

## Central Valley Regional Water Quality Control Board

26 April 2019

Julie A. Vance, Regional Manager  
California Department of Fish and Wildlife  
1234 East Shaw Ave.  
Fresno, CA 93710

**CERTIFIED MAIL**  
**7018 1830 0001 0015 1877**

**REVISED NOTICE OF APPLICABILITY; GENERAL WASTE DISCHARGE REQUIREMENTS FOR COLD WATER CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY DISCHARGES TO SURFACE WATERS, ORDER R5-2014-0161 (CAAP GENERAL ORDER); CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, SAN JOAQUIN FISH HATCHERY AND SALMON CONSERVATION AND RESEARCH FACILITY, FRESNO COUNTY**

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) issued a Notice of Applicability (NOA) on 20 January 2015 to the California Department of Fish and Wildlife (Discharger), San Joaquin Fish Hatchery (Hatchery) for coverage under CAAP General Order R5-2014-0161-025 and National Pollutant Discharge Elimination System (NPDES) Permit No. CAG135001. The Central Valley Water Board received a cover letter and a Notice of Intent (NOI) from the Discharger on 26 October 2018 to amend its NOA. The Discharger intends to build a Salmon Conservation and Research Facility (SCARF) adjacent to the Hatchery. The Central Valley Water Board and the Discharger have agreed it is appropriate to regulate the Hatchery and the SCARF under the same NOA, since they will share the same outfall into the San Joaquin River.

Effective 26 April 2019, this NOA supersedes the original NOA issued on 20 January 2015 and has been revised to include the SCARF. Administrative information for the Hatchery and the SCARF is provided in Enclosure A, a location map is provided in Enclosure B, a flow schematic is provided in Enclosure C, a monitoring and reporting program is provided in Enclosure D, and approved aquaculture drugs and chemicals use is provided in Enclosure E, which are included as part of this NOA. Please reference CAAP General Order **R5-2014-0161-025** in all your correspondence and submitted documents.

The CAAP General Order is enclosed and may also be viewed at the following web address: [http://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/). You are urged to familiarize yourself with the contents of the entire CAAP General Order. The Hatchery and SCARF operations and discharge shall be managed in accordance with the requirements contained in the CAAP General Order, this NOA, and with the information submitted by the Discharger.

## **FACILITY INFORMATION/DISCHARGE DESCRIPTION**

### San Joaquin Fish Hatchery

The Hatchery is owned and operated by the Discharger, approximately 20 miles northeast of Fresno in Section 7, T11S, R21E, MDB&M, as shown in Enclosure B. The Hatchery is a cold-water flow-through facility that includes an intake structure at the Friant Dam, multiple incubator trays, 124 aluminum and fiberglass rearing troughs, eight 600-foot long trout rearing ponds, two 400-foot concrete raceways, and a spawning house. Water from Millerton Lake at the Friant Dam is conveyed to the Hatchery via a 44-inch pipeline. There are two intake valves used to deliver water to the Hatchery. A high valve located at the Friant/Kern Canal and a low valve at the base of the Friant Dam are both used to regulate the Hatchery's flow through water temperature, typically between 47°F and 56°F. The average daily flow through the Hatchery is approximately 23 million gallons per day (mgd). Water is delivered to the Hatchery via an underground pipe and passes through an aerator tower to dispel noxious gases and to increase dissolved oxygen concentrations.

The Discharger currently raises approximately 550,000 pounds of rainbow trout, 4,000 pounds of Kokanee salmon, and 5,000 pounds of brook trout annually. The Hatchery uses approximately 70,000 pounds of food during the calendar month of maximum feeding (April) and approximately 650,000 pounds of feed annually. Prior to discharge to the San Joaquin River, the Hatchery's effluent is either sent to the worm farm ponds or to settling pond 1. Once the effluent is treated in the worm farm it is sent to the final pond or settling pond 1. Wastewater from the settling ponds and worm farm is merged into a final settling pond and then discharged to the San Joaquin River immediately upstream of Lost Lake Park at Discharge Point-001: Latitude 36° 59' 11" N, Longitude 119° 43' 15" W.

The worm farm, operated by a private entity (John Weigand), operates in two ponds between the final pond and ponds A and B. According to Mr. Weigand, the worm farm raises a subspecies of tubifex called *Limbriculuis veragatis*. The worms feed on the waste from the Hatchery's effluent; however, additional feed is periodically required. Mr. Weigand estimates that the worm farm uses a maximum of 1,000 pounds of catfish sinking pellets during the calendar month of maximum feeding. According to the Discharger and Mr. Weigand, chemicals are not used at the worm farm. Mr. Weigand also indicated that the worm farm harvests about 4,000 pounds of worms monthly. At this time, the worm farm does not meet the criteria to be considered a CAAP facility (per section 122. 24 of Title 40 of Code of Federal Regulations) in and of itself. However, monitoring at Monitoring Location EFF-001 (Table D-1) will monitor the final discharge of the Hatchery, SCARF, and the worm farm to the San Joaquin River.

An interim rearing facility (Interim Facility) is also located adjacent to the Hatchery. Currently, the Discharger is operating the Interim Facility to meet the needs of the San Joaquin River Restoration Program while the SCARF is developing. The Interim Facility houses and rears Chinook salmon. The Interim Facility consists of two small buildings, a 500 square foot building containing six 12-stack vertical tray incubators and six 3-ft diameter rearing tanks; and a 960 square foot (Moccasin) building consisting of eight 6-ft diameter circular tanks, outside tanks consisting of three 16-foot circular tanks, and two 20-foot circular tanks. Future plans for the Interim Facility are unknown. However, the Discharger temporarily intends to use the Interim Facility for holding salmon brought from other rivers or facilities, when broodstock is collected, and from the San Joaquin River once the Discharger begins getting adult returns. There may also be an expanded research center at the Interim Facility, and potentially a cold water refugia

(as the Interim Facility has chillers in nearly all tanks) in the event river water temperature become prohibitive to broodstock survival.

The Discharger indicated the use of the following drugs and chemicals at the Hatchery to treat fish for parasites, fungi, and bacteria, as well as to clean rearing raceways in order to reduce the spread of disease among the confined fish population: potassium permanganate, hydrogen peroxide, PVP iodine, sodium chloride (salt), florfenicol, oxytetracycline HCL, penicillin G, amoxicillin trihydrate, erythromycin, Romet-30, tricaine methanesulfonate (MS-222 ), carbon dioxide gas, sodium bicarbonate, acetic acid, chloramine-T, and SLICE (emamectin benzoate).

#### Salmon Conservation and Research Facility

The Discharger is currently in the process of building the SCARF adjacent to the Hatchery, and once completed, the Discharger will operate the SCARF. The SCARF and the Hatchery will share the same outfall into the San Joaquin River. In addition, the SCARF will have its own side outfall discharging into the San Joaquin River at Discharge Point-002: Latitude 36° 59' 13" N, Longitude 119° 43' 6" W. Discharge Point-002, which will pass flow year-round, will allow juveniles to seasonally swim directly from the tanks out to the San Joaquin River side channel. The SCARF's more concentrated wastewater is collected in the bottom drain of the tanks and is directed for treatment to the drum filters. The SCARF will use the same source water as the Hatchery and the same treatment system including the worm farm; with the addition of two drum filters to remove solids and two additional small treatment ponds with emerged and submerged vegetation. The wetland vegetation will serve to remove pollutants from the effluent. During treatment, the SCARF's wastewater will be combined with the Hatchery's wastewater and discharged to Discharge Point-001. The expected average daily flow through the SCARF is approximately 12.9 mgd.

The SCARF is a flow through system with some ability to recirculate and includes seven thirty-foot in diameter circular tanks, 20 twenty-foot in diameter circular tanks, three sixteen-foot in diameter circular tanks, six nine-foot in diameter circular tanks, 19 six-foot in diameter circular tanks, 16 three-foot in diameter circular tanks, 28 12'x4' rectangular tanks, and two 10'x3' rectangular tanks for a total area of 14,264 square feet. Approximately 45 percent of the flow will be directly discharged to Discharge Point-002, the remaining flow will be treated and discharged at Discharge Point-001. The majority of the flow will be pretreated via drum-filters and then sent to Ponds A and B. However, if the drum filters require maintenance, the SCARF's effluent will be redirected to the settling ponds. The Hatchery's and the SCARF's effluent will be combined at a distribution box between pond B and the worm farm. Then the effluent will be distributed to the worm farm and the settling basins. Once treatment has occurred at the worm farm, the effluent will be sent to the settling basins or the final pond for discharge at Discharge Point-001. Effluent that is pumped to the settling ponds will eventually make its way through the wetland ponds and to the final pond before being discharged to Discharge Point-001.

The SCARF is expected to raise approximately 30,000 pounds of Spring-run Chinook Salmon in the first year of operation, and a maximum of 75,000 pounds in the fifth year. The SCARF will use a maximum of 5,400 pounds monthly and approximately 64,000 pounds annually of Pellet Type Trout/Salmon feed. Frozen krill feed will also be utilized by the SCARF, approximately 1,400 pounds a month and 16,100 pounds per year.

The Discharger is authorized to use the following drugs and chemicals at the SCARF to treat salmon for parasites, fungi, and bacteria, as well as to clean rearing raceways in order to reduce

the spread of disease among the confined fish population: acetic acid, amoxicillin trihydrate, Carbon Dioxide, Chloramine-T (Halamid® Aqua), Chlorulun® - Chorionic Gonadotropin, Magnesium Sulfate (Epsom Salt), Erythromycin, Enteric Redmouth (ERM) Vaccine, Florfenicol (Aquoflor®), Formalin (37% formaldehyde solution), Hydrogen peroxide, MS-222/tricaine methanesulfonate (Finquel®, Tricaine-S®), Oxytetracycline dehydrate (Terramycin® 200), Oxytetracycline HCL, Penicillin G Potassium, Potassium Permanganate (Cairox™), PVP Iodine, SLICE® (emamectin benzoate; 0.2% aquaculture premix), Sodium bicarbonate, Sodium chloride (salt), Sulfadimethoxine-ormetoprim (Romet-30®), and Vibrio Vaccine. Sodium thiosulfate may only be used as part of the operations and maintenance of the Facility and is not a new chemical that can be directly used on aquatic animals. The Discharger is authorized to use Sodium thiosulfate to neutralize chemicals in appropriate doses.

Table 1 below shows the predicted **5-year maximum** annual harvestable fish and salmon production and the maximum monthly estimated feed used by the Discharger in the 1 July 2014 NOI and the 26 October 2018 NOI.

**Table 1: 5-Year Maximum Aquatic Animal Production and Feed Use**

<b>Facility</b>	<b>5-Year Maximum Annual Harvestable Aquatic Animal Production (lbs)</b>	<b>Maximum Monthly Feed Use (lbs)</b>
San Joaquin Fish Hatchery	Rainbow Trout – 550,000	70,000
	Brook Trout – 5,000	
	Kokanee Salmon – 4,000	
Salmon Conservation and Research Facility	Spring-run Chinook Salmon – 75,000	6,800

**INTAKE WATER CREDITS**

The maximum reported influent concentration for copper exceeds the screening level specified in Table H-1 of the CAAP General Order. The Discharger, however, has demonstrated that the discharge from the Hatchery and SCARF meets the conditions for granting intake water credits for copper. The source of the pollutant is the intake from the receiving water, which is the same receiving water the Hatchery and SCARF discharge to. Based on the Discharger's priority pollutant sampling data collected for the Hatchery between July 2009 to June 2012, the screening level for copper was exceeded in the intake water. However, the effluent concentrations do not exceed the intake concentrations nor the copper screening level, and the Discharger does not add copper in the process. Therefore, the water quality-based effluent limitations for copper have been established considering intake water credits.

**EFFLUENT LIMITATIONS – Discharge Points 001 and 002**

1. Effluent limitations are specified in Section V. Effluent Limitations and Discharge Specifications of the CAAP General Order. The following effluent limitations (Table 2) for Discharge Points 001 and 002 are applicable to this discharge and are contained in Sections V.A and V.B of the CAAP General Order:

**Table 2: Effluent Limitations – Discharge Points 001 and 002**

Parameter	Units	Average Monthly Effluent Limitation	Maximum Daily Effluent Limitation
Formaldehyde	mg/L	0.65 <sup>1</sup>	1.3 <sup>1</sup>
Chlorine	mg/L	--	0.018
Copper, Total Recoverable	µg/L	<sup>3</sup>	1.6 <sup>2</sup>

1. Compliance with the effluent limitations for formaldehyde may be evaluated using an estimated effluent concentration in lieu of effluent monitoring data. The estimated effluent concentration shall be calculated as described in the CAAP General Order (Section IX.A of Attachment C, Monitoring and Reporting Program).
2. Copper effluent limitations required in accordance with the CAAP General Order, Section V.B.1.c, using a receiving water hardness of 5.6 mg/L (as CaCO<sub>3</sub>). However, an intake water credit has been granted for copper. Therefore, compliance with this limitation shall be in accordance with the intake water credits in CAAP General Order, Section V.B.1.d (i.e., discharge shall be considered in compliance with the copper effluent limitation if the measured maximum daily effluent total recoverable copper concentration does not exceed the respective maximum daily intake total recoverable copper concentration (sampled on the same calendar day)).
3. An intake water credit has been granted for copper. In accordance with the CAAP General Order, section V.A.2, the monthly average total recoverable copper concentration and mass in the effluent shall not exceed the corresponding monthly average concentration and mass as measured in the influent.

2. In accordance with Section V.A.1.b. of the CAAP General Order, the Discharger shall minimize the discharge of Total Suspended Solids through the implementation of the best management practices established in Special Provision VII.C.3. of the CAAP General Order.

**RECEIVING WATER LIMITATIONS**

The discharges to the San Joaquin River are within the Sacramento and San Joaquin River Basins, therefore, the receiving water limitations contained in the CAAP General Order for the Sacramento and San Joaquin River Basins are applicable to this discharge. In addition, the following receiving water limitations are applicable to this discharge based on site-specific water quality objectives contained in the Basin Plan for the Sacramento and San Joaquin River Basins.

1. **Electrical Conductivity.** The following electrical conductivity objective applies to the San Joaquin River from Friant Dam to Gravelly Ford:
  - i. Electrical conductivity shall not exceed 150 µmhos/cm (90th percentile).

**OTHER REQUIREMENTS**

1. The discharge from the Hatchery shall not exceed a monthly average flow of 24 mgd. The discharge from the SCARF shall not exceed a monthly average of 13 mgd.
2. The Discharger shall continue to electronically submit Self-Monitoring Reports (SMRs) using the State Water Resources Control Board's California Integrated Water Quality System (CIWQS) Program website ([http://www.waterboards.ca.gov/water\\_issues/programs/ciwqs](http://www.waterboards.ca.gov/water_issues/programs/ciwqs)). The CIWQS website will provide directions for SMR submittal in the event there will be service interruption for electronic submittal.
3. Aquaculture activities defined in the Code of Federal Regulations (40 C.F.R. 122.25(b)) will be subject to the annual fee for general NPDES permits and de minimus discharges that are regulated by individual or general NPDES permits, as described in Title 23 of the California Code of Regulations, Division 3, Chapter 9, Article 1, Section 2200(b)(9) for Category 3 discharges.

4. The CAAP General Order expires on **31 December 2019**. Only those CAAP facilities authorized to discharge and who submit a Notice of Intent **at least 180 days** prior to the expiration date of Order R5-2014-0161 will remain authorized to discharge under administratively continued permit conditions.
5. In accordance with section VII.C.3.a. of the CAAP General Order, the Discharger shall certify within 90 days from the issuance of this NOA that a Best Management Practices (BMP) Plan has been developed and is being implemented. Since the Hatchery already has a BMP Plan in place and the SCARF will not be operational until the end of 2019. The Discharger shall create a BMP Plan for the SCARF by **26 July 2019** and certify its implementation once the SCARF is operational. The Discharger can develop a new BMP Plan for the SCARF or modify the existing Hatchery BMP Plan to include the SCARF or any other modifications that may have occurred. The Discharger shall develop and implement the BMP Plan to prevent or minimize the generation and discharge of wastes and pollutants to waters of the United States and waters of the State and ensure disposal or land application of wastes is in compliance with applicable solid waste disposal regulations. The BMP Plan shall include a salinity evaluation and minimization plan to address salt treatments at the facilities. The Discharger shall review the BMP Plan annually and must amend the BMP Plan whenever there is a change in operation which materially increases the generation of pollutants or their release or potential release to surface waters.

#### **ENFORCEMENT**

Failure to comply with the CAAP General Order may result in enforcement actions, which could include civil liability. Effluent limitation violations are subject to a Mandatory Minimum Penalty (MMP) of \$3,000 per violation. In addition, late monitoring reports may be subject to MMPs. When discharges do not occur during a quarterly report monitoring period, the Discharger must still submit a quarterly monitoring report indicating that no discharge occurred to avoid being subject to enforcement actions.

#### **COMMUNICATION**

All monitoring report submittals, notification of the beginning and end of discharge, and questions regarding compliance and enforcement shall be directed to Gurjot Chahal of the Central Valley Water Board's NPDES Compliance and Enforcement Unit. Mr. Chahal can be reached at (559) 445-5977 or by email at Gurjot.Chahal@waterboards.ca.gov.

Questions regarding the permitting aspects of this CAAP General Order, and written notification for termination of coverage under the CAAP General Order, shall be directed to Lovdeep Singh of the Central Valley Water Board's NPDES Permitting Unit. Mr. Singh can be reached at (559) 445-5130 or Lovdeep.Singh@waterboards.ca.gov.

Please note that the Central Valley Water Board is implementing a Paperless Office system. Therefore, all documents other than monitoring reports shall be converted to a searchable Portable Document Format (PDF) and submitted by email to centralvalleyfresno@waterboards.ca.gov. Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to our office, attention "ECM Mailroom".

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Resources Control Board to review the action in accordance with California Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Resources Control Board must receive the petition by 5:00 p.m., 30 days after the date of this NOA, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state

holiday, the petition must be received by the State Water Resources Control 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](http://www.waterboards.ca.gov/public_notices/petitions/water_quality) or will be provided upon request.



*for* Patrick Pulupa  
Executive Officer

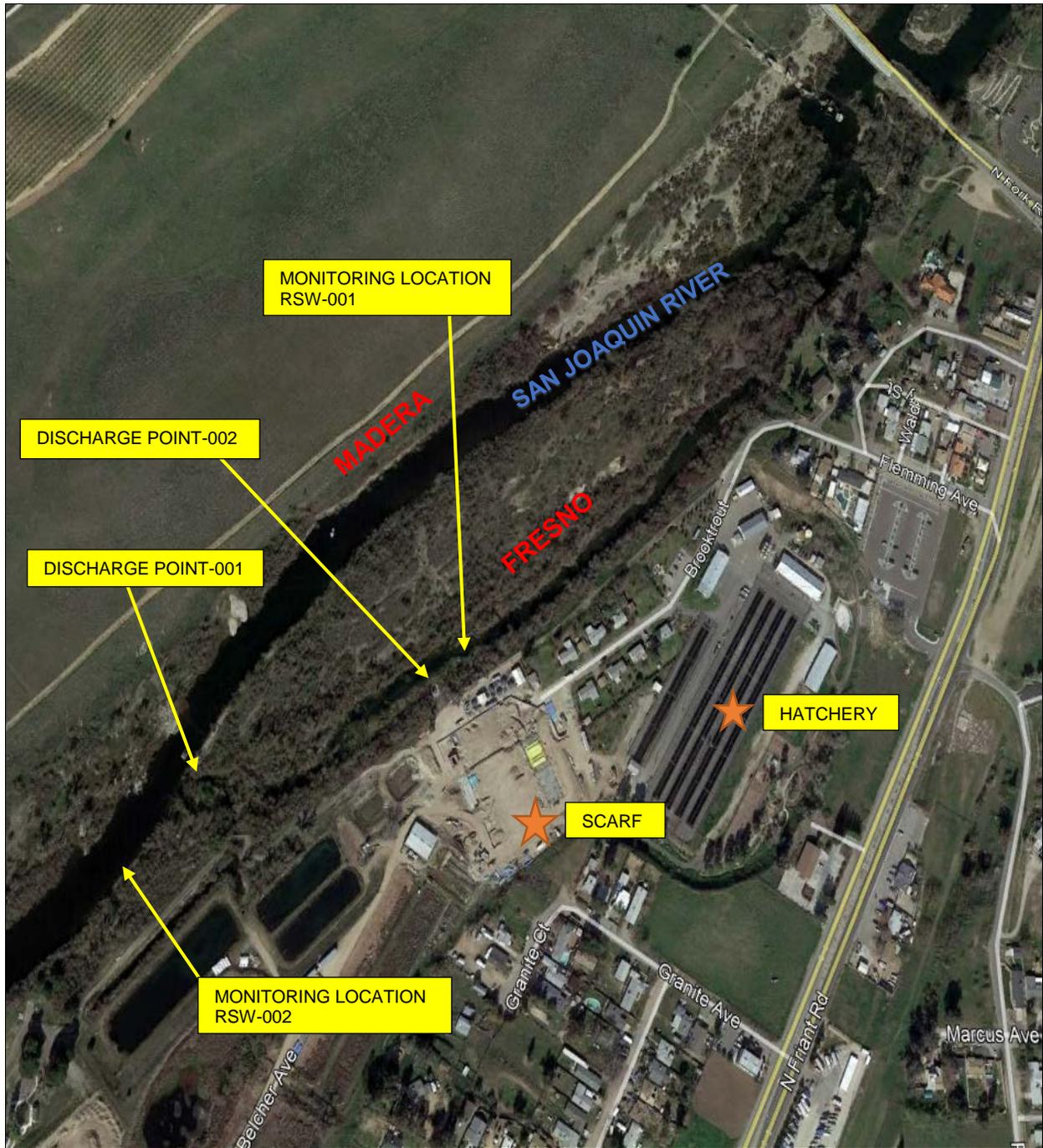
Enclosures: Enclosure A -Administrative Information  
Enclosure B - Location Maps  
Enclosure C - Flow Schematic  
Enclosure D - Monitoring and Reporting Program  
Enclosure E - Approved Aquaculture Drug and Chemical Use  
CAAP General Order RS-2014-0161 (Discharger only)

cc: Elizabeth Sablad, U.S. EPA, Region IX, San Francisco (via email)  
Peter Kozelka, U.S. EPA, Region IX, San Francisco (via email)  
State Water Resources Control Board, Division of Water Quality, Sacramento (via email)  
Terry Jackson, California Department of Fish and Wildlife, Rancho Cordova (via email)  
Brian Erlandsen, California Department of Fish and Wildlife, Fresno, CA (via email)  
Ron Samra, California Department of Fish and Wildlife, Friant, CA (via email)

**ENCLOSURE A – ADMINISTRATION INFORMATION**

<b>Name of Facility</b>	San Joaquin Fish Hatchery and Salmon Conservation and Research Facility
<b>Type of Facility</b>	Cold Water Concentrated Aquatic Animal Production Facility; SIC Code 0921
<b>WDID</b>	5D100804002
<b>General Order Enrollee Number</b>	R5-2014-0161-025
<b>Discharger</b>	California Department of Fish and Wildlife
<b>Facility Address</b>	17372 Brook Trout Drive, Friant, CA 93626
<b>Land Owner (Address)</b>	California Department of Fish and Wildlife 1234 East Shaw Ave. Fresno, CA 93710
<b>Facility Contact, Title and Phone</b>	Ron Samra, San Joaquin Fish Hatchery Manager (559) 822-2374 Brian Erlandsen, SCARF Contact (559) 243-4014 ext. 220
<b>Authorized Person to Sign and Submit Reports</b>	Andrew Gordus and Rachel McNeal
<b>Mailing Address</b>	1234 East Shaw Ave. Fresno, CA 93710 (Contact: Ron Samra and Brian Erlandsen)
<b>Billing Address</b>	1234 East Shaw Ave. Fresno, CA 93710 (Contact: Ron Samra and Brian Erlandsen)
<b>Total Weight Produced (Annual)</b>	San Joaquin Fish Hatchery: 550,000 lbs (Year Five) Salmon Research and Conservation Facility: 30,000 lbs (Year One of Operation)
<b>Major or Minor Facility</b>	Minor
<b>Threat to Water Quality</b>	2
<b>Complexity</b>	B
<b>Facility Permitted Flow</b>	San Joaquin Fish Hatchery: 24 million gallons per day Salmon Conservation and Research Facility: 13 million gallons per day
<b>Watershed</b>	San Joaquin River Basin
<b>Receiving Water</b>	San Joaquin River
<b>Receiving Water Type</b>	Inland surface water

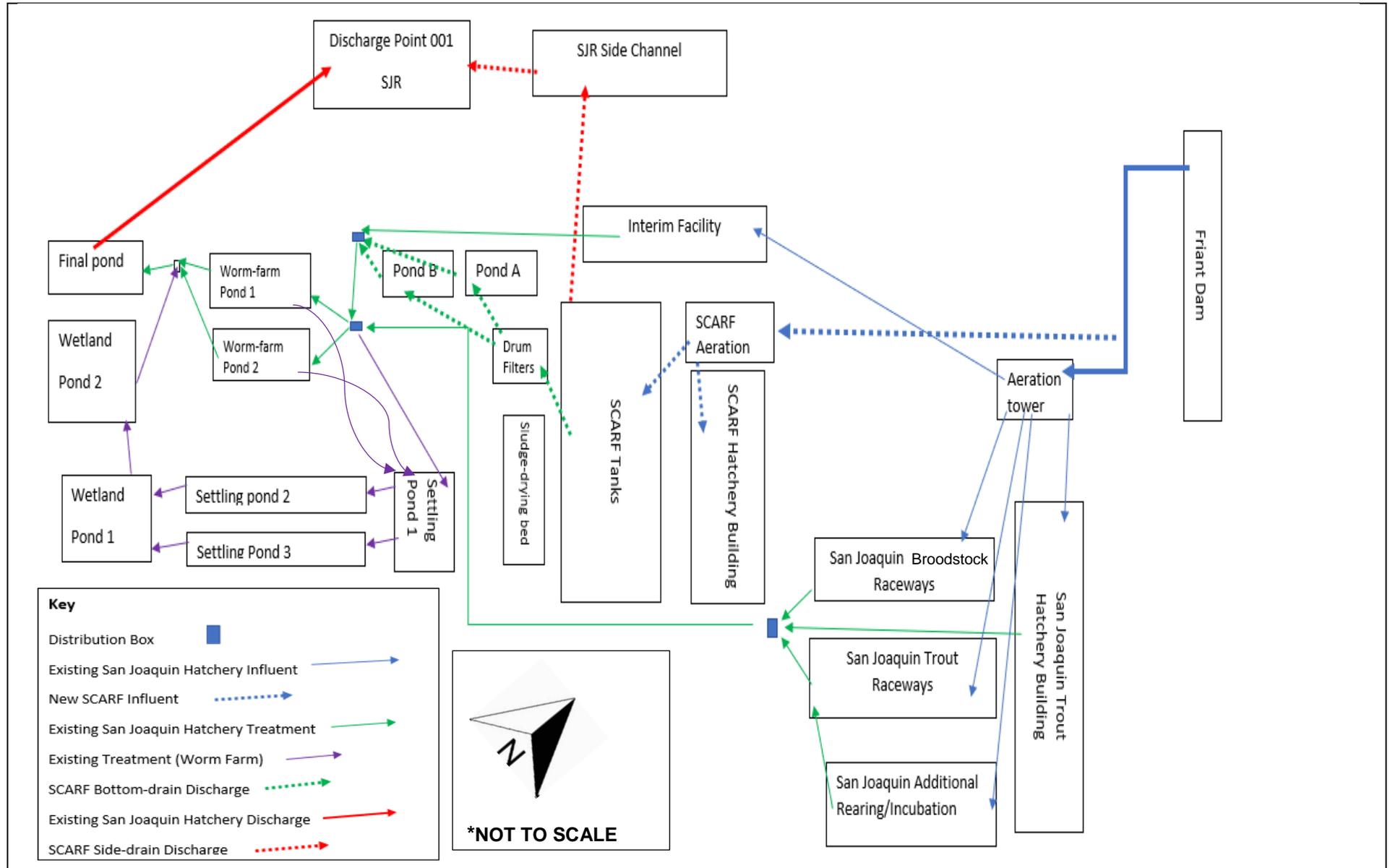
**ENCLOSURE B – SAN JOAQUIN FISH HATCHERY AND SALMON CONSERVATION AND RESEARCH FACILITY**



\*Approximate Locations

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, SAN JOAQUIN FISH HATCHERY AND SALMON CONSERVATION AND RESEARCH FACILITY, FRESNO COUNTY

**ENCLOSURE C – SAN JOAQUIN FISH HATCHERY AND SALMON CONSERVATION AND RESEARCH FACILITY FLOW SCHEMATIC**



**ENCLOSURE D - MONITORING AND REPORTING PROGRAM**

The Discharger is required to comply with the monitoring and reporting requirements contained in the CAAP General Order, Attachment C - Monitoring and Reporting Program. To the extent the CAAP General Order, Attachment C requires the NOA to specify certain requirements, this Enclosure D provides such specificity. This Enclosure D also provides a summary of various other requirements in Attachment C of the CAAP General Order.

The Hatchery and the SCARF produce greater than 100,000 pounds of aquatic animals per year. Tables D-2, D-3, and D-4 below are based on the monitoring in the CAAP General Order, Attachment C for facilities producing greater than 100,000 pounds of aquatic animals per year (Attachment C - Sections III. A, IV.A 1, and VIII.C).

**A. Monitoring Locations.** The monitoring locations are defined as follows in Table D-1 below.

**Table D-1. Monitoring Locations**

<b>Discharge Point Name</b>	<b>Monitoring Location Name</b>	<b>Monitoring Location Description</b>
--	INF-001	Location where representative samples of the influent can be obtained prior to entering the Hatchery and the SCARF.
001	EFF-001	Location where representative samples of the Hatchery's and SCARF's effluent can be obtained prior to discharge to the San Joaquin River at Discharge Point 001.
002	EFF-002	Location where representative samples of the SCARF's effluent can be obtained prior to discharge to the San Joaquin River side channel at Discharge Point 002.
--	RSW-001	Approximately 100 feet <b>upstream</b> of Discharge Point 002 in the side channel of the San Joaquin River. During periods of no flow in the side channel of the San Joaquin River, the Discharger shall sample from the main channel if accessible.
--	RSW-002	Approximately 300 feet <b>downstream</b> of Discharge Point 001 in the San Joaquin River.

**B. Influent Monitoring Requirements.** The Discharger shall monitor the influent to the Hatchery and the SCARF at Monitoring Location INF-001 as follows:

**Table D-2. Influent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter <sup>1</sup>	Continuously	--
pH	S.U.	Grab	1/Month <sup>3</sup>	2
Electrical Conductivity @25°C	µmhos/cm	Grab	1/Month <sup>3</sup>	2
Copper, Total Recoverable	µg/L	Grab	1/Month <sup>3</sup> during CuSO <sub>4</sub> use <sup>3</sup>	2,4
Copper, Total Recoverable	µg/L	Grab	1/year <sup>5</sup>	2, 4
Hardness (as CaCO <sub>3</sub> )	mg/L	Grab	1/Month <sup>3</sup> during CuSO <sub>4</sub> use <sup>3</sup>	2
Total Suspended Solids (TSS)	mg/L	Grab	1/Month <sup>3</sup>	2

1. Influent flow shall be monitored continuously using either a flow measurement device or method as required by CAAP General Order, Attachment C, Section I.E.
2. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136.
3. Samples shall be collected approximately at the same time as effluent samples.
4. The maximum reporting level required for copper is 0.5 µg/L based on Section 2.4.2 and Appendix 4 of the SIP.
5. Samples must be taken simultaneously from the influent and effluent or phased to account for the time that it takes water to travel from the water intake to the discharge point. For every influent sample taken, an effluent sample must also be taken.

**C. Effluent Monitoring Requirements.** The Discharger shall monitor treated wastewater at Monitoring Locations EFF-001 and EFF-002 as follows:

**Table D-3. Effluent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Flow Measurement Device <sup>1</sup>	1/Week	--
Total Suspended Solids (TSS)	mg/L	Grab	1/Month	2
Net TSS (effluent minus influent)	mg/L	Net Calculation	1/Month	--
Turbidity	NTU	Grab	1/Month	2
pH	S.U.	Grab	1/Month <sup>4</sup>	2
Electrical Conductivity @25°C	µmhos/cm	Grab	1/Month <sup>3,7</sup>	2
Copper, Total Recoverable	µg/L	Grab	1/Month during CuSO <sub>4</sub> use <sup>4,7</sup>	2,4
Copper, Total Recoverable	µg/L	Grab	1/year <sup>8</sup>	2, 9
Hardness (as CaCO <sub>3</sub> )	mg/L	Grab	1/Month during CuSO <sub>4</sub> use <sup>4</sup>	2

Enclosure D – Monitoring and Reporting Program  
 San Joaquin Fish Hatchery and  
 Salmon Conservation and Research Facility

Formaldehyde	mg/L	Grab <sup>5</sup>	1/Month during formalin use <sup>5,7</sup>	2
Chlorine	mg/L	Grab	1/Quarter during chlorine use <sup>7</sup>	2, 6

1. Effluent flow shall be monitored weekly using either a flow measurement device or method as required by CMP General Order, Attachment C, Section I.E. The Discharger may use the corresponding weekly recorded influent flow to determine the effluent flow from the EFF-001 and EFF-002 to the San Joaquin River.
2. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136.
3. Samples shall be collected monthly. If sodium chloride is used, the monthly monitoring of electrical conductivity shall be conducted during treatment.
4. The maximum reporting level required for copper is 0.5 µg/L based on Section 2.4.2 and Appendix 4 of the SIP. The monthly sample shall be collected during the time of peak discharge of copper, at least one hour after start of treatment. Effluent hardness and pH shall be measured at the same time as total recoverable copper.
5. Estimated concentrations of formaldehyde may be reported in lieu of analytical monitoring during Formalin use. See CMP General Order, Attachment C, Section IX.A for calculation procedures. If analytical monitoring is conducted, when Formalin is added to the waters of the Hatchery or SCARF, formaldehyde concentration shall be measured during time of peak discharge of Formalin, at least one hour after start of treatment.
6. Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.018 mg/L.
7. Per Section IX.A of the CAAP General Order, the discharger shall report all aquaculture drug and chemical use as part of the Monthly Drug and Chemical Use Report that is submitted on a quarterly basis.
8. Samples must be taken simultaneously from the influent and effluent or phased to account for the time that it takes water to travel from the water intake to the discharge point. For every influent sample taken, an effluent sample must also be taken.
9. The maximum reporting level required for total recoverable copper 0.5 µg/L in accordance with Section 2.4.2 and Appendix 4 of the SIP.

**D. Receiving Water Monitoring Requirements.** Receiving water samples shall be collected from Monitoring Locations RSW-001 and RSW-002 as follows:

**Table D-4. Receiving Water Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Month	1
Temperature	°C	Grab	1/Month	1
Turbidity	NTU	Grab	1/Month	1
pH	S.U.	Grab	1/Month	1
Electrical Conductivity @25°C	µmhos/cm	Grab	1/Month	1
Hardness (as CaCO <sub>3</sub> )	mg/L	Grab	1/Month during CuSO <sub>4</sub> use <sup>2</sup>	1

1. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. Part 136.
2. When copper sulfate is added to waters of the facilities, hardness (as CaCO<sub>3</sub>) shall be measured monthly during treatment.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions. Attention shall be given to the presence or absence of:

- a. Floating or suspended matter
- b. Discoloration
- c. Bottom deposits
- d. Aquatic life

- e. Visible films, sheens, or coatings
- f. Fungi, slimes, or objectionable growths
- g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

**E. Land Discharge Monitoring Requirements.** The Discharger shall conduct septic tank and leach field inspections annually and report the findings in the annual self-monitoring reports (due **1 February, annually**) in accordance with CAAP General Order, Attachment C, Section VI.A.

**F. Monthly Drug and Chemical Use Report.** The Discharger shall develop a monthly drug and chemical use report in accordance with CAAP General Order, Attachment C, Section IX.A describing all aquaculture drugs or chemicals used at the Hatchery and the SCARF. The report shall be submitted with the quarterly self-monitoring reports.

**G. Annual Feeding and Production Report.** The Discharger shall develop an annual feeding and production report in accordance with CAAP General Order, Attachment C, Section IX. C. The report shall be submitted **annually by 28 February** and include 1) monthly food usage in pounds for each calendar month for the previous year, and 2) annual production of aquatic animals in pounds per year for the previous year.

**H. Priority Pollutant Metals Monitoring.** In accordance with CAAP General Order, Attachment C, Section IX. B. The Discharger shall monitor the effluent (Monitoring Location EFF-001 and EFF-002) and the upstream receiving water (Monitoring Location RSW-001) for the metals listed in Table G-1 of the CAAP General Order, once during the term of Order R5-2014-0161. **The monitoring shall occur after 1 January 2018, but no later than 1 July 2019.** The discharger shall electronically submit the priority pollutants metals monitoring results using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site ([http://www.waterboards.ca.gov/water\\_issues/programs/ciwqs](http://www.waterboards.ca.gov/water_issues/programs/ciwqs)), within 60 days of the final sampling event. Refer to CAAP General Order, Attachment G for the specific monitoring requirements.

## REPORTING REQUIREMENTS

Monitoring in accordance with this NOA and the CAAP General Order shall begin on **26 April 2019**. Self-monitoring reports (SMRs) are required to be submitted quarterly and annually. The Discharger shall comply with the reporting requirements specified in CAAP General Order, Attachment C, Section X. The first SMR required under this NOA is due **1 August 2019** and shall include monitoring conducted from 1 April 2019 through 30 June 2019. Since this NOA supersedes the previous amended Order 2014-0161-025, the Discharger is still required to submit SMRs from 1 April 2019. Table D-5, below, summarizes the SMR due dates required under the CAAP General Order. Quarterly monitoring reports must be submitted until your coverage is formally terminated in accordance with the CAAP General Order, even if there is no discharge during the reporting quarter.

**Table D-5. SMRs required in the Monitoring and Reporting Program  
 (Attachment C, CAAP General Order)**

<b>Sampling Frequency</b>	<b>Monitoring Period Begins on:</b>	<b>Monitoring Period</b>	<b>SMR Due Date</b>
1/Month	26 April 2019	First day of calendar month through last day of calendar month	1 May (1 Jan – 31 Mar) 1 Aug (1 Apr – 30 Jun) 1 Nov (1 Jul – 30 Sep) 1 Feb of following year (1 Oct – 31 Dec)
1/Quarter	26 April 2019	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 Aug 1 Nov 1 February of following year
1/Year	26 April 2019	January 1 through December 31	1 February of following year

In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, or receiving water limitation of the CAAP General Order, the Discharger shall notify the Central Valley Water Board by telephone at (559) 445-5116 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Central Valley Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal self-monitoring report.

**ENCLOSURE E - APPROVED AQUACULTURE DRUGS AND CHEMICALS USE**

The following drugs and chemicals are approved for use at the Hatchery and the SCARF to treat fish for parasites, fungi, and bacteria, as well as to clean rearing raceways to reduce the spread of disease among the confined fish population.

San Joaquin Fish Hatchery

<b>Drug or Chemical</b>	<b>Maximum Daily Amount Used</b>	<b>Method of Application</b>	<b>Maximum Amount in Effluent</b>
Acetic Acid	500 – 1,000 ppm	Dip in container	Not discharged
Amoxicillin trihydrate	40 mg/kg of fish	Injected	Negligible
Carbon dioxide gas	variable	Injected into tank	Unknown
Chloramine T	20 ppm/1 hr/raceway	Drip	1.3 ppm
Erythromycin	40 mg/kg of fish	Injected	Negligible
Florfenicol	15 mg/kg of feed	In feed	Negligible
Hydrogen peroxide	100 ppm	Drip	6.4 ppm with no breakdown of chemical
Iodine	100 ppm	Egg bath in 5-gal bucket	Not discharged
Oxytetracycline HCL	100 ppm	Bath in tanks	0.22 ppm
Penicillin G	150 IU/mL	6 hr bath in tanks	0.33 IU/mL
Potassium permanganate	2 ppm/1 hr/raceway	Drip	0.13 ppm
Romet-30	50 mg/kg of feed	In feed	Negligible
Sodium Bicarbonate	Variable (142 – 642 mg/L for 5 mins)	Bath in tank	Unknown
Sodium Chloride	3% (19 lbs/ 66-gal tank)	Added directly to head	65 ppm
SLICE (emamectin benzoate)	In feed	In feed	Negligible
Tricaine methanesulfonate (MS-222)	40 ppm in container	In container	Not discharged

Enclosure E – Approved Aquaculture Drugs and Chemicals Use  
 San Joaquin Fish Hatchery and  
 Salmon Conservation and Research Facility

Salmon Conservation and Research Facility

Drug or Chemical	Purpose of Application	Maximum Daily Use	Expected Method(s) of Application or Treatment	Maximum Amount in Discharge Low flow (LF)=46cfs High flow (HF)=55cfs
Acetic acid	Control of external parasites.	5 gallons	Flush: 1.5-2.2 gallons of glacial acetic acid added as a bolus to tank. Gives a treatment level of approximately 335-500 ppm acetic acid. Bath: used at a concentration of 500-2,000 ppm for 1 to 10 minutes.	Not Discharged
Amoxicillin trihydrate	Antibiotic (for control and prevention of external and systemic bacterial infections).	40mg/kg x 500 fish x average weight of 5 kg = 100g	Injected intraperitoneally: into broodstock twice a week, prior to spawning, at a dose of 40 mg/kg.	Not Discharged
Carbon Dioxide	Anesthetic.	20 lbs/day	Bath: bubbled in water. Usually used in small volumes of water. With aeration will equilibrate with atmospheric CO <sub>2</sub>	Unknown
Chloramine-T (Halamid® Aqua)	Control of external gill bacteria.	30 ft tank at 2 ft x 20 mg/L x 10 tanks = 8kg/day	Flush or bath: concentration of 12-20 mg/L for 60 min daily or every other day for 3 treatments or as prescribed	Dose 20mg/L: LF 0.33ppm; HF 0.30ppm

Drug or Chemical	Purpose of Application	Maximum Daily Use	Expected Method(s) of Application or Treatment	Maximum Amount in Discharge Low flow (LF)=46cfs High flow (HF)=55cfs
Chlorulun® - Chorionic Gonadotropin	Aid in improving spawning function	=1800 IU x 500 fish = 90,000 IU	Intramuscular injection: Males: 50-510 IU/lb, Females: 67-1816 IU/lb, inject up to 3 doses; not to exceed 25,000 IU in fish for human consumption	Not Discharged
Magnesium Sulfate (Epsom Salt)	Control internal parasites	100 mg/kg of fish x 5,000 fish x 3 kg/fish = 1.5 kg	Feed: used in "medicated" feed or fish pills at a rate of 100 mg/kg of fish, or top coated onto feed at 3% (30 g/kg) for 3 days	Small amount by uneaten feed
Erythromycin	Antibiotic (for control and prevention of external and systemic bacterial infections).	100 mg/kg feed x 26 tanks x 10 kg feed/tank = 26 g	Injected intraperitoneally: at a dose of 40 mg/kg, at 30-day intervals or as prescribed. Feed: used in medicated feed or fish pills at a dose of up to 100 mg/kg or as prescribed.	Injection-not discharged  Feed-Small amount by uneaten feed
Enteric Redmouth (ERM) Vaccine	Prevent Redmouth disease	20,000 fish/liter dosage x 300,000 fish = 15 liters	Dip. (Vaccine dumped after use. Not surface discharged.)	Not Discharged
Florfenicol (Aquaflor®)	Antibiotic (for control and prevention of external and systemic bacterial infections)	15 mg/kg of feed x 26 tanks x 10 kg feed/tank = 3.9 g	Medicated Feed: 10-15 mg/kg for 10 consecutive days	Small amount by uneaten feed

Drug or Chemical	Purpose of Application	Maximum Daily Use	Expected Method(s) of Application or Treatment	Maximum Amount in Discharge Low flow (LF)=46cfs High flow (HF)=55cfs
Formalin (37% formaldehyde solution)	Control of external parasites. Fungus control on fish and eggs.	2,000 mg/l for 15 min at 5gpm for 34 stacks  20 kg/day	Bath: Low dose - used at a concentration of 25 ppm of formalin up to 8 hours. High dose - used at a concentration of 50-250 ppm formalin for one hour and repeat in 5 to 10 days if needed, or as prescribed Eggs: used at a concentration of 2,000 ppm formalin, or less, for 15 minutes, or as prescribed.	**Bath: Low Dose 25mg/L: LF 0.42 ppm; HF 0.38ppm High Dose 250mg/L: LF 4.2ppm; HF 3.8ppm  *Eggs: LF 0.048 ppm; HF 0.044 ppm
Hydrogen peroxide	Control of external parasites and fungus.	100 mg/l for 1 hr at 5gpm for 34 stacks  4L/day	Flush or bath: used at a concentration of 100 ppm or less, for 30 minutes to 1 hour every other day for up to 3 treatments, or as prescribed Eggs: 500-1000 mg/L in continuous flow system once daily on consecutive or alternative days until hatch or as prescribed.	**Bath: Dose 100ppm: LF 1.68 ppm; HF 1.52ppm  *Eggs 1000ppm: LF 0.064 ppm; HF 0.058ppm
MS-222 / tricaine methanesulfonate (Finquel®, Tricaine-S®)	Anesthetic or euthanasia	150ppm x 90L bath x 20 uses per day  = 270 grams	Bath: used at a concentration of 10-1000 mg/L, usually in a small volume of water and timed to effect.	Not Discharged

Drug or Chemical	Purpose of Application	Maximum Daily Use	Expected Method(s) of Application or Treatment	Maximum Amount in Discharge Low flow (LF)=46cfs High flow (HF)=55cfs
Oxytetracycline dehydrate (Terramycin® 200)	Antibiotic (for control and prevention of external and systemic bacterial infections).	57,200lbs of fish @3.75 g/100 lb = 2.1 kg Oxytet	Additive to feed: 3.75 g/100 lbs of fish per day for 10 consecutive days	Small amount by uneaten feed
Oxytetracycline HCl	Antibiotic (for control and prevention of external and systemic bacterial infections).	30 ft tank at 2 ft x 100 mg/L x 10 tanks = 40kg/day	Bath: used at a concentration of 100 ppm or less for up to 8 hr and up to 3 treatment days, or as prescribed.	**Bath: Bath: Dose 100ppm: LF 1.68 ppm; HF 1.52ppm
Penicillin G Potassium	Antibiotic (for control and prevention of external and systemic bacterial infections).	6ft tank at 2-ft = 1600L x 20 tanks. 4.8 billion IU	Bath: used in tanks for 6-8 hours at a concentration of up to 150 IU/ml for up to 3 treatment days or as prescribed.	**Bath: LF 2.53 IU/ml; HF 2.29 IU/ml Not Discharged
Potassium Permanganate (Cairox™)	Control of external parasites and bacteria.	2mg/l for 1 hr for 20 tanks at 200 gpm per tank + some = 2kg	Flush or bath: up to 2 ppm for one hour and up to 3 consecutive daily treatments.	**Bath: LF 0.0041 ppm; HF 0.0037ppm

Drug or Chemical	Purpose of Application	Maximum Daily Use	Expected Method(s) of Application or Treatment	Maximum Amount in Discharge Low flow (LF)=46cfs High flow (HF)=55cfs
PVP Iodine	Disinfect and control pathogens on fish eggs.	8 oz x 34 stacks per day = 8.2L	Bath: used at a concentration of 100 mg/L Iodine for 10 to 30 minutes.	***Eggs Dose 100ppm: LF 0.0064 ppm; HF 0.0058ppm
SLICE® (emamectin benzoate;0.2% aquaculture premix)	Control of copepods	50 microgram/kg x 26 tanks x 1000 kg fish/tank x 2% (of fish body weight in feed). = 30g/day	Medicated feed: 50 ug/kg for 7 consecutive days.	Small amount presents as uneaten feed
Sodium bicarbonate	Anesthetic.	15 lbs / day	Bath: used at a concentration of 142-642 mg/L, usually in a small volume of water.	**Bath: Low Dose 146mg/L: LF 2.46 ppm; HF 2.22ppm High Dose 642mg/L: LF 10.8ppm; HF 9.79ppm

Drug or Chemical	Purpose of Application	Maximum Daily Use	Expected Method(s) of Application or Treatment	Maximum Amount in Discharge Low flow (LF)=46cfs High flow (HF)=55cfs
Sodium chloride (salt)	Fish cleansing, disease control, and stress reduction.	2,000 pounds per day	Flush or Bath: up to 3% for 1 hour daily, if needed, or at a lesser concentration during transport	Bath: LF 45 ppm; HF 38ppm
Sodium thiosulfate	Neutralizes chemical solutions	5 pounds per day	Mixed with chlorine bleach (7:1 neutralizer to bleach ratio [bleach being a 5% concentration in solution]), and iodine (2:1 neutralizer to iodine).	Not Discharged
Sulfadimethoxine-ormetoprim (Romet-30®)	Antibiotic (for control and prevention of External and systemic bacterial infections).	50g/mg feed = 26 tanks x 1000 kg fish x 0.02 (of fish body weight in feed) = 26 grams	Feed: used at a dose of 50 mg/kg for 5 consecutive days.	Small amount by uneaten feed
Vibrio Vaccine	Prevention of Vibrio infections	No info	Dip: Vaccine dumped after use. Not discharged.	Not discharged