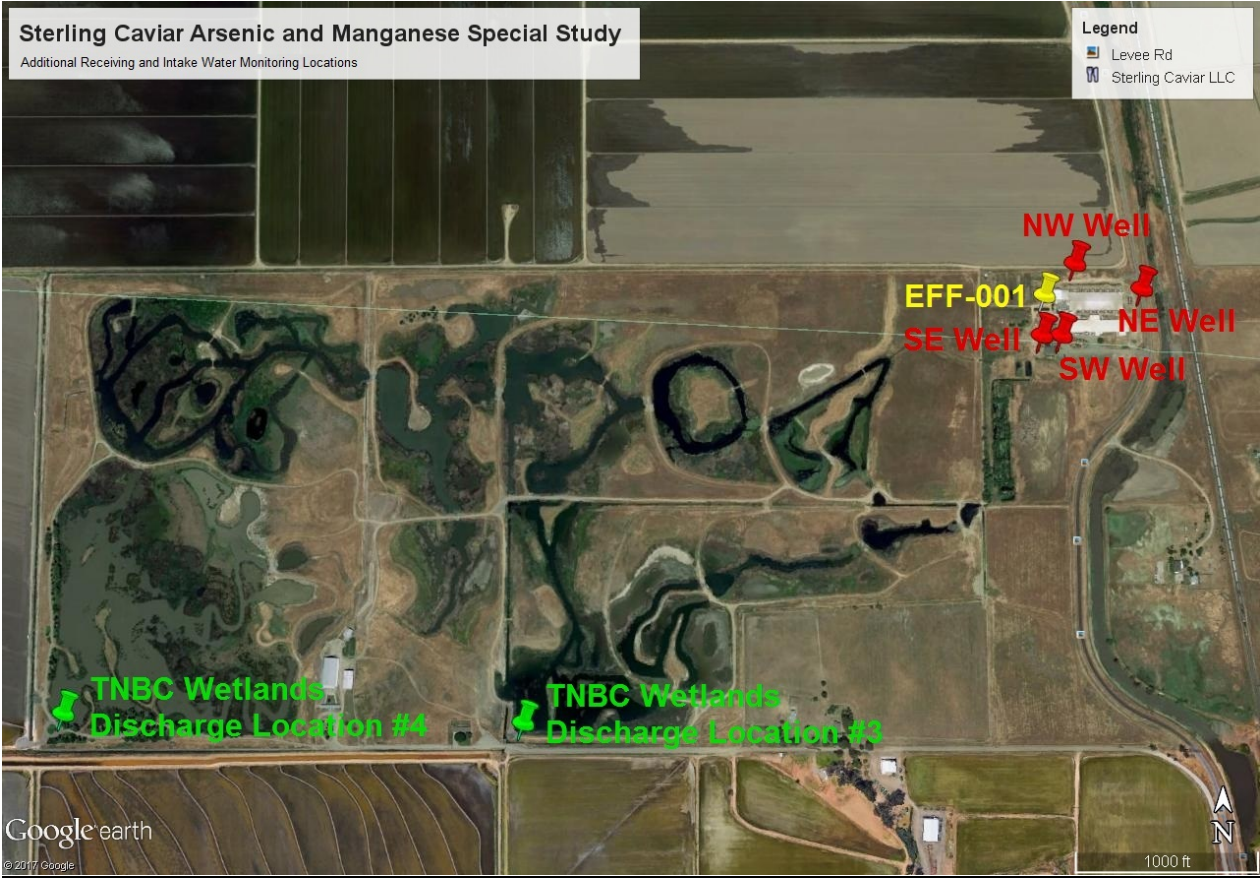
f. Effluent Limitations and Discharge Requirements, Section VII, Compliance Determination. Add subsection VII.B, Arsenic Effluent Limitations, as shown below in underline format.

B. Arsenic Effluent Limitations. Intake water credits have been allowed for arsenic. Therefore, if the average monthly and/or maximum daily effluent limitation for arsenic required in Table 4 is exceeded, the discharge will be deemed to be in compliance with the effluent limitation(s) if the total recoverable arsenic concentration and mass measured in the effluent does not exceed the respective total recoverable arsenic concentration and mass of the intake water, calculated per MRP Sections X.B.7.a. and X.B.7.b.

g. Attachment B, Map. An additional map was included to further clarify where the receiving water monitoring locations samples were collected for the Arsenic and Manganese

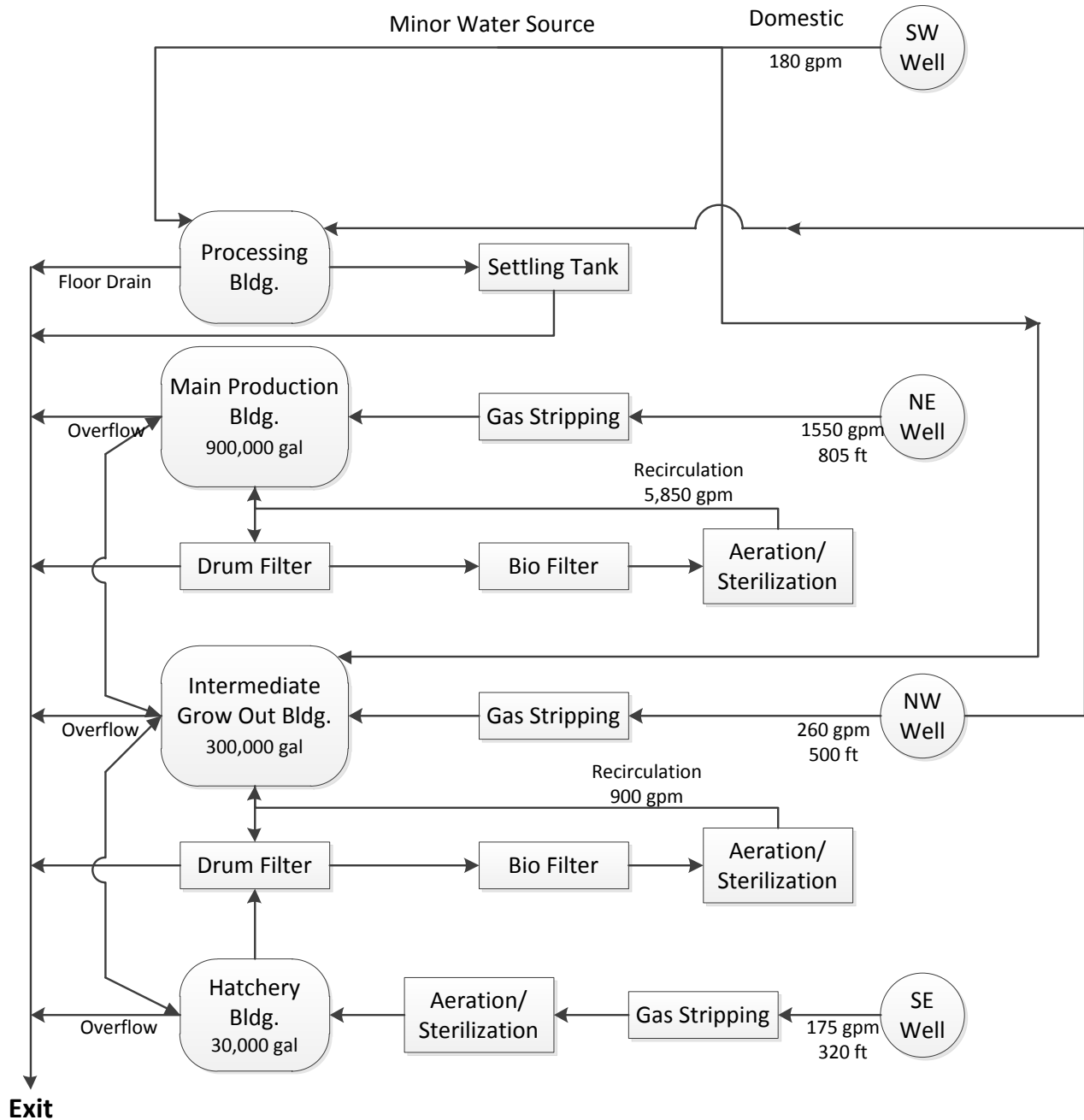
Special Study and where samples should be collected for the Manganese Characterization Monitoring Study (MRP, Section IX.B.2)

ATTACHMENT B – MAP



h. Attachment C, Flow Schematic. The Facility process diagram has been updated and revised (with figure below) to more accurately reflect the flow distribution and capacities.

ATTACHMENT C – FLOW SCHEMATIC



- i. **Attachment E, Monitoring and Reporting Program. Section II, Monitoring Locations.**
 Modify Table E-1 as shown below in underline/strikeout format.

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	EFF-001	<u>Location where a Representative sample of total the effluent wastewater flow prior to discharge from at Discharge Point 001 can be collected</u> Latitude: 38.735670° Longitude: -121.492583°
::	<u>NE Well</u>	<u>Location where a representative sample of the intake water from the North East on-site well can be collected</u> Latitude: 38. 73583° Longitude: -121. 4906°
::	<u>NW Well</u>	<u>Location where a representative sample of the intake water from the North West on site well can be collected</u> Latitude: 38. 73611° Longitude: -121. 4919
::	<u>SE Well</u>	<u>Location where a representative sample of the intake water from the South East on site well can be collected</u> Latitude: 38. 735° Longitude: -121.492583
::	<u>SW Well</u>	<u>Location where a representative sample of the intake water from the South West on site well can be collected</u> Latitude: 38. 735° Longitude: -121. 4922
::	<u>TNBC #3</u>	<u>Location where a representative sample of water flowing from the wetlands can be collected</u> Latitude: 38. 72916667° Longitude: -121. 50277778°
::	<u>TNBC #4</u>	<u>Location where a representative sample of water flowing from the wetlands can be collected</u> Latitude: 38. 72833333° Longitude: -121. 51166667°

- j. **Attachment E, Monitoring and Reporting Program. Section III, Influent Monitoring Requirements.** Add influent monitoring requirements, including new Table E-2, as shown in underline/strikeout format, below, and renumber remaining tables in Attachment E:

III. INFLUENT MONITORING REQUIREMENTS --NOT APPLICABLE

The Discharger shall monitor the intake water at all four on-site water supply wells at monitoring locations NE Well, NW Well, SE Well, and SW Well, as described above in Table E-11 and as shown in attachment B. If more than one analytical test method is listed for a given parameter, the Discharger must select methods and corresponding Minimum Level listed in Table E-4. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-2. Influent Monitoring

<u>Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Minimum Sampling Frequency</u>	<u>Required Analytical Test Method</u>
Flow	MGD	Meter	Continuous	--
<u>Priority Pollutants</u>				
<u>Arsenic, Total Recoverable</u>	<u>µg/L</u>	<u>Grab</u>	<u>1/Quarter</u>	<u>1, 2, 3</u>

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

² For priority pollutant constituents the reporting level shall be consistent with Sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, Table E-4).

³ Sampling shall occur on the same day as the sampling of effluent for arsenic required in Table E-3.

k. Attachment E, Monitoring and Reporting Program. Section IV, Effluent Monitoring Requirements. Modify effluent monitoring requirements as shown below in underline/strikeout format:

Table E-23. Effluent Monitoring

<u>Parameter</u>	<u>Units</u>	<u>Sample Type</u>	<u>Minimum Sampling Frequency</u>	<u>Required Analytical Test Method</u>
Flow	MGD	Meter	Continuous	--
<u>Conventional Pollutants</u>				
Biochemical Oxygen Demand (5-day @ 20° C)	mg/L	Grab	1/Month	1
Total Suspended Solids	mg/L	Grab	1/month	1
pH	standard units	Grab	1/Week ^{2, 3}	1
<u>Priority Pollutants</u>				
<u>Arsenic, Total Recoverable</u>	<u>µg/L</u>	<u>Grab</u>	<u>2/Year</u> <u>1/Quarter</u>	<u>1, 4, 5</u>
<u>Non-Conventional Pollutants</u>				
Antimony	µg/L	Grab	2/Year	1
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Month ²	1
Chloride	mg/L	Grab	1/Month	1
Dissolved Oxygen	mg/L	Grab	1/Month	1
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter	1
Hardness, Total (as CaCO ₃)	mg/L	Grab	1/Quarter	1
Manganese, Total Recoverable	µg/L	Grab	2/Year	4
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Quarter	1
Settleable Solids	ml/L	Grab	1/Quarter	1
Temperature	°C	Grab	1/Week ^{2, 3}	1
Total Dissolved Solids	mg/L	Grab	1/Quarter	1

¹ Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

² pH and temperature shall be recorded at the time of ammonia sample collection.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
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³ A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

⁴ For priority pollutant constituents the reporting level shall be consistent with Sections 2.4.2 and 2.4.3 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (See Attachment E, Table E-415).

⁵ Sampling shall occur on the same day as the sampling of intake water for arsenic required in Table E-2.

I. Attachment E, Monitoring and Reporting Program. Section IX. B Effluent Characterization Monitoring. Modify Section IX. B as shown below in underline/strikeout format:

B. Effluent Characterization Monitoring

1. The Discharger shall monitor the effluent and analyze the samples for priority pollutants and other constituents of concern listed in Table E-3 4 once during the term of this Order. Unless modified through written approval by the Executive Officer, the monitoring shall occur after 1 January 2020, but no later than 1 July 2020. The monitoring data shall be submitted to the Central Valley Water Board within **60 days of the final sampling event.** Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.waterboards.ca.gov/iswp/index.html>.)

2. Manganese Characterization Monitoring. In order to provide sufficient data to conduct the reasonable potential analysis for manganese for the next permit renewal, the Discharger shall collect total recoverable and dissolved manganese samples quarterly for one year, at monitoring locations EFF-001 and TNBC # 4 (if there is no flow at TNBC #4 the Discharger shall sample at TNBC #3). **Unless modified through written approval by the Executive Officer, the quarterly sampling shall occur during the year 2020.** When analyzing for dissolved metals, the sample must be filtered in the field (prior to acidification with nitric acid) within 15 minutes of sample collection as required in 40 C.F.R. 136.3. The sample is filtered through a 0.45-µm filter at the time of collection and the liquid phase is then acidified at the time of collection with nitric acid. The monitoring data shall be submitted to the Central Valley Water Board with the quarterly SMRs.

m. Attachment E, Monitoring and Reporting Program. Section X.B. Self-Monitoring Reports. Add Section X.B.7 as shown below in underline format.

7. The Discharger shall submit in the SMRs the calculations and reports in accordance with the following requirements:

- a. **Arsenic Intake Water Concentration.** The Discharger shall calculate and report the maximum daily and average monthly flow-weighted intake water total recoverable arsenic concentrations on a quarterly basis using Equation (1), below:

Equation (1)

$$\text{Flow Weighted Arsenic } \left(\frac{\mu\text{g}}{\text{L}} \right) = \frac{[As]_{NE} * Q_{NE} + [As]_{NW} * Q_{NW} + [As]_{SE} * Q_{SE} + [As]_{SW} * Q_{SW}}{Q_{NE} + Q_{NW} + Q_{SE} + Q_{SW}}$$

Where:

[As]_{NE} = Maximum daily arsenic concentration for north east monitoring well in micrograms per liter

[Q]_{NE} = Daily average flow rate for north east monitoring well in million gallons per day

[As]_{NW} = Maximum daily arsenic concentration for north west monitoring well in micrograms per liter

[Q]_{NW} = Daily average flow rate for north west monitoring well in million gallons per day

[As]_{SE} = Maximum daily arsenic concentration for south east monitoring well in micrograms per liter

[Q]_{SE} = Daily average flow rate for south east monitoring well in million gallons per day

[As]_{SW} = Maximum daily arsenic concentration for south west monitoring well in micrograms per liter

[Q]_{SW} = Daily average flow rate for south west monitoring well in million gallons per day

For monthly average flow weighted intake water concentration, the monthly average flow and monthly average constituent concentrations for each water supply well shall be used in the above equation.

- b. **Arsenic Intake Water Loading.** The Discharger shall calculate and report the maximum daily and monthly average total recoverable arsenic loading of the intake water on a quarterly basis using the Equation (2), below:

Equation (2)

$$\begin{aligned} \text{Intake Water Loading } \left(\frac{\text{Lbs}}{\text{day}} \right) \\ = \text{Flow Weighted Arsenic } \left(\frac{\mu\text{g}}{\text{L}} \right) * (Q_{NE} + Q_{NW} + Q_{SE} + Q_{SW}) * \left(\frac{8.34}{1,000} \right) \end{aligned}$$

For monthly average intake water loading, the monthly average flow for each water supply well and monthly average flow weighted arsenic concentration shall be used in the above equation.

Arsenic Effluent Loading. The Discharger shall calculate and report the maximum daily and monthly average total recoverable arsenic loading of the effluent on a quarterly basis using Equation (3), below:

Equation (3)

$$\text{Effluent Loading } \left(\frac{\text{Lbs}}{\text{day}} \right) = \{ [As]_{EFF} * Q_{EFF} \} * \left(\frac{8.34}{1,000} \right)$$

Where:

[As]_{EFF} = Maximum daily arsenic concentration for the effluent, at monitoring location EFF-001, in micrograms per liter

[Q]_{EFF} = Daily average flow rate for the effluent, at monitoring location EFF-001, in million gallons per day

For monthly average effluent loading, the monthly average effluent flow and monthly average effluent total recoverable arsenic concentration shall be used in the above equation.

- n. **Attachment E, Monitoring and Reporting Program. Section X.C, Other Reports.** Add new Section X.C.2 and Table E-6 as shown below in underline format.

2. **Special Study Technical Reports and Progress Reports.** Special Provisions contained in Section VI of the Waste Discharge Requirements include requirements to submit special study technical reports and progress reports. Table E-6 summarizes the technical reports required by the Special Provisions and due dates for report submittal. All special study technical reports and progress reports shall be submitted electronically via CIWQS submittal. Reports should be uploaded as a PDF, Microsoft Word, or Microsoft Excel file attachment. If there are any discrepancies between the information presented in Table E-6 and the Special Provisions (Section VI of the Waste Discharge

Requirements), the information in the Special Provisions shall supersede the information in Table E-6.

Table E-6 Reporting Requirements for Special Provisions Reports

<u>Special Provision</u>	<u>Reporting Requirements</u>	<u>CIWQS Reference</u>
<u>Report of Waste Discharge</u>	<u>2 December 2020</u>	<u>ROWD</u>
<u>Analytical Methods Report for the constituents listed in Table E-4 (MRP section IX.B.1.)</u>	<u>1 July 2019</u>	<u>MRP IX.B.1</u>
<u>Feeding and Production Annual Report (MRP section IX.C.)</u>	<u>28 February 2018</u> <u>28 February 2019</u> <u>28 February 2020</u> <u>28 February 2021</u>	<u>MRP IX.C</u>

- o. Attachment F, Fact Sheet. Section I, Permit Information.** Modify Table F-1 as shown below in underline/strikeout format.

Table F-1. Facility Information

WDID	5A34NP00043
CIWQS Facility Place ID	651461
Discharger	Sterling Caviar LLC
Name of Facility	Sterling Caviar LLC, Elverta
Facility Address	9149 E. Levee Road
	Elverta, CA 95626
	Sacramento County
Facility Contact, Title and Phone	Bobby Renschler, Production Manager, 916-991-4420, Bobby.Renschler@sterlingcaviar.com <u>Camron King, President, 916-239-8732, Camron.king@sterlingcaviar.com</u>
Authorized Person to Sign and Submit Reports	Shaoching Bishop, Managing Director, , 916-991-4420, s.bishop@sterlingcaviar.com and Bobby Renschler, Production Manager, 916-991-4420, Bobby.Renschler@sterlingcaviar.com <u>Camron King, President, 916-239-8732 Camron.king@sterlingcaviar.com and Bobby Renschler, Vice President Operations, 916-991-4420, Bobby.Renschler@sterlingcaviar.com</u>
Mailing Address	SAME
Billing Address	SAME
Type of Facility	Concentrated Aquatic Animal Production/ Fish Hatchery (CAAP Facility)
Major or Minor Facility	Minor
Threat to Water Quality	3
Complexity	C
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	3.67 (in million gallons per day)
Facility Design Flow	3.67 (in million gallons per day)

Watershed	Sacramento River Basin
Receiving Water	BKS preserve wetlands
Receiving Water Type	Wetlands

p. **Attachment F, Fact Sheet. Section I, Permit Information.** Add new Section I.D as shown below in underline format.

D. Order R5-2016-0026 was adopted on 21 April 2016 and has been subsequently amended on XX December 2017 by Order R5-2017-XXXX to remove effluent limits for manganese and modify the effluent limits for arsenic based on the allowance of intake water credits.

q. **Attachment F, Fact Sheet. Section IV.C.3, Determining the Need for WQBEL's.** Modify first paragraph in Section IV.C.3 as shown below in underline/strikeout format.

3. Determining the Need for WQBEL's

The reasonable potential analysis (RPA) evaluation was completed with effluent data from September 2010 through June 2015. Additional data from an arsenic and manganese special study collected between January and June 2017 was used for the arsenic and manganese RPA evaluation. However, since background receiving surface water monitoring is not feasible and, therefore, not required in this Order (See attachment F, Section VI.D) receiving surface water monitoring data was not available to complete the RPA.

r. **Attachment F, Fact Sheet. Section IV.C.3, Determining the Need for WQBEL's.** Add new Section IV.C.3.a.v. as shown below in underline/strikeout format, including addition of new Figure F-2.

v. Manganese

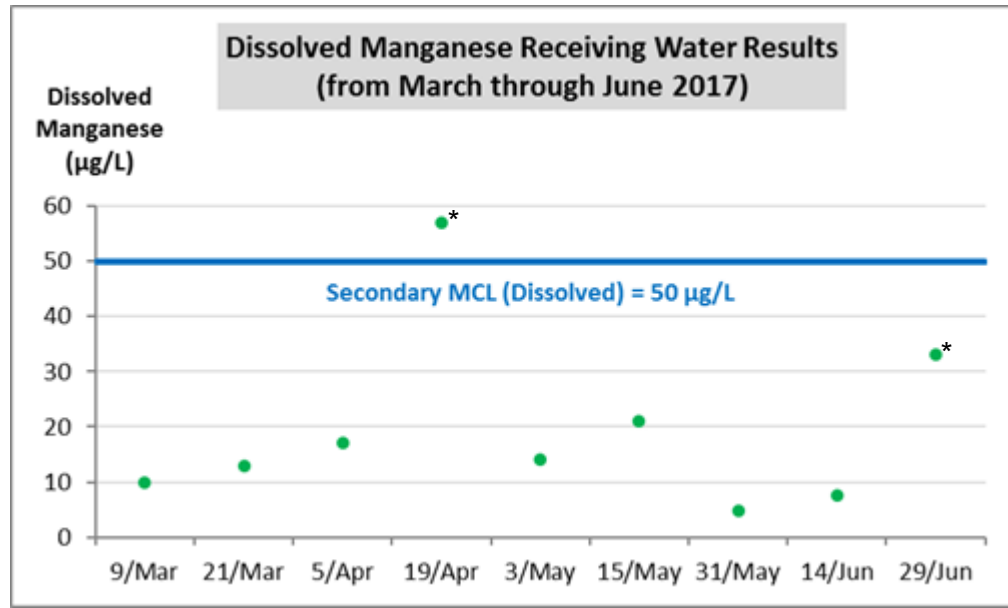
(a) **WQO.** The Secondary MCL - Consumer Acceptance Limit for manganese is 50 µg/L (dissolved). The Secondary MCL is derived from human welfare considerations (e.g., taste, odor, laundry staining), not for toxicity. Secondary MCL's are drinking water standards contained in Title 22 of the California Code of Regulations that were developed by the State Water Board Division of Drinking Water (DDW). DDW has advised that compliance with the dissolved fraction of MCLs in source waters is fully protective of the MUN beneficial use. Furthermore, manganese is not a toxic contaminant, therefore, short-term exceedances do not result in any health consequence and DDW recommends compliance with the Secondary MCL based on annual average concentrations.

(b) **RPA Results.** For priority pollutants, the SIP dictates the procedures for conducting the RPA. Manganese is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to the site-specific conditions of the discharge, the Central Valley Water Board has used its judgement in determining the

appropriate method for conducting the RPA for this non-priority pollutant constituent. As part of the compliance efforts regarding arsenic and manganese, the Discharger conducted a special study from January through June 2017 in which dissolved metals and total recoverable metals were monitored in the effluent and downstream receiving water.

Based on 10 samples, the average effluent dissolved manganese was 63.6 µg/L, which exceeds the Secondary MCL. However, to evaluate whether the discharge was causing or contributing to exceedances of the Secondary MCL in the receiving water, the Discharger conducted dissolved manganese sampling of the water flowing out of the wetlands. Based on 11 samples the average receiving water dissolved manganese was 18.1 µg/L. Figure F-2, below, shows the downstream receiving water monitor data consistently complies with the Secondary MCL. Therefore, the Central Valley Water Board finds the discharge does not have reasonable potential to cause or contribute to an exceedance of the Secondary MCL in the receiving water.

Figure F-2. Bi-monthly manganese receiving water monitoring results from March through June 2017



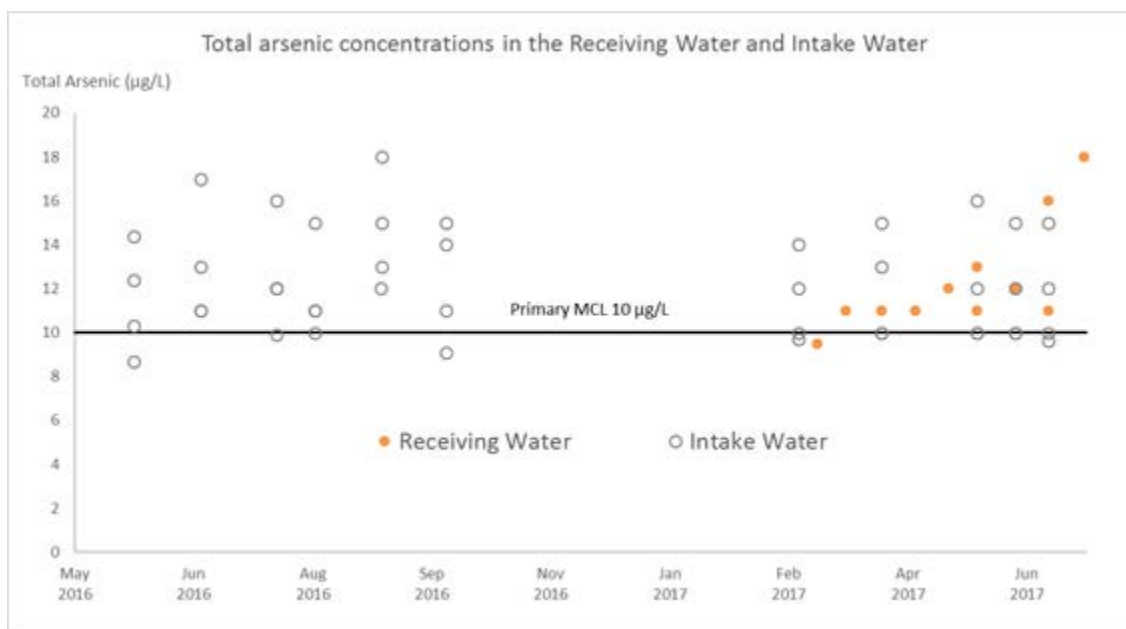
* The Discharger reported the receiving water was turbid at the time the samples were collected on 19 April and 29 June 2017, due to maintenance activities in the wetlands.

- s. **Attachment F, Fact Sheet. Section IV.C.3, Determining the Need for WQBEL's.** Modify Section IV.C.3.c as shown below in underline/strikeout format. This change includes new Figures F-2, F-3, F-4, F-5, and F-6. Therefore, existing Figures F-2 and F-3 are renumbered to F-7 and F-8.
- c. **Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for arsenic and manganese. WQBEL's for ~~these constituents~~ arsenic are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.
- i. **Arsenic**
- (a) **WQO.** The USEPA and California Primary Maximum Contaminant Level (MCL) is 10 µg/L for arsenic. Primary MCLs are established to protect public health from acute and chronic effects of bacteriological, chemical and radiological constituents in drinking water. Pursuant to the Safe Drinking Water Act, DHS must revise the arsenic MCL in Title 22 CCR to be as low or lower than the USEPA MCL. Applying the Basin Plan's "Policy for Application of Water Quality Objectives", to protect future municipal and domestic water use, it is reasonable to apply the USEPA MCL for arsenic to the receiving stream.
- (b) **RPA Results.** The maximum effluent concentration (MEC) for total recoverable arsenic was 14 µg/L, based on 22 samples between May 2016 and January 2017. As part of the compliance efforts regarding arsenic and manganese, the Discharger conducted a special study in which dissolved metals and total recoverable metals monitoring was conducted from January through June 2017 in the effluent and downstream receiving water. Based on the monitoring results of this study, the MEC for dissolved arsenic was 11 µg/L and the average downstream receiving water dissolved arsenic concentration was 12 µg/L. Therefore, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the water quality objective and WQBELs are required.
- The Central Valley Water Board recognizes that the background arsenic concentrations in the groundwater used to supply the Facility also exceed the primary MCL. Consequently, water intake credits in accordance with section 1.4.4 of the SIP have been considered for developing the WQBEL's, as discussed below.
- (c) **WQBEL's.** ~~This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for arsenic of 10 µg/L and 20 µg/L, respectively, based on the primary MCL. The SIP section 1.4.4 allows for the consideration of intake water credits when developing WQBEL's under specific circumstances. If the discharge meets the conditions for intake water credits the WQBEL's may be established allowing the facility to discharge a mass and concentration of pollutant that is no greater than the mass and concentration found in its intake water. The discharge meets the SIP conditions to allow intake water credits for arsenic as described below:~~

SIP Condition 1. The observed maximum ambient background concentration, as determined in section 1.4.3.1 of the SIP, and the intake water concentration of the pollutant exceeds the most stringent applicable criterion/objective for that pollutant.

Arsenic concentrations in the Facility's intake water supply wells and the wetlands are similar and consistently exceed the Primary MCL (Figure F-3).

Figure F-3. Total Arsenic Concentration in Receiving Water and Intake Water



SIP Condition 2. The intake water credits provided are consistent with any TMDL applicable to the discharge that has been approved by the Regional Water Board, State Water Board, and USEPA.

There are no TMDLs applicable to the discharge.

SIP Condition 3. The intake water is from the same water body as the receiving water body. The discharger may demonstrate this condition by showing that:

- a) the ambient background concentration of the pollutant in the receiving water, excluding any amount of the pollutant in the facility's discharge, is similar to that of the intake water;
- b) there is a direct hydrological connection between the intake and discharge points;
- c) the water quality characteristics are similar in the intake and receiving waters; and
- d) the intake water pollutant would have reached the vicinity of the discharge point in the receiving water within a reasonable period

of time and with the same effect had it not been diverted by the discharger.

The BKS Preserve Wetlands was developed by the Conservancy in 1999 and is an important habitat for threatened species (Giant Gartersnake and Swainson's Hawk). The preserve was constructed at the site due to the availability of water from the Facility. In 1990, Sierra Aquafarms Inc. (predecessor to Sterling Caviar) entered into an agreement to supply water to the Betts family's adjoining parcels. The agreement provides the adjacent BKS Preserve parcels with exclusive rights to the wastewater generated by the Facility. The agreement is recorded and binding to Betts and all successors of interest to both parties.

The United States Army Corps of Engineers considers the BKS Preserve wetlands a jurisdictional water of the United States. However, the BKS Preserve wetlands are not naturally-occurring. They were constructed by the Natomas Basin Conservancy for the purpose of providing habitat for threatened species and are not sustainable without an artificial water source (i.e., groundwater pumping). If the Facility were to cease discharging, the wetlands would cease to exist without an alternative source of water.

The Facility uses four groundwater wells to supply water for its aquaculture operations. The water supply wells pump water from the North American Subbasin, which is described in a technical report¹ provided by the Discharger as follows:

"The SCL [Sterling Caviar LLC] aquaculture operation is located within the North American Subbasin (NAM) of the larger Central Valley groundwater basin. The NAM is bound to the north by the Bear River, the west by the Feather River, to the south by the Sacramento River, and to the east by the foothills of the Sierra Nevada."

"Two principle water-bearing formations occur within the NAM. The shallower formation is variably named the Turlock Lake, Laguna, or Fair Oaks Formation (DWR, 2006). This formation occurs at a depth of approximately 200 feet in the vicinity of the SCL site, with an approximate thickness of 200 feet. The Mehrten Formation comprises the deeper water-bearing unit within the NAM."

"The Southeast and Southwest onsite wells are screened, in part, across the Turlock Lake Formation, while the Northwest and

¹ Evaluation of NPDES Compliance Alternatives, Sterling Caviar LLC, Elverta, California; prepared by VESTRA Resources Inc. (Administrative Draft, February 2015)

Northeast wells are screened within the deeper Mehrten Formation.”

The upper aquifer is recharged from precipitation and infiltration from excess irrigation water. The BKS Preserve wetlands also recharge into the upper aquifer. There is evidence that the upper and lower aquifers are hydraulically connected as discussed in the Natomas Area Groundwater Management Plan, “DWR has been monitoring a site near the southern border of the District [District 1000] with multiple completion monitoring wells, where water levels show a vertical gradient between the two aquifer units, and some hydraulic interconnection.”²

The Conservancy currently supplements the water supplied to the BKS Preserve wetlands from the Facility by pumping groundwater from two wells, one from the upper aquifer and the other from the lower aquifer. If the Facility would cease its discharge, the Conservancy would be required to increase its groundwater pumping to support the wetlands. Therefore, the receiving water body and the intake water is from the same water body, i.e., the underlying groundwater in the Natomas Basin, and meets the four conditions described in the SIP that demonstrate this relationship.

a) the ambient background concentration of the pollutant in the receiving water, excluding any amount of the pollutant in the facility’s discharge, is similar to that of the intake water;

The intake water from the lower and upper groundwater aquifers contains naturally occurring levels of arsenic. Arsenic is not added during the fish rearing process. This is confirmed by water quality data for the intake and effluent shown in Figure F-5, below, which shows that effluent arsenic concentrations are generally lower than intake water concentrations. The Facility discharge is then used as source water for the BKS Preserve wetlands. Consequently, the ambient background arsenic concentrations in the BKS Preserve wetlands are similar to the intake water. This is demonstrated by sampling results shown in Figure F-3, above.

b) there is a direct hydrological connection between the intake and discharge points;

The direct hydrological connection between the intake and discharge points is both natural and manmade. The Discharger uses four onsite groundwater supply wells as source water to the Facility. As discussed previously, the BKS Preserve wetlands are manmade and the only water source is groundwater, either pumped and discharged by the Facility or pumped from irrigation wells owned and operated by the Conservancy. Without these water sources the BKS Preserve wetlands would not exist, because there are no natural

² Natomas Area Groundwater Management Plan, Sacramento and Sutter Counties, California, Natomas Central Mutual Water Company (November 2009)

water sources to support the wetlands. The pumping of groundwater to support the wetlands is a manmade direct hydrological connection that is absolutely necessary. Without this connection there are no wetlands and no water of the United States.

There is also a direct hydrological connection between the intake and the discharge points via groundwater recharge. In addition to the wildlife benefits of the BKS Preserve wetlands, the increased detention time for water flowing through the wetlands allows for an increase in groundwater recharge. This is a natural direct hydrological connection between the intake and discharge points. As discussed previously, the Discharger's water supply wells pump water from the upper and lower aquifers within the North American Subbasin. The two aquifers are hydraulically connected based on studies conducted by the Department of Water Resources.

c) the water quality characteristics are similar in the intake and receiving waters:

Since the intake water is the source water for the BKS Preserve wetlands the water quality characteristics are similar. With respect to arsenic, this is shown in Figure F-3, above.

d) the intake water pollutant would have reached the vicinity of the discharge point in the receiving water within a reasonable period of time and with the same effect had it not been diverted by the discharger.

The BKS Preserve wetlands are constructed wetlands for the purpose of providing habitat for threatened species. The only source water for the wetlands is groundwater, primarily from the Discharger's operation. If the Discharger ceased providing a water source to the BKS Preserve wetlands, the Conservancy would be required to pump groundwater from the same aquifer containing the elevated arsenic concentrations. Arsenic is naturally occurring in both the lower and upper groundwater aquifers throughout the Natomas Basin. Groundwater data for wells in the vicinity of the Natomas Basin (Figures F-4 and F-5) demonstrate similarly elevated concentrations of arsenic in the area (Source: USGS, GAMA, and DWR). Therefore, the arsenic found in the intake water would reach the vicinity of the discharge point in the receiving water with the same effect if the Discharger ceased operating.

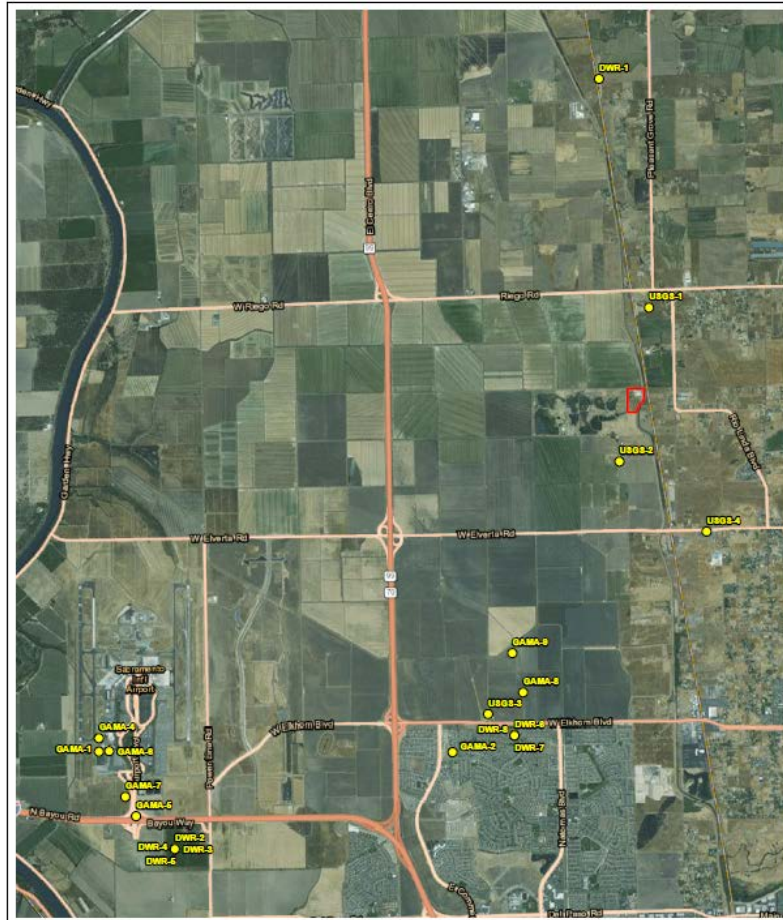
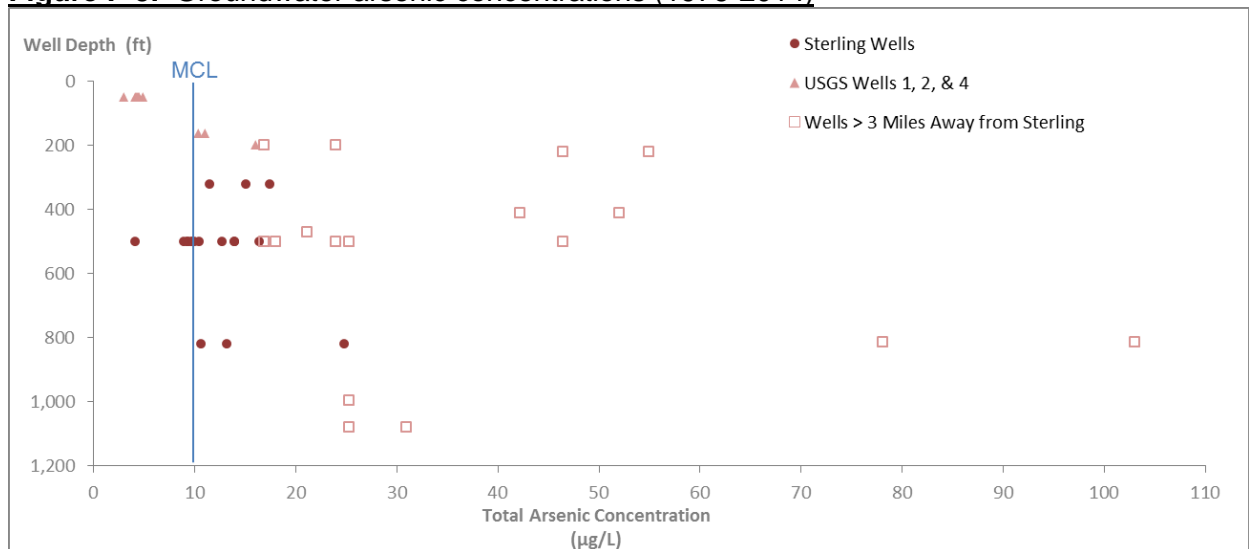


Figure F-4. Offsite well locations for USGS, GAMA, and DWR

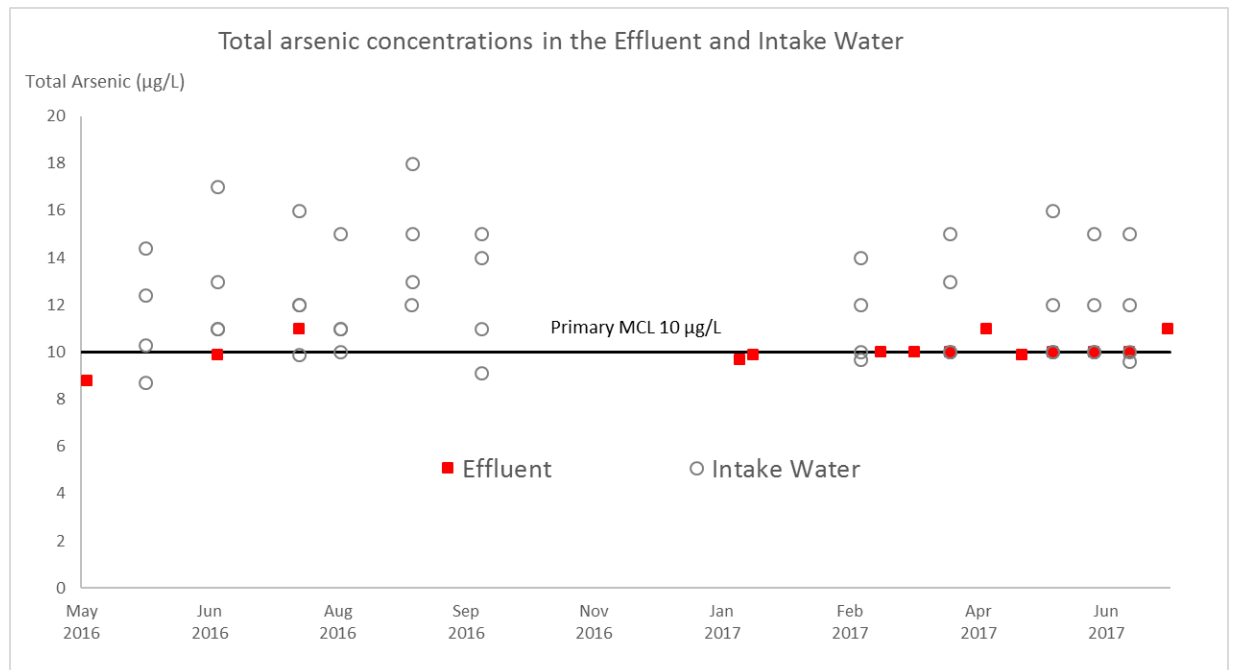
Figure F-5. Groundwater arsenic concentrations (1976-2014)



SIP Condition 4. *The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses.*

Arsenic in the Discharger's effluent is due to naturally occurring elevated levels in the groundwater (upper and lower groundwater aquifers) that is used as source water for the Facility. Arsenic is not added during the fish rearing process. This is confirmed by sampling for arsenic in the intake and effluent, which shows that the effluent concentrations are typically lower than the intake concentrations (Figure F-6).

Figure F-6. Total Arsenic Concentration in Effluent and Intake Water



SIP Condition 5. *The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.*

The timing and location of the discharge from the Facility does not cause adverse effects on water quality and beneficial uses. There would be no difference in the effect on beneficial uses related to arsenic if the Facility were to cease discharging, because to maintain the BKS Preserve wetlands the Conservancy would be required to pump the same groundwater to provide an alternative water supply. Furthermore, the slightly elevated arsenic concentrations are not impacting the MUN beneficial use. In this

situation, the MUN beneficial use has been applied based on State Water Board Resolution No. 88-63, Sources of Drinking Water Policy. There are no drinking water intakes within the wetlands or downstream in the District 1000 water ways. Consequently, the use of groundwater to provide source water to the BKS Preserve wetlands is not impacting the MUN beneficial use.

The sole purpose of the BKS Preserve wetlands is to create and support the necessary habitat conditions for the two threatened species and is in no way expected to support MUN use. The site is on private property owned by the Conservancy with no access for domestic use. The minimal water that is not retained in the wetlands, overflows into the Natomas Mutual agricultural drainage and conveyance system and subsequently into the District 1000 drainage system that collects storm water and agricultural runoff within the Natomas Basin. There is no access for domestic use. Any drinking water use would have to be authorized by District 1000 and Natomas Mutual, which own the rights to the water.

The Natomas Mutual and District 1000 waterways are designated MUN based on the Sources of Drinking Water Policy. The Sources of Drinking Water Policy provides exceptions to the MUN beneficial use designation. Under Exception 2 of the Policy, surface water that is in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, such as the Natomas Mutual and District 1000 waterways, is excepted from the MUN designation. In the Central Valley Region, a Basin Plan amendment is required to implement the exception. Resolution R5-2017-0088, adopted by the Central Valley Water Board on 11 August 2017, establishes the groundwork for streamlining the de-designation process for similar agricultural dominated water bodies.

Calculation of WQBELs. Per the SIP, the allowance of intake water credits allows a facility to discharge a mass and concentration of pollutant that is no greater than the mass and concentration found in its intake water. The effluent limitations have been established considering intake water credits and calculated to account for the analytical and sampling variability among the intake water and effluent. It is necessary to consider the variability because most analytical methods specify a precision limit of 20% Relative Percent Difference between two replicates of the same sample. Additionally, the monitoring of the intake water will take place at the four on-site supply wells that vary in terms of location (Table E-1 and attachment B), depth, volume, and arsenic concentrations. Even though the Discharger is establishing more robust sampling procedures to improve the consistency of sampling by installing sampling portals at each well, sampling and analytical variability will continue to exist.

The SIP includes procedures for calculating maximum daily and average monthly effluent limits based on a long-term average that ensures protection of the applicable water quality objectives. Based on the

statistics of the effluent, average monthly and maximum daily limits are established to ensure the facility is operated to maintain compliance with a long-term average concentration. This procedure was used to calculate the arsenic limits by inserting the intake water average as the long-term average in the SIP equations and calculating average monthly and maximum daily limits based on the statistics of the intake water. Compliance with these limits will ensure the effluent is consistent with the intake water dataset.

This Order includes an average monthly effluent limit (AMEL) and maximum daily effluent limit (MDEL) that that will account for intake water credits of 14 µg/L and 19 µg/L, respectively. However, in the event an effluent limit is exceeded, the discharge would be deemed to be in compliance if the effluent concentration and mass does not exceed the intake water concentration and mass. The revised arsenic effluent limits comply with antibacksliding and antidegradation regulations (see Attachment F, Section IV.D)

- (d) **Plant Performance and Attainability.** ~~Analysis of the effluent data shows that the MEC of 14 µg/L is greater than applicable WQBEL's. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. Therefore, GDO R5-2015-0042 provides a compliance schedule to achieve compliance with the final effluent limitations for arsenic by 1 March 2017. This Order includes effluent limitations for arsenic that allow for intake credits. Based on a review of the intake and effluent arsenic data, the Central Valley Water Board concludes that immediate compliance with these effluent limitations is feasible.~~

ii. **Manganese**

~~**WQO.** The Secondary MCL – Consumer Acceptance Limit for manganese is 50 µg/L.~~

~~**RPA Results.** The maximum effluent concentration (MEC) for manganese was 139 µg/L. 90% of the manganese results are above the average monthly effluent limits for manganese (Figures F-2). The manganese concentration in the discharge exceeds the criteria, therefore the effluent has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL.~~

~~**WQBEL's.** This Order contains a final average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for manganese of 50 µg/L and 80 µg/L, respectively, based on the objective. The Central Valley Water Board recognizes that the background manganese concentrations in the groundwater used to supply the Facility also exceed the secondary MCL.~~

~~**Plant Performance and Attainability.** Analysis of the effluent data shows that the MEC of 139 µg/L is greater than applicable WQBEL's. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. Therefore, GDO R5-2015-0042 provides a compliance schedule to achieve~~

~~compliance with the final effluent limitations for manganese by 1 March 2017.~~

- t. **Attachment F, Fact Sheet. Section IV.C.4, WQBEL Calculations.** Modify Section IV.C.4. as shown below in underline/strikeout format.

4. WQBEL Calculations

This Order includes WQBEL's for arsenic and manganese. The general methodology for calculating WQBEL's based on the different criteria/objectives is described in subsections IV.C.5.b through ed, below. See Attachment H for the WQBEL calculations.

- u. **Attachment F, Fact Sheet. Table F-8.** Modify Table F-8, Summary of Water Quality-Based Effluent Limitations, as shown below in underline/strikeout format.

Table F-8. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Arsenic	µg/L	40 ¹⁴	--	20 ¹⁹	--	--
Manganese	µg/L	50	--	80	--	--
pH	Standard Units	--	--	--	6.5	8.0

- v. **Attachment F, Fact Sheet. Section IV.D.3, Satisfaction of Anti-Backsliding Requirements.** Modify Section IV.D.3 as shown below in underline/strikeout format.

3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 C.F.R. section 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order with the exception of effluent limitations for arsenic, manganese, nitrate, formaldehyde, and chloride ~~these pollutants~~ were removed from Order R5-2007-0012. The effluent limitations for arsenic and manganese were relaxed from Order R5-2016-0026. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- a. **CWA section 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limits “*except in compliance with Section 303(d)(4).*” CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

- i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDL's or WLAs will assure the attainment of such water quality standards.
- ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

This Order ~~relaxes~~~~moves~~ the WQBELs for arsenic, manganese, chloride, nitrate, and formaldehyde. The receiving waters are in attainment. As discussed in Section IV.D.4, the ~~removal~~relaxation of the effluent limitations from Order R5-2007-0012 and R5-2016-0026 complies with the antidegradation requirements and thus meets the antibacksliding exception in CWA section 303(d)(4)(B).

- b. **CWA section 402(o)(2)**. CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2007-0012 and R5-2016-0026 ~~were~~ was issued indicates that manganese, chloride, nitrate, and formaldehyde do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Furthermore, updated information is available demonstrating intake water credits may be allowed for arsenic. The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

- i. **Chloride**. The effluent monitoring data collected between September 2010 through June 2015 with monthly chloride effluent monitoring results ranging from 30.2 mg/L to 40.7 mg/L. Based on these monitoring results, staff determine that chloride in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Agricultural Water Quality Goal for chloride of 106 mg/L (Figure F-72).
- ii. **Nitrate**. Since Order R5 2007 0012 was adopted the Discharger has implemented several operational changes such as: 1) converted 14 of 15 existing fluidized bed sand biofilters to moving media biofiltration; 2) installed an automated feeder in the production building; and 3) installed stripping/aeration towers. These operational changes and facility upgrades have resulted in reduction of effluent nitrate and the discharger no longer exhibits reasonable potential to cause or contribute to an exceedance of the primary MCL for nitrate (Figure F-83).
- iii. **Formaldehyde**. This Order does not allow for the use of formalin, therefore, the discharge no longer exhibits reasonable potential to cause or contribute to an exceedance of the applicable water quality objectives for formaldehyde.

- iv. **Arsenic.** Based on new information provided in a monitoring study conducted by the Discharger in January through June 2017, it was determined the site-specific conditions of the discharge met the conditions for allowing intake water credits for arsenic per Section 1.4.4 of the SIP (see Section IV.C.3.c.i).
- v. **Manganese.** Based on new information provided in a monitoring study conducted by the Discharger in January through June 2017, it was determined the discharge does not have reasonable potential to cause or contribute to an exceedance of the Secondary MCL for manganese (see Section IV.C.3.a.v)

w. **Attachment F, Fact Sheet. Section IV.D.4, Antidegradation Policies.** Modify Section IV.D.4 as shown below in underline/strikeout format.

4. **Antidegradation Policies**

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBEL's where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

The permitted surface water discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes effluent limitations for manganese, chloride, and nitrate based on updated monitoring data demonstrating that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. This Order also removes effluent limitations for formaldehyde because ~~because~~ this Order no longer allows the use of formalin. Furthermore, this Order revises the effluent limitations for arsenic to allow for intake water credits. The relaxation of WQBEL's for these parameters will not result in an increase in pollutant concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the Central Valley Water Board finds that the relaxation of the effluent limitations does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the removal and relaxation of effluent limitations is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

x. **Attachment F, Fact Sheet. Table F-9, Summary of Effluent Limitations.** Modify Table F-9 as shown below in underline/strikeout format.

Table F-9. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis ¹
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow							
Arsenic	µg/L	<u>4014</u>	--	<u>2019</u>	--	--	MCL Title 22
Manganese	µg/L	50	--	80	--	--	SEC MCL
pH	Standard Units	--	--	--	6.5	8.0	BP
Total Suspended Solids		Narrative ²					BPJ
Biochemical Oxygen Demand		Narrative ²					BPJ

¹ BP – Based on water quality objectives contained in the Basin Plan.
 SEC MCL – Based on the Secondary Maximum Contaminant Level.
 MCL – Based on the Primary Maximum Contaminant Level.
 Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).
 BPJ – Technology-based effluent limitation based on best professional judgment.

² The Discharger shall minimize the discharge of Total Suspended Solids and Biochemical Oxygen Demand through the implementation of the best management practices established in Special Provision VI.C.3 of this Order.

y. **Attachment F, Fact Sheet. Section VI.B, Rationale for Special Provisions.** Modify Section VI.B.1 as shown below in underline/strikeout format.

B. Special Provisions

1. Reopener Provisions – Not Applicable

a. ~~**Arsenic and Manganese Compliance Schedule.** Cease and Desist Order R5-2015-0042 includes a compliance schedule for arsenic and manganese with final compliance required by 1 March 2017. The Discharger is evaluating several compliance alternatives that would necessitate a permit amendment, such as de-designation of the municipal supply beneficial use in the BKS Preserve Wetlands, variances, site-specific exceptions of the SIP, mixing zones, etc. This Order may be reopened, as appropriate, to implement the selected compliance alternative.~~

~~Arsenic and manganese are common in the groundwater in the region; the source wells used by the Discharger contain elevated levels of arsenic and manganese. Due to naturally occurring arsenic and manganese in the source water used by the Discharger, the Discharger cannot consistently comply with the permit limitations in the NPDES permit of 10 ug/L and 50 ug/L, respectively. The Discharger has completed several operational changes and facility upgrades that have resulted in~~

~~compliance with the final nitrate limits. However, these changes and upgrades have not resulted in compliance with the final effluent limits for arsenic and manganese and it was determined to not be economically feasible to treat for these trace metals. Therefore, a compliance time schedule for compliance with the arsenic and manganese effluent limitations is established in TSO R5-2015-0042 in accordance with Water Code section 13300. The Discharger is considering the following options for potential compliance:~~

- ~~1. **MUN De-Designation.** It is recommended that the long-term solution be MUN De-Designation for the BKS Preserve wetlands through a Basin Plan Amendment Process. The Basin Planning staff have already established the groundwork for streamlining the de-designation process for similar water bodies. The project is expected to be completed in about 3 years. From that point it could be another year or two to adopt a Basin Plan amendment for Sterling, which is well beyond the CDO compliance date that is already maxed out. Therefore, the Discharger will be out of compliance and subject to MMPs for about 3 years; thus, the next two alternatives might allow the Discharger to reach compliance before the MUN De-Designation process is completed.~~
- ~~2. **Sale of water to Natomas Mutual Water Company prior use by Wetlands Preserve.** This alternative includes a change in the compliance point from: 1) Discharger to BKS Preserve to 2) Discharger to irrigated parcel Natomas Mutual. This change will may allow the Discharger to be exempt from an NPDES permit. This is the Discharger's preferred alternative because it would may result in rescission of the NPDES permit. The Discharger met with the Natomas Mutual Water Company on 4 September 2015 to determine if this is a viable alternative. There are two possible locations where the Discharger's effluent could be routed (through a pipe) and discharge directly into the Natomas Mutual Water Company's conveyance system. However, the Discharger still needs to evaluate this alternative and determine the legal and economical feasibility. In addition, it is not known if the Natomas Mutual Water Company's conveyance system is a Water of the U.S. Thus, at this time there is insufficient information to evaluate this alternative. This option may not be legally exempt the Discharger from a NPDES permit or economically feasible. It just re-routes the point source discharge and would require pumping costs.~~
- ~~3. **Basin Plan Exception for Manganese.** The Basin Plan "Policy for Application of Water Quality Objectives," states that the State Water Board Resolution No. 68-16 requires the maintenance of the existing high quality of water (i.e., "background") unless a change in water quality "will be consistent with maximum benefit to the people of the State....". This policy explains how the Regional Water Board applies numerical and narrative water quality objectives to ensure the reasonable protection of beneficial uses of water and how the Regional Water Board applies Resolution No. 68-16 to promote the maintenance of existing high quality waters. However, the water quality objectives do not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective. The natural background for~~

manganese is about 97 µg/L (maximum annual average), which will be approximately the same as the manganese concentrations in the effluent and in the BSK Preserve.

4. ~~SIP exception for Arsenic and a variance exception for Manganese.~~

~~SIP exception for Arsenic and a variance exception for Manganese. In the case of arsenic, the Discharger could request a SIP exception given the site-specific conditions of the BKS preserve, which differ sufficiently from statewide conditions and those differences cannot be addressed through other provisions of the SIP. Therefore, the SWRCB may, in compliance with the CEQA, subsequent to a public hearing, and with the concurrence of the U.S. EPA, grant an exception to meeting a priority pollutant criterion/objective or any other provision of this Policy where the SWRCB determines:~~

- ~~a. The exception will not compromise protection of enclosed bay, estuarine, and inland surface waters for beneficial uses; and~~
- ~~b. The public interest will be served.~~
- ~~c. There is no municipal supply use within District 1000; however, MUN must be designated based on Resolution 88-63, absent a Basin Plan amendment to de-designate the MUN use. The Discharger's effluent discharge is beneficial for the BSK wetlands preserve, which would not exist without the discharge. Therefore, the BSK Preserve is an example of which a SIP case-by-case exception would be appropriate to accommodate wastewater reclamation or water conservation.~~

~~In the case of manganese, the Discharger could request a variance exception. The Variance Policy allow the Central Valley Water Board the authority to grant short-term exceptions from meeting water quality based effluent limitations to dischargers subject to National Pollutant Discharge Elimination System (NPDES) permits. The policy will only apply to non-priority pollutants and can be used as a mechanism by which NPDES permits can be written where discharger compliance with the underlying water quality standards is demonstrated to be infeasible at the present time within the meaning of 40 Code of Federal Regulations section 131.10(g). The Variance Policy is granted for a specific period of time (3 years) and must be rejustified upon expiration. Therefore, the variance Policy will provide a "bridge" if additional data or analysis is needed before the state can make a determination whether the designated use or standard is not attainable and should be modified, in this case MUN De-Designation alternative. This alternative may also provide a mechanism that bridges the gap between time-schedules allowed under state laws and compliance schedules allowed under federal laws. The Discharger meets the elements within USEPA approved variances.~~

~~Both exceptions, SIP and Variance Policy, need to be approved by the Central Valley Water Board, State Board, and U.S. EPA.~~

- ~~b. **Other Options.** This Order may be reopened, as appropriate, to implement other approved compliance options.~~

- z. Attachment F, Fact Sheet. Section VII, Rationale for Monitoring and Reporting Requirements.** Modify Section VII.A and VII.B.2 as shown below in underline/strikeout format.

A. Influent Monitoring – ~~Not Applicable~~

- Influent monitoring is required for flow and arsenic quarterly to evaluate compliance with the WQBELs for arsenic that have been calculated considering the application of intake water credits.

B. Effluent Monitoring

- Effluent monitoring frequencies and sample types for pH (1/week), total Suspended Solids (1/month), BOD 5-day(1/month), ammonia (1/month), electrical conductivity (1/quarter), Total Dissolved Solids (1/quarter), and Settleable Solids (1/quarter) have been retained from Order R5-2007-0012. The monitoring frequency for arsenic ~~and manganese hasve been reduced-revised~~ to 1/Quarter2/Year. The monitoring frequency for manganese has been revised from 2/year to quarterly during year 2020 to provide effluent characterization for the next permit renewal. The effluent monitoring is needed to determine compliance with effluent limitations (e.g. arsenic ~~and pHmanganese~~) and efficacy of best management practices implementation for these parameters (e.g. TSS, BOD, TDS, Settleable Solids).

aa. Attachment G, Summary of Reasonable Potential Analysis. Modify Attachment G as shown below in underline/strike version.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Ammonia Nitrogen, Total (as N)	mg/L	2.27	--	--	--	--	--	--	--	--	No
Chloride	mg/L	40.7	--	--	--	--	--	--	106 ¹	--	No
Electrical Conductivity @ 25°C	µmhos/cm	479	--	--	--	--	--	--	--	--	No
Antimony, Total Recoverable	µg/L	21	--	--	--	--	--	--	--	6 ²	Inconclusive
Arsenic, Total Recoverable	µg/L	14	--	--	--	--	--	--	--	10	Yes
Manganese, Total Recoverable	µg/L	180 9	--	--	--	--	--	--	--	50	No ³ Yes
Nitrate Nitrogen, Total (as N)	mg/L	3.6	--	--	--	--	--	--	--	10	No
Total Dissolved Solids	mg/L	325	--	--	--	--	--	--	--	--	No

General Note: All inorganic concentrations are given as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

NA = Not Available

ND = Non-detect

Footnotes:

- (1) Basin Plan contains a narrative objective for chemical constituents. Agricultural irrigation, municipal and domestic supply are beneficial uses of the receiving water. The Agricultural Water Quality Goal for chloride is 106 mg/L.
- (2) The California Department of Public Health has adopted a Primary MCL for antimony of 6 µg/L, which implements the Basin Plan's chemical constituent objective.
- (3) See Attachment F, Section IV.C.3.a.v

bb. Attachment H, Calculation of WQBEL's. Modify Attachment H as shown below in underline/strikeout format.

ATTACHMENT H – CALCULATION OF WQBEL'S

Human Health WQBEL's Calculations <u>Considering Intake Water Credits</u>									
Parameter	Units	Criteria Long Term Average	Mean Background Concentration	Dilution Factor Coefficient of Variation ²	MDEL/AMEL Multiplier	AMEL Multiplier ³	AMEL	MDEL	AWEL
Arsenic, Total Recoverable ³	µg/L	<u>12.32</u> 40	–	<u>0.19</u> 0	<u>1.32</u> 4.75	<u>1.17</u> 4.4	<u>14</u> 40 ¹	<u>19</u> 48	–
Manganese, Total Recoverable	µg/L	50	–	0	4.6	4.34	50	80	–

⁴ Calculated by setting the LTA equal to the average intake water concentration. See Section IV.D.3. for rationale on effluent limitation's calculations. Calculated by setting the LTA equal to the Secondary MCL of 200 µg/L and using the AMEL multiplier to set the AMEL. The AWEL was calculated from the AMEL using the MDEL/AMEL multiplier. (Table 2 of the SIP)

² Maximum background concentration. Coefficient of variation of the intake water database.

³ MDEL and AMEL multipliers calculated per Section 1.4 of the SIP.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date that this Order becomes final, except that if the thirtieth day following the date that this Order becomes final falls on a Saturday, Sunday, or state holiday (including mandatory furlough days), the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **XX December 2017**.

PAMELA C. CREEDON, Executive Officer