

California Regional Water Quality Control Board



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Lahontan Region

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Arnold Schwarzenegger
Governor

HOTCREEK FISH HATCHERY
ORDER NO. R6V-2006-0027
NPDES NO. CA0102776
WDID No. 6B260801001

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	State of California Department of Fish & Game (Owner/ Operator) and the United States Forest Service (Land Owner)
Name of Facility	Hot Creek Fish Hatchery
Facility Address	HCR 79, Box 208
	85 Old School Road
	Mammoth Lakes, CA 93546
	Mono

The Discharger is authorized to discharge from the following discharge points as set forth below:

Discharge Point	Effluent Description	Discharge Point Latitude*	Discharge Point Longitude*	Receiving Water
001	Wastewater from Production Raceway	37 °, 38', 31.4" N	118 °, 51', 14.3" W	Hot Creek
002	Wastewater from Production Raceway	37 °, 38', 31.5" N	118 °, 51', 11.5" W	Hot Creek
003	Wastewater from Hatchery 1, Hatchery 1 brood ponds, and Hatchery 1 spawning house	37 °, 38', 31.3" N	118 °, 51', 9.8" W	Hot Creek
004	Wastewater from Hatchery 2, Hatchery 2 brood ponds, and Hatchery 2 spawning house	37 °, 38', 36" N	118 °, 50', 48" W	Tributary to Hot Creek

*(WGS84/NAD83)

This Order was adopted by the Regional Water Board on:	June 14 2006
This Order shall become effective on:	June 15, 2006
This Order shall expire on:	June 14, 2011
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Board have classified this discharge as a minor discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED, that Order No. 6-99-55 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA), and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

This Order shall become the NPDES Permit, pursuant to Section 402 of the Federal Clean Water Act and amendments thereto, and shall take effect on June 15, 2006, provided the USEPA Regional Administer has no objections.

I, Harold J. Singer, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on June 15, 2006.

“Original Signed By”
Harold J. Singer, Executive Officer

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
REGION 6, LAHONTAN REGION**

ORDER NO. R6V-2006-0027
NPDES NO. CA0102776

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I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

Discharger	State of California Department of Fish & Game (Owner/ Operator) and the United States Forest Service (Land Owner).
Name of Facility	Hot Creek Fish Hatchery
Facility Address	HCR 79, Box 208
	Mammoth Lakes, CA 93546
	Mono County
Facility Contact, Title, and Phone	Michael G. Seefeldt, Fish Hatchery Manager II, 760-934-2664
Mailing Address	Same
Type of Facility	Other (Concentrated Aquatic Animal Production Facility / Fish Hatchery)
Facility Design Flow	Not Applicable

II. FINDINGS

The California Regional Water Quality Control Board, Lahontan Region (hereinafter Regional Water Board), finds:

- A. **Discharger.** State of California Department of Fish & Game (CDFG) is currently discharging wastewater under Order No. 6-99-55 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0102776 from a hatchery owned and operated by CDFG on property owned by the Los Angeles Department of Water and Power (LADWP) and the United States Forest Service (USFS). The CDFG and USFS are hereinafter referred to as the Discharger. Hereinafter, the term “Discharger” will be used to signify the scheme of primary responsibility for the CDFG, and secondary responsibility for the USFS. The Discharger submitted a Report of Waste Discharge, dated October 26, 2004 and applied for a NPDES permit renewal to discharge up to 19.6 million gallons per day (MGD) of wastewater from Hot Creek Fish Hatchery, hereinafter Facility.

- B. **Facility Description.** The Facility produces between 285,000 and 325,000 pounds of catchable fish per year, 14,000,000 trout eggs for distribution statewide, and 1.5 million fingerlings for air planting. The Facility consists of two hatcheries (Hatchery I and Hatchery II), two spawning houses, 42 fingerling tanks, 40 fingering troughs, 9 brood ponds, 42 production ponds, 4 production raceways and 3 settling ponds. Wastewater produced from the Facility’s four raceways receives sedimentation treatment in two parallel flow-through settling ponds before discharge through Discharge Points 001 and 002 to Hot Creek. The wastewater produced from Hatchery I, the Hatchery I brood ponds, and the Hatchery I spawning house receives sedimentation treatment in a settling pond, McBurney Pond, and discharged through Discharge Point 003 to Hot Creek. No treatment is usually provided for the wastewater produced from Hatchery II, the Hatchery II brood ponds, and the Hatchery II spawning house before discharge through Discharge Point 004 to a small tributary to Hot Creek. Hot Creek and its small tributary are the waters of the United States within Owens River Watershed. Attachment B provides a

topographic map of the area around the facility. Attachment C provides a flow schematic of the facility.

- C. **Legal Authorities.** This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA), 33 United States Code (USC) 1342, and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). Special NPDES Requirements for concentrated aquatic animal production facilities are regulated by Code of Federal Regulations (CFR) at 40 CFR §122.24. This Order shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.
- D. **Background and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and through special studies. Attachments A through K, which contain background information and rationale for Order requirements, are hereby incorporated into this Order and, thus, constitute part of the Findings for this Order.
- E. **California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions of the CEQA (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.
- F. **Technology-based Effluent Limitations.** The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on Effluent Limitations Guidelines and Standards for the Aquatic Animal Production Industry Category in 40 CFR Part 451 and Best Professional Judgment (BPJ) in accordance with 40 CFR §125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).
- G. **Water Quality-based Effluent Limitations.** Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter.
- H. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the Lahontan Region (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan.

The Basin Plan at pages 2-3 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan does not specifically identify beneficial uses for tributaries to Hot Creek, but does identify present and potential uses for Hot Creek. In addition, State Water Resources Control Board (State Water Board) Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and

domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. Thus, beneficial uses applicable to Hot Creek and to its tributaries are as follows:

Discharge Point	Receiving Water Name	Beneficial Use(s)
001, 002, 003	Hot Creek	<u>Existing:</u> Municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND), Ground water recharge (GWR), contact water recreation (REC-1), non-contact water recreation (REC-2), commercial and sport fishing (COMM), aquaculture (AQUA), cold freshwater habitat (COLD), wildlife habitat (WILD), preservation or rare, threatened or endangered species (RARE), migration of aquatic organisms (MIGR), spawning, reproduction, and development (SPWN).
004	Un-named tributary to Hot Creek	

The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters.

Requirements of this Order specifically implement the applicable Water Quality Control Plans.

- I. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.
- J. **State Implementation Policy.** On March 2, 2000, State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP includes procedures for determining the need for and calculating WQBELs and requires dischargers to submit data sufficient to do so.
- K. **Compliance Schedules and Interim Requirements.** Section 2.1 of the SIP provides that, based on a discharger’s request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under Section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality

objective. This Order does not include compliance schedules and interim effluent limitations and/or discharge specifications.

- L. **Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. As discussed in detail in the Fact Sheet (Attachment F) the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution 68-16.
- M. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.
- N. **Monitoring and Reporting.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.
- O. **Standard and Special Provisions.** Standard Provisions, which in accordance with 40 CFR §§122.41 and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).
- P. **Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet (Attachment F) of this Order.
- Q. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

III. Discharge Prohibitions

A. Discharge Prohibitions – Discharge Points 001, 002, 003, and 004

1. The discharge of waste^a which causes violation of any narrative water quality objective contained in the Basin Plan is prohibited.
2. The discharge of waste which causes violation of any numeric water quality objective contained in the Basin Plan is prohibited.
3. Where any numeric or narrative water quality objective contained in the Basin Plan is already being violated, the discharge of waste which causes further degradation or pollution is prohibited.
4. The discharge of untreated sewage, garbage, or other solid wastes, or industrial wastes into surface waters of the Region is prohibited.
5. The discharge of hatchery wastewater except to the authorized discharge points (Discharge Points 001, 002, 003, and 004) is prohibited.
6. There shall be no discharge, bypass, or diversion of hatchery wastewater from the transport or treatment facilities to surface waters other than that authorized by this Order.
7. The discharge shall not cause a pollution as defined in Section 13050 of the CWC, or a threatened pollution.
8. Neither the treatment nor the discharge shall cause a nuisance as defined in Section 13050 of the CWC.
9. The discharge shall not cause a violation of any applicable water quality standards for receiving water adopted by the Regional Water Board or the State Water Resources Control Board (SWRCB).
 - a. The discharge of any therapeutic or pharmaceutical aquaculture drug or chemical resulting in toxicity in receiving waters is prohibited.
 - b. The discharge of any pesticides resulting in detectable concentrations in receiving waters is prohibited.
10. The use of any aquaculture drug or chemical that may be potentially discharged to waters of the United States or of the State and not authorized for discharge in Section VI.C.2.a of this Order is prohibited. The use of aquaculture drugs and chemicals, which may be potentially discharged to waters of the United States or of the State, in a manner not specified in Section VI.C.2.a of this Order is prohibited. Modifications to the authorized use and disposal of aquaculture drugs and chemicals at the Facility may be allowed by the Regional Water Board as specified in Section VI.C.2.a of this Order.

^a “Waste” is defined to include any waste or deleterious material including, but not limited to, waste earthen materials (such as soil, silt, sand, clay, rock, or other organic or mineral material) and any other waste as defined in the California Water Code § 13050(d).

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Points 001, 002, 003, and 004

1. Final Effluent Limitations – Discharge Points 001, 002, 003, and 004

- b. The discharge of Hot Creek Fish Hatchery wastewater shall maintain compliance with the following effluent limitations at Discharge Points 001, 002, 003, and 004, with compliance measured at Monitoring Locations M-001, M-002, M-003, and M-004 as described in the attached Monitoring and Reporting Program (Attachment E):

Parameter	Units ¹	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	--	6.9	--	--
		--	6.5	--	--
		--	3.8	--	--
		--	2.5	--	--
<i>Conventional Pollutants</i>					
PH	s.u.	--	--	6.0	9.0
Total Suspended Solids (TSS) ^a	mg/L	6.0	--	--	15.0
<i>Priority Pollutants</i>					
Copper, total recoverable	µg/L	4.9	9.9	--	--
<i>Non-Conventional Pollutants</i>					
Chloramine-T	Mg/L	1.5	3.0	--	--
Formaldehyde	mg/L	0.65	1.3	--	--
Hydrogen Peroxide	mg/L	--	1.3	--	--

^a Limit is 6.0 mg/L net over levels in influent

Parameter	Units ¹	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Nitrate + Nitrite (as N)	mg/L	0.23	0.31	--	--
Potassium Permanganate	mg/L	0.12	0.25	--	--
Settleable Solids	mL/L	0.1	--	--	--
Total Dissolved Solids (TDS)	mg/L	283	297	--	--

¹s.u. = standard units; MGD = million gallons per year; mg/L = milligrams per liter; µg/L = micrograms per liter;
mL/L = milliliter per liter

The discharge shall not contain trace elements, pollutants, contaminants, or combinations thereof, in concentrations which are toxic or harmful to human, aquatic, terrestrial plant, or animal life.

2. Interim Effluent Limitations – Not Applicable

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

1. This discharge shall not cause a violation of any applicable water quality objectives as set forth in the Basin Plan for receiving waters adopted by the Regional Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act or amendments thereto, the Regional Board will revise and modify this Order in accordance with such more stringent standards.
2. The following receiving water limitations are based on water quality objectives contained in the Basin Plan which apply to all surface waters (including wetlands) within the Lahontan Region and are a required part of this Order. The discharge of fish hatchery wastewater shall not cause an exceedance of any of the following:
 - a. Ammonia: Ammonia concentrations shall not exceed the values listed for the corresponding conditions in Tables 3-1 and 3-3 contained in Attachment G of this Order. For temperature and pH values not explicitly in these tables, the most conservative value neighboring the actual value may be used or criteria can be calculated from numerical formulas available on page 3-4 of the Basin Plan.
 - b. Bacteria, Coliform: Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes. The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml.
 - c. Biostimulatory Substances: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses.
 - d. Chemical Constituents: Waters shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the provisions of Title 22 of the California Code of Regulations. Waters shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).
 - e. Chlorine, Total Residual: For the protection of aquatic life, total chlorine residual shall not exceed either a median value of 0.002 mg/L or a maximum value of 0.003 mg/L. Median values shall be based on daily measurements taken within any six-month period.

- f. Color: Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses.
- g. Dissolved Oxygen: The dissolved oxygen concentration, as percent saturation, shall not be depressed by more than 10 percent, nor shall the minimum dissolved oxygen concentration be less than 80 percent of saturation. The minimum dissolved oxygen concentration shall not be less than that specified for "COLD with SPWN" beneficial use class in Table 3-6 in Attachment G of this Order. The most restrictive of the aforementioned limitations shall apply.
- h. Floating Materials: Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses. The concentrations of floating material shall not be altered to the extent that such alterations are discernable at the 10 percent significance level.
- i. Nondegradation of Aquatic Communities and Populations: All wetlands shall be free from substances attributable to wastewater or other discharges that produce adverse physiological responses in humans, animals, or plants; or which lead to the presence of undesirable or nuisance aquatic life. All wetlands shall be free from activities that would substantially impair the biological community as it naturally occurs due to physical, chemical and hydrological processes.
- j. Oil and Grease: Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect the water for beneficial uses. For natural high quality waters, the concentration of oils, greases, or other film or coat generating substances shall not be altered.
- k. Pesticides: For the purposes of this Order, pesticides are defined to include insecticides, herbicides, rodenticides, fungicides, piscicides and all other economic poisons. An economic poison is any substance intended to prevent, repel, destroy, or mitigate damage from insects, rodents, predatory animals, bacteria, fungi or weeds capable of infesting or harming vegetation, humans, or animals (CA Agriculture Code §12753). Pesticide concentrations, individually or collectively, shall not exceed the lowest detectable levels, using the most recent detection procedures available. There shall not be an increase in pesticide concentrations found in bottom sediments. There shall be no detectable increase in bioaccumulation of pesticides in aquatic life. Waters shall not contain concentrations of pesticides or herbicides in excess of the limiting concentrations specified in Table 64444-A of Section 64444 (Organic Chemicals) of Title 22 of the California Code of Regulations.
- l. pH: Changes in normal ambient pH levels shall not exceed 0.5 pH units, nor shall the effluent contribute to the ambient pH exceeding the range between 6.5 and 8.5, whichever is more restrictive.
- m. Radioactivity: Radionuclides shall not be present in concentrations which are deleterious to human, plant, animal, or aquatic life nor which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant,

- animal, or aquatic life. Waters shall not contain concentrations of radionuclides in excess of the limits specified in Title 22 of the California Code of Regulations.
- n. Sediment: The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.
 - o. Settleable Materials: Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. For natural high quality waters, the concentration of settleable materials shall not be raised by more than 0.1 milliliter per liter.
 - p. Suspended Materials: Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. For natural high quality waters, the concentration of total suspended materials shall not be altered to the extent that such alterations are discernible at the 10 percent significance level. The concentration of settleable materials shall not be raised by more than 0.1 milliliter per liter.
 - q. Taste and Odor: Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish or other edible products of aquatic origin, that cause nuisance, or that adversely affect the water for beneficial uses. For naturally high quality waters, the taste and odor shall not be altered.
 - r. Temperature: The natural receiving water temperature of all waters shall not be altered.
 - s. Toxicity: Waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for "experimental water" as defined in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, et al. 1992).
 - t. Turbidity: Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent.
3. To protect the beneficial use of municipal and domestic supply (MUN) of the receiving water, the discharge of fish hatchery wastewater shall not cause an exceedance of the following (with compliance measured at Monitoring Location R-002 as described in the attached Monitoring and Reporting Program (Attachment E)):
 - a. The formaldehyde concentration in the receiving water shall not exceed 0.1 mg/L.

B. Groundwater Limitations

Ground water limitations are based on water quality objectives contained in the Basin Plan (pages 3-12 and 3-13) and are a required part of this Order. Water quality objectives that apply to the Owens Valley Ground Water Basin include the following:

1. **Bacteria, Coliform:** The median concentration of coliform organisms over any seven-day period shall be less than 1.1/100 milliliters.
2. **Chemical Constituents:** Ground waters shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in Title 22 of the California Code of Regulations.

Waters shall not contain concentrations of chemical constituents in amounts that adversely affect the water for agricultural purposes.

Ground waters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

3. **Radioactivity:** Ground waters shall not contain concentrations of radionuclides in excess of the limits specified in Title 22 of the California Code of Regulations.
4. **Taste and Odor:** Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. At a minimum, concentrations shall not exceed adopted secondary maximum contaminant levels specified in Title 22 of the California Code of Regulations.

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.
2. **Regional Water Board Standard Provisions.** The Discharger shall comply with the following provisions:

The California Water Code provides that any person who violates a waste discharge requirement (same as permit condition), or a provision of the California Water Code, is subject to civil penalties of up to \$1,000 per day or \$10,000 per day of violation, or when the violation involves the discharge of pollutants, is subject to civil penalties of up to \$10 per gallon per day or \$20 per gallon per day of violation; or some combination thereof, depending on the violation, or upon the combination of violations.

Violations of any of the provisions of the NPDES program, or of any of the provisions of this permit, may subject the violator to any of the penalties described herein, or any combination

thereof, at the discretion of the prosecuting authority; except that only one kind of penalty may be applied for each kind of violation.

B. Monitoring and Reporting Program Requirements

The discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

- a. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.
- b. If toxicity testing, or the listed information specified in Section VI.C.2. of this Order, or the drug and chemical use reporting required in the Monitoring and Reporting Program (Attachment E) indicates that a new drug or chemical is, or may be, discharged at a level that will cause, have the reasonable potential to cause, or contribute to an in stream excursion above any chemical-specific water quality criteria or objective, narrative water quality objective for chemical constituents from the Basin Plan, or narrative water quality objective for toxicity from the Basin Plan, this Order may be reopened to establish effluent limitations.
- c. The toxicity testing requirements, specified in Section VI.C.2. of this Order, are based on 48-or 96-hour exposure time. If CDFG provide sufficient justification that shorter exposure time closely approximates actual exposure time, then this Order may be reopened to include shorter exposure time.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. New Aquaculture Drug or Chemical Use.

Attachment I of this Order lists all aquaculture drugs and chemicals that may potentially be used at the Facility, as well as expected application methods and dosages. This Order authorizes the discharge through Discharge Points 001, 002, 003, and 004 of the following aquaculture drugs and chemicals to Hot Creek in accordance with the effluent limitations and other conditions herein:

- Acetic acid
- Amoxicillin trihydrate
- Carbon dioxide
- Chloramine-T^a
- Copper sulfate pentahydrate

^a This Order prohibits Chloramine-T treatments in more than 2 raceways per day.

- Erythromycin
- Florfenicol (Nuflor®)
- Formalin (37% formaldehyde solution)
- Hydrogen peroxide
- Isoeugenol (Aqui-S®)
- MS-222 / tricaine methanesulfonate (Finquel®, Tricaine-S®)
- Oxytetracycline HCl (Terramycin®)
- Penicillin G potassium
- Potassium permanganate (Cairox™)
- PVP Iodine
- Sodium bicarbonate
- Sodium chloride (salt)
- Sulfadimethoxine-ormetoprim (Romet-30®)

The Discharger shall submit to the Regional Water Board in writing the following information prior to the use of any new aquaculture drug or chemical not listed above that may enter the wastewater discharge:

1. The common name(s) and active ingredient(s) of the drug or chemical proposed for use and discharge.
2. The purpose for the proposed use of the drug or chemical (i.e. list the specific disease for treatment and specific species for treatment).
3. The amount proposed for use or disposal, and the resulting calculated estimate of concentration in the discharge. Calculations used to derive estimated concentrations must also be submitted.
4. The location, duration and frequency of the proposed use or disposal.
5. Material Safety Data Sheets and available toxicity information.
6. Any related Investigational New Animal Drug (INAD), New Animal Drug Application (NADA) information, extra-label use requirements and/or veterinarian prescriptions.

Prior to discharging a new aquaculture drug or chemical, the Discharger shall also conduct and/or submit the results of acute toxicity testing on any new chemical or drug in accordance with EPA-821-R-02-012, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002*, using *C. dubia*, to determine the NOAEL, and LOAEL. Where exposure of aquatic life to the aquaculture drug or chemical may be long-term or continuous, the Discharger shall also conduct and/or submit the results of chronic toxicity testing in accordance with EPA/21-R-02-013, *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002*, using *C. dubia*, to determine the NOEC or IC₂₅.

b. Aquaculture Drug and Chemical Toxicity Studies.

Within 12 months of adoption of this Order, for the aquaculture drugs and chemicals listed below, the Discharger shall either (1) submit to the Regional Water Board sufficient NOAEL, LOAEL, NOEC and IC₂₅ values from existing toxicity studies suitable to determine reasonable potential or (2) shall conduct and submit the results of

short term toxicity studies in accordance with methods specified in EPA-821-R-02-012, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002*, using *C. dubia*, to determine the NOAEL and LOAEL at reflective concentrations and potential exposure times that are applicable to this facility.

- Chloramine-T
- Hydrogen peroxide
- Isoeugenol (Aqui-S®)
- MS-222 / tricaine methanesulfonate (Finquel®, Tricaine-S®)
- Oxytetracycline HCl (Terramycin®)
- Penicillin G potassium
- Potassium permanganate (Cairox™)
- PVP Iodine

The Regional Water Board will review this information and this permit may be reopened to establish effluent limits based on additional use and toxicity information.

c. Reporting of Unanticipated Discharges.

- (1) The Discharger shall provide to the Regional Water Board an oral report within 24 hours of discovery, the failure in, or damage to, the structure of an aquatic animal containment system resulting in an unanticipated material discharge of pollutants to waters of the United States or State. The Discharger must describe the cause of the failure or damage in the containment system and identifying materials that have been released to the environment because of this failure.

The Discharger must provide a written report within 7 days of discovery of the failure or damage documenting the cause, the estimated time elapsed until the failure or damage was repaired, an estimate of the material released as a result of the failure or damage, and steps being taken to prevent a reoccurrence.

- (2) In the event a spill of drugs, pesticides or feed occurs that results in a discharge to waters of the United States or State, the Discharger must provide an oral report of the spill to the Regional Water Board within 24 hours of its occurrence and a written report within 7 days. The report shall include the identity and quantity of the material spilled.

3. Best Management Practices and Pollution Prevention

Within 12 months of adoption of this Order, the Discharger shall certify in writing to the Regional Water Board that it has developed a Best Management Practices (BMP) plan. The Discharger shall develop and implement the BMP plan to prevent or minimize the generation and discharge of wastes and pollutants to the waters of the United States and waters of the State. The Discharger shall develop and implement a BMP plan consistent with the following objectives:

1. Solids Management

- a. Conduct fish feeding in raceways in a manner that limits feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth and minimizes the discharge of unconsumed food and waste products to surface waters.
- b. Clean raceways using procedures and at frequencies that minimize the disturbance and subsequent discharge of accumulated solids during routine activities such as inventorying, grading, and harvesting.
- d. Report the final disposition of all other solids and liquids, including aquaculture drugs and chemicals, not discharged to surface waters in the effluent.
- e. Collect, store, and dispose of fish mortalities and other solids in an environmentally safe manner and in manner so as to minimize discharge to waters of the United States or waters of the State.

2. Operations and Maintenance

- a. Maintain in-system production and wastewater treatment technologies to prevent the overflow of any floating matter or bypassing of treatment technologies.
- b. Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.
- c. Ensure storage and containment of drugs, chemicals, fuel, waste oil, or other materials to prevent spillage or release into the aquatic animal production Facility, waters of the United States, or waters of the State.
- d. Implement procedures for properly containing, cleaning, and disposing of any spilled material.
- e. Prevent fish from being released within the United States Food and Drug Administration (FDA)-required withdrawal time of any drug or chemical with which they have been treated.

3. Recordkeeping

- a. Maintain records for aquatic animal rearing units documenting the feed amounts and estimates of the numbers and weight of aquatic animals in order to calculate representative feed conversion ratios.
- b. Keep records documenting the frequency of cleaning, inspections, maintenance and repairs.

4. Training

- a. Adequately train all relevant facility personnel in spill prevention and how to respond in the event of a spill in order to ensure the proper clean-up and disposal of spilled material.
- b. Train staff on the proper operation and cleaning of production and wastewater treatment systems, including training in feeding procedures and proper use of equipment.
- c. The Discharger shall ensure that its operations staff are familiar with the BMP Plan and have been adequately trained in the specific procedures it requires.

4. Compliance Schedules – Not applicable

5. Construction, Operation and Maintenance Specifications

- a. Collected screenings, sludges, and other solids, including fish carcasses, shall be disposed of in a manner approved by the Executive Officer and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, California Code of Regulation (CCR), Division 2, Subdivision 1, Section 20005, et seq.
- b. All aquaculture drugs and chemicals not discharged to receiving waters in accordance with the provisions of this Order shall be disposed of in an environmentally safe manner, according to label guidelines, Material Safety Data Sheet guidelines and the Discharger's BMP Plan (see Section VI.C.3 of this Order). Any other form of disposal requires approval from the Executive Officer. For all aquaculture drugs and chemicals not authorized for discharge to receiving waters, the disposal onto permeable ground, or in any manner or in quantities that may result in a discharge to surface water or to ground water, is prohibited (see also Section III, Discharge Prohibitions).
- c. All facilities used for transport, and treatment of hatchery wastewater shall be adequately protected against either structural damage or signification reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.
- d. The vertical distance between the water surface elevation and the lowest point of a pond dike or the invert of an overflow structure shall not be less than 1.5 feet (0.46 M).
- e. Chloramine-T shall not be used in more than two raceways per day.

6. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

7. Other Special Provisions – Not Applicable

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

A. Limitation Bases

1. Average Monthly Effluent Limitation (AMEL).

If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the discharger will be considered out of compliance for that calendar month. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

2. Maximum Daily Effluent Limitation (MDEL).

If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

3. Instantaneous Minimum Effluent Limitation.

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

4. Instantaneous Maximum Effluent Limitation.

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

B. Priority Pollutants

The Regional Water Board may consider priority pollutants in intake water on a pollutant-by-pollutant and discharge-by-discharge basis when establishing and enforcing water quality-based effluent limitations, provided that the discharger has demonstrated to the satisfaction of the Regional Water Board that the conditions outlined in section 1.4.4 of SIP are met.

ATTACHMENT A – DEFINITIONS

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Inhibition Concentration (IC₂₅): A point estimate of the toxicant concentration that would cause a 25 percent reduction in a nonlethal biological measurement of the test organisms (e.g., reproduction, growth).

Instantaneous Maximum Effluent Limitation: The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Lowest Observed Adverse Effect Level (LOAEL): The lowest level of a stressor that causes statistically and biologically significant differences in test samples as compared to other samples subjected to no stressor. The term is used in this Order when referring to acute toxicity testing.

Maximum Daily Effluent Limitation (MDEL): the highest allowable daily discharge of a pollutant.

No Observed Adverse Effect Level (NOAEL): an exposure level at which there are no statistically or biologically significant increases in the frequency or severity of adverse effects between the exposed population and its appropriate control; some effects may be produced at this level, but they are not considered as adverse. This term is used in this Order when referring to acute toxicity testing.

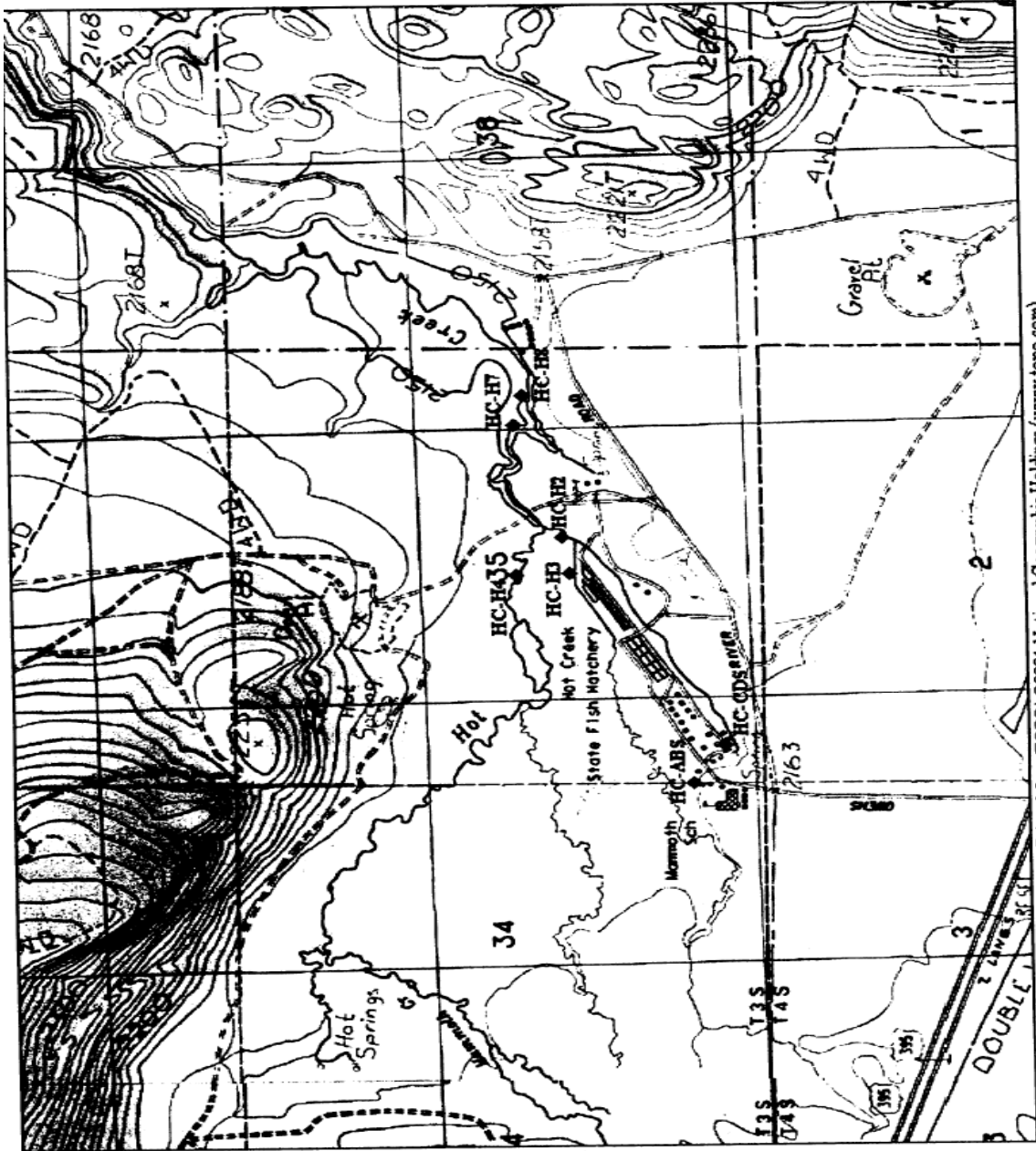
No Observed Effect Concentration (NOEC): The highest measured concentration of an effluent or a toxicant that causes no statistically significant observed effect on exposed organisms compared with control organisms. The term is used in this General Order when referring to chronic toxicity testing.

ACRONYMS & ABBREVIATIONS

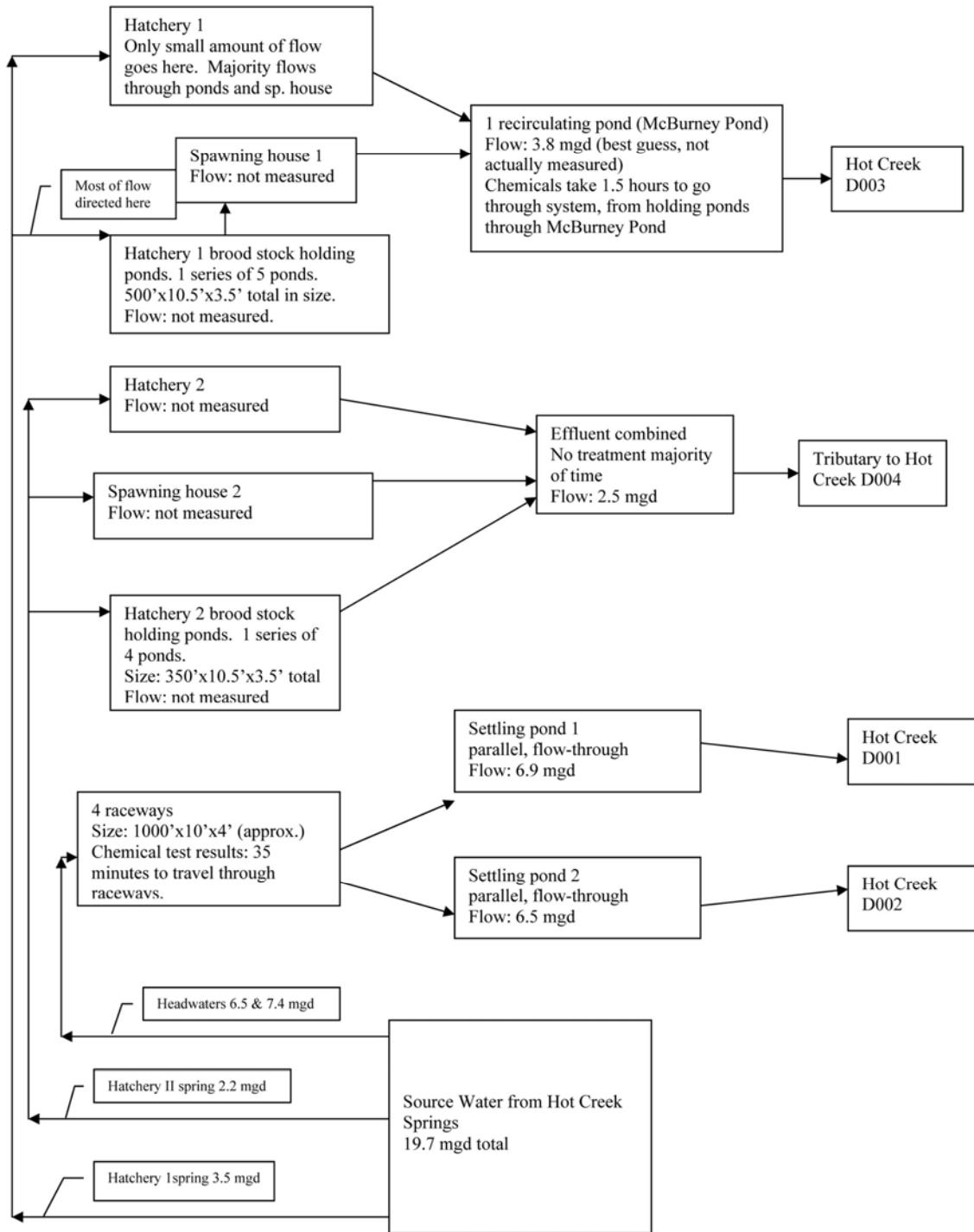
AMEL	Average Monthly Effluent Limitation
B	Background Concentration
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BPJ	Best Professional Judgment
BOD	Biochemical Oxygen Demand
BPT	Best practicable treatment control technology
C	Water Quality Objective
CAAP	Concentrated Aquatic Animal Production
CAAP ELG	Final Effluent Limitation Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category
CCC	Criterion Continuous Concentration
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFS	Cubic Feet Per Second
CMC	Criterion Maximum Concentration
CTR	California Toxics Rule
CV	Coefficient of Variation
CVM	Center for Veterinary Medicine
CWA	Clean Water Act
CWC	California Water Code
DFG	Department of Fish and Game
DHS	State of California Department of Health Services
DMR	Discharge Monitoring Report
ECA	Effluent Concentration Allowance
ELAP	California Department of Health Services Environmental Laboratory Accreditation Program
ELG	Effluent Limitations, Guidelines and Standards
FDA	United States Food and Drug Administration
IC ₂₅	Inhibition Concentration (25%)
INAD	Investigational New Animal Drug
IRIS	Integrated Risk Information System
LA	Load Allocations
LC ₅₀	Lethal Concentration (50%)
LOAEL	Lowest Observed Adverse Effect Level
LOEC	Lowest Observed Effect Concentration
LRP	Low Regulatory Priority
LTA	Long-Term Average
MCL	Maximum Contaminant Level
MDEL	Maximum Daily Effluent Limitation
MDL	Method Detection Limit
MEC	Maximum Observed Effluent Concentration
ML	Minimum Level

MRP	Monitoring and Reporting Program
NADA	New Animal Drug Application
ND	Not Detected
NOAEL	No Observed Adverse Effect Level
NOEC	No Observable Effect Concentration
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NTR	National Toxics Rule
POTW	Publicly-Owned Treatment Works
PPM	Parts Per Million
QA	Quality Assurance
QA/QC	Quality Assurance/Quality Control
RPA	Reasonable Potential Analysis
Regional Water Board	Regional Water Quality Control Board, Lahontan Region
SIP	State Implementation Policy (<i>Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California</i>)
SMCL	Secondary Maximum Contaminant Level
SMR	Self Monitoring Report
State Water Board	State Water Resources Control Board
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TSD	USEPA's (1991), <i>Technical Support Document for Water Quality-based Toxics Control</i>
TSS	Total Suspended Solid
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WDR	Waste Discharge Requirements
WET	Whole Effluent Toxicity
WLA	Waste Load Allocations
WQBEL	Water Quality-based Effluent Limitation
WQO	Water Quality Objectives
GPD	Gallons Per Day
MGD	Million Gallons Per Day
mg/L	Milligrams Per Liter
µg/L	Micrograms Per Liter
µmhos/cm	Micromhos Per Centimeter

ATTACHMENT B – TOPOGRAPHIC MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D – FEDERAL STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the CWA and the California Water Code CWC and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application [40 CFR §122.41(a)].
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not been modified to incorporate the requirement [40 CFR §122.41(a)(1)].

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order [40 CFR §122.41(c)].

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment [40 CFR §122.41(d)].

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order [40 CFR §122.41(e)].

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges [40 CFR §122.41(g)].

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations [40 CFR §122.5(c)].

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, USEPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to [40 CFR §122.41(i)] [CWC 13383(c)]:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order [40 CFR §122.41(i)(1)];
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order [40 CFR §122.41(i)(2)];
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order [40 CFR §122.41(i)(3)];
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location [40 CFR §122.41(i)(4)].

G. Bypass

1. Definitions
 - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility [40 CFR §122.41(m)(1)(i)].
 - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production [40 CFR §122.41(m)(1)(ii)].
2. Bypass not exceeding limitations – The Discharger may allow a bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3 and I.G.5 below [40 CFR §122.41(m)(2)].
3. Prohibition of bypass – Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless [40 CFR §122.41(m)(4)(i)]:

- a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [40 CFR §122.41(m)(4)(A)];
 - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance [40 CFR §122.41(m)(4)(B)]; and
 - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provision – Permit Compliance I.G.5 below [40 CFR §122.41(m)(4)(C)].
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above [40 CFR §122.41(m)(4)(ii)].
5. Notice
- a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [40 CFR §122.41(m)(3)(i)].
 - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below [40 CFR §122.41(m)(3)(ii)].

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation [40 CFR §122.41(n)(1)].

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph H.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review [40 CFR §122.41(n)(2)].
2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [40 CFR §122.41(n)(3)]:
 - a. An upset occurred and that the Discharger can identify the cause(s) of the upset [40 CFR §122.41(n)(3)(i)];

- b. The permitted facility was being properly operated at the time, [40 CFR §122.41(n)(3)(i)];
 - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b [40 CFR §122.41(n)(3)(iii)]; and
 - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above [40 CFR §122.41(n)(3)(iv)].
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [40 CFR §122.41(n)(4)].

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition [40 CFR §122.41(f)].

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit [40 CFR §122.41(b)].

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC [40 CFR §122.41(l)(3)] [40 CFR §122.61].

III. STANDARD PROVISIONS – MONITORING

- A.** Samples and measurements taken for monitoring shall be representative of the monitored activity [40 CFR §122.41(j)(1)].
- B.** Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [40 CFR §122.41(j)(4)] [40 CFR §122.44(i)(1)(iv)].

IV. STANDARD PROVISIONS – RECORDS

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time [40 CFR §122.41(j)(2)].

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [40 CFR §122.41(j)(3)(i)];
2. The individual(s) who performed the sampling or measurements [40 CFR §122.41(j)(3)(ii)];
3. The date(s) analyses were performed [40 CFR §122.41(j)(3)(iii)];
4. The individual(s) who performed the analyses [40 CFR §122.41(j)(3)(iv)];
5. The analytical techniques or methods used [40 CFR §122.41(j)(3)(v)]; and
6. The results of such analyses [40 CFR §122.41(j)(3)(vi)].

C. Claims of confidentiality for the following information will be denied [40 CFR §122.7(b)]:

1. The name and address of any permit applicant or Discharger [40 CFR §122.7(b)(1)]; and
2. Permit applications and attachments, permits and effluent data [40 CFR §122.7(b)(2)].

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order [40 CFR §122.41(h)] [CWC 13267].

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with paragraph (2.) and (3.) of this provision [40 CFR §122.41(k)].
2. All permit applications shall be signed as follows:
 - a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures [40 CFR §122.22(a)(1)];
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [40 CFR §122.22(a)(2)]; or
 - c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA) [40 CFR §122.22(a)(3)].
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in paragraph (b)

of this provision, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

- a. The authorization is made in writing by a person described in paragraph (2.) of this provision [40 CFR §122.22(b)(1)];
 - b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) [40 CFR §122.22(b)(2)]; and
 - c. The written authorization is submitted to the Regional Water Board, State Water Board, or USEPA [40 CFR §122.22(b)(3)].
4. If an authorization under paragraph (3.) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (3.) of this provision must be submitted to the Regional Water Board, State Water Board or USEPA prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22(c)].
5. Any person signing a document under paragraph (2.) or (3.) of this provision shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations” [40 CFR §122.22(d)].

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order [40 CFR §122.41(l)(4)].
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices [40 CFR §122.41(l)(4)(i)].
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as

specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board [40 CFR §122.41(l)(4)(ii)].

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order [40 CFR §122.41(l)(4)(iii)].

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date [40 CFR §122.41(l)(5)].

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [40 CFR §122.41(l)(6)(i)].
2. The following shall be included as information that must be reported within 24 hours under this paragraph [40 CFR §122.41(l)(6)(ii)]:
 - a. Any unanticipated bypass that exceeds any effluent limitation in this Order [40 CFR §122.41(l)(6)(ii)(A)].
 - b. Any upset that exceeds any effluent limitation in this Order [40 CFR §122.41(l)(6)(ii)(B)].
 - c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours [40 CFR §122.41(l)(6)(ii)(C)].
3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [40 CFR §122.41(l)(6)(iii)].

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when [40 CFR §122.41(l)(1)]:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b) [40 CFR §122.41(l)(1)(i)]; or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR Part 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1) [40 CFR §122.41(l)(1)(ii)].
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the previous permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan [40 CFR §122.41(l)(1)(iii)].

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or STATE WATER BOARD of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements [40 CFR §122.41(l)(2)].

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E [40 CFR §122.41(l)(7)].

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, STATE WATER BOARD, or USEPA, the Discharger shall promptly submit such facts or information [40 CFR §122.41(l)(8)].

VI. STANDARD PROVISIONS – ENFORCEMENT

- A.** The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than

one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions [40 CFR §122.41(a)(2)] [CWC 13385 and 13387].

- B.** Any person may be assessed an administrative penalty by the Regional Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000 [40 CFR §122.41(a)(3)].
- C.** The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both [40 CFR §122.41(j)(5)].
- D.** The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both [40 CFR §122.41(k)(2)].

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Regional Water Board as soon as they know or have reason to believe [40 CFR §122.42(a)]:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [40 CFR §122.42(a)(1)]:
 - a. 100 micrograms per liter ($\mu\text{g/L}$) [40 CFR §122.42(a)(1)(i)];
 - b. 200 $\mu\text{g/L}$ for acrolein and acrylonitrile; 500 $\mu\text{g/L}$ for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [40 CFR §122.42(a)(1)(ii)];
 - c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [40 CFR §122.42(a)(1)(iii)]; or
 - d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [40 CFR §122.42(a)(1)(iv)].
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" [40 CFR §122.42(a)(2)]:
 - a. 500 $\mu\text{g/L}$ [40 CFR §122.42(a)(2)(i)];
 - b. 1 milligram per liter (mg/L) for antimony [40 CFR §122.42(a)(2)(ii)];
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [40 CFR §122.42(a)(2)(iii)]; or
 - d. The level established by the Regional Water Board in accordance with 40 CFR §122.44(f) [40 CFR §122.42(a)(2)(iv)].

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following [40 CFR §122.42(b)]:

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the CWA if it were directly discharging those pollutants [40 CFR §122.42(b)(1)]; and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order [*40 CFR §122.42(b)(2)*].

Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW [*40 CFR §122.42(b)(3)*].

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

40 CFR §122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC sections 13267 and 13383 also authorize the Regional Water Quality Control Boards to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

- A. In the implementation of the Monitoring and Reporting Program, Regional Board staff shall comply with California Department of Fish and Game disease control procedures when entering or placing equipment in Hatchery flow streams.
- B. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.
- B. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.
- C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services.
- D. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

II. MONITORING LOCATIONS

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

Source Water/ Discharge Point Name	Monitoring Location Name	Monitoring Location Description
Source Water		
001	S-001	Headwaters AB Spring
002	S-002	Headwaters CD Spring
003	S-003	Hatchery I Spring
004	S-004	Hatchery II Spring
Discharge Point		
001	M-001	Outfall Settling Pond 1
002	M-002	Outfall Settling Pond 2
003	M-003	Outfall McBurney Pond
004	M-004	Outfall Spawning House II
Receiving Water		
---	R-001	Mammoth Creek, at a location 25 feet upstream of confluence of Hot Creek and Mammoth Creek
---	R-002	Hot Creek, at a point 50 feet downstream of the location where the short tributary receiving discharge from Discharge Point 004 meets Hot Creek

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations S-001, S-002, S-003, and S-004

- The Discharger shall monitor supply water to the Facility at S-001, S-002, S-003, and S-004 as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency ^a	Required Analytical Test Method ^b
Flow	MGD	Grab	1 / semi-annual period	40 CFR Part 136 Methods
<i>Conventional Pollutants</i>				
pH	standard units	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Total Suspended Solids (TSS)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
<i>Non-Conventional Pollutants</i>				
Dissolved Oxygen	mg/l	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Nitrate +Nitrite (as N)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Orthophosphate, Dissolved (as P)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Total Dissolved Solids (TDS)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Nitrogen, Total (as N)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Settleable Solids	ml/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Temperature	°F	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Turbidity	NTU	Grab	1 / semi-annual period	40 CFR Part 136 Methods

^a To be collected on the same day the effluent samples are collected for analysis.

^b Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. Where no methods are specified for a given pollutant, pollutants shall be analyzed by method proposed by the Discharger and approved by the Executive Officer.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations M-001, M-002, M-003, and M-004

1. The Discharger shall monitor wastewater discharged from the Facility via Discharge Points 001, 002, 003, and 004 at Monitoring Locations M-001, M-002, M-003, and M-004, respectively, as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method ^a
Flow	MGD	Instantaneous	1 / month	40 CFR Part 136 Methods
<i>Conventional Pollutants</i>				
PH	standard units	Grab pair	1 / month ^d	40 CFR Part 136 Methods
Total Suspended Solids (TSS)	mg/L	Grab pair	1 / month	40 CFR Part 136 Methods
<i>Priority Pollutants - Aquaculture Chemical</i>				
Copper, Total Recoverable	µg/L	Grab	1 / discharge event ^{b,c}	40 CFR Part 136 Methods
<i>Non-Conventional Pollutants</i>				
Boron	mg/L	Grab	1 / year	40 CFR Part 136 Methods
Chloride	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Dissolved Oxygen	mg/l	Grab pair	1 / quarter	40 CFR Part 136 Methods
Electrical Conductivity @ 25 Deg. C	µmhos/cm	Grab	1 / quarter ^g	40 CFR Part 136 Methods
Fluoride	mg/L	Grab	1 / year	40 CFR Part 136 Methods
Nitrate+Nitrite as N	mg/L	Grab pair	1 / quarter	40 CFR Part 136 Methods
Nitrogen, Total	mg/L	Grab pair	1 / semi-annual period	40 CFR Part 136 Methods
Orthophosphate, Dissolved	mg/L	Grab pair	1 / semi-annual period	40 CFR Part 136 Methods
Settleable Solids	ml/L	Grab pair	1 / quarter	40 CFR Part 136 Methods
Sulfate	mg/L	Grab	1 / quarter	40 CFR Part 136 Methods
Temperature	°F	Grab	1 / quarter	40 CFR Part 136 Methods
Total Dissolved Solids (TDS)	mg/L	Grab pair	1 / quarter	40 CFR Part 136 Methods
Turbidity	NTU	Grab	1 / quarter	40 CFR Part 136 Methods
<i>Non-Conventional Pollutants – Aquaculture Chemicals</i>				
Formaldehyde (due to formalin addition)	mg/L	Grab	1 / discharge event ^{c,e}	40 CFR Part 136 Methods
Chloramine-T®	mg/L	Grab	1 / discharge event ^{c,f}	40 CFR Part 136 Methods
Hydrogen Peroxide	mg/L	Grab	1 / discharge event ^{c,f}	40 CFR Part 136 Methods
Isoeugenol (Aqui-S®)	mg/L	Grab	1 / discharge event ^{c,f}	40 CFR Part 136 Methods
Potassium Permanganate	mg/L	Grab	1 / discharge event ^{c,f}	40 CFR Part 136 Methods
Oxytetracycline HCl ^h	mg/L	Grab	1 / discharge event ^{c,f}	40 CFR Part 136 Methods
Penicillin G Potassium	mg/L	Grab	1 / discharge event ^{c,f}	40 CFR Part 136 Methods
PVP Iodine	mg/L	Grab	1 / discharge event ^{c,f}	40 CFR Part 136 Methods
Tricaine methanesulfonate (MS-222 with trade names of Finquel® or Tricaine-S®)	mg/L	Grab	1 / discharge event ^{c,f}	40 CFR Part 136 Methods

^a Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. Where no methods are specific for

a given pollutant, pollutants shall be analyzed by method proposed by the Discharger and approved by the Executive Officer.

- ^b Effluent samples shall be collected when chemicals containing copper (copper sulfate or chelated copper compounds) are added to the waters of the Facility. The effluent samples shall be collected when the concentration of copper in the effluent due to the chemical addition is expected to be at a maximum.
- ^c When there is more than one discharge event of the chemical in a quarter, the Discharger is not required to sample for more than one of the events.
- ^d Minimum sampling frequency is once per month. In addition, when the chemical acetic acid or sodium bicarbonate is added to waters of the facility, a sample of the effluent shall be collected at a time when the concentration of the parameter in the effluent is expected to be at a maximum.
- ^e Effluent samples shall be collected when the chemical is added to the waters of the Facility. Effluent samples shall be collected when the effluent concentration of the parameter affected by the chemical addition is at a maximum. The chemicals affecting the parameters are shown in parenthesis in the parameter column.
- ^f Effluent samples shall be collected when the chemical is added to the waters of the Facility. Effluent samples shall be collected when the effluent concentration of the chemical is at a maximum.
- ^g Minimum sampling frequency is once per quarter. In addition, when the sodium chloride or sodium bicarbonate is added to waters of the facility, a sample of the effluent shall be collected at a time when the concentration of the parameter in the effluent is expected to be at a maximum.
- ^h Oxytetracycline monitoring is required only when the Facility uses it in bath treatment

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS – Not Applicable

VI. LAND DISCHARGE MONITORING REQUIREMENTS – Not Applicable

VII. RECLAMATION MONITORING REQUIREMENTS – Not Applicable

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Locations R-001, (Mammoth Creek, at a location 25 feet upstream of confluence of Hot Creek and Mammoth Creek)

1. The Discharger shall monitor Mammoth Creek at R-001 as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency ^a	Required Analytical Test Method ^b
Flow	MGD	Instantaneous	1 / semi-annual period	40 CFR Part 136 Methods
<i>Conventional Parameters</i>				
PH	standard units	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Total Suspended Solids (TSS)	mg/L	Grab pair	1 / quarter	40 CFR Part 136 Methods
<i>Non-Conventional Parameters</i>				
Dissolved Oxygen	mg/l	Grab	1 / quarter	40 CFR Part 136 Methods
Nitrate+Nitrite (as N)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Orthophosphate, Dissolved (as P)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Total Dissolved Solids (TDS)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Nitrogen, Total (as N)	mg/L	Grab	1 / semi-annual period	40 CFR Part 136 Methods
Settleable Solids	ml/L	Grab pair	1 / quarter	40 CFR Part 136 Methods

Temperature	°F	Grab	1 / quarter	40 CFR Part 136 Methods
Turbidity	NTU	Grab	1 / quarter	40 CFR Part 136 Methods

^a To be collected on the same day the effluent samples are collected for analysis.

^b Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. Where no methods are specified for a given pollutant, pollutants shall be analyzed by method proposed by the Discharger and approved by the Executive Officer.

B. Monitoring Location R-002 (Surface Water, Hot Creek, at a point 50 feet downstream of the location where the short tributary receiving discharge from Discharge Point 004 meets Hot Creek)

1. The Discharger shall monitor Hot Creek at R-002 as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency ^a	Required Analytical Test Method ^b
Flow	MGD	Instantaneous	1 / quarter	40 CFR Part 136 Methods
<i>Conventional Pollutants</i>				
PH	standard units	Grab	1 / quarter	40 CFR Part 136 Methods
Total Suspended Solids (TSS)	mg/L	Grab pair	1 / quarter	40 CFR Part 136 Methods
<i>Priority Pollutant</i>				
Copper, Total Recoverable	mg/L	Grab	1 / discharge event ^c	40 CFR Part 136 Methods
<i>Non-Conventional Pollutants</i>				
Ammonia	mg/L	Grab	1 / quarter	40 CFR Part 136 Methods
Boron	mg/L	Grab	1 / year	40 CFR Part 136 Methods
Chloride	mg/L	Grab	1 / year	40 CFR Part 136 Methods
Dissolved Oxygen	mg/l	Grab	1 / quarter	40 CFR Part 136 Methods
Formaldehyde	mg/L	Grab	1 / discharge event ^c	40 CFR Part 136 Methods
Fluoride	mg/L	Grab	1 / year	40 CFR Part 136 Methods
Nitrate+Nitrite as N	mg/L	Grab pair	1 / semi-annual period	40 CFR Part 136 Methods
Nitrogen, Total	mg/L	Grab pair	1 / semi-annual-period	40 CFR Part 136 Methods
Orthophosphate Dissolved, Total	mg/L	Grab pair	1 / semi-annual period	40 CFR Part 136 Methods
Settleable Solids	ml/L	Grab pair	1 / quarter	40 CFR Part 136 Methods
Sulfate	mg/L	Grab	1 / year	40 CFR Part 136 Methods
Temperature	°F	Grab	1 / quarter	40 CFR Part 136 Methods
Total Dissolved Solids (TDS)	mg/L	Grab pair	1 / quarter	40 CFR Part 136 Methods
Turbidity	NTU	Grab	1 / quarter	40 CFR Part 136 Methods

^a To be collected on the same day the effluent samples are collected for analysis.

^b Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. Where no methods are specified for a given pollutant, pollutants shall be analyzed by method proposed by the Discharger and approved by the Executive Officer.

^c Monitoring for this pollutant only required if chemicals containing copper (copper sulfate or chelated copper compounds) or formaldehyde (formalin) are added to waters of the facility. When there is more than one discharge event in a year, the Discharger is not required to sample for more than one of the events. A sample of the receiving water shall be collected at a time when the concentration of the parameter in the receiving water is expected to be at a maximum.

2. In conducting the receiving water sampling, a log shall be kept of the condition of the receiving water. A summary of the log shall be reported in quarterly self-monitoring reports. Attention shall be given to the presence or absence of:

- a. floating or suspended matter;
- b. discoloration;
- c. visible films, sheens, or coatings;
- d. bottom deposits;

- e. potential nuisance conditions;
- f. aquatic life;
- g. algae, fungi, slimes, or other aquatic vegetation and
- h. sample odor.

C. Monitoring Location R-002 (Sediment)

1. The Discharger shall monitor Hot Creek sediment at Monitoring Location R-002 as follows:

Parameter	Units	Sample Type ^a	Minimum Sampling Frequency	Required Test Method ^b
<i>Priority Pollutants – Aquaculture Chemical</i>				
Copper, Total Recoverable	µg/kg	Grab	1 / year	40 CFR Part 136 Methods
<i>Non-Conventional Pollutants – Aquaculture Chemicals</i>				
Manganese (From KMnO ₄ Addition)	mg/kg	Grab	2/permit life ^c	40 CFR Part 136 Methods

^a Surface grab samples containing the upper 2 centimeters of sediment shall be taken from an Ekman grab (or another method approved by the executive officer).

^b Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136. Where no methods are specified for a given pollutant, pollutants shall be analyzed by method proposed by the Discharger and approved by the Executive Officer.

^c The monitoring should be performed in the 1st and 4th year of the permit

IX. OTHER MONITORING REQUIREMENTS

A. Bioassessment Monitoring

The Discharger shall characterize impacts of Facility operations on aquatic life uses in the receiving waters by using biomonitoring (bioassessment) techniques to document the assemblages of aquatic communities and condition of physical aquatic habitat below the discharge points, and either above the discharge points or at another appropriate reference site(s). Biomonitoring shall be conducted at least once per year, during a summer reference period between June 15 and September 15. Sampling in subsequent years shall be conducted within the same reference period within two weeks before or after the original sampling date. The biomonitoring shall be patterned after the USEPA Rapid Bioassessment Protocols or an equivalent method. The Regional Water Board recommends that the biomonitoring protocols developed by the CDFG for use in California, as modified for use in the eastern Sierra by the Sierra Nevada Aquatic Research Laboratory, be incorporated into the Hot Creek Hatchery proposed biomonitoring procedure.

The Discharger shall update the existing biomonitoring work plan as necessary to conduct bioassessment monitoring. The Discharger shall submit stressor identification work plan by June 30, 2006 and characterization of causes and final identification report for Hot Creek by January 5, 2007.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs. Until such notification is given, the Discharger shall submit SMRs in accordance with the requirements described below.
2. The Discharger shall submit monthly, quarterly, semiannual, annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. Monthly reports shall be due on the 1st day of the second month following the end of each calendar month; quarterly reports shall be due on May 1, August 1, November 1, and February 1 following each calendar quarter; semi-annual reports shall be due on August 1 and February 1 following each semi-annual period; annual reports shall be due on February 1 following each calendar year. Reports of monitoring performed per discharge event are due on May 1, August 1, November 1, and February 1 following each calendar quarter the discharge occurred.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
1 / month	<First day of calendar month following permit effective date or on permit effective date if that date is first day of the month>	1 st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1 / quarter	<Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date>	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
1 / semi-annual period	<Closest of January 1 or July 1 following (or on) permit effective date>	January 1 through June 30 July 1 through December 31	August 1 February 1
1 / year	<January 1 following (or on) permit effective date>	January 1 through December 31	February 1
1 / discharge event	<Permit effective date>	Calendar day (Midnight through 11:59 PM)	May 1 August 1 November 1 February 1

4. The Discharger shall report with each sample result the applicable Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.
5. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim

and/or final effluent limitations. Example SMR reporting tables are contained in Attachment K of this Order, which the Discharger may use to submit monitoring data.

6. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the standard provisions (Attachment D), to the address listed below:

California Regional Water Quality Control Board
Lahontan Region
14440 Civic Center Drive, Suite 200
Victorville, CA 92392-2306

C. Discharge Monitoring Reports (DMRs) – Not Applicable

D. Other Reports

1. A daily log shall be maintained of the quantities of all chemicals used for anesthetic, disease control, disinfection, and all other Facility operations, such as cleaning, which result in the chemicals becoming constituents of the discharge. This information shall be maintained onsite for review and shall be submitted at quarterly intervals for all aquaculture drugs or chemicals used at the Facility. The report should include the following information:
 - a. The name(s) and active ingredient(s) of the drug or chemical.
 - b. The date(s) of application.
 - c. The purpose(s) for the application.
 - d. The location and method of application (e.g., immersion bath, administered in feed), duration of treatment, whether the treatment was static or flush (for drugs or chemicals applied directly to water), amount in gallons or pounds used, treatment concentration(s), and the flow in cubic feet per second (cfs) in the treatment units.
 - e. The total flow through the facility in cfs to Hot Creek after mixing with the treated water.
 - f. For drugs and chemicals applied directly to water (i.e., immersion bath, flush treatment) and for which effluent monitoring is not otherwise required, the estimated concentration in the effluent at the point of discharge to Hot Creek.
 - g. The method of disposal for drugs or chemicals used but not discharged in the effluent.

Prior to any change in the use of chemical at the Facility the discharger must submit a complete report of the change to the Regional Water Board before the proposed date of change and obtain written approval of the Regional Water Board's Executive Officer. The effluent shall be sampled following application at the point of discharge for each chemical used. The sample shall be taken at a time that reflects expected maximum concentrations in the effluent.

By the 15th day of January of each year, the Discharger shall submit a table showing the quantities (in pounds, grams, or gallons) of all chemicals used during the previous year. The first report is due January 15, 2007.

2. Annual reports of the biomonitoring results shall be submitted by **March 30 of each year**. The first annual report is due **March 30, 2007**.

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ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

WDID	6B260801001
Discharger	State of California Department of Fish & Game (Owner / Operator) and the United States Forest Service (Land Owner)
Name of Facility	Hot Creek Fish Hatchery, Mammoth Lakes
Facility Address	HCR 79, Box 208
	Mammoth Lakes, CA 93546
	Mono County
Facility Contact, Title and Phone	Michael G. Seefeldt, Fish Hatchery Manager II, 760-934-2664
Authorized Person to Sign and Submit Reports	Michael G. Seefeldt, Fish Hatchery Manager II, 760-934-2664
Mailing Address	SAME
Billing Address	SAME
Type of Facility	Other (Concentrated Aquatic Animal Production Facility / Fish Hatchery)
Major or Minor Facility	Minor
Threat to Water Quality	3
Complexity	C
Pretreatment Program	Not Applicable
Reclamation Requirements	None
Facility Permitted Flow	Not Applicable
Facility Design Flow	18 MGD
Watershed	Owens River Watershed
Receiving Water	Hot Creek and tributary to Hot Creek
Receiving Water Type	Creek

- A. State of California Department of Fish & Game is the owner and operator of Hot Creek Fish Hatchery (hereinafter Facility), a CAAP facility located on a land owned by Los Angeles Department of Water and Power (LADWP) and United States Forest Service (USFS). State of California Department of Fish & Game and USFS are collectively referred to as the “Discharger”. State of California Department of Fish & Game is the primary discharger and the land owner USFS is the secondary discharger.
- B. The Facility discharges wastewater to Hot Creek and a tributary to Hot Creek, waters of the United States, and is currently regulated by Order 6-99-55 which was adopted on November 17, 1999 and expired on November 17, 2004. The terms of the previous Order automatically continued in effect after the permit expiration date.

- C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on October 26, 2004.

II. FACILITY DESCRIPTION

A. Description of Facility and Wastewater Treatment

State of California Department of Fish & Game owns and operates the fish hatchery, a CAAP facility located on a land owned by Los Angeles Department of Water and Power and United States Forest Service. The Facility is located at 37°, 38', 31.4" N and 118°, 51', 14.3" W, approximately four miles east of the Town of Mammoth Lakes in Mono County, at HCR 79, Box 208, Mammoth Lakes, Section 35, Township 3S, Range 28E, MDB&M. Attachment B provides a topographic map of the area around the Facility.

The Facility produces between 285,000 and 325,000 pounds of catchable fish per year, 14,000,000 trout eggs for distribution statewide, and 1.5 million fingerlings for air planting. The Facility consists of two hatcheries (Hatchery I and Hatchery II), two spawning houses, 42 fingerling tanks, 40 fingering troughs, 9 brood ponds, 42 production ponds, 4 production raceways and 3 settling ponds. The Discharger uses sodium chloride (salt) as a flush treatment and potassium permanganate to control gill bacteria on fish. Other aquaculture chemicals used at the Facility are copper sulfate, formalin, and oxytetracycline HCl (OTC). Attachment C provides a flow schematic of the Facility.

The water supply for the Facility is obtained from Hot Creek Springs. There are four main headwaters from these springs, referred to as "AB Spring," "CD Spring," "Hatchery I Spring," and "Hatchery II Spring." The average flows of AB Spring, CD Spring, Hatchery I Spring, and Hatchery II Spring are 4.9 MGD, 4.9 MGD, 2.9 MGD, and 2 MGD, respectively. Generally, flows from these springs are highest in the summer and lowest in the spring. Springs AB and CD produce about 70 percent of the supply water for the Facility. The headwaters from these springs supply water for the production raceways and along with Hatchery I Spring supply water to Hatchery I. Hatchery I Spring also supplies water to the Hatchery I brood ponds and the Hatchery I spawning house. Hatchery II Spring supplies water to Hatchery II, the Hatchery II brood ponds, and the Hatchery II spawning house.

Facility operations generate wastes that undergo minimal treatment in a pond and two parallel flow-through settling ponds. Waste discharges typically include unused food and fish excrement. Wastewater is discharged from Discharge Points 001, 002, and 003 to Hot Creek, and from Discharge Point 004 to a small tributary to Hot Creek, both waters of the United States. Hot Creek is a tributary to the Owens River within the Owens River Watershed.

Wastewater produced from the Facility's four raceways receives sedimentation treatment in two parallel flow-through settling ponds before discharge to Hot Creek through Discharge Points 001 and 002. Sedimentation Pond #1 has a retention time of 65 minutes with a dimension of 275' x 80' x 7' (average). Sedimentation Pond #2 has a retention time of 58 minutes with a dimension of 250' x 70' x 7' (average). The wastewater produced from Hatchery I, the Hatchery I brood ponds, and the Hatchery I spawning house receives sedimentation treatment in McBurney Pond

and discharged to Hot Creek through Discharge Point 003. McBurney Pond has a retention time of 78 minutes with a dimension of 500' x 600' x 7' (average). The wastewater produced from Hatchery II, the Hatchery II brood ponds, and the Hatchery II spawning house is discharged untreated to a small tributary to Hot Creek through Discharge Point 004.

B. Discharge Points and Receiving Waters

The wastewater discharge rate and the location of the discharge points are shown below:

Discharge Point	Flow (MGD)			Latitude	Longitude
	Maximum	Average	Minimum		
001	6.9	5.0	3.2	37 °, 38', 31.4" North	118 °, 51', 14.3" West
002	6.5	4.8	3.2	37 °, 38', 31.5" North	118 °, 51', 11.5" West
003	3.8	2.9	2.0	37 °, 38', 31.3" North	118 °, 51', 9.8" West
004	2.5	2.0	1.4	37 °, 38', 36" North	118 °, 50', 48" West

Discharge Points 001, 002, and 003 discharges to Hot Creek and Discharge Point 004 to a tributary to Hot Creek. Hot Creek is a tributary to the Owens River, located within the Long Valley Hydrologic Area (Hydrologic Unit No. 603.10) of the Owens Hydrologic Unit.

C. Summary of Previous Requirements and Self-Monitoring Report (SMR) Data

This section provides a summary of existing effluent requirements and SMR data from the Facility.

Effluent limitations/Discharge Specifications contained in the previous Order for discharge of effluent from Settling Pond 1 through Discharge Point 001 (Monitoring Location M-001) and representative monitoring data from the term of the previous Order are as follows:

Parameter (units)	Effluent Limitations		Monitoring Data (February 2000 to June 2004)	
	Average Quarterly	Instantaneous Maximum	Highest Average Quarterly Discharge	Highest Instantaneous Maximum Discharge
Flow (MGD) ^a	---	---	6.3	---
<i>Conventional Pollutants</i>				
PH	---	9 ^b	---	7.5
Total Suspended Solids (TSS) (mg/L)	5	15	6.6	9.3
Total Suspended Solids (TSS) (lbs/day)	---	---	224	---
<i>Non-Conventional Pollutants</i>				
Dissolved Oxygen (mg/L)	---	---	---	7.9
Hardness (mg/L)	---	---	---	76
Manganese, Dissolved (mg/L)	---	---	---	<0.0050
Manganese, Total (mg/L)	---	---	---	0.016
Nitrate (mg/L)	---	---	---	0.36
Nitrite (µg/L)	---	---	---	0.17
Orthophosphate, Dissolved (mg/L)	---	---	---	0.32

Parameter (units)	Effluent Limitations		Monitoring Data (February 2000 to June 2004)	
	Average Quarterly	Instantaneous Maximum	Highest Average Quarterly Discharge	Highest Instantaneous Maximum Discharge
Phosphorus (mg/L)	---	---	---	0.35
Settleable Solids (mg/L)	0.1	---	<0.1	<0.1
Temperature (°F)	---	---	---	62
Total Dissolved Solids (TDS) (mg/L)	---	---	---	443
Total Kjeldahl Nitrogen (as N) (mg/L)	---	---	---	1.4
Turbidity (NTU)	---	---	---	0.78

^a Maximum flow was supplied by the Discharger separately in a telephone conversation

^b pH should be between 6 and 9.

Effluent limitations/Discharge Specifications contained in the previous Order for discharge of effluent from Settling Pond 2 through Discharge Point 002 (Monitoring Location M-002) and representative monitoring data from the term of the previous Order are as follows:

Parameter (units)	Effluent Limitations		Monitoring Data (February 2000 to June 2004)	
	Average Quarterly	Instantaneous Maximum	Highest Average Quarterly Discharge	Highest Instantaneous Maximum Discharge
Flow (MGD) ^a	---	---	6.3	---
<i>Conventional Pollutants</i>				
pH	---	9 ^b	---	7.6
Total Suspended Solids (TSS) (mg/L)	5	15	8.4	12.5
Total Suspended Solids (TSS) (lbs/day)	---	---	319	---
<i>Non-Conventional Pollutants</i>				
Dissolved Oxygen (mg/L)	---	---	---	7.8
Hardness (mg/L)	---	---	---	83
Manganese, Dissolved (mg/L)	---	---	---	0.0063
Manganese, Total (mg/L)	---	---	---	0.0091
Nitrate (mg/L)	---	---	---	0.37
Nitrite (µg/L)	---	---	---	<0.40
Orthophosphate, Dissolved (mg/L)	---	---	---	0.31
Phosphorus (mg/L)	---	---	---	<0.020
Settleable Solids (mg/L)	0.1	---	<0.1	<0.1
Temperature (°F)	---	---	---	62
Total Dissolved Solids (TDS) (mg/L)	---	---	---	582
Total Kjeldahl Nitrogen (as N) (mg/L)	---	---	---	1.2
Turbidity (NTU)	---	---	---	0.80

^a Maximum flow was supplied by the Discharger separately in a telephone conversation

^b pH should be between 6 and 9.

Effluent limitations/Discharge Specifications contained in the previous Order for discharge of effluent from McBurney Pond through Discharge Point 003 (Monitoring Location M-003) and representative monitoring data from the term of the previous Order are as follows:

Parameter (units)	Effluent Limitations		Monitoring Data (February 2000 to June 2004)	
	Average Quarterly	Instantaneous Maximum	Highest Average Quarterly Discharge	Highest Instantaneous Maximum Discharge
Flow (MGD) ^a	---	---	3.6	---
<i>Conventional Pollutants</i>				
pH	---	9 ^b	---	7.6
Total Suspended Solids (TSS) (mg/L)	5	15	12	17
Total Suspended Solids (TSS) (lbs/day)	---	---	275	---
<i>Non-Conventional Pollutants</i>				
Dissolved Oxygen (mg/L)	---	---	---	8.8
Hardness (mg/L)	---	---	---	69
Nitrate (mg/L)	---	---	---	0.69
Nitrite (µg/L)	---	---	---	0.11
Orthophosphate, Dissolved (mg/L)	---	---	---	0.23
Phosphorus (mg/L)	---	---	---	0.22
Settleable Solids (mg/L)	0.1	---	<0.1	<0.1
Temperature (°F)	---	---	---	58
Total Dissolved Solids (TDS) (mg/L)	---	---	---	180
Total Kjeldahl Nitrogen (as N) (mg/L)	---	---	---	0.57
Turbidity (NTU)	---	---	---	0.70

^a Maximum flow was supplied by the Discharger separately in a telephone conversation

^b pH should be between 6 and 9.

Effluent limitations/Discharge Specifications contained in the previous Order for discharge of wastewater through Discharge Point 004 (Monitoring Location M-004) and representative monitoring data from the term of the previous Order are as follows:

Parameter (units)	Effluent Limitations		Monitoring Data (February 2000 to June 2004)	
	Average Quarterly	Instantaneous Maximum	Highest Average Quarterly Discharge	Highest Instantaneous Maximum Discharge
Flow (MGD) ^b	---	---	2.5	---
<i>Conventional Pollutants</i>				
PH	---	9 ^a	---	7.6
Total Suspended Solids (TSS) (mg/L)	5	15	4.5	6.9
Total Suspended Solids (TSS) (lbs/day)	---	---	81	---
<i>Non-Conventional Pollutants</i>				
Dissolved Oxygen (mg/L)	---	---	---	8.2

Parameter (units)	Effluent Limitations		Monitoring Data (February 2000 to June 2004)	
	Average Quarterly	Instantaneous Maximum	Highest Average Quarterly Discharge	Highest Instantaneous Maximum Discharge
Hardness (mg/L)	---	---	---	69
Nitrate (mg/L)	---	---	---	0.55
Nitrite (µg/L)	---	---	---	<400
Orthophosphate, Dissolved (mg/L)	---	---	---	0.22
Phosphorus (mg/L)	---	---	---	<0.020
Settleable Solids (mg/L)	0.1	---	<0.1	<0.1
Temperature (°F)	---	---	---	55
Total Dissolved Solids (TDS) (mg/L)	---	---	---	434
Total Kjeldahl Nitrogen (as N) (mg/L)	---	---	---	0.8
Turbidity (NTU)	---	---	---	0.75

^a Maximum flow was supplied by the Discharger separately in a telephone conversation

^b pH should be between 6 and 9.

D. Compliance Summary

Below is a list of findings of noncompliance by the Facility:

- a. The Facility did not report discharge flow through Discharge Points 001, 002, 003, and 004 for the entire term of the previous permit.
- b. There was a sewage overflow at the Facility sewer lift station on March 18 and March 19, 2001.
- c. The 2000 and 2002 Bioassessment Reports were submitted late.
- d. The first semi-annual 2001 SMR was received by the Regional Water Board 19 days late.
- e. A July 15, 2004 memorandum from the Regional Board requested the Facility to submit a workplan that proposes investigative methods to determine the causes of impaired biological integrity in the receiving water due to the discharge from the Facility by November 15, 2004. The Facility submitted an incomplete work plan a week late on November 22, 2004.
- f. The following exceedances were noted based on the SMRs submitted by the Facility.

Sample Date	Discharge Point	Pollutant	Limit Exceeded
2/20/2001	001	Total Suspended Solids (TSS)	Quarterly Average
6/4/2001	003	Total Suspended Solids (TSS)	Quarterly Average
10/2/2001	002	Total Suspended Solids (TSS)	Quarterly Average
4/29/2002	003	Total Suspended Solids (TSS)	Quarterly Average
5/12/2003	001	Total Suspended Solids (TSS)	Quarterly Average
5/12/2003	003	Total Suspended Solids (TSS)	Quarterly Average
6/2/2003	001	Total Suspended Solids (TSS)	Quarterly Average
6/2/2003	003	Total Suspended Solids (TSS)	Quarterly Average
12/8/2003	003	Total Suspended Solids (TSS)	Quarterly Average
2/23/2004	002	Total Suspended Solids (TSS)	Quarterly Average
2/23/2004	003	Total Suspended Solids (TSS)	Quarterly Average
2/23/2004	003	Total Suspended Solids (TSS)	Instantaneous Maximum
6/7/2004	001	Total Suspended Solids (TSS)	Quarterly Average
6/7/2004	002	Total Suspended Solids (TSS)	Quarterly Average
6/7/2004	003	Total Suspended Solids (TSS)	Quarterly Average

E. Planned Changes – Not Applicable

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the Federal CWA and implementing regulations adopted by USEPA and Chapter 5.5, Division 7 of the CWC. It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as WDRs pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

B. California Environmental Quality Act (CEQA)

This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

C. State and Federal Regulations, Policies, and Plans

- 1. Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the Lahontan Region (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. Beneficial uses applicable to Hot Creek are as follows:

Discharge Point	Receiving Water Name	Beneficial Use(s)
001, 002, 003	Hot Creek	<u>Existing:</u> Municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND), Ground water recharge (GWR), contact water recreation (REC-1), non-contact water recreation (REC-2), commercial and sport fishing (COMM), aquaculture (AQUA), cold freshwater habitat (COLD), wildlife habitat (WILD), preservation or rare, threatened or endangered species (RARE), migration of aquatic organisms (MIGR), spawning, reproduction, and development (SPWN).
004	Un-named tributary to Hot Creek	

2. **Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters.
3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995 and November 9, 1999, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.
4. **State Implementation Policy (SIP).** On March 2, 2000, State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP includes procedures for determining the need for and calculating WQBELs, and requires Dischargers to submit data sufficient to do so.
5. **Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution No. 68-16 requires that existing water quality is maintained unless degradation is justified based on specific findings. As discussed in detail in this Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution No. 68-16.
6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

All effluent limitations in the Order are at least as stringent as the effluent limitations in the previous Order.

- 7. Monitoring and Reporting Requirements.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.

D. Impaired Water Bodies on CWA 303(d) List

Hot Creek is not an impaired waterbody on the CWA 303(d) list for 2002. However, Hot Creek is tributary to the Owens River (Upper), which is listed on the 2002 CWA 303(d) list as impaired due to habitat alterations from agriculture and hydromodification. As the Discharger does not engage in agricultural activities or activities that would contribute to hydromodification of the Upper Owens River, the Facility is not expected to contribute to the habitat alteration impairment of the Upper Owens River.

E. Other Plans, Policies and Regulations

Regulation of Aquaculture Drugs and Chemicals

CAAP facilities produce fish and other aquatic animals in greater numbers than natural stream conditions would allow; therefore, system management is important to ensure that fish do not become overly stressed, making them more susceptible to disease outbreaks. The periodic use of various aquaculture drugs and chemicals is needed to ensure the health and productivity of cultured aquatic stocks and to maintain production efficiency.

CAAP facilities may legally obtain and use aquaculture drugs in one of several ways. Some aquaculture drugs and chemicals used at CAAP facilities in the Region are approved by the FDA for certain aquaculture uses on certain aquatic species. Others have an exemption from this approval process when used under certain specified conditions. Still others are not approved for use in aquaculture, but are considered to be of “low regulatory priority” by the FDA (hereafter “LRP drug”). The FDA is unlikely to take regulatory action related to the use of a LRP drug if an appropriate grade of the chemical or drug is used, good management practices are followed, and local environmental requirements are met (including NPDES permit requirements). Finally, some drugs and chemicals may be used for purposes, or in a manner not listed on their label (i.e., “extra-label” use) under the direction of licensed veterinarians for the treatment of specific fish diseases diagnosed by fish pathologists. It is assumed that veterinarian-prescribed aquaculture drugs are used only for *short periods of duration* during acute disease outbreaks. Each of these methods of obtaining and using aquaculture drugs is discussed in further detail below.

It is the responsibility of those using, prescribing, or recommending the use of these products to know which aquaculture drugs and chemicals may be used in CAAP facilities in the Region under all applicable federal, State, and local regulations and which aquaculture drugs and chemicals may be discharged to waters of the United States and waters of the State in accordance

with this permit. A summary of regulatory authorities related to aquaculture drugs and chemicals is outlined below.

Summary of Regulatory Authorities

The FDA is responsible for ensuring the safety, wholesomeness, and proper labeling of food products; ensuring the safety and effectiveness of both human and animal drugs; and ensuring compliance with existing laws governing these drugs. The Federal Food, Drug, and Cosmetic Act (FFDCA), the basic food and drug law of the United States, includes provisions for regulating the manufacture, distribution, and the use of, among other things, new animal drugs and animal feed. The FDA's enforcement activities include correction and prevention of violations, removing illegal products or goods from the market, and punishing offenders. Part of this enforcement includes testing domestic and imported aquacultural products for drug and pesticide residues.

The FDA's Center for Veterinary Medicine (CVM) regulates the manufacture, distribution, and use of animal drugs. CVM is responsible for ensuring that drugs used in food-producing animals are safe and effective and that food products derived from treated animals are free from potentially harmful residues. CVM approves the use of new animal drugs based on data provided by a sponsor (usually a drug company). To be approved by CVM, an animal drug must be effective (for the claim on the label) and safe when used as directed for (1) treated animals; (2) persons administering the treatment; (3) the environment, including non-target organisms; and (4) consumers. CVM establishes tolerances and animal withdrawal periods as needed for all drugs approved for use in food-producing animals. CVM has the authority to grant INAD exemptions so that data can be generated to support the approval of a new animal drug.

There are several options for CAAP facilities to legally obtain and use aquaculture drugs. Aquaculture drugs and chemicals can be divided into four categories as outlined below: approved drugs, investigational drugs, unapproved drugs of low regulatory priority, and extra-label use drugs.

FDA approved new animal drugs

Approved new animal drugs have been screened by the FDA to determine whether they cause significant adverse public health or environmental impacts when used in accordance with label instructions. Each aquaculture drug in this category is approved by the FDA for use on specific fish species, for specific disease conditions, for specific dosages, and with specific withdrawal times. Product withdrawal times must be observed to ensure that any product used on aquatic animals at a CAAP facility does not exceed legal tolerance levels in the animal tissue. Observance of the proper withdrawal time helps ensure that products reaching consumers are safe and wholesome.

FDA-approved new animal drugs that are added to aquaculture feed must be specifically approved for use in aquaculture feed. Drugs approved by the FDA for use in feed must be found safe and effective. Approved new animal drugs may be mixed in feed for uses and at levels that are specified in the FDA medicated-feed regulations only. It is unlawful to add drugs to feed unless the drugs are approved for feed use. For example, producers may not top-dress feed with

a water-soluble, over-the-counter antibiotic product. Some medicated feeds, such as Romet-30®, may be manufactured only after the FDA has approved a medicated-feed application (FDA Form 1900) submitted by the feed manufacturer.

FDA Investigational New Animal Drugs (INAD)

Aquaculture drugs in this category can only be used under an investigational new animal drug or “INAD” exemption. INAD exemptions are granted by the FDA CVM to permit the purchase, shipment and use of an unapproved new animal drug for investigational purposes. INAD exemptions are granted by the FDA CVM with the expectation that meaningful data will be generated to support the approval of a new animal drug by the FDA in the future. Numerous FDA requirements must be met for the establishment and maintenance of aquaculture INADs.

There are two types of INADs: standard and compassionate. Aquaculture INADs, most of which are compassionate, consist of two types: routine and emergency. A compassionate INAD exemption is used in cases in which the aquatic animal’s health is of primary concern. In certain situations, producers can use unapproved drugs for clinical investigations (under a compassionate INAD exemption) subject to the FDA approval. In these cases, CAAP facilities are used to conduct closely monitored clinical field trials. The FDA reviews test protocols, authorizes specific conditions of use, and closely monitors any drug use under an INAD exemption. An application to renew an INAD exemption is required each year. Data recording and reporting are required under the INAD exemption in order to support the approval of a new animal drug or an extension of approval for new uses of the drug.

FDA Unapproved new animal drugs of low regulatory priority (LRP drugs)

LRP drugs do not require a NADA or INAD exemptions from the FDA. Further regulatory action is unlikely to be taken by the FDA on LRP drugs as long as an appropriate grade of the drug or chemical is used, good management practices are followed, and local environmental requirements are met (such as NPDES permit requirements contained in this Permit). The FDA is unlikely to object at present to the use of these LRP drugs if the following conditions are met:

1. The aquaculture drugs are used for the prescribed indications, including species and life stages where specified.
2. The aquaculture drugs are used at the prescribed dosages (as listed above).
3. The aquaculture drugs are used according to good management practices.
4. The product is of an appropriate grade for use in food animals.
5. An adverse effect on the environment is unlikely.

The FDA’s enforcement position on the use of these substances should be considered neither an approval nor an affirmation of their safety and effectiveness. Based on information available in the future, the FDA may take a different position on their use. In addition, the FDA notes that classification of substances as new animal drugs of LRP does not exempt CAAP facilities from complying with all other federal, state and local environmental requirements, including compliance with this Permit

Extra-label use of an approved new animal drug

Extra-label drug use is the actual or intended use of an approved new animal drug in a manner that is not in accordance with the approved label directions. This includes, but is not limited to, use on species or for indications not listed on the label. Only a licensed veterinarian may prescribe extra-label drugs under the FDA CVM's extra-label drug use policy. CVM's extra-label use drug policy (CVM Compliance Policy Guide 7125.06) states that licensed veterinarians may consider extra-label drug use in treating food-producing animals if the health of the animals is immediately threatened and if further suffering or death would result from failure to treat the affected animals. CVM's extra-label drug use policy does not allow the use of drugs to prevent diseases (prophylactic use), improve growth rates, or enhance reproduction or fertility. Spawning hormones cannot be used under the extra-label policy. In addition, the veterinarian assumes the responsibility for drug safety and efficacy and for potential residues in the aquatic animals.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations; and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR §122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established. Three options exist to protect water quality: 1) 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a); 2) proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information may be used; or 3) an indicator parameter may be established.

The Facility is a CAAP facility that produces catchable fish, trout eggs, and fingerlings for air planting. The Facility consists of hatcheries, spawning houses, brood stock holding ponds, nursery tanks, and production raceways. The Facility operations involve addition of various chemicals to the water. The Facility operations generate wastes that typically include unused food, fish excrement, remnants of the chemicals added and the products formed from the added chemical. Typical pollutants present in these waste streams may include solids and organic/inorganic compounds. Solids are commonly present in wastewater of hatcheries. Therefore, TSS and settleable solids are pollutants of concern. Unused food and fish excrement may contribute to nitrogen and phosphate in the waste stream. Consequently, nitrate, total nitrogen, and phosphates are pollutants of concern. In addition, pH is a pollutant of concern because the discharge of hatchery wastewater also has the potential to affect the pH of the receiving water body. When the previous permit was issued in 1999, pH, TSS, and settleable solids were considered pollutants of concern and were regulated in the previous permit. The Facility operation has not changed significantly since the previous permit was issued. Therefore, these pollutants are also considered pollutants of concern for the proposed permit.

Fish raised in CAAP facilities may become vulnerable to disease and parasite infestations. Various aquaculture drugs and chemicals are used periodically at CAAP facilities to ensure the health and productivity of the confined fish population, as well as to maintain production efficiency.

Aquaculture drugs and chemicals are used to clean raceways and to treat fish for parasites, fungal growths and bacterial infections. Aquaculture drugs and chemicals are sometimes used to anesthetize fish prior to spawning or “tagging” processes. As a result of these operations and practices, drugs and chemicals may be present in discharges to waters of the United States or waters of the State. Attachment I shows the list of aquaculture drugs and chemicals that may potentially be used at CAAP facilities. Depending on the type of chemicals used at the Facility, the waste stream may include metals, total dissolved solids, and organic/inorganic compounds. The Facility uses formalin, copper sulfate, oxytetracycline (OTC), potassium permanganate, and sodium chloride for its operation. Consequently, formaldehyde, copper, sulfate, oxytetracycline, potassium permanganate, sodium, chloride, and total dissolved solids are considered pollutants of concern. In addition, the Facility can potentially use other chemicals listed in Attachment I, and as a result, the chemicals listed in Attachment I are also considered pollutants of concern.

Generally, mass-based effluent limitations ensure that proper treatment, and not dilution, is employed to comply with the final effluent concentration limitations. 40 CFR §122.45(f)(1) requires that all permit limitations, standards or prohibitions be expressed in terms of mass units except under the following conditions:

- a. for pH, temperature, radiation or other pollutants that cannot appropriately be expressed by mass limitations;
- b. when applicable standards or limitations are expressed in terms of other units of measure; or
- c. if in establishing technology-based permit limitations on a case-by-case basis limitations based on mass are infeasible because the mass or pollutant cannot be related to a measure of production. The limitations, however, must ensure that dilution will not be used as a substitute for treatment.

The limitations in the previous Order, the CTR criteria, and the water quality objectives (WQOs) in the Basin Plan are expressed in concentration units. Because the final limitations in this Order are based on the limitations in the previous Order, the CTR criteria, and the WQOs in Basin Plan, mass-based effluent limits are not included in the proposed Order. Instead, concentration limitations for pollutants and flow limitations through each discharge point are included in the proposed permit.

The previous permit has identical effluent concentration limitations for Discharge Points 001, 002, 003, and 004. The operations at raceways and hatcheries generate similar type of waste, which discharge to the same receiving water. An analysis of the effluent data submitted by the Discharger shows that the characteristics of the wastewater discharged through the four discharge points are almost similar. Because of the above reasons the Regional Water Board has determined that Discharge Points 001, 002, 003, and 004 will have identical effluent concentration limitations in the proposed permit.

A. Discharge Prohibitions

Discharge prohibitions included in this Order are based upon waste discharge prohibitions contained in the Basin Plan, and discharge prohibitions as specified from the CWC. Prohibitions on introduction of discharges of any aquaculture drug or chemical not already considered by this Order,

or in a manner other than specified in this Order, are necessary to protect the beneficial uses of the receiving waters and to meet water quality objectives from the Basin Plan.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology currently available (BPT) is based on the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and nonconventional pollutants.
- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and nonconventional pollutants.
- Best conventional pollutant control technology (BCT) is a standard for the control from existing industrial point sources of conventional pollutants including BOD, TSS, pH, and oil and grease. The BCT standard is established after considering a two-part “cost reasonableness” test.
- New source performance standards (NSPS) that represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent the best and most efficient production processes and wastewater treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BCT, BAT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR §125.3 of the NPDES regulations authorize the use of BPJ to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR §125.3.

A cold-water CAAP facility is defined in 40 CFR §122.24 as a fish hatchery, fish farm, or other facility that contains, grows, or holds cold-water fish species or other cold water aquatic animals including, but not limited to, the Salmonidae family of fish (e.g. trout and salmon) in ponds, raceways, or other similar structures. In addition, the facility must discharge at least 30 calendar days per year, produce at least 20,000 pounds (9,090 kilograms) harvest weight of aquatic animals per year, and feed at least 5,000 pounds (2,272 kilograms) of food during the calendar month of maximum feeding. A facility that does not meet the above criteria may also be designated a cold-water CAAP facility upon a determination that the facility is a significant contributor of pollution to waters of the United States [40 CFR §122.24(c)]. Cold-water, flow-through CAAP facilities are designed to allow the continuous flow of fresh water through tanks and raceways used to produce aquatic

animals (typically cold-water fish species). Flows from CAAP facilities ultimately are discharged to waters of the United States and of the State. 40 CFR §122.24 specifies that CAAP facilities are point sources subject to the NPDES program. The Discharger’s facility meets the NPDES definition of a cold-water, flow-through CAAP.

On August 23, 2004 USEPA published the final Effluent Limitation Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category (hereafter “CAAP ELG”). The final CAAP ELG, available in 40 CFR Part 451, became effective on September 22, 2004. The final CAAP ELG regulation establishes national technology-based effluent discharge requirements for flow-through and recirculating systems and for net pens based on BPT, BCT, BAT and NSPS. In its proposed rule, published on September 12, 2002, USEPA proposed to establish numeric limitations for a single constituent – TSS – while controlling the discharge of other constituents through narrative requirements. In the final rule, however, USEPA determined that, for a nationally applicable regulation, it would be more appropriate to promulgate qualitative TSS limitations in the form of solids control BMP requirements. Furthermore, the final CAAP ELG does not include numeric effluent limitations for non-conventional and toxic constituents, such as aquaculture drugs and chemicals, but also relies on narrative limitations to address these constituents. The final CAAP ELG applies to CAAP facilities that produce, hold or contain 100,000 pounds or more of aquatic animals per year (any 12 month period). The Discharger’s facility is therefore subject to CAAP ELG requirements.

2. Applicable Technology-Based Effluent Limitations

USEPA’s final ELG for the aquaculture industry does not include numeric effluent limitations on any conventional, non-conventional, or toxic constituents. The proposed permit includes technology-based effluent limitations based on BPJ in accordance with 40 CFR §125.3. As discussed earlier, pH, TSS, and settleable solids are pollutants of concern for this type of discharge and the previous Order (Order No. 6-99-55) includes effluent limitations for Discharge Points 001, 002, 003, and 004 for these pollutants as shown below:

**Effluent Limitations For Discharge Points 001, 002, 003 and 004
Order No. 6-99-55.**

Parameter	Units	Quarterly Average Limitation	Instantaneous Maximum Limitation
Settleable Solids	ml/L	0.1	--
Total Suspended Solids (TSS)	mg/L	5.0	15.0

Section 402(o) of the CWA and 40 CFR §122.44(l) require that effluent limitations or conditions in reissued Orders be at least as stringent as those in the previous Orders. Based on BPJ, effluent limitations pH, TSS, and settleable solids in the proposed Order are carried over from the previous Order. Removal of these numeric limitations would constitute backsliding under CWA Section 402(o). The Regional Water Board has determined that

these numeric effluent limitations continue to be applicable to the Facility and that backsliding is not appropriate.

The board also determined that clarification of the earlier limit for TSS is needed. When establishing the limit in previous permits, the Board stated that the hatchery discharge shall not contain concentrations of TSS greater than the effluent limit. Additionally, background water quality is described as generally of excellent quality and background concentrations of TSS were not considered to be significantly above detection limits. This assumption may not always be correct, and the board is clarifying in this permit that the limit was intended to be 5 mg/L above background (quarterly average), and is measured as net over levels in the influent. Clarifying that the effluent limit is to 5 mg/L (quarterly average) net over levels in the influent is not considered to be backsliding because it is simply a clarification of what was intended under previous facility permits.

In this Order, the Regional Water Board is replacing all quarterly average effluent limitations with average monthly effluent limitations (AMEL). Monthly averages are a more common averaging period for limitations and an averaging period consistent with federal NPDES regulatory requirements at 40 CFR §122.45(d). Statistical procedures from TSD establish the relationship between an AMEL and a maximum daily effluent limitation (MDEL). The Regional Water Board has modified these statistical procedures to establish the relationship between the previous quarterly average effluent limitation and an equivalent AMEL. The ratio between these two limitations may be expressed as:

$$\frac{\text{monthly limitation}}{\text{quarterly limitation}} = \frac{\exp [z_m \sigma_{nm} - 0.5 \sigma_{nm}^2]}{\exp [z_q \sigma_{nq} - 0.5 \sigma_{nq}^2]}$$

where:

$$\sigma_{nm}^2 = \ln([CV^2/nm] + 1)$$

$$\sigma_{nq}^2 = \ln([CV^2/nq] + 1)$$

nm = number of samples for monthly average

nq = number of samples for quarterly average

CV = the coefficient of variation of the effluent (default CV = 0.6)

z = z statistic

z_m = z_q = z₉₅

= 1.645 (95th percentile occurrence probability for both monthly and quarterly limitations)

In order to determine this ratio, the Regional Water Board assumed the following:

- *CV = 0.6*
based on USEPA's recommended default assumptions
- *nm = 4 for the AMEL*
based on default assumptions of TSD statistical approach regardless of actual monitoring frequency

- *nq = 12 for a quarterly average effluent limitation*
assuming n = 4 for each of three months in a calendar quarter
- *z percentile probability = 95th percentile for both monthly and quarterly limitations*
monthly probability basis based on TSD recommendation
quarterly probability basis assumed to be the same as the monthly probability basis

Based on these assumptions and using the equation above, the ratio between the AMEL and the quarterly average effluent limitation is:

$$\frac{\text{monthly limitation}}{\text{quarterly limitation}} = 1.19$$

Using TSS as an example, the following calculation demonstrates how AMEL were determined:

$$\text{AMEL for TSS} = 5.0 \text{ mg/L (quarterly limitation)} \times 1.19 = 6.0 \text{ mg/L}$$

The calculated AMEL are summarized below:

Parameter	Units	Average Monthly Limitation	Instantaneous Maximum Limitation
Settleable Solids	ml/L	0.1	--
Total Suspended Solids (TSS) ^a	mg/L	6.0	15.0

The Regional Water Board has determined that a change from the previous quarterly average effluent limitations to AMELs to be appropriate and reasonable. The conversion of the previous quarterly average effluent limitations to the calculated average monthly effluent limitations for TSS and settleable solids does not constitute backsliding because these limitations are statistically equivalent.

The previous Order contained effluent limitations for pH, requiring the discharge to have a pH of not less than 6.0 pH units nor greater than 9.0 pH units. Removal of these numeric limitations for pH would constitute backsliding under CWA Section 402(o). The Regional Water Board has determined that the numeric effluent limitation for pH continues to be applicable to the Facility and that backsliding is not appropriate, therefore, the pH limitations from the previous Order are being carried over to this Order.

^a Limit is mg/L net over levels in influent

**Summary of Technology-Based Effluent Limitations
Discharge Points 001, 002, 003, and 004**

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
PH	standard units	--	--	6.0	9.0
Settleable Solids	ml/L	0.1	--	--	--
Total Suspended Solids (TSS)	mg/L ^a	6.0	--	--	15.0

^a Limit is mg/L net over levels in influent.

C. Water Quality-based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in 40 CFR §122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water, as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other State plans and policies, or water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

As described in Section III.C.1 of this Fact Sheet, existing beneficial uses of Hot Creek include municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND), ground water recharge (GWR), contact water recreation (REC-1), non-contact water recreation (REC-2), commercial and sport fishing (COMM), and aquaculture (AQUA), cold freshwater habitat (COLD), wildlife habitat (WILD), preservation or rare, threatened or endangered species (RARE), migration of aquatic organisms (MIGR), spawning, reproduction, and development (SPWN).

WQOs that apply to all surface waters within the Lahontan Region are described in Pages 3-3 through 3-7 of the Basin Plan. These WQOs have been incorporated in to the Order as Receiving Water Limitations V.A.1 through V.A.19. WQOs that apply to all ground waters within the Lahontan Region are described in Pages 3-12 through 3-13 of the Basin Plan. These WQOs applicable to the Owens Valley Ground Water Basin have been incorporated in to the Order as Receiving Water Limitations V.B.1 through V.B.4.

In addition, the Basin Plan contains WQOs for surface waters that apply specifically to Hot Creek (at County Road) in the Owens Hydrologic Unit (Table 3-17 of basin Plan) as shown below:

Constituent	Annual Average ^a	90 th Percentile ^b
Boron	1.8	2.6
Chloride	41	60
Fluoride	1.8	2.8
Nitrate (as N)	0.2	0.4
Orthophosphate, Dissolved	0.65	1.22
Sulfate	24	35
Total Dissolved Solids (TDS)	275	380
Total Nitrogen (as N)	0.3	1.5

^a Arithmetic mean of all data collected in a one-year period

^b Only 10 percent of data exceed this value

3. Determining the Need for WQBELs

CTR Constituents

In accordance with Section 1.3 of the SIP, the Regional Water Board conducted a reasonable potential analysis (RPA) for each priority pollutant with an applicable criterion or objective to determine if a WQBEL is required in this Order. The Regional Water Board analyzed effluent and receiving water data to determine if a pollutant in a discharge has the reasonable potential to cause or contribute to an excursion above a state water quality standard. For all parameters that have the reasonable potential to cause or contribute to an excursion above a water quality standard, numeric WQBELs are required. The RPA considers criteria from the CTR, NTR, and water quality objectives specified in the Basin Plan. To conduct the RPA, the Regional Water Board identified the maximum observed effluent concentration (MEC) and maximum background concentration (B) in the receiving water for each constituent, based on data provided by the Discharger.

Section 1.3 of the SIP provides the procedures for determining reasonable potential to exceed applicable water quality criteria and objectives. The SIP specifies three triggers to complete a RPA:

- 1) Trigger 1 – If the MEC is greater than or equal to the CTR water quality criteria or applicable objective (C), a limit is needed.
- 2) Trigger 2 – If background water quality (B) > C and pollutant is detected in effluent, a limitation is needed.
- 3) Trigger 3 – If other related information such as CWA 303(d) listing for a pollutant, discharge type, compliance history, etc. indicates that a WQBEL is required.

Sufficient effluent and ambient data are needed to conduct a complete RPA. If data are not sufficient, the Discharger is required to gather the appropriate data for the Regional Water Board to conduct the RPA. Upon review of the data, and if the Regional Water Board determines that WQBELs are needed to protect the beneficial uses, the permit will be reopened for appropriate modification.

The RPA was performed for the priority pollutants for which effluent data were available. The Discharger collected Facility effluent samples on May 26, 2004 for priority pollutant analysis. The Discharger also performed additional effluent sampling for dioxins on May 26, 2004, and on September 16, 2004. These data were used for the RPA shown in Attachment H. The RPA for the priority pollutants did not demonstrate reasonable potential to exceed applicable water quality criteria based on this single sampling event. However, as discussed below, the Regional Water Board has determined using Trigger 3 as described above, that a WQBEL for copper is needed at Discharge Points 001, 002, 003, and 004.

Copper

A potential source of copper discharge (copper is identified as a priority pollutant in the NTR and CTR) at fish hatcheries is from the use of copper sulfate and chelated copper compounds, which are used to control algae and other vegetation that is susceptible to the toxic effects of copper uptake, as well as to control the growth of external parasites and bacteria on fish. Based on information of copper sulfate use at the Facility and current flow data, the resulting estimated concentration of copper in the discharge following copper sulfate use indicates that there is a reasonable potential that copper may be discharged at a concentration that would cause, have the reasonable potential to cause, or contribute to an excursion above the CTR criteria for copper in the receiving water.

The following information and calculations were used to determine the estimated effluent copper concentration at Discharge Points 001 and 002. The calculations assume that the flow from the raceways mixes completely with the volume of water in the settling basin and is discharged with no further concentration, breakdown, or dilution of copper sulfate. Separate calculations were performed for maximum, average, and minimum flows through Discharge Points 001 and 002, shown in Section II.B of this Fact Sheet. The calculation showed that the maximum effluent concentration of the pollutant occurs at the discharge points when the flow is minimum. The calculations corresponding to the minimum flow is presented below.

Copper sulfate usage:

Copper sulfate has been used at the Facility with applications of up to 2 pounds (32 ounces) per raceway.

Flow and volume estimates:

Wastewater from the 4 raceways passes through two settling ponds and ultimately discharges through Discharge Points 001 and 002. The minimum flow discharged through Discharge Point 001 and Discharge Point 002 is 3.2 MGD.

$$\begin{aligned} \text{Total flow through raceways} &= 3.2 \text{ MGD} + 3.2 \text{ MGD} \\ &= 6.4 \text{ MGD} \end{aligned}$$

$$\begin{aligned} \text{Number of raceways} &= 4 \\ \text{Flow per raceway} &= 6.4/4 = 1.6 \text{ MGD} = 2.5 \text{ cubic feet per second (cfs)} \end{aligned}$$

$$\begin{aligned} \text{Number of settling ponds} &= 2 \\ \text{Flow per settling pond} &= 6.4/2 = 3.2 \text{ MGD} \end{aligned}$$

The Discharger reported the following chemical retention times for a raceway and the settling ponds:

Process Unit	Chemical retention Time (minutes)
Each Raceway	35
Settling Pond 1	65
Settling Pond 2	58

Assuming the similar retention time for copper sulfate, the dilution volume of water is calculated as follows:

Dilution water volume in one raceway
 = 1.6 MGD x 10⁶ gallons/MGD x 35 minutes x 1/1440 minutes/day
 = 38,889 gallons.

Dilution water volume in 4 raceways = 4 x 38,889 gallons = 155,556 gallons

Dilution water volume in settling pond 1
 = 3.2 MGD x 10⁶ gallons/MGD x 65 minutes x 1/1440 minutes/day
 = 144,444 gallons.

Dilution water volume in settling pond 2
 = 3.2 MGD x 10⁶ gallons/MGD x 58 minutes x 1/1440 minutes/day
 = 128,889 gallons.

Total dilution water volume in 4 raceways + two settling ponds
 = 155,556 gallons + 144,444 gallons + 128,889 gallons
 = 428,889 gallons
 = 428,889 gallons x 3.78 liters/gallon
 = 1,621,200 liters

Estimate of copper sulfate and copper concentrations at Discharge Points 001 and 002:

The estimated final effluent concentration of copper sulfate pentahydrate (CuSO₄+5H₂O) is calculated using the following formula:

Final effluent concentration of CuSO₄+5H₂O in parts per million (ppm)
 = Total CuSO₄ applied (lbs) x 10⁶ ppm / (428,889 gallons water x 8.34 lbs/gallon)

The estimated final effluent concentration of copper is calculated from the following formula:

Final effluent concentration of copper in ppm is calculated from the following formula:

= Final effluent concentration of CuSO₄+5H₂O in ppm x conversion factor

Where:

Molecular weight (MW) of $\text{CuSO}_4+5\text{H}_2\text{O}$ = 249.68
MW of copper = 63.55
conversion factor = MW of copper/ MW of $\text{CuSO}_4+5\text{H}_2\text{O}$
= 0.25

Using the above formulae, the estimated $\text{CuSO}_4+5\text{H}_2\text{O}$ and copper concentrations are shown below.

Estimated Potential Concentrations of Copper – Discharge Points 001 and 002

Number of Raceways Treated with Copper Sulfate	Total Pounds of Copper Sulfate Pentahydrate Applied	Estimated Final Effluent Concentration		
		Copper Sulfate Pentahydrate (ppm)	Copper (ppm)	Copper (ppb)
1	2.0	0.56	0.14	142
4	8.0	2.2	0.57	569

The CTR includes Ambient Water Quality Criteria for the Protection of Aquatic Life for copper. The Criterion Maximum Concentration (CMC), a 1-hour average, and Criterion Continuous Concentration (CCC), a 4-day average, are hardness dependent. The criteria are expressed in terms of the dissolved fraction of the metal in the water column and are calculated from the total recoverable values by applying a conversion factor. The conversion factor for copper in the CTR is 0.96 for both acute (CMC) and chronic (CCC) criteria. The lowest hardness concentration of the effluent reported by the Discharger for Discharge Points 001, 002, 003, and 004 was 69 mg/L. Water quality criteria for copper for the protection of aquatic life, as established by the CTR are 6.8 and 9.9 $\mu\text{g/L}$ – chronic and acute criteria for total recoverable copper at 69 mg/L hardness. Based on information of previous application rates and flows, and the estimated effluent copper concentrations (ranging from 142 to 569 $\mu\text{g/L}$), the Regional Water Board finds that there is reasonable potential for copper to be present in the discharge at levels exceeding water quality criteria from CTR for the protection of aquatic life, and accordingly, is establishing the WQBELs for copper as described in Section IV.C.4 of this Fact Sheet.

The Facility currently does not add copper sulfate to the waters of Hatchery I and Hatchery II, but may potentially add the copper sulfate in the future to the waters of Hatchery I and Hatchery II that discharge through Discharge Points 003 and 004, respectively. Therefore, Discharge Points 003 and 004 should have effluent limitations for copper in the proposed permit. Because the operations at raceways and hatcheries generate similar type of waste and discharge wastewater to the same receiving water, the Regional Water Board has determined that Discharge Points 001, 002, 003, and 004 shall have identical effluent concentration limitations for copper in the proposed permit. Accordingly, this Order has established WQBELs for copper as described in the Section IV.C.4 of this Fact Sheet.

Non-CTR Constituents

Chemicals used at the Facility

Formaldehyde as Formalin

A 37 percent formaldehyde solution (formalin) is periodically used at hatcheries as a fungicide treatment on fish eggs and fish in the raceways. Formalin (also known by the trade names Formalin-F®, Paracide-F®, PARASITE-S®) is approved through FDA’s New Animal Drug Application (NADA) program for use in controlling external protozoa and monogenetic trematodes on fish, and for controlling fungi of the family Saprolegniaceae in food-producing aquatic species (including trout and salmon). For control of other fungi, formalin may be used under an Investigational New Animal Drug (INAD) exemption. Formalin can be used as a “drip” treatment to control fungus on fish eggs, or as a “flush” treatment in raceways

Formalin is used at the hatcheries and may potentially be used at the raceways in the future. A portion of the hatchery water is dosed with formalin in troughs and then mixed with the rest of the facility water. Typically, 850 mL of 37% formaldehyde solution is added per trough for 1 hour. Normally, 2-8 troughs are used for dosing each time.

The following information and calculations were used to determine the estimated effluent formaldehyde concentration of the hatchery wastewater at Discharge Point 004. The calculations assume that the complete mixing of the water occurs and the wastewater is discharged with no further concentration, breakdown, or dilution of formaldehyde. Separate calculations were performed for maximum, average, and minimum flows through Discharge Points 004, shown in Section II.B of this Fact Sheet. The calculation showed that the maximum effluent concentration of the pollutant occurs at the discharge point when the flow is minimum. The calculations corresponding to the minimum flow is presented below.

Formalin usage:

Formalin is primarily used in Hatchery 1 and Hatchery II. The data submitted by the facility shows that a maximum dose of 14,450 mL of 37% formalin is used at Hatchery II.

Flow and volume estimates:

Wastewater from the Hatchery II is discharged through Discharge Points 004. A minimum flow of 1.4 MGD is discharged through each of Discharge Point 004.

Estimate of formaldehyde concentrations at Discharge Points 004:

Maximum formalin used = 14,450 mL

$$\begin{aligned} \text{Therefore, no. of troughs used} &= 14,450 \text{ mL} / 850 \text{ mL} \\ &= 17 \text{ troughs} \end{aligned}$$

Because a maximum of 8 troughs are dosed each time, three dosing sequences are performed.

$$\begin{aligned} \text{Therefore, the maximum amount of formalin applied in each dosing sequence of 1 hour} &= 8 \text{ troughs} \times 850 \text{ mL} \\ &= 6,800 \text{ mL/hr} \end{aligned}$$

Formalin contains 37% formaldehyde solution.

$$\begin{aligned} \text{Total mass of formaldehyde applied in milligrams} &= (6,800 \text{ mL/hr}) \times (\text{density in mg/mL}) \times 37\% \end{aligned}$$

$$\text{density} = 1,000 \text{ mg/mL}$$

$$\begin{aligned} \text{Estimated final effluent concentration of formaldehyde (in mg/L)} &= \text{Total mass of formaldehyde applied in milligrams} / [(\text{flow in MGD}) \times \\ & (10^6 \text{ gallons/MG}) \times (3.78 \text{ liters/gallon}) \times (\text{treatment time in hr}/24 \text{ hr/day})] \end{aligned}$$

Max formalin usage (mL/hr)	Total Mass of HCHO Applied (mg)	Treatment Time (Hours)	Flow (MGD)	Flow in 1 hour (Liter)	Estimated Final Effluent HCHO Concentration (mg/L)
6,800	2,516,000	1	1.4	220,500	11

USEPA and the State of California Department of Health Services (DHS) does not have a Maximum Containment Level (MCL) for formaldehyde, however the DHS Drinking Water Action Level is listed as 0.1 mg/L. The USEPA Integrated Risk Information System (IRIS) lists a reference dose of 1.4 mg/L as a drinking water level. The National Academy of Sciences’ Suggested No-Adverse-Response Level (SNARL) for formaldehyde is 1.0 mg/L as a drinking water health advisory level.

While there are no recommended criteria for formaldehyde for protection of aquatic life, the Basin Plan contains a narrative water quality objective for toxicity that states in part that “[a]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life” (narrative toxicity objective). Aquatic habitat is a beneficial use of the Hot Creek. The California Department of Fish and Game (DFG) Pesticide Unit conducted biotoxicity studies to determine the aquatic toxicity of formalin using *Pimephales promelas* and *Ceriodaphnia dubia* in accordance with the analytical methods specified in EPA600/4-91-002, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*. These “short-term chronic tests” measure

effects such as reduced growth of the organism, reduced reproduction rates, or lethality. Results were reported as a No Observed Effect Concentration (NOEC) and a Lowest Observed Effect Concentration (LOEC). The DFG Pesticide Unit also conducted acute toxicity tests using *Ceriodaphnia dubia* in accordance with methods specified in EPA600/4-90/027, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*. Acute toxicity test results typically are reported as the No Observed Adverse Effect Level (NOAEL), Lowest Observed Adverse Effect Level (LOAEL), and LC₅₀.

Results of chronic toxicity tests submitted by the DFG Pesticide Unit indicated *C. dubia* was the most sensitive species with a 7-day No Observable Effect Concentration (NOEC) value of 1.3 mg/L formaldehyde for survival and reproduction. Acute toxicity tests with *C. dubia* showed a 96-hour NOAEL of 1.3 mg/L. A summary of the data submitted follows:

Species	7-day LC ₅₀ (mg/L)	LOEC (mg/L)	NOEC (mg/L)	LOAEL (mg/L)	NOAEL (mg/L)
<i>Ceriodaphnia dubia</i>	2.4	5.8 ^a 1.3 ^b	1.3 ^a <1.3 ^b	5.8	1.3
<i>Pimephales promelas</i>	23.3	9.09	2.28	--	--
<i>Selenastrum capricornutum</i>	<5.2	--	--	--	--

^a Survival

^b Reproduction

Short-term tests were conducted with *C. dubia*, exposing the organisms for 2-hour and 8-hour periods, removing them from the chemical, and continuing the observation period for 7 days in clean water. The results were as follows:

Species	7-day LC ₅₀ (mg/L)	LOAEL (mg/L)	NOAEL (mg/L)
<i>C. dubia</i> —2-hour exposure	73.65	46.3	20.7
<i>C. dubia</i> —8-hour exposure	13.99	15.3	6.7

Results of both acute and chronic aquatic life toxicity testing conducted by the DFG Pesticide Unit were considered along with the Basin Plan narrative toxicity objective when determining whether WQBELs for formalin as formaldehyde were necessary. Results of 7-day chronic toxicity tests indicated *Ceriodaphnia dubia* was the most sensitive species, with a 7-day NOEC value of 1.3 mg/l formaldehyde for survival and < 1.3 mg/l for reproduction (the Regional Water Board used an NOEC of 1.3 mg/L). Acute toxicity tests conducted using *Ceriodaphnia dubia* showed a 96-hour NOAEL of 1.3 mg/l formaldehyde.

The additional acute toxicity tests with *Ceriodaphnia dubia* conducted using only an 8-hour exposure, resulted in a 96-hour NOAEL concentration of 6.7 mg/L formaldehyde. Based on the results of these toxicity tests and estimates of potential discharges of formaldehyde from the Facility (ranging from 5.1 to 20 mg/L), if formalin is used at this

Facility in the future at the estimated dose rates, formaldehyde may be discharged at levels that cause, have the reasonable potential to cause, or contribute to an excursion of the narrative water quality objective for toxicity from the Basin Plan, as well as exceed the DHS Drinking Water Action Level, IRIS, and SNARL levels for formaldehyde.

Accordingly, this Order is establishing WQBELs for formaldehyde as described in the Section IV.C.4 of this Fact Sheet.

The Facility adds formalin to the waters of Hatchery I that discharge through Discharge Point 001. Also, the Facility may potentially add formalin in the future to the waters of the raceways that discharge through Discharge Points 001 and 002. Therefore, Discharge Points 001, 002, and 004 should have effluent limitations for formalin in the proposed permit. Because the operations at raceways and hatcheries generate similar type of waste and discharge wastewater to the same receiving water, the Regional Water Board has determined that Discharge Points 001, 002, 003, and 004 shall have identical effluent concentration limitations for formaldehyde in the proposed permit. Accordingly, this Order has established WQBELs for formaldehyde as described in the Section IV.C.4 of this Fact Sheet.

Potassium Permanganate

Potassium permanganate (also known by the trade name of Cairox™) is sometimes used at the Facility to control gill disease. Potassium permanganate has a low estimated lifetime in the environment, being readily converted by oxidizable materials to insoluble manganese dioxide (MnO₂). In non-reducing and non-acidic environments, MnO₂ is insoluble and has a very low bioaccumulative potential. Results of a single acute toxicity test conducted by the California Department of Fish and Game (DFG) Pesticide Investigation Unit using *C. dubia* showed a 96-hour NOAEL of 0.25 mg/L for potassium permanganate.

The following information and calculations were used to determine the estimated effluent potassium permanganate concentration at Discharge Points 001 and 002. The calculations assume the flow from the raceways mixes completely with the volume of water in the settling basin and is discharged with no further concentration, breakdown, or dilution of potassium permanganate. Separate calculations were performed for maximum, average, and minimum flows through Discharge Points 001 and 002, shown in Section II.B of this Fact Sheet. The calculation showed that the maximum effluent concentration of the pollutant occurs at the discharge points when the flow is minimum. The calculations corresponding to the minimum flow is presented below.

Potassium permanganate usage

Potassium permanganate has been used at the Facility with applications of up to 6.3 pounds (100 ounces) per raceway.

Flow and volume estimates:

Flow and volume estimates remain the same as for those used for estimating effluent copper concentrations, with a minimum flow of 2.5 cfs per raceway and a total dilution volume (4 raceways + 2 settling pond) of 428,889 gallons.

Estimate of potassium permanganate concentrations at Discharge Points 001 and 002:

Estimated final effluent concentration of potassium permanganate (KMnO₄) (in ppm)
= Total KMnO₄ applied (lbs) x 1,000,000 / (428,889 gallons water x 8.34 lbs/gallon)

Estimated Potential Effluent Concentrations of Potassium Permanganate in Discharge Points 001 and 002:

Number of Raceways Treated with Potassium Permanganate	Estimated Final Effluent Potassium Permanganate Concentration (ppm)
1	1.8
4	7.0

As shown above, the estimated effluent potassium permanganate concentrations at Discharge Points 001 and 002 ranged from 1.8 to 7.0 mg/L. However, actual concentrations are likely to be lower as the calculations assumed no breakdown of potassium permanganate. Based on available toxicity testing data and estimates of the potential effluent concentration, potassium permanganate has the reasonable potential to cause or contribute to an excursion of the narrative water quality objective for toxicity from the Basin Plan.

The Facility reported that it added potassium permanganate to Hatchery I and Hatchery II water for five days between January 2000 and December 2004. The Facility may potentially add potassium permanganate in the future to the waters of Hatchery I and Hatchery II that discharge through Discharge Points 003 and 004. Therefore, Discharge Points 003 and 004 should have effluent limitations for potassium permanganate in the proposed permit. Because the operations at raceways and hatcheries generate similar type of waste and discharge wastewater to the same receiving water, the Regional Water Board has determined that Discharge Points 001, 002, 003, and 004 shall have identical effluent concentration limitations for potassium permanganate in the proposed permit. Accordingly, this Order has established WQBELs for potassium permanganate as described in the Section IV.C.4 of this Fact Sheet.

In addition, toxicity testing data for potassium permanganate and manganese dioxide must be submitted within 12 months of adoption of this Order as specified in Section VI.C.2.b of this Order. The Regional Water Board will review this information, and other information as it becomes available and this Order may be reopened to revise effluent limitations based on additional use and toxicity information.

Sodium Chloride

Sodium chloride (salt) is used at the Facility as a fish-cleansing agent to control the spread of fish disease and to reduce stress among the confined fish population. The FDA considers sodium chloride an unapproved new animal drug of low regulatory priority (LRP drug) for use in aquaculture. Consequently, the FDA is unlikely to take regulatory action if an appropriate grade is used, good management practices are followed, and local environmental requirements are met.

Introduction of sodium chloride in water increases the concentrations of sodium, chloride and dissolved solids. There are no numeric water quality objectives for sodium in the NTR, CTR, or Basin Plan for Hot Creek. Table 3-17 in the Basin Plan contains numeric Water Quality Objectives (WQO) for TDS and chloride for Hot Creek downstream of the Hot Creek Fish Hatchery at County Road. The Basin Plan criterion for TDS is 275 mg/L as an annual average and 380 mg/L as a 90th percentile objective, and for chloride is 41 mg/L as an annual average and 60 mg/L as a 90th percentile objective. Effluent limitations based on the Basin Plan criteria are discussed in Section IV.C.4. Establishing effluent limitations for TDS and chloride will effectively control discharge of sodium chloride from the Facility.

Reporting of sodium chloride usage will be continued. Because dissolved ions in water increase conductivity, monitoring of electrical conductivity is required during sodium chloride use as specified in the Monitoring and Reporting Program (Attachment E).

Oxytetracycline

Oxytetracycline, also known by the brand name Terramycin®, is an antibiotic approved through the FDA's NADA program for use in controlling ulcer disease, furunculosis, bacterial hemorrhagic septicemia, and pseudomonas disease in Salmonids. Oxytetracycline is most commonly used at CAAP facilities as a feed additive. However, oxytetracycline may periodically be used as therapeutic agents in bath treatments to control fish diseases. Oxytetracycline's extra-label use under a veterinarian's prescription in an immersion bath is of approximately six to eight hours in duration. Results of acute toxicity tests conducted by the DFG Pesticide Investigation Unit using *C. dubia* showed a 96-hour NOAEL of 40.4 mg/L. Results of chronic toxicity tests using *C. dubia* showed a 7-day NOEC for reproduction of 48 mg/L.

The following information and calculations were used to determine the estimated effluent oxytetracycline concentration from flush treatments at Discharge Points 001 and 002. The calculations assume the flow from the raceways mixes completely with the volume of water in the settling basin and is discharged with no further concentration, breakdown, or dilution of oxytetracycline. Separate calculations were performed for maximum, average, and minimum flows through Discharge Points 001 and 002, shown in Section II.B of this Fact Sheet. The calculation showed that the maximum effluent concentration of the pollutant occurs at the discharge points when the flow is minimum. The calculations corresponding to the minimum flow is presented below.

Oxytetracycline usage

The facility applies up to 138 gms/raceway of oxytetracycline with the fish feed.

Flow and volume estimates:

Flow and volume estimates remain the same as those used for estimating effluent copper concentrations, with a minimum flow of 2.5 cfs per raceway and a total dilution volume (4 raceways + 2 settling pond) of 428,889 gallons.

Estimate of oxytetracycline concentrations at Discharge Points 001 and 002:

Estimated final effluent concentration of oxytetracycline (in ppm)
= Total oxytetracycline applied (gms) x 1,000 / (428,889 gallons water x 8.34 lbs/gallon)

Estimated Potential Effluent Concentrations of oxytetracycline in Discharge Points 001 and 002:

Number of Raceways Treated with Potassium Permanganate	Estimated Final Effluent Potassium Permanganate Concentration (ppm)
1	0.085
4	0.34

As shown above, the estimated effluent oxytetracycline concentrations at Discharge Points 001 and 002 ranged from 0.085 to 0.34 mg/L. However, actual concentrations are likely to be lower as the calculations assumed no breakdown of oxytetracycline. Based on available toxicity testing data and estimates of the potential effluent concentration, oxytetracycline does not have the reasonable potential to cause, or contribute to an excursion of the narrative water quality objective for toxicity from the Basin Plan.

In addition, oxytetracycline are antibiotics that are used by the Discharger in feed formulations to control acute disease outbreaks. The Idaho General Permit states, “USEPA believes that disease control drugs and other chemicals provided for ingestion by fish do not pose a risk of harm or degradation to aquatic life or other beneficial uses.” Based on similar conclusions as those drawn by USEPA for the Idaho General Permit, the Regional Water Board has determined that oxytetracycline when used in feed formulations are used in a manner that reduces the likelihood of direct discharge to waters of the United States or waters of the State, particularly when Dischargers implement BMPs, as required by this Order. Therefore, oxytetracycline when used in feed formulations are not likely to be discharged from the Facility at levels that would cause, have the reasonable potential to cause, or contribute to an excursion of Basin Plan narrative water quality objectives for toxicity. In addition, there is no information regarding actual or estimated discharge

concentrations of oxytetracycline when used in bath treatments to determine reasonable potential. As a result, this Order does not include WQBELs for oxytetracycline. However, use and monitoring of these substances must be reported as specified in the Monitoring and Reporting Program (Attachment E). In addition, toxicity testing data for oxytetracycline must be submitted within 12 months of adoption of this Order as specified in Section VI.C.2.b of this Order.

The Regional Water Board will review this information, and other information as it becomes available and this Order may be reopened to establish effluent limitations based on additional use and toxicity information.

Chemicals that may potentially be used at the Facility

Chloramine-T

Chloramine-T (sodium p-toluenesulfonchloramide) is not currently used but may be used by the Discharger in the future as a possible replacement for formalin. Chloramine-T is available for use in accordance with an INAD exemption by the FDA. Chloramine-T breaks down into para-toluenesulfonamide (p-TSA) and, unlike other chlorine-based disinfectants, does not break down into chlorine or form harmful chlorinated compounds. However, biotoxicity tests using chloramine-T from other sources show a 96-hour LC₅₀ for rainbow trout of 2.8 mg/L. The 48-hour NOEC for *Daphnia magna* was reported as 1.8 mg/L (Halamid. n.d. Halamid, Aquaculture <http://www.halamid.com/aqua.htm>). In addition, the United States Geological Survey (USGS) has indicated the acute toxicity of p-TSA to be much lower than the parent compound in aquatic organisms, including the water flea.

Effluent chloramine-T data are not available to assess the impact of chloramines-T use at the Facility. The following information and calculations were used to determine the estimated effluent chloramines-T concentration at Discharge Points 001 and 002. The calculations assume the flow from the raceways mixes completely with the volume of water in the settling basin and is discharged with no further concentration, breakdown, or dilution of chloramines-T.

Chloramine-T usage:

As shown in Attachment I, chloramine-T may be used as a flush or bath treatment. at a concentration of 10 ppm for one hour. Effluent concentrations could not be estimated from the disposal of bath treatment wastewaters as information regarding volumes and location of disposal (which affects dilution factors) is unavailable. Therefore, the following information and calculations were used to determine the estimated effluent chloramines-T concentration from flush treatments at Discharge Points 001 and 002. In this calculation it is assumed that a dose of 10 ppm chloramines-T is injected for 1 hour in two raceways (based on CDFG recommendation) for flush treatment. Separate calculations were performed for maximum, average, and minimum flows through Discharge Points 001 and 002, shown in Section II.B of this Fact Sheet. The calculated effluent concentration of the

pollutant at the discharge points is the same for all the three sets of flow. The calculations corresponding to the minimum flow is presented below.

Flow and volume estimates:

Flow and volume estimates remain the same as for those used for estimating effluent copper concentrations, with a minimum flow of 2.5 cfs per raceway and a total dilution volume (4 raceways + 2 settling pond) of 1,621,200 liters.

Estimate of chloramine-T concentrations at Discharge Point 001 and 002:

The Discharger has specified to the Regional Water Board that the maximum number of raceways treated per day with chloramine-T will be two.

Total mass of chloramine-T applied in milligrams = (# raceways treated) x (treatment time in hours) x (raceway flow in cfs) x (26,930 gallons/hour) x (3.78 liters/gallon) x (chloramine-T concentration in mg/L)

Estimated final effluent concentration of chloramine-T (in mg/L) =
Total mass of chloramine-T applied in milligrams / total dilution volume in liters

Number of Raceways Treated with Chloramine-T	Chloramine-T Concentration in Treatment (mg/L)	Treatment Time in Hours	Total Mass of Chloramine-T Applied (mg)	Total Dilution Volume in Liters	Estimated Final Effluent Chloramine-T Concentration (mg/L)
1	10	1	2,520,187	1,621,200	1.6
2	10	1	5,040,374	1,621,200	3.1

As shown above, the estimated effluent chloramine-T concentrations ranged from 1.6 to 3.1 mg/L, but actual concentrations are likely to be lower as the calculations assume no breakdown of chloramine-T. However, as no other data are available, the estimated concentrations from flush treatments were used to determine reasonable potential. Therefore, based on available toxicity testing data and estimates of potential discharges of chloramine-T from flush treatments, if chloramine-T is used at this Facility in the future at the prescribed dose rates, chloramine-T may be discharged at levels that cause, have the reasonable potential to cause, or contribute to an excursion of the narrative water quality objective for toxicity from the Basin Plan.

The Facility may potentially add the chloramine-T in the future to the waters of Hatchery I and Hatchery II that discharge through Discharge Points 003 and 004. Therefore, Discharge Points 003 and 004 should have effluent limitations for chloramines-T in the proposed permit. Because the operations at raceways and hatcheries generate similar type of waste and discharge wastewater to the same receiving water, the Regional Water Board has determined that Discharge Points 001, 002, 003, and 004 shall have identical effluent concentration limitations for chloramines-T in the proposed permit. Accordingly, this

Order has established WQBELs for chloramine-T as described in the Section IV.C.4 of this Fact Sheet.

In addition, toxicity testing data for chloramine-T must be submitted within 12 months of adoption of this Order as specified in Section VI.C.2.b of this Order. The Regional Water Board will review this information, and other information as it becomes available and this Order may be reopened to revise effluent limitations based on additional use and toxicity information.

Hydrogen Peroxide

Hydrogen peroxide (35% H₂O₂) may be used in the future at the Facility. The FDA considers hydrogen peroxide to be an LRP drug when used to control fungi on fish at all life stages, including eggs. Hydrogen peroxide may also be used under an INAD exemption to control bacterial gill disease in various fish, fungal infections, external bacterial infections, and external parasites. Hydrogen peroxide is a strong oxidizer that breaks down into water and oxygen; however, it exhibits toxicity to aquatic life during the oxidation process. Results of a single acute toxicity test conducted by the DFG Pesticide Investigation Unit using *C. dubia* showed a 96-hour NOAEL of 1.3 mg/L.

Effluent data for hydrogen peroxide are not available to assess the impact of hydrogen peroxide use at the Facility. The following information and calculations were used to determine the estimated effluent hydrogen peroxide concentration at Discharge Points 001 and 002. The calculations assume the flow from the raceways mixes completely with the volume of water in the settling basin and is discharged with no further concentration, breakdown, or dilution of hydrogen peroxide. Separate calculations were performed for maximum, average, and minimum flows through Discharge Points 001 and 002, shown in Section II.B of this Fact Sheet. The calculated effluent concentration of the pollutant at the discharge points is the same for all the three sets of flow. The calculations corresponding to the minimum flow is presented below.

Hydrogen Peroxide usage:

Attachment I, shows the hydrogen peroxide dosage that can potentially be used at the Facility. Hydrogen peroxide may be used as a raceway flush treatment at a concentration of 100 ppm or less, from 45 minutes to one hour. In this calculation it is assumed that a dose of 100 ppm hydrogen peroxide is injected for 1 hour in the raceways

Flow and volume estimates:

Flow and volume estimates remain the same as for those used for estimating effluent hydrogen peroxide concentrations, with a minimum flow of 2.5 cfs per raceway and a total dilution volume (4 raceways + 2 settling pond) of 1,621,200 liters.

Estimate of hydrogen peroxide concentrations at Discharge Point 001 and 002:

Total mass of hydrogen peroxide applied in milligrams = (# raceways treated) x (treatment time in hours) x (flow per raceway in cfs) x (26,930 gallons/hour) x (3.78 liters/gallon) x (hydrogen peroxide concentration in mg/L)

Estimated final effluent concentration of hydrogen peroxide (in mg/L) = Total mass of hydrogen peroxide applied in milligrams / total dilution volume in liters

Number of Raceways Treated with H ₂ O ₂	H ₂ O ₂ Solution (35%) Treatment Conc. (mg/L)	H ₂ O ₂ Treatment Conc. (mg/L)	Treatment Time in Hours	Total Mass of H ₂ O ₂ Applied (mg)	Total Dilution Volume in Liters	Estimated Final Effluent H ₂ O ₂ Conc. (mg/L)
1	100	35	1	252,019	1,621,200	5.4
4	100	35	1	1,008,075	1,621,200	22

As shown above, the estimated effluent hydrogen peroxide concentrations ranged from 5.4 to 22 mg/L, but actual concentrations are likely to be lower as the calculations assume no breakdown of hydrogen peroxide. However, as no other data are available, the estimated concentrations from flush treatments were used to determine reasonable potential. Therefore, based on available toxicity testing data and estimates of potential discharges hydrogen peroxide from flush treatments, if hydrogen peroxide is used at this Facility in the future at the prescribed dose rates, hydrogen peroxide may be discharged at levels that cause, have the reasonable potential to cause, or contribute to an excursion of the narrative water quality objective for toxicity from the Basin Plan.

The Facility may potentially add the hydrogen peroxide in the future to the waters of Hatchery I and Hatchery II that discharge through Discharge Points 003 and 004. Therefore, Discharge Points 003 and 004 should have effluent limitations for hydrogen peroxide in the proposed permit. Because the operations at raceways and hatcheries generate similar type of waste and discharge wastewater to the same receiving water, the Regional Water Board has determined that Discharge Points 001, 002, 003, and 004 shall have identical effluent concentration limitations for hydrogen peroxide in the proposed permit. Accordingly, this Order has established WQBELs for hydrogen peroxide as described in the Section IV.C.4 of this Fact Sheet.

In addition, toxicity testing data for hydrogen peroxide must be submitted within 12 months of adoption of this Order as specified in Section VI.C.2.b of this Order. The Regional Water Board will review this information, and other information as it becomes available and this Order may be reopened to revise effluent limitations based on additional use and toxicity information.

Antibiotics: Amoxicillin, Erythromycin, Florfenicol, Penicillin G Potassium, and Sulfadimethoxine-ormetoprim (Romet-30®)

Florfenicol, oxytetracycline, and Romet-30® (sulfadimethoxine-ormetoprim) are antibiotics that may potentially be used by the Discharger in feed formulations to control acute disease outbreaks. Erythromycin (injected or used in feed formulations) and

amoxicillin (injected) also are antibiotics that may be used to control disease. These antibiotics must be used under conditions in the NADA approval (oxytetracycline and Romet-30®) or an INAD exemption or a veterinarian's prescription for extra-label use. In the NPDES General Permit for Aquaculture Facilities in Idaho (Idaho General Permit), USEPA Region 10 distinguishes between antibiotics applied in feed formulations and antibiotics applied in immersion baths. The Idaho General Permit concludes that drugs or chemicals administered via feed, and ingested by fish, pose little threat to aquatic life or beneficial uses because a majority of the drug is utilized by the fish, though some literature suggests otherwise. As stated in the Idaho General Permit, "USEPA believes that disease control drugs and other chemicals provided for ingestion by fish do not pose a risk of harm or degradation to aquatic life or other beneficial uses." Based on similar conclusions as those drawn by USEPA for the Idaho General Permit, the Regional Water Board has determined that oxytetracycline, Romet-30®, and florfenicol, (when used in feed formulations), erythromycin (when injected or used in feed formulations) and amoxicillin (when injected) are used in a manner that reduces the likelihood of direct discharge to waters of the United States or waters of the State, particularly when Dischargers implement BMPs, as required by this Order. Therefore, oxytetracycline, Romet-30®, and florfenicol, (when used in feed formulations), erythromycin (when injected or used in feed formulations) and amoxicillin (when injected) are not likely to be discharged from the Facility at levels that would cause, have the reasonable potential to cause, or contribute to an excursion of Basin Plan narrative water quality objectives for toxicity. Based on the conclusions stated above, this Order does not include water quality-based effluent limitations or effluent monitoring requirements for florfenicol, oxytetracycline, Romet-30®, erythromycin, or amoxicillin when used in feed formulations or injected directly into fish.

The hatchery may periodically use the antibiotics oxytetracycline and penicillin G potassium as therapeutic agents in bath treatments to control fish diseases. Penicillin G potassium is not approved under FDA's NADA program and its' extra-label use in aquaculture requires a veterinarian's prescription. Results of acute toxicity tests conducted by the DFG Pesticide Investigation Unit using *C. dubia* showed a 96-hour NOAEL of 890 mg/L. Results of 7-day chronic toxicity testing using *Pimephales promelas* showed 7-day NOEC for survival of 350 mg/L. Oxytetracycline, also known by the brand name Terramycin®, is an antibiotic approved through FDA's NADA program for use in controlling ulcer disease, furunculosis, bacterial hemorrhagic septicemia, and pseudomonas disease in Salmonids. Oxytetracycline is most commonly used at CAAP facilities as a feed additive. However, oxytetracycline may also be used as an extra-label use under a veterinarian's prescription in an immersion bath of approximately six to eight hours in duration. Results of acute toxicity tests conducted by the DFG Pesticide Investigation Unit using *C. dubia* showed a 96-hour NOAEL of 40.4 mg/L. Results of chronic toxicity tests using *C. dubia* showed a 7-day NOEC for reproduction of 48 mg/L. However, there is no information regarding actual or estimated discharge concentrations of oxytetracycline and penicillin G potassium used in bath treatments to determine reasonable potential. Therefore, this Order does not include water quality-based effluent limitations for oxytetracycline or penicillin G potassium. However, use and monitoring of these substances must be reported as specified in the Monitoring and Reporting Program (Attachment E). In addition, toxicity testing data for oxytetracycline and penicillin G

potassium must be submitted within 12 months of adoption of this Order as specified in Section VI.C.2.b of this Order.

The Regional Water Board will review this information, and other information as it becomes available and this Order may be reopened to establish effluent limitations based on additional use and toxicity information.

MS-222 and Isoeugenol (Aqui-S®)

In the future, the Discharger may use the anesthetics tricaine methanesulfonate, commonly known as MS-222 (with trade names of Finquel® or Tricaine-S®) and isoeugenol (Aqui-S®) in bath treatments. MS-222 has been approved by the FDA for use as an anesthetic for Salmonidae. It is intended for the temporary immobilization of fish, amphibians and other aquatic, cold-blooded animals. It has been recognized as a valuable tool for the proper handling of these animals during manual spawning (fish stripping), weighing, measuring, marking, surgical operations, transport, photography, and research. MS-222 is a crystalline powder used as an immersion bath in an enclosed tub. Aqui-S® is a water dispersible liquid anaesthetic for fin fish, crustacea and shell fish and is used in the United States under an INAD exemption.

Since the Regional Water Board does not have specific toxicity information for MS-222 or Aqui-S®, or estimates of potential discharge concentrations of MS-222 and Aqui-S® at this Facility, this Order does not include WQBELs for these anesthetics. However, use and monitoring of MS-222 and Aqui-S® must be reported as specified in the Monitoring and Reporting Program (Attachment E). In addition, toxicity testing data for MS-222 and Aqui-S® must be submitted within 12 months of adoption of this Order as specified in Section VI.C.2.b of this Order.

The Regional Water Board will review this information, and other information as it becomes available and this Order may be reopened to establish effluent limitations based on additional use and toxicity information.

PVP Iodine

PVP Iodine (polyvinylpyrrolidone iodine), is an iodophor solution composed of 10% PVP iodine complex and 90% inert ingredients, is used at the Facility as a fish egg disinfectant and fungicide. The FDA considers PVP iodine an LRP drug for use in aquaculture. Results of a single acute toxicity test with *Ceriodaphnia dubia* showed a 96-hour NOAEL of 0.86 mg/L.

Since the Regional Water Board does not have actual or estimated discharge concentrations of PVP iodine at this Facility to determine reasonable potential, this Order does not include WQBELs for this substance. However, use and monitoring of PVP iodine must be reported as specified in the Monitoring and Reporting Program (Attachment E). In addition, toxicity testing data for PVP iodine must be submitted within 12 months of adoption of this Order as specified in Section VI.C.2.b of this Order.

The Regional Water Board will review this information, and other information as it becomes available and this Order may be reopened to establish effluent limitations based on additional use and toxicity information.

Acetic Acid, Carbon Dioxide and Sodium Bicarbonate

The Discharger reports that acetic acid may be used at the Facility for the control of external parasites as flush and/or bath treatments. Carbon dioxide gas may be used in bath treatments to anesthetize fish prior to spawning. Sodium bicarbonate, or baking soda, may also be used as in bath treatments as a means of introducing carbon dioxide into the water to anesthetize fish. The FDA considers these substances LRP drugs for use in aquaculture. Based upon available information regarding the use of these substances at CAAP facilities in the Region, the Regional Water Board does not believe that acetic acid, carbon dioxide gas, or sodium bicarbonate will be discharged at levels that cause, have the reasonable potential to cause, or contribute to an excursion of Basin Plan narrative water quality objectives for toxicity.

While the discharge of acetic acid, carbon dioxide, or sodium bicarbonate may affect the pH of the receiving water, current effluent and receiving water limitations for pH are adequate to ensure that any potential discharges of acetic acid, carbon dioxide, or sodium bicarbonate do not impact water quality (in addition, carbon dioxide gas added to water will quickly equilibrate with atmospheric carbon dioxide with aeration). However, the use of these substances must be reported as specified in the Monitoring and Reporting Program (Attachment E). In the future, if additional information becomes available regarding the use or toxicity of acetic acid, carbon dioxide gas, or sodium bicarbonate, the Regional Water Board will re-evaluate whether the discharge of any of these substances to receiving waters may cause, have the reasonable potential to cause, or contribute to an excursion of the Basin Plan objectives for toxicity and, if necessary, re-open this Order to include numeric effluent limits.

Non-CTR Pollutants with Basin Plan Water Quality Criteria

The Basin Plan contains numeric Water Quality Objectives (WQO) for total dissolved solids (TDS), chloride, sulfate, fluoride, boron, nitrate, total nitrogen, dissolved orthophosphate for Hot Creek downstream of the Hot Creek Fish Hatchery at County Road. Monitoring data for TDS, chloride, nitrate, total nitrogen, dissolved orthophosphate submitted by the Discharger are shown in Section II.C. The WQO and the maximum concentration of the pollutants reported at the discharges are shown below:

Constituent	Annual Average	90 th Percentile	Instantaneous Maximum Concentration
	mg/L	mg/L	mg/L
Boron	1.8	2.6	NA
Chloride	41	60	NA
Fluoride	1.8	2.8	NA
Nitrate (as N)	0.2	0.4	0.69
Nitrogen, Total (as N)	0.3	1.5	NA
Orthophosphate, Dissolved (as P)	0.65	1.22	0.32
Sulfate	24	35	NA
Total Dissolved Solids (TDS)	275	380	582

NA: Data not available

As shown in the above table, the Facility submitted data only for nitrate, dissolved orthophosphate, and TDS. The maximum effluent concentrations of nitrate and TDS are greater than the water quality criteria and have a reasonable potential to cause, or contribute to an in-stream excursion of applicable water quality criteria or objectives. Therefore, WQBELs for the above pollutants are required to maintain water quality objectives for the Hot Creek.

Non-CTR Pollutants with Technology-based Effluent Limitations

In addition to numeric technology-based requirements based on BPJ, the Regional Water Board considered the need for more stringent WQBELs for pH, TSS, and settleable solids. The Regional Water Board determined that the numeric technology-based pH, TSS, and settleable solids limitations, along with the aquaculture ELG BMP requirements, are sufficient to attain and maintain water quality objectives for pH, suspended materials, and settleable materials.

4. WQBEL Calculations

Copper

Effluent limitations for metals must be expressed as a total recoverable concentration. Since a site-specific translator has not been developed for copper as described in the SIP Section 1.4.1, the USEPA conversion factor for copper of 0.96 was used for translating the dissolved copper criterion into a total recoverable copper criterion. The Regional Water

Board established both an AMEL and an MDEL for copper based on procedures outlined in the SIP.

Once the need for effluent limitations for CTR priority pollutants has been established, the SIP requires the following steps to determine specific limitations. The tables in Attachment H summarize the development and calculation of all WQBELs for this Order using the process described below.

- A set of AMEL and MDEL values are calculated separately, one set for the protection of aquatic life and the other for the protection of human health. The AMEL and MDEL limits for aquatic life and human health are compared, and the most restrictive AMEL and the most restrictive MDEL are selected as the WQBEL.

Calculation of Aquatic Life AMEL and MDEL:

- For each water quality criterion/objective, an effluent concentration allowance (ECA) is calculated from the following equation to account for dilution, and background levels of each pollutant.

$$ECA = C + D (C - B),$$

Where:

- C = the converted/adjusted water quality criterion,
- D = dilution credit, and
- B = the ambient background concentration.

The SIP permits an allowance for dilution only after characterization of the receiving water flow by the Discharger to determine a dilution ratio and/or whether or not a dilution credit is appropriate. In this Order, the discharge provides the vast majority of the source water for Hot Creek; therefore no credit is being allowed for dilution, and the ECA equals C.

For aquatic life criteria:

$$ECA_{acute} = 9.9 \mu\text{g/L}$$
$$ECA_{chronic} = 6.8 \mu\text{g/L}$$

- For each ECA based on an aquatic life criterion, the long-term average discharge condition (LTA) is determined by multiplying the ECA times a factor (a multiplier) to account for effluent variability. The LTA is a target of treatment performance.
- LTA multipliers are determined based on a coefficient of variation (CV) and on a specified probability of occurrence. The CV is a measure of the variability of a set of data; and in the analysis for this facility, because there were fewer than 10 data points, the CV was set equal to a default value of 0.6. The LTA multipliers are based on the following equations:

$$LTA_a = ECA_a \times \exp(0.5\sigma^2 - z\sigma)$$

$$LTA_c = ECA_c \times \exp(0.5\sigma_4^2 - z\sigma_4)$$

Where:

σ = standard deviation
($\sigma^2 = \ln(CV^2 + 1)$ and $\sigma_4^2 = \ln(CV^2/4 + 1)$)

CV = coefficient of variation
(CV = 0.6 where less than 10 data points are available)

z = z-statistic for 95th percentile probability and 99th percentile probability

ECA_a = acute effluent concentration allowance

ECA_c = chronic effluent concentration allowance

LTA_a = acute long-term average

LTA_c = chronic long-term average

From Table 1 of the SIP, the ECA multipliers for calculating LTAs at the 99th percentile occurrence probability for copper are 0.32 (acute multiplier) and 0.53 (chronic multiplier).

$$LTA_a = ECA_a \times \text{Multiplier}_{\text{acute}} = 9.9 \mu\text{g/L} \times 0.32 = 3.2 \mu\text{g/L}$$

$$LTA_c = ECA_c \times \text{Multiplier}_{\text{chronic}} = 6.8 \mu\text{g/L} \times 0.53 = 3.6 \mu\text{g/L}$$

- Using the most limiting (the lowest) LTA, WQBELs are calculated. WQBELs include an AMEL and a MDEL. The equations used to calculate these limits are as follows:

$$LTA = \min(LTA_a, LTA_c)$$

$$AMEL = LTA \times \exp(z\sigma_n - 0.5\sigma_n^2)$$

$$MDEL = LTA \times \exp(z\sigma - 0.5\sigma^2)$$

Where:

LTA_a = acute long-term average

LTA_c = chronic long-term average

LTA = most stringent long-term average

σ = standard deviation
($\sigma^2 = \ln(CV^2 + 1)$ and $\sigma_n^2 = \ln(CV^2/n + 1)$)

CV = coefficient of variation
(CV = 0.6 where less than 10 data points are available)

z = z-statistic for 95th percentile probability (AMEL) and 99th percentile probability (MDEL)

n = number of samples per month

AMEL = average monthly effluent limitation

MDEL = maximum daily effluent limitation

AMELs and MDELs are calculated by multiplying the most limiting LTA for each pollutant times a multiplier that accounts for averaging periods and exceedance frequencies of the effluent limitations, and for the AMEL, the effluent monitoring frequency. Here, the CV was set equal to the default value of 0.6 (CV = 0.6) and the sampling frequency was set equal to 4 (n = 4). A 99th percentile occurrence probability was used to determine the MDEL multiplier and a 95th percentile occurrence probability was used to determine the AMEL multiplier. From Table 2 of the SIP, the MDEL multiplier is 3.11, and the AMEL multiplier is 1.55.

$$LTA_a = 3.2 \text{ } \mu\text{g/L}$$

$$LTA_c = 3.6 \text{ } \mu\text{g/L}$$

$$LTA = \text{Min} (LTA_a, LTA_c)$$

$$LTA = LTA_a = 3.2 \text{ } \mu\text{g/L}$$

$$AMEL_{\text{aquatic life}} = LTA \times AMEL_{\text{multiplier}} = 3.2 \times 1.55 = 4.9 \text{ } \mu\text{g/L}$$

$$MDEL_{\text{aquatic life}} = LTA \times MDEL_{\text{multiplier}} = 3.2 \times 3.11 = 9.9 \text{ } \mu\text{g/L}$$

Calculation of Human Health AMEL and MDEL:

- For the ECA based on human health, the AMEL is set equal to the ECA_{human health}

$$AMEL_{\text{human health}} = ECA_{\text{human health}} = 1,300 \text{ } \mu\text{g/L}$$

- The MDEL for human health is calculated by multiplying the AMEL by the ratio of the Multiplier_{MDEL} to the Multiplier_{AMEL}. Table 2 of the SIP provides pre-calculated ratios to be used in this calculation based on the CV and the number of samples. As before, the CV was set equal to the default value of 0.6 (CV = 0.6) and the sampling frequency was set equal to 4 (n = 4). Using these values the MDEL multiplier is 3.11, and the AMEL multiplier is 1.55.

$$MDEL_{\text{human health}} = AMEL_{\text{human health}} \times (\text{Multiplier}_{\text{MDEL}} / \text{Multiplier}_{\text{AMEL}})$$

$$MDEL_{\text{human health}} = 1,300 \text{ } \mu\text{g/L} \times (3.11/1.55) = 2,608 \text{ } \mu\text{g/L}$$

Determination of Final WQBELs:

- The lower AMEL and MDEL based on aquatic life and human health is selected as the WQBEL.

AMEL_{aquatic life}	MDEL_{aquatic life}	AMEL_{human health}	MDEL_{human health}
4.9 µg/L	9.9 µg/L	1,300 µg/L	2,608 µg/L

The final AMEL of **4.9 µg/L** and MDEL of **9.9 µg/L** for copper are based on limitations protective of aquatic life.

Formaldehyde

Effluent concentrations of formaldehyde may persist because of potential application procedures (e.g., successive raceway treatments) and due to retention of effluent in the settling basin. Therefore, both an AMEL and a MDEL were calculated using the procedure in USEPA’s TSD for calculating WQBELs.

The Regional Water Board calculated the AMEL and MDEL for formaldehyde, using the calculations and methods described previously for deriving the effluent limitations for copper.

Assuming:

- No in-stream dilution allowance.
- CV = 0.6 for the lognormal distribution of pollutant concentrations in effluent.

Calculation of Aquatic Life AMEL and MDEL:

ECA based on NOAEL (acute toxicity) and NOEC (chronic toxicity) for C. dubia, with no dilution allowance

$$ECA_{acute} = 1.3 \text{ mg/L}$$

$$ECA_{chronic} = 1.3 \text{ mg/L}$$

LTA based on acute ECA

Acute ECA multiplier at 99% occurrence probability and 99% confidence = 0.32

Therefore,

$$LTA_{acute} = 1.3 \text{ mg/L} \times 0.32 = 0.42 \text{ mg/L}$$

LTA based on chronic ECA

Chronic ECA multiplier at 99% occurrence probability and 99% confidence = 0.53

Therefore,

$$LTA_{\text{chronic}} = 1.3 \text{ mg/l} \times 0.53 = 0.69 \text{ mg/L}$$

Most Limiting LTA concentration based on acute LTA

$$LTA = 0.42 \text{ mg/L}$$

Average Monthly Effluent Limitation (AMEL)

For n = 4, AMEL multiplier at 95% occurrence probability and 99% confidence = 1.55

Therefore,

$$AMEL = LTA \times 1.55$$

$$AMEL_{\text{aquatic life}} = 0.42 \text{ mg/l} \times 1.55 = 0.65 \text{ mg/L}$$

Maximum Daily Effluent Limitation (MDEL)

MDEL multiplier at 99% occurrence probability and 99% confidence = 3.11

Therefore,

$$MDEL = LTA \times 3.11$$

$$MDEL_{\text{aquatic life}} = 0.42 \text{ mg/l} \times 3.11 = 1.3 \text{ mg/L}$$

Calculation of Human Health AMEL and MDEL:

This section is not applicable as the formaldehyde limits are based on aquatic life criteria.

Determination of Final WQBELs:

The lower AMEL and MDEL based on aquatic life and human health is selected as the WQBEL.

AMEL_{aquatic life}	MDEL_{aquatic life}	AMEL_{human health}	MDEL_{human health}
0.65 mg/L	1.3 mg/L	Not Applicable	Not Applicable

The final AMEL of **0.65 mg/L** and MDEL of **1.3 mg/L** for formaldehyde are based on limitations protective of human health.

Potassium Permanganate

Effluent concentrations of potassium permanganate may persist because of potential application procedures (e.g., successive raceway treatments) and due to retention of effluent in the settling basin. Therefore, both an AMEL and a MDEL were calculated based on the 96-hour NOAEL value for *C. dubia* and using the procedure in USEPA's TSD for calculating WQBELs.

The Regional Water Board calculated the AMEL and MDEL for potassium permanganate, using the calculations and methods described previously for deriving the effluent limitations for copper.

Assuming:

- No in-stream dilution allowance.
- CV = 0.6 for the lognormal distribution of pollutant concentrations in effluent.

ECA based on NOAEL (acute toxicity) with no dilution allowance

$$ECA_{\text{acute}} = 0.25 \text{ mg/L}$$

No chronic toxicity data, LTA based on acute ECA

Acute ECA multiplier at 99% occurrence probability and 99% confidence = 0.32

$$LTA = 0.25 \text{ mg/L} \times 0.32 = 0.080 \text{ mg/L}$$

Average Monthly Effluent Limitation (AMEL)

For n = 4, AMEL multiplier at 95% occurrence probability and 99% confidence = 1.55

Therefore,

$$AMEL = LTA \times 1.55$$

$$\mathbf{AMEL = 0.080 \text{ mg/L} \times 1.55 = \mathbf{0.12 \text{ mg/L}}$$

Maximum Daily Effluent Limitation (MDEL)

MDEL multiplier at 99% occurrence probability and 99% confidence = 3.11

Therefore,

$$MDEL = LTA \times 3.11$$

$$\mathbf{MDEL = 0.080 \text{ mg/l} \times 3.11 = \mathbf{0.25 \text{ mg/L}}$$

These effluent limitations have been established for protection of aquatic life against toxic effects from exposure to potassium permanganate in the discharge.

Chloramine-T

Effluent concentrations of chloramine-T may persist because of potential application procedures (e.g., successive raceway treatments) and due to retention of effluent in the settling basin. Therefore, both an AMEL and an MDEL were calculated based on the 48-hour NOEC value for *Daphnia magna* and using the procedure in USEPA's TSD for calculating WQBELs.

The Regional Water Board calculated the AMEL and MDEL for chloramine-T, using the calculations and methods described previously for deriving the effluent limitations for copper.

Assuming:

- No in-stream dilution allowance.
- CV = 0.6 for the lognormal distribution of pollutant concentrations in effluent.

ECA based on NOEC (chronic toxicity) with no dilution allowance

$$ECA_{\text{chronic}} = 1.8 \text{ mg/L}$$

No acute toxicity data, LTA concentration based on chronic ECA

Chronic ECA multiplier at 99% occurrence probability and 99% confidence = 0.53.

Therefore,

$$LTA = 1.8 \text{ mg/l} \times 0.53 = 0.95 \text{ mg/L}$$

Average Monthly Effluent Limitation (AMEL)

For n = 4, AMEL multiplier at 95% occurrence probability and 99% confidence = 1.55

Therefore,

$$AMEL = LTA \times 1.55$$

$$\mathbf{AMEL} = 0.95 \text{ mg/l} \times 1.55 = \mathbf{1.5 \text{ mg/L}}$$

Maximum Daily Effluent Limitation (MDEL)

$$MDEL = LTA \times 3.11$$

(where 3.11 = MDEL multiplier at 99% occurrence probability and 99% confidence)

$$\mathbf{MDEL} = 0.95 \text{ mg/L} \times 3.11 = \mathbf{3.0 \text{ mg/L}}$$

These effluent limitations have been established for protection of aquatic life against toxic effects from exposure to chloramine-T in the discharge.

Hydrogen Peroxide

As hydrogen peroxide is a strong oxidizer, effluent concentrations are unlikely to persist for long periods. Therefore, only a MDEL was established based on the 96-hour NOAEL value for *C. dubia* and using the procedure in USEPA's TSD for calculating WQBELs.

The Regional Water Board calculated the MDEL for hydrogen peroxide, using the calculations and methods described previously for deriving the effluent limitations for copper.

Assuming:

- No in-stream dilution allowance.
- CV = 0.6 for the lognormal distribution of pollutant concentrations in effluent.

ECA based on NOAEL (acute toxicity) with no dilution allowance

$$ECA_{\text{acute}} = 1.3 \text{ mg/L}$$

No chronic toxicity data, LTA concentration based on acute ECA

Acute ECA multiplier at 99% occurrence probability and 99% confidence = 0.32

$$LTA = 1.3 \text{ mg/L} \times 0.32 = 0.42 \text{ mg/L}$$

Average Monthly Effluent Limitation (AMEL)

As mentioned earlier, no AMEL was established for the pollutant.

Maximum Daily Effluent Limitation (MDEL)

MDEL multiplier at 99% occurrence probability and 99% confidence = 3.11

$$MDEL = LTA \times 3.11$$

$$\mathbf{MDEL = 0.42 \text{ mg/L} \times 3.11 = 1.3 \text{ mg/L}}$$

These effluent limitations have been established for protection of aquatic life against toxic effects from exposure to hydrogen peroxide in the discharge.

Nitrate+Nitrite

Table 3-17 in the Basin Plan contains numeric WQOs for nitrate for Hot Creek downstream of the Hot Creek Fish Hatchery at County Road. The Basin Plan criterion for the Hot

Creek at County Creek for nitrate is 0.2 mg/L (as NO₃-N) as an annual average and 0.4 mg/L (as NO₃-N) as a 90th percentile objective. Using the statistical procedures from TSD, the Regional Water Board has translated these objectives into an MDEL and an AMEL.

The 90th percentile objective may be treated as a 1-day average (acute) ECA set at a 90th percentile:

$$ECA_{acute} = 0.4 \text{ mg/L}$$

$$ECA \text{ multiplier}_{acute90} = e^{(0.5\sigma^2 - z\sigma)}$$

Where:

σ = standard deviation

$$\sigma = [\ln(CV^2 + 1)]^{0.5}$$

$$\sigma^2 = \ln(CV^2 + 1)$$

z = 1.282 for 90th percentile probability basis

The CV calculated from the effluent data for Discharge Points 001, 002, 003, and 004 were 0.23, 0.20, 0.47, and 0.32, respectively. Identical calculations were performed to determine the AMEL and MDEL corresponding to each of the CVs. Because the calculated AMEL and MDEL corresponding to CV = 0.2 was found to be more stringent, they were selected as the final limits for nitrate-N. Calculations corresponding to CV=0.2 are presented below:

$$\sigma = [\ln(CV^2 + 1)]^{0.5}$$

$$= [\ln(0.2^2 + 1)]^{0.5}$$

$$= 0.198$$

$$\sigma^2 = 0.039$$

Using the standard deviation of 0.198 from the standard deviation calculation above, and the coefficient of variation of 0.20 for the effluent data, the following calculation for the ECA multiplier_{acute90} for nitrate is as follows:

$$\begin{aligned} ECA \text{ multiplier}_{acute90} &= e^{(0.5\sigma^2 - z\sigma)} \\ &= e^{[(0.5 \times 0.039) - (1.282 \times 0.198)]} \\ &= 0.79 \end{aligned}$$

$$\begin{aligned} LTA_{acute} &= 0.2 \text{ mg/L} \times ECA \text{ multiplier}_{acute90} \\ &= 0.2 \times 0.79 \\ &= 0.32 \text{ mg/L} \end{aligned}$$

The annual average objective of 0.2 mg/L (as NO₃-N) may be treated as LTA.

Therefore,

$$LTA \text{ (from 90}^{\text{th}} \text{ percentile WQO)} = 0.32 \text{ mg/L}$$

$$\text{LTA (from annual average WQO)} = 0.20 \text{ mg/L}$$

Minimum of the calculated LTA from 90th percentile and LTA from the annual average, whichever is protective of both the 90th percentile and annual average WQO, is selected as the LTA.

Therefore,

$$\text{LTA (selected)} = 0.2 \text{ mg/L}$$

The selected LTA of 0.2 mg/L serve as the basis for effluent limitations (AMEL and MDEL) for nitrate based on the Basin Plan water quality objective of Hot Creek. An AMEL and MDEL were calculated from the LTA using the equations discussed above for calculating effluent limitations for CTR parameters. Those equations, taken from the SIP, are the same as the equations from the copper for calculating the AMEL and MDEL. The calculated AMEL and MDEL are as follows:

$$\begin{aligned} \text{AMEL} &= \text{LTA} \times \text{AMEL multiplier}_{95} \\ \text{MDEL} &= \text{LTA} \times \text{MDEL multiplier}_{99} \end{aligned}$$

$$\begin{aligned} \text{AMEL} &= 0.23 \text{ mg/L (as nitrate-N)} \\ \text{MDEL} &= 0.31 \text{ mg/L (as nitrate-N)} \end{aligned}$$

Because both nitrate+nitrite is faster and cheaper to measure than nitrate only, the Regional Water Board, based on DFG request, has determined that the nitrate limits are applicable to nitrate+nitrite instead of nitrate only. This represents a conservative estimate and protects the beneficial uses the receiving water.

$$\begin{aligned} \text{AMEL} &= \mathbf{0.23 \text{ mg/L (as nitrate+nitrite-N)}} \\ \text{MDEL} &= \mathbf{0.31 \text{ mg/L (as nitrate+nitrite-N)}} \end{aligned}$$

Total Dissolved Solids (TDS)

Table 3-17 in the Basin Plan contains numeric Water Quality Objectives (WQO) for TDS for Hot Creek downstream of the Hot Creek Fish Hatchery at County Road. The Basin Plan criterion for the Hot Creek at County Creek for TDS is 275 mg/L as an annual average and 380 mg/L as a 90th percentile objective. Using the statistical procedures from TSD, the Regional Water Board has translated these objectives into an MDEL and an AMEL.

The 90th percentile objective may be treated as a 1-day average (acute) ECA set at a 90th percentile:

$$\text{ECA}_{\text{acute}} = 380 \text{ mg/L}$$

$$\text{ECA multiplier}_{\text{acute}90} = e^{(0.5\sigma^2 - z\sigma)}$$

Where

σ = standard deviation
 $\sigma = [\ln(CV^2 + 1)]^{0.5}$
 $\sigma^2 = \ln(CV^2 + 1)$
 $z = 1.282$ for 90th percentile probability basis

The CV for Discharge Points 001, 002, 003, and 004 were 0.29, 0.42, 0.033, and 0.35, respectively. Identical calculations were performed to determine the AMEL and MDEL corresponding to each of the CVs. Because the calculated AMEL and MDEL corresponding to CV = 0.033 was found to be more stringent, they were selected as the final limits for nitrate-N. Calculations corresponding to CV = 0.033 are presented below:

$\sigma = [\ln(CV^2 + 1)]^{0.5}$
 $= [\ln(0.033^2 + 1)]^{0.5}$
 $= 0.033$
 $\sigma^2 = 0.0011$

Using the standard deviation of 0.033 from the standard deviation calculation above, and the coefficient of variation of 0.033 for the effluent data on TDS, the following calculation for the ECA multiplier_{acute90} for TDS is as follows:

ECA multiplier_{acute90} = $e^{(0.5\sigma^2 - z\sigma)}$
= $e^{[(0.5 \times 0.0011) - (1.282 \times 0.033)]}$
= 0.96

LTA_{acute} = 380 mg/L x ECA multiplier_{acute90}
= 380 x 0.96
= 364 mg/L

The annual average objective of 275 mg/L may be treated as LTA.

Therefore,

LTA (from 90th percentile WQO) = 364 mg/L
LTA (from annual average WQO) = 275 mg/L

The more protective of the LTA calculated from 90th percentile WQO and the LTA calculated from the annual average is selected as the final LTA.

Therefore,

LTA (selected) = 275 mg/L

The selected LTA of 275 mg/L serve as the basis for effluent limitations (AMEL and MDEL) for TDS based on the Basin Plan water quality objective of Hot Creek. An AMEL and MDEL were calculated from the LTA using the equations discussed above for calculating effluent limitations for CTR parameters. Those equations, taken from the SIP,

are the same as the equations from the copper for calculating the AMEL and MDEL. The calculated AMEL and MDEL are as follows:

$$\text{AMEL} = \text{LTA} \times \text{AMEL multiplier}_{95}$$

$$\text{MDEL} = \text{LTA} \times \text{MDEL multiplier}_{99}$$

$$\text{AMEL} = \mathbf{283 \text{ mg/L}}$$

$$\text{MDEL} = \mathbf{297 \text{ mg/L}}$$

**Summary of Water Quality-based Effluent Limitations (WQBELs)
Discharge Points 001, 002, 003 and 004**

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
<i>CTR Pollutants</i>					
Copper, Total Recoverable	µg/L	4.9	9.9	--	--
<i>Non-CTR Pollutants</i>					
Chloramine-T	mg/L	1.5	3.0	--	--
Formaldehyde	mg/L	0.65	1.3	--	--
Hydrogen Peroxide	mg/L	--	1.3	--	--
Nitrate+Nitrite-N	mg/L	0.23	0.31	--	--
Potassium Permanganate	mg/L	0.12	0.25	--	--
Total Dissolved Solids (TDS)	mg/L	283	297	--	--

5. Whole Effluent Toxicity (WET)

The Basin Plan specifies a narrative objective for toxicity, requiring that *“All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.”* In addition to the Basin Plan requirements, Section 4 of the SIP states that *“... A chronic toxicity effluent limitation is required in permits for all discharges that will cause, have the reasonable potential to cause, or contribute to chronic toxicity in receiving waters....”*

The WQBELs proposed for Discharge Points 001, 002, 003, and 004 are based on results of toxicity testing. TSD specifies two toxicity measurement techniques that can be employed in effluent characterization; the first is Whole Effluent Toxicity (WET) testing, and the second is chemical-specific toxicity analyses. Both techniques include acute and chronic testing. An acute toxicity test is conducted over a short time period and generally measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, growth, or other sub-lethal effects.

WET testing is used most appropriately when the toxic constituents in an effluent are not completely known; whereas chemical-specific analysis is more appropriately used when an effluent contains only one, or very few, known constituents. The Regional Water Board is using a chemical-specific toxicity analysis for aquaculture chemicals used at this Facility.

Those aquaculture chemicals that are used at the Facility could potentially be present in the effluent at the Discharge Points 001, 002, 003, and 004. During the previous permit term, the Discharger limited aquaculture chemical usage to five chemicals. After a chemical is applied, it has the potential to be present in the effluent at the Discharge Points 001, 002, 003, and 004 for only a few hours. The amount of time during a year that a chemical could potentially be present at discharge points is less than five percent (5%) of the time (or 20 days per year). Addition of the chemicals is under the control of one entity (the Discharger). The Discharger applies the chemicals one at a time. The chemicals used are known; therefore, the chemicals that could be discharged through Discharge Points 001, 002, 003, and 004 are also known. Due to the above factors, the chemical-specific toxicity analyses for the effluent is an appropriate toxicity measurement technique for this facility.

D. Final Effluent Limitations

Final effluent limitations for Discharge Points 001, 002, 003, and 004 are summarized in the table below. For each pollutant, the selected final effluent concentration limitation is the more stringent of the technology-based effluent limitation described in Section IV.B.2 and the WQBEL described in Section IV.C.4, respectively. Toxicity requirements are based on the discussion in Section IV.C.5.

Section 402(o) of the CWA and 40 CFR §122.44(l) require that final effluent limitations or conditions in reissued Orders be at least as stringent as those in the previous Orders. The previous Order contains effluent limitations for pH, TSS, and settleable solids and removal of the effluent limitations in the proposed permit for the above pollutants would constitute backsliding under CWA Section 402(o). In the proposed Order, the effluent limitations for

these pollutants are the same as those of the previous Order, and therefore, backsliding is not applicable to the Facility.

The proposed Order includes new effluent limitations for boron, chloramine-T, chlorine, copper, fluorine, formaldehyde, hydrogen peroxide, orthophosphate (dissolved), potassium permanganate, sulfate, toxicity, nitrate-nitrogen, nitrogen (total), and TDS. The proposed Order also includes limitation for maximum flow through the discharge points.

**Summary of Final Effluent Limitations
Discharge Points 001, 002, 003, and 004**

Constituent	Units	Effluent Limitations				Basis
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	--	6.9 ¹	--	--	Data Submitted by the Discharger
		--	6.5 ²	--	--	
		--	3.8 ³	--	--	
		--	2.5 ⁴	--	--	
<i>Conventional Pollutants</i>						
pH	standard units	--	--	6.0	9.0	Previous Order
⁵ Total Suspended Solids (TSS)	mg/L	6.0	--	--	15.0	Previous Order
<i>Priority Pollutants</i>						
Copper, Total Recoverable	µg/L	4.9	9.9	--	--	CTR, SIP
<i>Non-Conventional Pollutants</i>						
Chloramine-T	mg/L	1.5	3.0	--	--	Basin Plan
Formaldehyde	mg/L	0.65	1.3	--	--	Basin Plan
Hydrogen Peroxide	mg/L	--	1.3	--	--	Basin Plan
Nitrate+Nitrite-N	mg/L	0.23	0.31	--	--	Basin Plan
Potassium Permanganate	mg/L	0.12	0.25	--	--	Basin Plan
Settleable Solids	ml/L	0.1	--	--	--	Previous Order

Constituent	Units	Effluent Limitations				Basis
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Total Dissolved Solids (TDS)	mg/L	283	297	--	--	Previous Order

¹ Maximum flow limitation through Discharge Point 001

² Maximum flow limitation through Discharge Point 002

³ Maximum flow limitation through Discharge Point 003

⁴ Maximum flow limitation through Discharge Point 004

⁵ Limit is mg/L net over levels in influent

E. Interim Effluent Limitations – Not Applicable

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

The Basin Plan contains numeric and narrative water quality objectives applicable to all surface waters within the Lahontan Region. Water quality objectives include an objective to maintain the high quality waters pursuant to federal regulations (40 CFR §131.12) and State Water Board Resolution No. 68-16. Receiving water limitations in this Order are included to ensure protection of beneficial uses of the receiving water.

The narrative objective for chemical constituents in the Basin Plan states that “Waters shall not contain concentrations of chemicals that adversely affect the water beneficial uses.” The receiving water has the beneficial use of municipal and domestic supply (MUN). USEPA and the State of California Department of Health Services (DHS) does not have a Maximum Containment Level (MCL) for formaldehyde, however the DHS Drinking Water Action Level is listed as 0.1 mg/L. The USEPA Integrated Risk Information System (IRIS) lists a reference dose of 1.4 mg/L as a drinking water level. The National Academy of Sciences’ Suggested No-Adverse-Response Level (SNARL) for formaldehyde is 1.0 mg/L as a drinking water health advisory level. To protect the beneficial use of municipal and domestic supply (MUN) of the receiving water, a receiving water limitation based on the DHS Drinking Water Action Level of 0.1 mg/L has been established in this Order.

B. Groundwater – Not Applicable

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the CWC authorize the Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program in Attachment E of this Order establishes monitoring and reporting requirements to implement federal and state requirements.

The nomenclature of the monitoring locations is revised in the proposed Order. The table below shows the nomenclature of the monitoring locations with corresponding nomenclature in the previous Order.

Source Water/ Discharge Point Name	Monitoring Location Name in Proposed Permit	Monitoring Location Name in Previous Permit	Monitoring Location Description
Source Water			
001	S-001	001	Headwaters AB Spring
002	S-002	002	Headwaters CD Spring
003	S-003	003	Hatchery I Spring
004	S-004	004	Hatchery II Spring
Discharge Point			
001	M-001	001	Outfall Settling Pond 1
002	M-002	002	Outfall Settling Pond 2
003	M-003	003	Outfall McBurney Pond
004	M-004	004	Outfall Spawning House II
Receiving Water			
---	R-001	001	Mammoth Creek, at a location 25 feet upstream of confluence of Hot Creek and Mammoth Creek
---	R-002	002	Hot Creek, at a point 50 feet downstream of the location where the short tributary receiving discharge from Discharge Point 004 meets Hot Creek

Because nitrate+nitrite is faster and cheaper to measure than nitrate only, the Regional Water Board, based on DFG request, has determined that the nitrate monitoring are applicable to nitrate+nitrite instead of nitrate only. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for this facility.

A. Influent Monitoring

The previous Order required routine monitoring of AB Springs, CD Springs, Hatchery I Spring, Hatchery II Spring which provide supply water to the Facility, for the following parameters: TSS, flow, TDS, nitrate-N, total nitrogen, and dissolved orthophosphate. These four springs flows through the Facility, provides medium for fish culture, and ultimately discharges to the Hot Creek. Therefore, monitoring of these four springs will provide background information about the upstream receiving water. In the proposed Order, to collect information about the supply water and the upstream receiving water, the four springs are monitored for pH, TSS, dissolved oxygen, flow, nitrate+nitrite as N, orthophosphate (dissolved), TDS, nitrogen (total), settleable solids, temperature, and turbidity in the proposed Order. Monitoring for TSS, TDS, nitrate-N, total nitrogen, and orthophosphate (dissolved) are carried over from the previous permit. Monitoring of the remaining pollutants are based on the Basin Plan requirements for the receiving water and is discussed in detail in Section VI.D.

The previous Order required monthly monitoring of flow, quarterly monitoring of TSS, and semi-annual monitoring of TDS, nitrate-N, nitrogen (total), and orthophosphate (dissolved). In the proposed Order, the Discharger is required to monitor semi-annually for pH, TSS, dissolved oxygen, flow, nitrate+nitrite as N, orthophosphate (dissolved), TDS, nitrogen (total), settleable solids, temperature, and turbidity. The Regional Water Board has determined that the revised monitoring frequency in the proposed Order is sufficient to define the quality of the water.

B. Effluent Monitoring

Discharge Points 001, 002, 003, and 004

To demonstrate compliance with effluent limitations established in this Order and to assess the impact of the discharge on the beneficial uses of the receiving water, effluent monitoring requirements for pH, TSS, dissolved oxygen, settleable solids, temperature, turbidity, TDS, nitrate-N (nitrate+nitrite), nitrogen (total), and orthophosphate (dissolved) in the previous Order are being carried over to the proposed Order. In addition, to demonstrate compliance with effluent limitations and to protect the beneficial uses of the receiving water, the proposed Order is establishing additional effluent monitoring requirements for boron, chloride, fluoride, electrical conductivity, and sulfate.

The previous permit required quarterly monitoring of pH, TSS, dissolved oxygen, settleable solids, temperature, turbidity and semi-annual monitoring of TDS, nitrate-N, total nitrogen, and dissolved orthophosphate. The previous Order required that the Discharger to collect two grab samples (grab pairs collected not less than two hours, nor greater than four hours apart) for the above pollutants. The monitoring frequency for dissolved oxygen, settleable solids, temperature, turbidity, nitrate-N (nitrate+nitrite), total nitrogen, and dissolved orthophosphate some of the pollutants is carried over from the previous permit. The monitoring frequency of other pollutants is revised in the proposed Order. The Discharger is required to monitor pH and TSS monthly, electrical conductivity quarterly, chloride semi-annually, and boron, and fluoride yearly in the proposed Order. Monitoring for boron, chloride, fluoride, total nitrogen, dissolved orthophosphate, sulfate, and total nitrogen are required because water the Basin Plan contains numeric WQOs for these pollutants for Hot Creek downstream of the Hot Creek Fish Hatchery at County Road. The monthly monitoring for TSS were established because of past compliance problems. In order to reduce duplicative sampling efforts, grab pair sampling requirement in the previous Order for select parameters is changed to single grab samples. The Regional Water Board has determined that the revised minimum monitoring frequency in the proposed Order is sufficient to define the quality of the water. The Facility will have the option of collecting additional samples at a frequency greater than the minimum frequency specified.

As discussed in detail in Section IV.C.5 of this Fact Sheet, the Regional Water Board has determined that a chemical-specific approach to be the most appropriate measurement technique for effluent toxicity characterization at the Facility. Therefore, effluent monitoring of aquaculture chemicals added at the Facility is required to determine compliance with the effluent limitations. The monitoring is also required to determine whether discharges of aquaculture drugs and chemicals from the Facility may cause or contribute to an excursion of

the Basin Plan narrative objectives for chemical constituents and toxicity. Monitoring for copper resulting from break down of copper sulfate is also included in the Order.

Priority Pollutant Monitoring

Section 1.3 of the SIP requires periodic monitoring for priority pollutants (at least once prior to the issuance and reissuance of a permit) for which criteria or objectives apply and for which no effluent limitations have been established. However, the Regional Water Board may choose to exempt low volume discharges, determined to have no significant adverse impact on water quality, from this monitoring requirement. As described in Section IV.C.3 of this Fact Sheet, the RPA of the priority pollutants did not demonstrate reasonable potential to exceed applicable water quality criteria. Based on this information, as well as priority pollutant monitoring data from other similar hatchery facilities, the Regional Water Board has determined that discharges from the Facility have no significant adverse impact on water quality for priority pollutants, except for copper when copper sulfate is used at the Facility. Therefore, priority pollutant monitoring will not be required in this Order, except for copper monitoring when copper sulfate is used at the Facility.

C. Whole Effluent Toxicity Testing Requirements – Not Applicable

D. Receiving Water Monitoring

1. Surface Water

Background receiving water information is required to assess the impact of the discharge to the beneficial uses of the receiving water. Mammoth Creek, AB Springs, CD Springs, Hatchery I Spring, Hatchery II Spring flow into the Hot Creek. Therefore, sampling of these five streams is required to represent the background water quality of upstream receiving water. The previous Order required monitoring of Mammoth Creek for pH, TSS, dissolved oxygen, nitrate, nitrogen (total), orthophosphate (dissolved), settleable solids, temperature, TDS, and turbidity. The proposed Order carries forward the monitoring requirements for the above pollutants for Mammoth Creek from the previous Order. Because AB Springs, CD Springs, Hatchery I Spring, Hatchery II Springs also represent background upstream receiving water, the pollutants required to be monitored for these four streams are the same as those of the Mammoth Creek.

The previous Order required downstream receiving water monitoring for pH, TSS, dissolved oxygen, nitrate, nitrogen (total), orthophosphate (dissolved), settleable solids, temperature, TDS, and turbidity. The Basin Plan contains general WQOs for Lanhotan basin and specific WQOs for the Hot Creek. To assess the impact of the discharge on the beneficial uses of the receiving water, the proposed Order carries forward the monitoring requirements of the above pollutants from the previous Order and requires additional monitoring requirements for ammonia, boron, chloride, formaldehyde, fluoride, and sulfate.

The monitoring frequency is revised in the proposed Order. The Regional Water Board has determined that the revised monitoring frequency in the proposed Order is sufficient to define the quality of the water.

The facility is also required to perform general observations of the downstream receiving water and report the observations in the monitoring report. Attention shall be given to the presence or absence of: floating or suspended matter, discoloration, aquatic life, visible film, sheen or coating, and fungi, slime, or objectionable growths

The receiving water monitoring requirements are specified in the Monitoring and Reporting Program (Attachment E).

2. Sediment

Sediment sampling is being required to assess the impact of effluent released at Discharge Points 001, 002, 003, and 004 to the beneficial uses of the receiving water. Aquaculture chemicals discharged from the Facility could potentially be present in the sediment of Hot Creek downstream at Monitoring Location R-002. The pollutants may have a tendency to precipitate or adsorb onto stream sediments. After a chemical is applied, some pollutants derived from the chemical have potential to be present in the effluent for only a short time. Over time, however, there could be an accumulation of the pollutants in the sediment. Sampling of the sediment is therefore being proposed.

3. Groundwater – Not Applicable

E. Other Monitoring Requirements

Chemical use monitoring and reporting are required to keep track of the type and quantity of chemicals used at the Facility, and to ensure that the Board is adequately notified of changes in chemical use and of potential sources of pollutants in wastewaters discharged from the site. Bioassessment monitoring is required to characterize impacts of Facility operations on aquatic life uses in the receiving waters.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR §§122.41 and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D to the Order.

B. Special Provisions

1. Reopener Provisions

Conditions that necessitate a major modification of a permit are described in 40 CFR §122.62, which include the following:

(a) *When standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision.* Therefore, if more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

(b) *When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.* The Discharger is required to report on usage of drugs and chemicals for which discharge is authorized by this Order. New information on usage or toxicity of drugs or chemicals used at the Facility may justify reopening and modifying this order.

(c) *When facility alterations or changes in operations justify new conditions that are different from the existing permit.* The discharge of a new drug or chemical that is found to have reasonable potential to cause, or contribute to an in-stream excursion above any chemical-specific water quality criteria, narrative water quality objective for chemical constituents from the Basin Plan, or narrative water quality objective for toxicity from the Basin Plan, would be considered a change in facility operations that requires reopening this Order to establish new effluent limitations.

2. Special Studies and Additional Monitoring Requirements

As described in Section IV.B.1 of this Fact Sheet, the final ELG includes the following reporting and narrative requirements for CAAP facilities that are subject to 40 CFR Part 451:

- Must notify the permitting authority of the use of any INAD and any extra label drug use where the use may lead to a discharge to waters of the United States.
- Reporting requirement for failure in or damage to the structure of an aquatic animal containment system, resulting in an unanticipated material discharge of pollutant to waters of the United States.
- Develop and maintain a BMP plan for solids control, material storage, structural maintenance, record keeping, and training.

Prior to using any new chemical or aquaculture drug at the Facility, the Discharger is required to submit to the Regional Water Board reporting and toxicity testing of the new chemical or aquaculture drug as specified in Section VI.C.2 of this Order. These reporting and toxicity testing requirements are needed for the Regional Water Board to determine if the discharge of a new drug or chemical by the Facility has reasonable potential to cause, or contribute to an in-stream excursion above any chemical-specific water quality criteria or objectives, narrative water quality objective for chemical constituents from the Basin Plan, or narrative water quality objective for toxicity from the Basin Plan.

3. Best Management Practices and Pollution Prevention

Best Management Practices plan requirements are established based on requirements in CAAP ELG at 40 CFR Part 451. CAAP facilities that are subject to the federal ELG are required to develop and maintain a BMP plan that address the following requirements: solids control, material storage, structural maintenance, record-keeping, and training. The Discharger must make the BMP plan available to the Regional Water Board upon request, and submit certification that the BMP plan has been developed.

4. Compliance Schedules

New effluent limitations are established in the proposed Order for CTR pollutants such as copper, and non-CTR pollutants such as boron, chloramine-T, chlorine, flow, fluorine, formaldehyde, hydrogen peroxide, orthophosphate (dissolved), potassium permanganate, sulfate, toxicity, nitrate-nitrogen, nitrogen (total), and TDS. The previous Order does not contain effluent limitations for these pollutants.

Section 2.1 of the SIP provides that: *“Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the Regional Water Quality Control Board may establish a compliance schedule in an NPDES permit.”* Although the effluent limitations for copper are new requirements in this Order, the Discharger does not anticipate using copper sulfate in the future. Therefore, the Discharger should be able to manage use of copper sulfate to comply with the new effluent limitations. Therefore, the Regional Water Board is not establishing a compliance schedule for copper limitations in this Order.

The Basin Plan does not provide the authority to include interim effluent limitations and compliance schedules for non-CTR pollutants. Therefore, no interim effluent limitations are established for the non-CTR pollutants.

5. Construction, Operation, and Maintenance Specifications

Solid waste disposal provisions in this Order are based on the requirements of CCR Title 27 and prevention of unauthorized discharge of solid wastes into waters of the United States or waters of the State. Other construction, operation, and maintenance specifications are to prevent other unauthorized discharges to waters of the United States or waters of the State.

The reasonable potential analysis (RPA) and the calculation of limitations for discharges of Chloramine-T from the Facility were based on a maximum treatment of two raceways per day, as specified by the Discharger. As a result, a provision in this Order is included which prohibits the treatment of more than two raceways (per day) with Chloramine-T.

6. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

7. Other Special Provisions – Not Applicable

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as a NPDES permit for Hot Creek Hatchery. As a step in the WDR adoption process, the Regional Water Board staff has developed proposed WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through publication in local newspapers.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on May 11, 2006.

C. Public Hearing

The Regional Water Board will hold a public hearing on the proposed WDRs during its regular Board meeting on the following date and time and at the following location:

Date: June 15, 2006
Time: 8:30 a.m.
Location: The Village at Mammoth Lakes
1111 Forest Trail, Mammoth Lakes, CA 92546

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our web address is <http://www.waterboards.ca.gov/lahontan/> where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, proposed effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by (760) 241-6583.

California Regional Water Quality Control Board
Lahontan Region
14440 Civic Center Drive, Suite 200
Victorville, CA 92392-2306

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Mary Dellavalle at (760) 241-3523.

Attachment G – Basin Plan Water Quality Objective Tables

**Table 3-1
ONE-HOUR AVERAGE CONCENTRATION FOR AMMONIA^{1,2}**

Waters Designated as COLD, COLD with SPWN, COLD with MIGR (Salmonids or other sensitive coldwater species present)

	Temperature, °C						
pH	0	5	10	15	20	25	30
Un-ionized Ammonia (mg/liter NH ₃)							
6.50	0.0091	0.0129	0.0182	0.026	0.036	0.036	0.036
6.75	0.0149	0.021	0.030	0.042	0.059	0.059	0.059
7.00	0.023	0.033	0.046	0.066	0.093	0.093	0.093
7.25	0.034	0.048	0.068	0.095	0.135	0.135	0.135
7.50	0.045	0.064	0.091	0.128	0.181	0.181	0.181
7.75	0.056	0.080	0.113	0.159	0.22	0.22	0.22
8.00	0.065	0.092	0.130	0.184	0.26	0.26	0.26
8.25	0.065	0.092	0.130	0.184	0.26	0.26	0.26
8.50	0.065	0.092	0.130	0.184	0.26	0.26	0.26
8.75	0.065	0.092	0.130	0.184	0.26	0.26	0.26
9.00	0.065	0.092	0.130	0.184	0.26	0.26	0.26
Total Ammonia (mg/liter NH ₃)							
6.50	35	33	31	30	29	20	14.3
6.75	32	30	28	27	27	18.6	13.2
7.00	28	26	25	24	23	16.4	11.6
7.25	23	22	20	19.7	19.2	13.4	9.5
7.50	17.4	16.3	15.5	14.9	14.6	10.2	7.3
7.75	12.2	11.4	10.9	10.5	10.3	7.2	5.2
8.00	8.0	7.5	7.1	6.9	6.8	4.8	3.5
8.25	4.5	4.2	4.1	4.0	3.9	2.8	2.1
8.50	2.6	2.4	2.3	2.3	2.3	1.71	1.28
8.75	1.47	1.40	1.37	1.38	1.42	1.07	0.83
9.00	0.86	0.83	0.83	0.86	0.91	0.72	0.58

1 To convert these values to mg/liter N, multiply by 0.822

2 Source: U. S. Environmental Protection Agency, 1986. Quality criteria for water, 1986. EPA 440/5-86-001.

Table 3-3
FOUR DAY AVERAGE CONCENTRATION FOR AMMONIA^{1,2}

Waters Designated as COLD, COLD with SPWN, COLD with MIGR (Salmonids or other sensitive coldwater species present)

	Temperature, °C						
pH	0	5	10	15	20	25	30
Un-ionized Ammonia (mg/liter NH ₃)							
6.50	0.0008	0.0011	0.0016	0.0022	0.0022	0.0022	0.0022
6.75	0.0014	0.0020	0.0028	0.0039	0.0039	0.0039	0.0039
7.00	0.0025	0.0035	0.0049	0.0070	0.0070	0.0070	0.0070
7.25	0.0044	0.0062	0.0088	0.0124	0.0124	0.0124	0.0124
7.50	0.0078	0.0111	0.0156	0.022	0.022	0.022	0.022
7.75	0.0129	0.0182	0.026	0.036	0.036	0.036	0.036
8.00	0.0149	0.021	0.030	0.042	0.042	0.042	0.042
8.25	0.0149	0.021	0.030	0.042	0.042	0.042	0.042
8.50	0.0149	0.021	0.030	0.042	0.042	0.042	0.042
8.75	0.0149	0.021	0.030	0.042	0.042	0.042	0.042
9.00	0.0149	0.021	0.030	0.042	0.042	0.042	0.042
Total Ammonia (mg/liter NH ₃)							
6.50	3.0	2.8	2.7	2.5	1.76	1.23	0.87
6.75	3.0	2.8	2.7	2.6	1.76	1.23	0.87
7.00	3.0	2.8	2.7	2.6	1.76	1.23	0.87
7.25	3.0	2.8	2.7	2.6	1.77	1.24	0.88
7.50	3.0	2.8	2.7	2.6	1.78	1.25	0.89
7.75	2.8	2.6	2.5	2.4	1.66	1.17	0.84
8.00	1.82	1.70	1.62	1.57	1.10	0.78	0.56
8.25	1.03	0.97	0.93	0.90	0.64	0.46	0.33
8.50	0.58	0.55	0.53	0.53	0.38	0.28	0.21
8.75	0.34	0.32	0.31	0.31	0.23	0.173	0.135
9.00	0.195	0.189	0.189	0.195	0.148	0.116	0.094

1 To convert these values to mg/liter N, multiply by 0.822.

2 Source: U. S. Environmental Protection Agency. 1992. Revised tables for determining average freshwater ammonia concentrations. USEPA Office of Water Memorandum, July 30, 1992.

**Table 3-6
WATER QUALITY CRITERIA FOR
AMBIENT DISSOLVED OXYGEN CONCENTRATION^{1,2}**

	Beneficial Use Class			
	COLD & SPWN ³	COLD	WARM & SPWN ³	WARM
30 Day Mean	NA ⁴	6.5	NA	5.5
7 Day Mean	9.5 (6.5)	NA	6.0	NA
7 Day Mean Minimum	NA	5.0	NA	4.0
1 Day Minimum ^{5,6}	8.0 (5.0)	4.0	5.0	3.0

- ¹ From: USEPA. 1986. Ambient water quality criteria for dissolved oxygen. Values are in mg/L.
- ² These are water column concentrations recommended to achieve the required intergravel dissolved oxygen concentrations shown in parentheses. For species that have early life stages exposed directly to the water column (SPWN), the figures in parentheses apply.
- ³ Includes all embryonic and larval stages and all juvenile forms to 30-days following hatching (SPWN).
- ⁴ NA (Not Applicable).
- ⁵ For highly manipulatable discharges, further restrictions apply.
- ⁶ All minima should be considered as instantaneous concentrations to be achieved at all times.

The table above was generated for standardized concentrations. Natural conditions, such as elevation, may alter dissolved oxygen concentrations. Where natural conditions alone create dissolved oxygen concentrations less than 110 percent of the applicable criteria means or minima or both, the minimum acceptable concentration is 90 percent of the natural concentration. (page 35: USEPA 440/5-86-003. 1986. Ambient Water Quality Criteria for Dissolved Oxygen.)

Table 3-17

WATER QUALITY OBJECTIVES

HOT CREEK (AT COUNTY ROAD) IN OWENS HYDRLOGIC UNIT

Constituent	Annual Average^a	90th Percentile^b
Boron	1.8	2.6
Chloride	41	60
Fluoride	1.8	2.8
Nitrate (as N)	0.2	0.4
Orthophosphate, Dissolved	0.65	1.22
Sulfate	24	35
Total Dissolved Solids (TDS)	275	380
Total Nitrogen (as N)	0.3	1.5

ATTACHMENT I – PROJECTED AQUACULTURE DRUG AND CHEMICAL USE

Drug or Chemical	Purpose of Application	Expected Method(s) of Application or Treatment
Acetic acid.	Control of external parasites.	(1) <i>Flush</i> : 1.5 to 2.2 gallons of glacial acetic acid added as a bolus to top of raceway. Gives a treatment of level of approximately 335 to 500 ppm acetic acid. (2) <i>Bath</i> : used at a rate of 500 to 2,000 ppm for 1 to 10 minutes.
Amoxicillin trihydrate.	Control and prevention of external and systemic bacteria infections.	<i>Injected intraperitoneally</i> : into broodstock twice a week, prior to spawning, at a rate of 40 milligrams amoxicillin per kilogram of fish.
Carbon Dioxide.	Anesthetic.	<i>Bath</i> : bubbled in water. Usually used in small volumes of water.
Chloramine-T.	Control of external gill bacteria.	(1) <i>Flush</i> ^a : used at a concentration of 10 ppm for one hour. (2) <i>Bath</i> : used at a concentration of 10 ppm for one hour.
Copper sulfate pentahydrate.	Control of external parasites and bacteria.	<i>Flush</i> : used at a rate of up to 0.5 pounds of copper sulfate pentahydrate per cfs of raceway flow.
Erythromycin.	Control and prevention of external and systemic bacteria infections.	(1) <i>Injected intraperitoneally</i> : at a rate of 40 milligrams erythromycin per kilogram of fish, at 30 day intervals. (2) <i>Feed</i> : used in medicated feed or fish pills at a rate of 100 milligrams or less of erythromycin per kilogram of fish.
Florfenicol (Nuflor®).	Control and prevention of external and systemic bacteria infections.	<i>Feed</i> : mixed with vegetable oil and sprayed onto fish pills. Fish pills are fed to fish as feed at a rate of 15 milligrams of florfenicol per kilogram of fish per day, split into morning and afternoon feedings.
Formalin (37% formaldehyde solution).	(1) Control of external parasites. (2) Fungus control on fish eggs.	(1) <i>Flush</i> : Low dose - used at a concentration of 25 ppm of formalin for 8 hours. High dose - used at a concentration of 167 to 250 ppm formalin for one hour. (2) <i>Bath</i> : used at a concentration of 2,000 ppm formalin, or less, for 15 minutes.
Hydrogen peroxide.	Control of external parasites.	<i>Flush</i> : used at a rate of 100 ppm, or less, for 45 minutes to 1 hour.
Isoeugenol (Aqui-S®)	Anesthetic.	<i>Bath</i> : (a) 5 to 10 ppm for sedation. (b) 17 to 25 ppm for “handleable” fish in approximately 3 to 5 minutes and full anesthesia in approximately 10 minutes. (c) 34 ppm for full anesthesia in approximately 5 minutes.
MS-222 / tricaine methanesulfonate (Finquel®, Tricaine-S®).	Anesthetic.	<i>Bath</i> : used at a rate of 50 to 250 mg/L, usually in a small volume of water.
Oxytetracycline HCl (Terramycin®).	Control and prevention of external and systemic bacteria infections.	(1) <i>Bath</i> : used in tanks for six to eight hours at a concentration of 100 ppm or less. (2) <i>Feed</i> : fed at a rate of 3.75 grams of oxytetracycline per 100 pounds of fish per day.
Penicillin G potassium.	Control and prevention of external and systemic bacteria infections.	<i>Bath</i> : used in tanks for six to eight hours at a concentration of 150 IU/ml (500,000,000 IU/311.8 gm. Packet).

^a This Order prohibits Chloramine-T treatments in more than 2 raceways per day.

Drug or Chemical	Purpose of Application	Expected Method(s) of Application or Treatment
Potassium permanganate (Cairox™).	Control of external parasites and bacteria.	(1) <i>Flush</i> : used at a rate of 2 ounces per cfs of raceway flow, poured in all at once, for a total of 3 treatments, spaced 10 to 15 minutes apart (2.32 ppm for a 45 minute treatment, 3.48 ppm for a 30 minute treatment). (2) <i>Bath</i> : used at a rate of 2 ppm, or less, for one hour.
PVP Iodine	Disinfect and control diseases on fish eggs.	<i>Bath</i> : used at a concentration of 100 mg/L for 10 to 30 minutes.
Sodium bicarbonate.	Anesthetic.	<i>Bath</i> : used at a rate of 142 to 642 mg/L, usually in a small volume of water.
Sodium chloride (salt).	Fish cleansing, disease control, and stress reduction.	<i>Flush</i> : used at a rate of 150 to 700 pounds of salt per cfs of raceway flow.
Sulfadimethoxine-ormetoprim (Romet-30®).	Control and prevention of external and systemic bacteria infections.	<i>Feed</i> : used at a rate of 50 milligrams of drug per kilogram of fish per day.

ATTACHMENT J – DRUG AND CHEMICAL USAGE REPORT TABLE

Quarterly Drug and Chemical Use Report

Facility Name:
Quarter/Year:

Name of Drug or Chemical, and Active Ingredient	Date(s) of Application	Location and Purpose of Application	Method of Application or Treatment	Duration of Treatment	Static or Flush Treatment	Total Amount Applied	Flow in Treatment Unit (cfs)	Total Facility Flow (cfs)	Method of Disposal for Used Drug or Chemical
EXAMPLE: Terramycin, active ingredient oxytetracycline	2/15/06 to 2/25/06	Raceways A, B, C. Treatment for pseudomonas disease.	As additive through feed.	10 days	Not Applicable	5000 pounds of feed total @ 2.5 g/lb formulation (grams of oxytetracycline/ pound of feed) = 12,500 grams oxytetracycline	4 cfs	25 cfs	Minimal amount of uneaten feed discharged via Discharge Point 001.
EXAMPLE: Cairox, active ingredient Potassium permanganate	4/21/06	Raceways B, D. Treatment for bacterial gill disease.	Added directly to water in raceways.	1 hour	Flush	3 grams per raceway = 3 x 2 = 6 grams total	4 cfs	22 cfs	Discharged via Discharge Point 001.
EXAMPLE: Salt, active ingredient sodium chloride	6/1/06 to 6/4/06	Raceways A, B, C, D. osmoregulatory aid for the relief of stress and prevention of shock	Added directly to water in raceways.	3 days	Flush	200 pounds per raceway per day = 200 x 4 x 3 = 2400 pounds total	5 cfs	28 cfs	Discharged via Discharge Point 001.

Quarterly Drug and Chemical Use Report

Facility Name:
Quarter/Year:

Name of Drug or Chemical, and Active Ingredient	Date(s) of Application	Location and Purpose of Application	Method of Application or Treatment	Duration of Treatment	Static or Flush Treatment	Total Amount Applied	Flow in Treatment Unit (cfs)	Total Facility Flow (cfs)	Method of Disposal for Used Drug or Chemical

CA DEPARTMENT OF FISH & GAME
HOT CREEK FISH HATCHERY
ORDER NO. R6V-2006-0027
NPDES NO. CA0102776

ATTACHMENT K – SELF-MONITORING REPORT (SMR) FORMS

Date _____

California Regional Water Quality Control Board
Lahontan Region
14440 Civic Drive, Suite 200
Victorville, CA 92392

Facility Name: _____

Address: _____

Contact Person: _____

Job Title: _____

Phone: _____

Email: _____

WDR/NPDES Order Number: _____

WDID Number: _____

Type of Report (circle one): **Monthly** **Quarterly** **Semi-Annual** **Annual** **Other**

Month(s) (circle applicable month(s)*: **JAN** **FEB** **MAR** **APR** **MAY** **JUN**

JUL **AUG** **SEP** **OCT** **NOV** **DEC**

*annual Reports (circle the first month of the reporting period)

Year: _____

Violation(s)? (Please check one): _____ **NO** _____ **YES***

***If YES is marked complete items A through G below
(Attach additional information as necessary)**

a) Brief Description of Violation:

**b) Section(s) of WDRs/NPDES
Permit Violated:**

c) Reported Value(s) or Volume:

**d) WDRs/NPDES
Limit/Condition:**

**e) Date(s) and Duration of
Violation(s):**

f) Explanation of Cause(s):

g) Corrective Action(s)
(Specify actions taken and a schedule
for actions to be taken)

MONITORING LOCATION:

MONTH:

YEAR:

PARAMETER:					
SAMPLING FREQUENCY:					
SAMPLE TYPE:					
UNITS:					
LIMITS	MONTHLY AVG.				
	DAILY MAX.				
	MINIMUM				
	MAXIMUM				
DATE OF SAMPLE:	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
	13				
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	22				
	23				
	24				
	25				
	26				
	27				
	28				
	29				
	30				
	31				
MONTHLY AVG.					
DAILY MAX.					
MINIMUM					
MAXIMUM					

MONITORING LOCATION:

QUARTER AND/OR YEAR:

PARAMETER:						
SAMPLING FREQUENCY:						
SAMPLE TYPE:						
UNITS:						
LIMITS	MONTHLY AVG.					
	DAILY MAX.					
	MINIMUM					
	MAXIMUM					
Month and Date of Sampling						
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						
MONTHLY AVG.						
DAILY MAX.						
MINIMUM						
MAXIMUM						

RECEIVING WATER MONITORING: VISUAL CONDITIONS

MONITORING LOCATION: _____ **MONTH OR QUARTER:** _____ **YEAR:** _____

- | | | |
|---|------------|-----------|
| 1. Are floating or suspended matter present? | Yes | No |
| 2. Is discoloration present? | Yes | No |
| 3. Is a visible film, sheen or coating present? | Yes | No |
| 4. Are bottom deposits present? | Yes | No |
| 5. Are potential nuisance conditions present? | Yes | No |
| 6. Is aquatic life present? | Yes | No |
| 7. Are algae, fungi, slimes, or other aquatic vegetation present? | Yes | No |

Any additional comments.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Date: _____