

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0011

NPDES NO. CA 0083143

WASTE DISCHARGE REQUIREMENTS
FOR
SOUTH FEATHER WATER AND POWER AGENCY
MINERS RANCH WATER TREATMENT PLANT
BUTTE COUNTY

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

1. The South Feather Water and Power Agency (formerly the Oroville Wyandotte Irrigation District) (hereafter, the Discharger) submitted an Application/Report of Waste Discharge, dated 23 September 2002, and applied to renew its permit to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Miners Ranch Water Treatment Plant located in Butte County.
2. The Discharger owns and operates a potable water treatment plant (Facility) with a design capacity of 14.4 million gallons per day (mgd) that provides treated water for domestic and agricultural purposes. The facility is located in Section 18, Township 19 North, and Range 5 East of the Mt. Diablo Base Line and Meridian on Assessor's Parcel No. 069-390-002 as shown on Attachment A, a part of this Order. Wastewaters generated from the Facility operation are treated and discharged at Discharge Point 001 at latitude 39° 31' 6" and longitude 121° 27' 30" to Miners Ranch Reservoir, which is tributary to the Feather River via the Kelly Ridge Tunnel and Penstock, both waters of the United States.
3. Most wastewater generated by the facility is filter backwash water that is routed to a settling basin. Clarified water from the settling basin is discharged to Miners Ranch Reservoir. Solids from flocculation/sedimentation steps are discharged directly to the sludge basin. Supernatant and underflow from the sludge basin is infrequently discharged to the effluent line from the settling basin, ahead of the outfall. Sludge is stockpiled on site prior to being taken to a landfill. The Facility has piping in place for filter-to-waste discharges, however, the Discharger has never used and does not intend to use this capability.
4. Based on metering of filter backwash flow, the Application/Report of Waste Discharge reports an average discharge flow rate, over 365 days per year, of 0.2 mgd from 1999 through 2003. Monitoring Reports from 1999 through 2003 characterize the discharge from the facility as follows.

	1999 ^a	2000	2001	2002 ^a	2003 ^a
Flow^b (mgd)					
Monthly average based on discharging 365 days/year	0.17	0.19	0.19	0.25	0.20
Monthly average based on the number of days actually discharging	0.22	0.24	0.23	0.26	0.21
Daily maximum	0.60	0.57	0.53	0.71	0.43
pH Range	6.7 – 7.3	6.8 – 7.4	6.7 – 7.2	6.2 – 7.1	6.3 – 7.0
Set. Solids (mL/L)					
Monthly Avg.	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Monthly Max.	< 0.1	< 0.1	< 0.3	< 0.1	< 0.1
Chlorine (mg/L)					
Max.	0.14	0.05	1.0	ND	ND

^a Does not take into account flow data from July and August 1999, April 2002, and September 2003.

^b Filter backwash is measured and reported as effluent flow; however filters are not backwashed every day. For example, in June 1999, total backwash flow was 7.5 million gallons, and filters were backwashed on 26 days.

5. The water treatment plant lies within the Feather River Hydrologic Unit, Oroville Reservoir Hydrologic Sub Area (518.12), as depicted on interagency hydrologic maps prepared by the California Department of Water Resources (DWR) in August 1986. The mean annual rainfall in the area is approximately 30 inches, based on information from the U.S. Geological Survey and DWR.
6. The Regional Board adopted a *Water Quality Control Plan, Fourth Edition*, (Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and describes an implementation program and policies to achieve water quality objectives for all waters of the Basin. This includes plans and policies adopted by the State Water Resources Control Board (SWRCB) and incorporated by reference, such as Resolution No. 68-16, “Statement of Policy with Respect to Maintaining High Quality of Waters in California” (Resolution No. 68-16). These requirements implement the Basin Plan. The Basin Plans, as amended, designate beneficial uses, establish water quality objectives, and contain implementation plans and policies for waters of the Basins. Pursuant to the California Water Code (CWC) Section 13263(a), waste discharge requirements must implement the Basin Plans.
7. The United States Environmental Protection Agency (U.S. EPA) adopted the *National Toxics Rule* (NTR) on 22 December 1992, which was amended on 4 May 1995 and 9 November 1999, and the *California Toxics Rule* (CTR) on 18 May 2000, which was amended on 13 February 2001. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board (State Board) adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP) on 2 March 2000, which contains policies and procedures for implementation of the NTR and the CTR.

RECEIVING WATER BENEFICIAL USES

8. The Basin Plan on page II-1.00 states: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning..." and with respect to disposal of wastewaters states that "...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses." The Basin Plan on page II-2.00 states that: "Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams." The beneficial uses of Miners Ranch Reservoir are not specifically identified in the Basin Plan. However, releases from Miners Ranch Reservoir via the Kelly Ridge Tunnel are tributary to the reach of the Feather River from the "fish barrier dam" below Lake Oroville to the Sacramento River (lower Feather River). The beneficial uses of the lower Feather River are specifically identified in the Basin Plan.
9. The Basin Plan identifies the following beneficial uses of the lower Feather River, to which Miners Ranch Reservoir is tributary: municipal and domestic supply; agricultural irrigation supply; water contact and non-contact recreation; warm and cold freshwater habitat; migration of warm and cold aquatic organisms; warm and cold spawning, reproduction, and/or early development; and wildlife habitat. In addition, State Board Resolution No. 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution No. 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1.

The Discharger operates a hydropower facility that generates a significant quantity of electricity by utilizing water released from Miners Ranch Reservoir. Therefore, although the Basin Plan does not list specific beneficial uses for Miners Ranch Reservoir, and although hydropower generation is not listed as a beneficial use of the lower Feather River (to which Miners Ranch Reservoir is tributary), it is a beneficial use of Miners Ranch Reservoir.

10. Upon review of the flow conditions, habitat values, and beneficial uses of Miners Ranch Reservoir and the lower Feather River to which Miners Ranch Reservoir is tributary, the Regional Board finds that the beneficial uses identified in the Basin Plan for the lower Feather River, are applicable to Miners Ranch Reservoir, based upon the following facts:

a. Municipal and Domestic Supply, Agricultural Supply

The Discharger operates a municipal water treatment plant to provide potable water to its customers. The raw water source for the water treatment plant is Miners Ranch Reservoir. In addition to customers served by the water treatment plant, other domestic and agricultural supply customers receive untreated surface water diversions from Miners Ranch Reservoir. In addition to the existing water uses, growth in the area is expected to continue, which presents a potential for increased municipal, domestic, and agricultural uses of the water in Miners

Ranch Reservoir.

b. *Hydropower Generation*

The Discharger operates a hydropower facility that generates a significant quantity of electricity by utilizing water released from Miners Ranch Reservoir. Therefore, although the Basin Plan does not list specific beneficial uses for Miners Ranch Reservoir, and although hydropower generation is not listed as a beneficial use of the lower Feather River (to which Miners Ranch Reservoir is tributary), it is a beneficial use of Miners Ranch Reservoir.

c. *Water Contact and Non-Contact Recreation*

Although Miners Ranch Reservoir is not a public access lake, the Regional Board finds that the lower Feather River flows through rural and residential areas and that there is ready public access. Water contact and non-contact recreational activities exist and are likely to increase as the population in the area grows. Flow in the lower Feather River is supported, in part, by releases from Miners Ranch Reservoir. Water quality in the lower Feather River is affected by the quality of waters discharging to it, including discharges from Miners Ranch Reservoir.

d. *Warm and Cold Freshwater Habitat, Migration of Aquatic Organisms, Spawning, Reproduction, and/or Early Development, and Wildlife Habitat*

Although Miners Ranch Reservoir is not accessible to migrating aquatic organisms, releases of water from Miners Ranch Reservoir support beneficial uses in the lower Feather River. Water quality in the lower Feather River is affected by the quality of waters discharging to it, including discharges from Miners Ranch Reservoir. Warm and cold freshwater habitat, migration of aquatic organisms, spawning, reproduction, and/or early development, and wildlife habitat are beneficial uses that are highly sensitive to the quantity and quality of water present.

GROUNDWATER

11. The beneficial uses of groundwater, as identified in the Basin Plan, are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

REASONABLE POTENTIAL ANALYSIS AND EFFLUENT LIMITATIONS

12. U.S. EPA regulations at 40 CFR 122.4 (d) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. Besides water quality criteria contained in the CTR, applicable numerical and narrative water quality objectives are contained in the Basin Plan. The SIP contains guidance on implementation of the CTR and for determining reasonable potential for CTR pollutants. To determine reasonable potential for non-CTR pollutants, the Regional Board relies on

methodology presented in U.S. EPA's *Technical Support Document for Water Quality Based Toxics Control* (TSD) (EPA/505/2-90-001, 1991). For interpretation of narrative water quality objectives, the Regional Board also uses its *Compilation of Water Quality Goals* (2000) as a resource.

13. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.
14. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Board, using methodology described in Section 1.3 of the SIP, finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above applicable water quality standards for copper and chlorine. Effluent limitations for these constituents are included in this Order, as described below.

Copper

Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above CTR water quality criteria for copper. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. Freshwater aquatic habitat is a beneficial use of the receiving water. U.S. EPA recommends conversion factors (translators) to translate dissolved concentrations of certain metals to total recoverable concentrations. The translator for copper in freshwater is 0.960 for both the acute and the chronic criteria. Using a water hardness of 19 mg/L as CaCO₃ (the lowest hardness value observed in the receiving water), the most stringent applicable water quality standards for copper are 2.2 and 2.8 ug/L (dissolved) based on the CTR chronic and acute criteria, respectively, for protection of aquatic life. In samples collected on 5 February 2002, copper (total recoverable) was measured at 1.0 ug/L in the receiving water and at 3.3 ug/L in the effluent. After applying the translator, the highest effluent water sample concentration exceeds the water quality criteria and therefore, effluent limitations are required. Determination of reasonable potential and calculation of effluent limits is further explained in the attached Information Sheet for this Order.

The effluent limitation for copper is a new requirement in this Order. 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 RWQCB may establish a compliance schedule in an NPDES permit.*" This Order also contains an interim, performance based, maximum daily effluent limit of 10 ug/L (total recoverable) for copper for discharges to Miners Ranch Reservoir. This limit is based on maintaining the copper loading at the current level and was derived using the maximum observed effluent copper concentration. The interim limit will become effective only if the Discharger submits adequate justification for interim limits and a compliance schedule in accordance with requirements described in

Section 2.1 of the SIP. If adequate justification is received, the final effluent limits will not become effective until 5 years after adoption of this Order, as described in this Order. If such justification is not submitted, final limits will become effective 90 days after the date this Order is adopted.

15. As stated in the findings, above, the U.S. EPA adopted the NTR and the CTR, which contain water quality standards applicable to this discharge, and the SIP contains guidance on implementation of the NTR and CTR. The SIP, Section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must: be based on current treatment plant performance or existing permit limitations, whichever is more stringent; include interim compliance dates separated by no more than one year; and be included in the Provisions.

The interim limits in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations would be established as the mean plus 3.3 standard deviations of the available data. If actual sampling showed an exceedance of the proposed 3.3-standard deviation interim limit, the maximum detected concentration would be established as the interim limitation. When there are fewer than ten sampling data points available (as is the case for this Order), the TSD recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed sampling point to obtain the daily maximum interim limitation (*TSD, Table 5-2*). The Regional Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with NTR- and CTR-based effluent limitations cannot immediately be achieved in the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. For example, U.S. EPA states in the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for copper, that it will take an unstressed system approximately three years to recover from a pollutant in which exposure to copper exceeds the recommended criterion. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the final effluent limitations can be achieved.

This Order establishes an interim, performance based, maximum daily effluent limitation of 10 ug/L (3.3 ug/L x 3.11) for copper for discharges to Miners Ranch Reservoir.

16. Compliance Schedule for Copper

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 RWQCB may establish a compliance schedule in an NPDES permit.” Section 2.1 further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: “(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control and/or pollution minimization efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.” This Order requires the Discharger to provide this information for copper. Final water quality-based effluent limits for copper become effective 90 days after the date this Order is adopted if adequate justification for interim limits and a compliance schedule is not completed and submitted by the Discharger to the Regional Board. If adequate justification is submitted, the final water quality-based effluent limits for copper will become effective 5 years after the date this Order is adopted, as described in this Order.

17. Chlorine

The Basin Plan includes a narrative water quality objective for toxicity that requires all receiving waters to be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. To interpret narrative criteria, the Regional Board relies on its *Compilation of Water Quality Goals* (2000), which includes U.S. EPA recommended, chronic and acute criteria for chlorine for protection of aquatic life of 11 and 19 µg/L, respectively. Based on the Discharger’s use of chlorine for disinfection and on information included in discharge monitoring reports submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the narrative water quality objective of the Basin Plan for toxicity. Using methodology from the TSD, average monthly and maximum daily effluent limitations of 0.01 and 0.02 mg/L, respectively, are being established by this Order. Because the Discharger has been subject to a receiving water limitation, which prohibited detectable levels of chlorine in the receiving water, the Discharger is expected to be able to immediately comply with final effluent limitations for chlorine, and interim limits and a compliance schedule are not warranted and will not be established for chlorine.

18. The Discharger utilizes aluminum based coagulants in its operation. In the *Filter Backwash Recycling Rule Technical Guidance Manual* (EPA 816-R-02-014, December 2002), the U.S. EPA Office of Ground Water and Drinking Water has cited studies that report higher levels of aluminum, attributable to carryover from aluminum coagulants, in spent filter backwash than found in both raw waters and raw waters after chemical addition. The Basin Plan requires the Regional Board to consider information submitted by the Discharger and other interested

parties, and numerical criteria and guidelines developed by other agencies and organizations, in determining what numeric limitations will properly implement the narrative toxicity objective. U.S. EPA developed National Recommended Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for aluminum at 87 ug/L as a four-day average (chronic) and 750 ug/L as a one-hour average (acute). U.S. EPA's 2002 National Recommended Water Quality Criteria summary document notes that these criteria were developed at low hardness values. It also states that aluminum is substantially less toxic at higher hardness values, but the effects of hardness on the criteria are not well quantified at this time. In samples collected on 5 February 2002 by the Discharger, water hardness in Miners Ranch Reservoir was very low at 19 mg/L as CaCO₃. Aluminum exists as aluminum silicate in suspended clay particles, which U.S. EPA acknowledges might be less toxic than other forms of aluminum. Correspondence with U.S. EPA indicates that the criterion is not intended to apply to aluminum silicate particles. Therefore, a monitoring method that excludes clay particles is likely to be more appropriate. The use of acid-soluble analysis for compliance with the aluminum criterion appears to satisfy U.S. EPA. Current monitoring data is insufficient to determine reasonable potential for aluminum. In accordance with California Water Code Section 13267, this Order establishes monitoring requirements for aluminum. If after review of the monitoring results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality standard, this Order may be reopened and effluent limitations added for aluminum.

19. The Discharger discharges clean or relatively pollutant free waters from well development water, construction dewatering, pump/well testing, pipeline/tank pressure testing, pipeline/tank flushing or dewatering, condensate discharges, other water supply system discharges, and other miscellaneous dewatering/low threat discharges during its normal operation and maintenance activities. These discharges occur at multiple locations and at variable quantity and duration. These discharges are currently required to be regulated by Order No. 5-00-175, General Order for Dewatering and Other Low Threat Discharges to Surface Waters. This Order includes requirements regarding such discharges, and upon adoption of this Order, the Discharger does not need to seek coverage under the General Permit for Dewatering and Other Low Threat Discharges to Surface Waters for these discharges.
20. U.S. EPA promulgated regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The regulations define specific categories of industrial activities that are required to seek coverage under an NPDES permit for storm water discharges associated with industrial activity. If applicable, the Discharger shall seek coverage for discharges of storm water under State Water Resources Control Board Water Quality Order No. 97-03-DWQ (NPDES General Permit No. CAS000001), Waste Discharges Requirements for Discharges of Storm Water Associated with Industrial Activities, or its revision/replacement.
21. The Discharger periodically removes sludge from the settling pond at the treatment plant site. This sludge must be properly characterized and disposed of in a timely manner. This Order requires that the Discharger to review its current Sludge Management and Disposal Plan,

- make necessary changes, and submit a copy to the Regional Board for the ongoing management of sludge, **within 6 months** of the date this Order is adopted.
22. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.
 23. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.
 24. This Order requires monitoring for the purposes of assessing compliance with permit limitations and water quality objectives and gathering information to evaluate the need for additional limitations.
 25. Section 13267 of the California Water Code states, in part, “(a) A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation..., the regional board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.” The attached Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267.
 26. The Discharger is currently regulated pursuant to Waste Discharge Requirements Order No. 98-063 (NPDES No. CA0083143), adopted by the Regional Board on 17 April 1998.
 27. The U.S. EPA and the Regional Board have classified this discharge as a minor discharge.
 28. The Regional Board has considered the information in the attached Information Sheet in developing the findings of this Order. The attached Information Sheet and Monitoring and Reporting Program and Attachments A and B, are all parts of this Order.
 29. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
 30. The Regional Board, in a public meeting, has heard and considered all comments pertaining to the discharge.

31. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect 10 days from the date of the final public hearing regarding this Order, provided U.S. EPA has no objections.

IT IS HEREBY ORDERED that Order No. 98-063 is rescinded and the South Feather Water and Power Agency, Miners Ranch Water Treatment Plant, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of wastewater and low threat discharges, at locations or in a manner different from that described by this Order is prohibited.
2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13 [see attached *Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)*, February 2004].
3. The discharge of untreated wastes from water treatment operations to surface waters is prohibited.
4. The discharge of hazardous or toxic substances, which may include laboratory and water treatment chemicals, solvents, or petroleum products (including oil, grease, gasoline and diesel) to surface waters or groundwater is prohibited.
5. Discharge of hazardous waste, as defined at Title 23, Division 3, Chapter 15, Article 2, Section 2521 of the California Code of Regulations or designated waste, as defined at Section 13173 of the California Water Code, is prohibited.

B. Effluent Limitations

1. Discharge 001
 - a. Effluent from Discharge 001 shall not exceed the following limits.

<u>Constituent</u>	<u>Units</u>	<u>AMEL^c</u> <u>(30-Day Avg)</u>	<u>MDEL^f</u> <u>(Max Daily)</u>
Settleable Solids	mL/L	0.1	0.2
Suspended Solids	mg/L	30	50
	lbs/day ^a	258	430
	lbs/day ^b	415	692
Chlorine	mg/L	0.01	0.02
	lbs/day ^a	0.09	0.17
	lbs/day ^b	0.14	0.28
Copper ^c	µg/L ^c	Variable based on water hardness. Must calculate. See Attachment B - Copper.	
	lbs/day ^{a,c,d}		
	lbs/day ^{b,c,d}		

- ^a Based on a design flow through wastewater handling and treatment systems of 1.03 mgd.
- ^b Based on a design flow through wastewater handling and treatment systems of 1.66 mgd, during the filter loading study period described in this Order. If the Department of Health Services (DHS) approves continued operation at the increased filter loading rates, these mass based limits will become permanently effective, when the Discharger provides written notice to the Regional Board of such DHS approval including the applicable conditions of approval.
- ^c Final effluent limitations. Interim effluent limits may supercede, as described in this Order.
- ^d To calculate lbs/day, multiply ug/L limit by 8.34, then multiply by the appropriate design flow (1.03 mgd or 1.66 mgd), then divide by 1000.
- ^e AMEL means the highest allowable average of daily pollutant discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of measurements.
- ^f MDEL means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period).

- b. The discharge shall not have a pH less than 6.0 nor greater than 9.0.
- c. Survival of aquatic organisms in 96-hour acute bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay ----- 70%
 Median for any three or more consecutive bioassays -- 90%

- d. The maximum daily discharge flow shall not exceed 1.03 million gallons, except during the filter loading rate study period when the maximum daily discharge flow shall not exceed 1.66 mgd. If DHS approves continued operation at the increased filter loading

rates of the study, the maximum daily flow rate shall become 1.66 mgd, when the Discharger provides written notice to the Regional Board of such DHS approval including the applicable conditions of approval.

2. Interim effluent limits are established for copper. This interim limit may supercede the final limit, above, as described in this Order. The effluent discharge from Discharge 001 shall not exceed the following interim limit:

<u>Constituent</u>	<u>Units</u>	<u>Max Daily</u>
Copper	ug/L	10

3. Low Threat Discharges

- a. Low threat discharges shall not exceed the following limits:

<u>Constituents</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
Flow ^a	mgd			0.25
Total Suspended Solids	mg/L	10	15	30
Settleable Solids	mL/L			0.1

^a If greater than four months in duration.

- b. Low threat discharges shall not contain chlorine in excess of 0.02 mg/L (instantaneous maximum).

C. Receiving Water Limitations

Receiving water limitations are based upon water quality objectives contained in the Basin Plan, and as such, they are a required part of this permit.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/L. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation. The Discharger is not required to improve background dissolved oxygen conditions in the receiving water.
2. Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the water surface or on objects in the water, or otherwise adversely affect beneficial uses.
3. Discoloration that causes nuisance or adversely affects beneficial uses.

4. Ambient pH to be depressed below 6.5, nor raised above 8.5, nor changes in normal ambient pH levels to be exceeded by more than 0.5 units.
5. Biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
6. Floating material in amounts that cause nuisance or adversely affect beneficial uses.
7. Suspended sediment load and suspended sediment discharge rate altered in such a manner to cause nuisance or adversely affect beneficial uses.
8. Suspended sediment concentrations that cause nuisance or adversely affect beneficial uses.
9. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.
10. The turbidity to increase as follows:
 - a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs
11. The ambient temperature in the receiving water to increase more than 5° F above natural receiving water temperature.
12. Deposition of material that causes nuisance or adversely affects beneficial uses.
13. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
14. Toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This applies regardless of whether toxicity is caused by a single substance or the interactive effect of multiple substances.
15. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Board pursuant to the CWA and regulations adopted thereunder.

16. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.
17. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 mL or cause more than 10 percent of total samples to exceed 400 MPN/100 mL.
18. Upon adoption of any applicable water quality standard for receiving waters by the Regional Board or the State Board pursuant to the CWA or regulations adopted thereunder, this permit may be reopened and receiving water limitations added.

D. Discharge Requirements for Low Threat Discharges

1. The following discharges are authorized by this Order provided they do not contain significant quantities of pollutants, and they do not exceed 0.25 mgd unless four months or less in duration.
 - a. Well development water including testing or start up;
 - b. Construction dewatering;
 - c. Pump/well testing;
 - d. Pipeline/tank pressure testing;
 - e. Pipeline/tank flushing or dewatering;
 - f. Condensate discharges;
 - g. Miscellaneous water supply system discharges; and,
 - h. Other miscellaneous dewatering/low threat discharges.
2. Collected screenings and other solids removed from piping, tanks, and other equipment prior to discharge shall be disposed of in a manner consistent with Title 23 of the California Code of Regulations Chapter 15, Division 3.
3. The Discharger shall prepare a Pollution Prevention, Monitoring, and Reporting Plan (PPMRP) for Low Threat Discharges, to address all expected discharges. The PPMRP should address or include the following:
 - a. The PPMRP shall provide a general description of the raw water supply and distribution systems, types and frequency of potential discharges, potential discharge

locations, possible pollutant types, possible flow rates and duration, and receiving waters.

- b. The Plan shall identify best management practices (BMPs) for each type of discharge that will be used to prevent or minimize the discharge of pollutants. Where appropriate, BMPs shall include, but not be limited to the following.
 - i. Prior to testing or flushing of empty tanks and pipelines, solid wastes shall be removed for proper disposal.
 - ii. Erosion and sedimentation control practices at discharge point(s) shall be implemented, if necessary. Discharges shall adhere to applicable State and local recommended procedures for erosion and sediment control.
 - iii. The discharge of waters must be controlled to the lowest possible rate to minimize potential impacts on aquatic life and to reduce erosion. Adequate dewatering structures and velocity dissipation devices shall be used when necessary to prevent and minimize erosion, stream scouring, increases in turbidity, and any other potential damage to receiving waters. Such devices may include splash pads, straw bales, silt fences, and vegetated buffer zones. The discharge shall not cause downstream flooding conditions.
 - iv. Discharges shall be conducted to avoid potential pollution to private or public water wells.
 - v. Dechlorination methods shall be used to assure that discharges to surface waters do not contain a chlorine residual in excess of 0.02 mg/L.
 - vi. The Discharger shall evaluate the need for treatment of low threat waters before discharge to meet the effluent limitations and requirements of this Order. Possible treatment technologies to evaluate include filtration, settling ponds, and/or pumping to upland areas.
- c. Develop a representative sampling and monitoring program
 - i. The Pollution Prevention, Monitoring, and Reporting Plan for Low Threat Discharges shall include a monitoring schedule for low threat discharges. The plan shall include the following provisions:
 - The discharge (rate of flow and duration) shall be estimated for all discharges.
 - Sampling and analyses are not required for every dewatering water and other low threat discharge, if the Discharger can provide reasonable assurance that discharges will comply with the prohibitions and limitations of this Order. However, a sampling and analysis program shall be developed and

implemented to monitor a representative selection of low threat discharges to verify that the discharges comply with this Order.

- When reasonable assurance cannot be provided that a discharge will comply with the prohibitions and limitations of this Order, at least one sample of the discharge shall be collected per day at a location prior to its entry into a receiving body of water. The sample shall be collected to reflect the character of the discharge during the first 1,000 gallons of the discharge. This sample shall be analyzed for chlorine and settleable and suspended solids.
- When reasonable assurance cannot be provided that a discharge will comply with the prohibitions and limitations of this Order, and the discharge will be greater than 50,000 gallons, at least two samples shall be collected per day at a location prior to its entry into a receiving body of water. Samples shall be collected to reflect the character of the discharge during the first and last 1,000 gallons of the discharge. These samples shall be analyzed for chlorine and settleable and suspended solids.
- When reasonable assurance cannot be provided that a discharge will comply with the prohibitions and limitations of this Order, observations of the discharge and of the receiving water shall be made and recorded on a daily basis and reflect the worst-case conditions observed in terms of: floating or suspended matter, discoloration and turbidity, erosion, odors, films, sheens, and other potential nuisance conditions.

d. Records and Reporting

- i. The Discharger shall make a record of each discharge event. The record shall include: the date, time, location, and duration of the discharge event; source of the water being discharged; a measurement or estimate of the total flow volume; observations as to the appearance of the discharge and erosion that resulted; best management practices that were used; and analyses performed, if any. When analytical results are received, they shall be included in the record.
 - ii. Analyses and observations shall be recorded and reported to the Regional Board in a timely manner within the monthly Discharge Monitoring Reports. Reporting shall also identify any violations of this Order, corrective action steps taken to comply with the Order, and complaints received from neighbors or other interested parties.
- e. The PPMRP shall be revised and updated as necessary to reflect applicable changes in the Discharger's practices.
4. The Discharger shall meet all other requirements and conditions of this Order.

E. Sludge Handling and Disposal

1. Screenings, sludges, and other solids collected and generated on site shall be disposed of in a manner approved by the Regional Board and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste* as set forth in Title 27, Division 2, Subdivision 1 of the California Code of Regulations.
2. Any proposed change in sludge use or disposal practices shall be reported to the Regional Board at least 90 days in advance of the change.
3. **Within 180 days** of the date this Order is adopted, the Discharger shall review and update its existing Sludge Disposal Plan, and submit it to the Regional Board. The Updated plan shall describe:
 - a. Sources and amounts of sludge generated annually.
 - b. Location(s) of on site storage and a description of the containment area.
 - c. Plans for ultimate disposal. For landfill disposal include the Regional Board's waste discharge requirement numbers that regulate the particular landfill; the present classification of the landfill; and the name and location of the landfill. For land application, include the location of the site; the Regional Board's waste discharge requirement numbers that regulate the site; the anticipated sludge application rate in lbs/acre/year (specify wet or dry); and the land use.
 - d. Proposed frequency and time schedule for removing sludge from the site.

F. Ground Water Limitations

1. The discharge shall not cause the underlying groundwater to be degraded.

G. Provisions

1. The Discharger shall comply with *Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)* (February 2004), which are a part of this Order. This attachment and its individual provisions are referred to as "Standard Provisions."
2. The Discharger shall comply with the attached Monitoring and Reporting Program No. R5-2005-0011, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.

If requested by U.S. EPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be not later than the submittal date specified in the Monitoring and Reporting Program.

3. If applicable, the Discharger shall comply with the requirements of Division 20, Chapter 6.67 of the Health and Safety Code, known as the Aboveground Petroleum Storage Act. These requirements include preparation of a Spill Prevention Control and Countermeasure Plan in accordance with 40 CFR Part 112.

4. **Compliance Schedule for Copper**

This Order contains effluent limits based on water quality criteria contained in the CTR for copper. The Discharger shall complete and submit a justification for interim limits and a compliance schedule within 90 days of the date this Order is adopted. Justification for interim limits and compliance schedules shall include all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. If proper justification for interim limits and a compliance schedule is not completed and submitted by the Discharger, final water quality based effluent limitations for copper shall become effective immediately after 90 days from the date this Order is adopted. If adequate justification for interim limits and a compliance schedule is submitted for copper, and interim effluent limits become effective, final water quality based effluent limits for this pollutant shall not become effective until 5 years after the date this Order is adopted. As these compliance schedules are greater than one year, the Discharger shall submit semi-annual progress reports on **15 January** and **15 July** of each year until the Discharger achieves compliance with the final water quality based effluent limits for copper.

Compliance Schedule for Copper

Interim Requirement	Completion Date
1. Identify potential sources by water quality monitoring of raw water, product water at various stages of treatment, and the various wastewater streams.	1 year after the date this Order is adopted.
2. Prepare a Pollutant Minimization Plan	2 years after the date this Order is adopted.
3. Implement pollutant minimization measures and evaluate treatment upgrades necessary to achieve compliance with final limitations.	3 years after the date this Order is adopted.
4. Implement selected WWTP operational measures and/or treatment upgrades. Final effluent limits become effective.	5 years after the date this Order is adopted.

5. The Discharger shall conduct the monitoring and reporting specified in the attached Monitoring and Reporting Program. If sufficient information is collected and indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numerical water quality standard, then this Order may be reopened to include effluent limit(s) to achieve water quality standards. Additionally, if pollutants are detected in discharges from the Discharger's facility, but insufficient information exists to establish an effluent limit or determine if an effluent limit is necessary, the Discharger may be required to conduct additional monitoring to provide sufficient information.

6. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation and/or limitations for the specific toxicants identified in the TRE shall be included. Additionally, if a chronic toxicity water quality objective is adopted by the State Board, this Order may be reopened.
7. This Order expires on **1 January 2010** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than **180 days** in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.
8. In the event of any change in control or ownership of land or waste discharge facilities, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the succeeding owner or operator's full legal name; the State of incorporation if a corporation; the name, address, and the telephone number of the persons responsible for contact with the Regional Board; and a statement that the new owner or operator assumes full responsibility for compliance with this Order. The application shall comply with the signatory paragraph of Standard Provision D.6. Continued discharge without submission of a request to transfer shall be considered an unauthorized discharge in violation of the California Water Code. Transfer will be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 27 January 2005.

THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0011

NPDES NO. CA0083143

FOR
SOUTH FEATHER WATER AND POWER AGENCY
MINERS RANCH WATER TREATMENT PLANT
BUTTE COUNTY

INTRODUCTION

This Monitoring and Reporting Program is issued pursuant to California Water Code Section 13383 and includes: effluent monitoring of discharges to waters of the United States and waters of the State, and receiving water monitoring. All water quality samples shall be representative of the volume and nature of the discharge, or representative of the matrix of material sampled. The time, date, and location of sample collection shall be recorded on a chain of custody (COC) form. COC forms shall be completed for each sample collected and copies provided to the Regional Board with the monthly monitoring reports.

All water quality sampling and analyses shall be performed in accordance with the Monitoring and Reporting Requirements as outlined in the Standard Provisions of this Order. Water quality sample collection, storage, and analyses shall be performed according to 40 CFR Part 136, or other methods approved and specified by the Executive Officer. Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DHS), except when a certified laboratory is not reasonably available to the Discharger, in which case a non-certified laboratory operating in compliance with an approved Quality Assurance-Quality Control program may be used.

EFFLUENT MONITORING

Effluent samples shall be collected at Discharge 001 downstream from the last connection through which wastes can be admitted to the discharge line to Miners Ranch Reservoir. Effluent monitoring shall include at least the following:

Constituent	Units	Type of Sample	Sample Frequency
Flow	mgd		continuous
pH	pH units	Grab	weekly
Turbidity	NTUs	Grab	weekly
Chlorine	mg/L	Grab	weekly
Settleable Solids	mL/L	Grab	2X per month

Constituent	Units	Type of Sample	Sample Frequency
Suspended Solids	mg/L	Grab	2X per month
Hardness	mg/L	Grab	quarterly
Aluminum	µg/L	Grab	quarterly
Copper	µg/L	Grab	quarterly
Acute toxicity ¹	TUa	Grab	annually
Chronic Toxicity ²	TUc	Grab	one time in permit lifecycle
CTR Pollutants ³	µg/L	24 hr composite	one time in permit lifecycle

¹ Effluent shall be monitored for acute toxicity one time per year in accordance with procedures described below.

² Effluent shall be monitored for chronic toxicity one time in the five-year permit lifecycle in accordance with procedures described below.

³ Samples shall be analyzed for the toxic priority pollutants identified by the California Toxics Rule at 40 CFR 131.38. Effluent samples shall be collected simultaneously with receiving water samples to be analyzed for the CTR pollutants. Monitoring shall be conducted in accordance with procedures described below.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water samples shall be taken from the following stations.

Receiving Water Sampling Stations

Station	Station Description
R-1	Approximately 50 feet upstream from the discharge point in Miners Ranch Reservoir.
R-2	Approximately 50 feet downstream from the discharge point in Miners Ranch Reservoir, or from the raw water intake structure at the water treatment plant.

Receiving water samples shall be analyzed according to the following schedule.

Receiving Water Monitoring Schedule

Constituent	Units	Station	Sampling Frequency
CTR Pollutants ¹	µg/L	R-1	one time in permit lifecycle
pH ²	pH units	R-1, R-2	weekly (depends on effluent)

Constituent	Units	Station	Sampling Frequency
pH	pH units	R-1	quarterly ³
Turbidity ⁴	NTU	R-1, R-2	weekly (depends on effluent)
Hardness	mg/L	R-1	quarterly ³
Visual Observations		R-1, R-2	weekly ⁵

¹ 24-hour composite samples shall be analyzed for the toxic priority pollutants identified by the California Toxics Rule at 40 CFR 131.38. Receiving water samples shall be collected simultaneously with effluent samples to be analyzed for the CTR pollutants. Monitoring shall be conducted in accordance with procedures described below.

² When effluent pH monitoring indicates that the pH is less than 6.5 or greater than 8.5 then receiving water pH monitoring shall immediately be performed.

³ To be collected at the same time as effluent samples.

⁴ When effluent turbidity monitoring indicates that the turbidity is greater than 10 NTU then receiving water turbidity monitoring shall immediately be performed.

⁵ One time per week, the Discharger shall observe receiving water conditions throughout the reach bounded by Stations R-1 and R-2 and record observations pertaining to:

- Floating or suspended matter
- Discoloration
- Aquatic life
- Bottom deposits
- Films, sheens, and coatings
- Algae, fungi, and slime growth
- Potential nuisance conditions

ACUTE TOXICITY MONITORING

Acute toxicity of the effluent shall be such that (i) the average survival of rainbow trout in undiluted effluent for any three consecutive 96-hour static renewal tests shall be at least 90 percent, and (ii) no single test producing less than 70 percent survival.

If any acute toxicity bioassay test result is less than 90 percent survival, the Discharger shall conduct six additional tests over a six-week period. The Discharger shall ensure that results of a failing acute toxicity test are received within 24 hours of the completion of the test, and the additional tests shall begin within 3 business days of the receipt of the result. If the additional tests indicate compliance with acute toxicity limitation, the Discharger may resume regular testing. If the results of any two of the six accelerated tests are less than 90 percent survival, however, then the Discharger shall begin a Toxicity Identification Evaluation (TIE). The TIE shall include all reasonable steps to identify the source(s) of toxicity. Once the source(s) of

toxicity is identified, the Discharger shall take all reasonable steps to reduce the toxicity to meet the objective.

CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA-821-R-02-013, *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, October 2002. Effluent, collected at Discharge 001 prior to entry into the reservoir, shall be tested for chronic toxicity **one time at least 180 days prior to expiration of this Order**. If undiluted effluent exhibits toxicity, the Discharger shall sample during the next available discharge event and conduct the test using the dilution series specified below. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of sample collection shall be recorded. Dilution and control waters shall be provided by the laboratory or collected from the untreated potable water supply at the facility. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. The results shall be submitted with the monitoring report and include the following:

Species: Pimephales promelas, Ceriodaphnia dubia, and Selenastrum capricornutum

	<u>Dilutions (%)</u>					<u>Controls</u>	
	100	75	50	25	12.5	Receiving Water	Lab Water
% Discharge Effluent	100	75	50	25	12.5	0	0
% Dilution Water ¹	0	25	50	75	87.5	100	0
% Lab Water	0	0	0	0	0	0	100

¹ Dilution water shall be receiving water from Miners Ranch Reservoir. If the receiving water exhibits toxicity, or if no receiving water is available, the Discharge may be required to use lab water as dilution water. The dilution series may be modified after the initial test upon approval of the Executive Officer.

PRIORITY POLLUTANT MONITORING

The State Implementation Policy (SIP) requires periodic testing for the toxic priority pollutants established by the CTR at 40 CFR 131.38. Prior to expiration of this Order, the Discharger shall conduct one sampling event and analysis for the CTR pollutants in receiving water and effluent. The Discharger is not required to perform asbestos monitoring. Receiving water samples shall be collected simultaneously and analyzed for the CTR pollutants plus pH and hardness. All

analyses shall be performed at a laboratory certified by the California Department of Health Services. The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each of the analytes. Laboratory methods and limits shall be as described in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (2000), unless a variance has been approved by the Executive Officer. If, after a review of the monitoring results, it is determined that the discharge causes, has the reasonable potential to cause, or contributes to in-stream excursions above water quality objectives, this Order will be reopened and limitations based on those objectives will be included. Additionally, if pollutants are detected, but insufficient information exists to establish an effluent limit or determine if an effluent limit is necessary, then additional monitoring will be required to provide sufficient information.

All organic analyses shall be by Gas Chromatography/Mass Spectrometry (GCMS), Method 8260B for volatiles and Method 8270C for semi-volatiles. Pesticides shall be analyzed by Method 8081A. Dioxins shall be analyzed by Method 1613/8290. If organic analyses are run by Gas Chromatography (GC) methods, any detectable concentrations are to be confirmed by GCMS. Inorganics shall be analyzed by the following Methods.

Analysis for the dioxin congeners shall be performed as described in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* using High Resolution Mass Spectrometry.

Metals shall be analyzed by the U.S. EPA methods listed below. Alternative analytical procedures may be used with approval by the Regional Board if the alternative method has the same or better detection level than the method listed.

Method Description	EPA Method	Constituents
Inductively Coupled Plasma/Mass Spectrometry (ICP/MS)	1638	Antimony, Beryllium, Cadmium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Total Chromium, Zinc
Cold Vapor Atomic Absorption (CVAA)	1631	Mercury
Gaseous Hydride Atomic Absorption (HYDRIDE)	206.3	Arsenic
Flame Atomic Absorption (FAA)	218.4	Chromium VI
Colorimetric	335./ 2 or 3	Cyanide

The laboratory is required to submit the Minimum Level (ML) and the Method Detection Limit (MDL) with the reported results for each constituent. The MDL should be as close as practicable to the U.S. EPA MDL determined by the procedure found in 40 CFR Part 136. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

- a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory.
- b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
- c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration." Numerical estimates of data quality may be by percent accuracy (+ or – a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
- d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

LOW THREAT DISCHARGES

The Discharger shall implement the sampling and monitoring requirements within its Pollution Prevention and Monitoring and Reporting Program, as described in this Order.

SLUDGE MONITORING

Within 180 days from the date this Order is adopted, and each **15 July thereafter**, the Discharger shall submit a revised sludge disposal plan, which shall include the following:

1. Estimate of average annual sludge production in dry tons and percent solids.
2. Description of sludge storage and alternative uses (if applicable) to disposal.
3. A description of disposal methods.
 - a. For **landfill disposal**, include: (1) the Board's waste discharge requirements numbers that regulate the landfill(s) used; (2) the present classifications of the landfill(s) used; and (3) the names and locations of the facilities receiving sludge.

- b. For **land application**, include: (1) the location of the site(s); (2) the Board's waste discharge requirements numbers that regulate the site(s), if applicable; (3) the application rate in lbs/acre/year (specify wet or dry); and (4) subsequent uses of the land.
 - c. For **incineration**, include: (1) the names and locations of the site(s) where sludge incineration occurs; (2) the Board's waste discharge requirements numbers that regulate the site(s); (3) the ash disposal method; and (4) the names and locations of facilities receiving ash (if applicable).
4. A representative characterization of sludge quality including sludge percent solids and quantitative results of chemical analyses for the Title 22 metals.
 5. Status and proposed time schedule for disposal of sludge.

REPORTING

Monitoring reports shall be submitted to the Regional Board by the **1st day of the second month** following sample collection (e.g., the January report is due by 1 March). Any quarterly or annual monitoring results shall be submitted by the **1st day of the second month** following each calendar quarter and year, respectively. All reports submitted in response to this Order shall comply with signatory requirements of Standard Provision D.6. Effective in January 2004, any NPDES effluent monitoring report received more than 30 days after its due date is subject to a \$3000 Mandatory Minimum Penalty [Water Code Section 13385]. An additional \$3000 penalty is required for each 30 days a report is late. If you have no discharge, you must still submit a report indicating that no discharge occurred, or you will be subject to the \$3000 Penalties.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with the waste discharge requirements.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By 1 February of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

- a. The names, certificate grades, and general responsibilities of all persons employed at the water treatment plant (Standard Provision A.5).

- b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
- c. A statement certifying when the flow meter and other monitoring instruments and devices used to comply with this permit were last calibrated, including identification of the person performing the calibration (Standard Provision C.6).

The Discharger may also be requested to submit an annual report to the Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

The Discharger shall implement the Monitoring and Reporting Program beginning on the effective date of this Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

27 January 2005

BJS

INFORMATION SHEET

ORDER NO. R5-2005-0011
SOUTH FEATHER WATER AND POWER AGENCY
MINERS RANCH TREATMENT PLANT
BUTTE COUNTY

GENERAL INFORMATION

The South Feather Water and Power Agency (hereafter, the Discharger) submitted an Application/Report of Waste Discharge, dated 23 September 2002, and applied to renew its permit to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Miners Ranch Water Treatment Plant. The Discharger is currently regulated under Waste Discharge Requirements Order No. 98-063 (NPDES No. CA0083143), adopted by the Regional Water Quality Control Board (Regional Board) on 17 April 1998.

The Discharger owns and operates a water treatment plant (WTP) with a design capacity to provide up to 14.4 million gallons per day (mgd) of potable water for domestic and agricultural purposes. The facility is located in Section 18, Township 19 North, and Range 5 East of the Mt. Diablo Base Line and Meridian on Assessor's Parcel No. 069-390-002. Treated wastewater is discharged at latitude 39° 31' 6" and longitude 121° 27' 30" to Miners Ranch Reservoir, a man-made impoundment adjacent to Lake Oroville. Miners Ranch Reservoir inflow is from the Dischargers system of canals and tunnels that deliver water from foothill and mountain reservoirs. Outflow from Miners Ranch Reservoir is to the Feather River via the Kelly Ridge Tunnel and Penstock. An agricultural water canal also diverts water directly from Miners Ranch Reservoir. The WTP intake structure is located in the outlet canal from Miners Ranch Reservoir to the Kelly Ridge Tunnel. The WTP lies within the Oroville Reservoir Hydrologic Sub Area (518.12), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

Typically, the WTP operates as a direct filtration plant in summer months and uses its settling capability ahead of filtration in winter months. Alum and a polymer are added to aid flocculation, and prechlorination occurs immediately before filtration. Filtered water is chlorinated again before entering a 1.5 million gallon clearwell. The use of zinc orthophosphate as a corrosion inhibitor has recently been discontinued, as the District is steadily replacing distribution system piping with non-corrosive materials.

Treated water is used to backwash filters, and the filter backwash water is then dechlorinated and discharged to a wash water settling basin. From the settling basin, clarified water is discharged to Miners Ranch Reservoir, and solids are discharged to a sludge basin. The WTP has piping in place for filter-to-waste discharges; however, the Discharger has never used and does not intend to use this capability. Solids from flocculation/sedimentation steps are discharged directly to the sludge basin. Supernatant and underflow from the sludge basin is infrequently discharged to the effluent line from the settling basin and ahead of the outfall. Sludge is stockpiled on site prior to being taken to a landfill.

BENEFICIAL USES

Surface Water

The Regional Board adopted a *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and describes an implementation program and policies to achieve water quality objectives for all waters of the Basin. This includes plans and policies adopted by the State Water Resources Control Board (State Board) and incorporated by reference, such as Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California. These requirements implement the Basin Plan.

The Basin Plan on page II-2.00 states that: "Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams." The beneficial uses of Miners Ranch Reservoir are not specifically identified in the Basin Plan. However, releases from Miners Ranch Reservoir via the Kelly Ridge Tunnel are tributary to the reach of the Feather River from below Lake Oroville to the Sacramento River (lower Feather River). The beneficial uses of the lower Feather River (from the "fish barrier dam" below Lake Oroville to the Sacramento River) are specifically identified in the Basin Plan. These beneficial uses are: municipal and domestic supply; agricultural irrigation supply; water contact and non-contact recreation; warm and cold freshwater habitat; migration of warm and cold aquatic organisms; warm and cold spawning, reproduction, and/or early development; and wildlife habitat. In addition, State Board Resolution No. 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution No. 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1.

The Discharger operates a hydropower facility that generates a significant quantity of electricity by utilizing water released from Miners Ranch Reservoir. Therefore, although the Basin Plan does not list specific beneficial uses for Miners Ranch Reservoir, and although hydropower generation is not listed as a beneficial use of the lower Feather River (to which Miners Ranch Reservoir is tributary), it is a beneficial use of Miners Ranch Reservoir.

The Basin Plan defines beneficial uses and with respect to disposal of wastewaters states that "...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses." Upon review of the flow conditions, habitat values, and beneficial uses of Miners Ranch Reservoir and the lower Feather River to which Miners Ranch Reservoir is tributary, the Regional Board finds that the beneficial uses identified in the Basin Plan for the lower Feather River, are applicable to Miners Ranch Reservoir, based upon the following facts:

- a. *Municipal and Domestic Supply, Agricultural Supply*

The Discharger operates a municipal water treatment plant to provide potable water to its customers. The raw water source for the water treatment plant is Miners Ranch Reservoir. In addition to customers served by the water treatment plant, other domestic and agricultural supply customers receive water released from Miners Ranch Reservoir. In addition to the existing water uses, growth in the area is expected to continue, which presents a potential for increased municipal, domestic, and agricultural uses of the water in Miners Ranch Reservoir.

b. *Hydropower Generation*

The Discharger operates a hydropower facility that generates a significant quantity of electricity by utilizing water released from Miners Ranch Reservoir. Therefore, although the Basin Plan does not list specific beneficial uses for Miners Ranch Reservoir, and although hydropower generation is not listed as a beneficial use of the lower Feather River (to which Miners Ranch Reservoir is tributary), it is a beneficial use of Miners Ranch Reservoir.

c. *Water Contact and Non-Contact Recreation*

Although Miners Ranch Reservoir is not a public access lake, the Regional Board finds that the lower Feather River flows through rural and residential areas and that there is ready public access. Water contact and non-contact recreational activities exist and are likely to increase as the population in the area grows. Flow in the lower Feather River is supported, in part, by releases from Miners Ranch Reservoir. Water quality in the lower Feather River is affected by the quality of waters discharging to it, including discharges from Miners Ranch Reservoir.

d. *Warm and Cold Freshwater Habitat, Migration of Aquatic Organisms, Spawning, Reproduction, and/or Early Development, and Wildlife Habitat*

Although Miners Ranch Reservoir is not a public access lake, and is not accessible to migrating aquatic organisms, releases of water from Miners Ranch Reservoir support beneficial uses in the lower Feather River. Water quality in the lower Feather River is affected by the quality of waters discharging to it, including discharges from Miners Ranch Reservoir. Warm and cold freshwater habitat, migration of aquatic organisms, spawning, reproduction, and/or early development, and wildlife habitat are beneficial uses that are highly sensitive to the quantity and quality of water present.

Groundwater

Unless designated otherwise by the Regional Board, the beneficial uses of groundwater of the Central Valley Region are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.

Anti-Degradation

Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California, requires the Regional Board, in regulating the discharge of waste, to maintain high quality in surface and groundwaters of the State unless it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (i.e., in no circumstances can this Order allow water quality to exceed the Regional Board's water quality objectives). The Regional Board finds that the discharge, as restricted by the prohibitions, limitations, specifications, and provisions of this Order, is consistent with Resolution No. 68-16. The impact on water quality will be insignificant.

TMDLs and 303(d) Listings

Section 303(d) of the CWA requires states to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations by point sources. For all 303(d) - listed water bodies and pollutants, the State Board is required to develop and adopt Total Maximum Daily Loads (TMDLs) that will specify wasteload allocations for point sources and load allocations for non-point sources, as appropriate. The United States Environmental Protection Agency (U.S. EPA) has approved the 2002 State Board 303(d) list of impaired water bodies. This extensive list does not include Miners Ranch Reservoir, however, the lower Feather River (from below Lake Oroville Dam to the Sacramento River) is listed as impaired for diazinon, Group A pesticides, mercury, and unknown toxicity. A Basin Plan amendment was adopted by the Regional Board on 16 October 2003, and added specific language to implement a TMDL for diazinon and limit discharges of diazinon to the lower Feather River and a portion of the Sacramento River. Miners Ranch Reservoir is tributary to the lower Feather River. A TMDL and Basin Plan amendment have not been adopted to address the other pollutants/stressors identified in the 303(d) listing for the lower Feather River.

GROUNDWATER MONITORING

This Order does not require the Discharger to conduct groundwater monitoring. There is no current evidence to indicate that discharges from the facility pose any unusual threat to groundwater quality. If any information becomes available indicating adverse groundwater impacts from the Discharger's operation, a groundwater investigation and subsequent monitoring may be required.

REASONABLE POTENTIAL ANALYSIS

U.S. EPA regulations at 40 CFR 122.4 (d) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. The National Toxics Rule (NTR) establishes water quality criteria for toxic pollutants applicable to the

Discharger at 40 CFR Part 131.36. On May 18, 2000 and by amendment on 13 February 2001, water quality criteria of the NTR were supplemented by criteria of the California Toxics Rule (CTR) at 40 CFR 131.38. The NTR, CTR, and the Basin Plan contain water quality standards applicable to the discharge.

The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Policy or SIP), which contains guidance on implementation of the CTR, including the determination of 'reasonable potential' for CTR pollutants. To determine 'reasonable potential' for non-CTR pollutants, the Regional Board relies on methodology presented in U.S. EPA's Technical Support Document for Water Quality Based Toxics Control (TSD) (EPA/505/2-90-001, 1991). And, for interpretation of narrative water quality objectives, the Regional Board uses its *Compilation of Water Quality Goals* (2000) as a resource.

On 5 February 2002, the Discharger collected effluent and receiving water samples for analysis of the CTR toxic priority pollutants. Analyses were performed for volatile substances, semi-volatile substances, metals, 2,3,7,8-TCDD dioxin, and sixteen other dioxin congeners and reported in accordance with procedures established by the SIP.

Methodology described in Section 1.3 of the SIP was used to evaluate the Discharger's monitoring data for the CTR priority toxic pollutants. No credit for dilution of the effluent with the receiving water was considered. Copper was detected at a concentration of 3.3 ug/L in the effluent and at 1.0 ug/L in the receiving water (total recoverable). The most stringent, applicable, water quality standards for copper are 2.2 ug/L (chronic) and 2.8 ug/L (acute), expressed as dissolved metal, from the CTR aquatic life criteria, based on a water hardness (as measured in the receiving water) of 19 mg/L as CaCO₃. Therefore, this Order includes hardness-dependent effluent limits for copper. The Regional Board has also determined that there is reasonable potential for chlorine in the discharge to cause or contribute to an in stream excursion above the narrative water quality objective of the Basin Plan for toxicity; and therefore, effluent limits for chlorine are included in this Order.

BASIS FOR PERMIT REQUIREMENTS

There are no technology-based, effluent limitations guidelines established for potable water treatment plants pursuant to Section 301 of the Clean Water Act.

Discharge Prohibitions

This Order contains prohibitions on bypass, discharge of hazardous and designated waste, and other non-permitted discharges. These prohibitions are retained from the previous Order No. 98-124 and are consistent with objectives of the Basin Plan, as required by the California Water Code and the Clean Water Act, to protect the beneficial uses of waters of the State.

Prohibitions regarding the discharge of solid wastes and chemicals, and discharges that cause a film, sheen, or discoloration, although important and applicable to all discharges, were added to this Order primarily to regulate the discharge of low threat wastewaters.

Effluent Limitations for Toxics (Discharge 001)

The Regional Board has performed a Reasonable Potential Analysis (RPA) to determine what priority, toxic pollutants are discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above a narrative or numerical water quality standard. Copper was detected in the effluent at concentrations that, in accordance with methodology of the SIP, may cause or contribute to an in-stream excursion above a narrative or numerical water quality standard, and therefore, effluent limits for copper are implemented in this Order, as described below.

Dilution Considerations for Effluent Limit Calculations

In determining effluent limits, the Regional Board did not allow credit for the dilution of effluent with the receiving water. Effluent limits, therefore, have been established to meet the water quality standard at the point of discharge. The Regional Board may grant a dilution credit and a mixing zone only if a sufficient study and demonstration is made that a dilution credit is appropriate and protective of receiving water beneficial uses.

Copper

Hardness. The toxicity of certain metals, including copper, increases with decreasing water hardness concentrations. On 5 February 2002, hardness in the receiving water was measured at 19 mg/L as CaCO₃, and this figure has been used to determine reasonable potential for copper. As the toxicity of copper varies with water hardness, the effluent limits established for copper in this Order also vary as a function of receiving water hardness.

Translator. U.S. EPA regulations at 40 CFR 122.45 (c) require effluent limitations for metals to be expressed as total recoverable metal, and therefore, attention must be given to ensure that analytical data and water quality standards for metals are expressed accordingly. Appendix 3 of the SIP provides conversion factors (CFs) or translators, for certain metals including copper, to convert total recoverable concentrations to dissolved concentrations and vice versa. The CF for copper is 0.960 for both acute and chronic freshwater criteria.

Water Quality Criteria or Objective and Calculation of Effluent Limitations. The CTR chronic and acute criteria for copper for the protection of aquatic life are 2.2 and 2.8 ug/L, respectively, expressed as dissolved metal (dissolved), at a receiving water hardness of 19 mg/L as CaCO₃. The Regional Board has determined that the applicable water quality standards in these circumstances are the chronic and acute criteria from the CTR.

For each water quality criterion, 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 is the water quality criterion, D is the dilution credit, and B is the ambient background concentration. The ECA is also converted to total recoverable metal using the translator, as appropriate.

Because no credit for dilution is being allowed, D equals zero, and the ECA equals C. Here, $ECA_{\text{chronic}} = 2.3 \text{ ug/L}$ and $ECA_{\text{acute}} = 2.9 \text{ ug/L}$ (total recoverable metal) at a water hardness of 19 mg/L as CaCO_3 .

For each ECA based on an aquatic life criterion, the long-term average discharge condition (LTA) is determined by multiplying the ECA by a multiplier, taken from Table 1 of the SIP, to account for effluent variability. 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 relative variations of a set of data. In the RPA for this facility, because there were fewer than 10 data points, the CV was set equal to a default value of 0.6. The ECA multipliers for calculating LTAs at the 99th percentile occurrence probability are 0.321 (acute multiplier) and 0.527 (chronic multiplier). Here, $LTA_{\text{chronic}} = 1.19 \text{ ug/L}$, and $LTA_{\text{acute}} = 0.94 \text{ ug/L}$ (total recoverable metal) at a water hardness of 19 mg/L as CaCO_3 .

Average monthly effluent limitations (AMELs) and maximum daily effluent limitations (MDELs) are calculated by multiplying the most limiting LTA ($LTA_{\text{acute}} = 0.94$) by a multiplier that accounts for averaging periods and exceedance frequencies of the effluent limitations, and for the AMEL, the effluent monitoring frequency. The CV was set equal to 0.6 and the sampling frequency was set equal to 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. Final effluent limits for copper, derived from the CTR acute criterion for the protection of aquatic life, are:

AMEL = 1.5 ug/L (total recoverable) at a water hardness of 19 mg/L as CaCO_3 .

MDEL = 2.9 ug/L (total recoverable) at a water hardness of 19 mg/L as CaCO_3 .

The final AMEL and MDEL are water hardness dependent, and therefore the AMEL and MDEL used for compliance determination are variable and must be calculated. Attachment B - Copper includes a pre-calculated table of copper AMELs and MDELs for various water hardness values.

Compliance Schedule and Interim Effluent Limitations. Section 2.1 of the SIP allows the Regional Board to establish interim effluent limits and compliance schedules when a discharger demonstrates that it is infeasible to achieve immediate compliance with an effluent limit based on a CTR criterion. Before interim effluent limits and compliance schedules can be authorized, the Discharger must submit to the Regional Board:

- (a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream;
- (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed;
- (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and,
- (d) a demonstration that the proposed schedule is as short as practicable.

This Order requires the Discharger to provide such documentation for copper. Final effluent limits for copper will become effective 90 days after adoption of the Order unless adequate justification, meeting the requirements of Section 2.1 of the SIP, is completed and submitted by the Discharger. If adequate justification is submitted, the interim effluent limits described in this Order for copper will become effective and the final effluent limits will become effective 5 years after adoption of this Order in accordance with the compliance schedule established in this Order. This will allow the Discharger a period of time to fully comply with the effluent limit for copper.

Section 2.2.1 of the SIP requires, if a compliance schedule is granted for a CTR pollutant, that the Regional Board establish interim limitations and dates for their achievement in the NPDES permit. Interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent; and they must include interim compliance dates separated by no more than one year. Here, interim limitations for copper are based on current treatment plant performance, or 3.3 ug/L (total recoverable), which is the maximum concentration of copper detected in the water treatment plant's effluent to date. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitation in this Order is established as the mean plus 3.3 standard deviations of the available data. Where actual sampling shows an exceedance of the proposed 3.3-standard deviation interim limit, the maximum detected concentration is established as the interim limitation. When there are less than ten sampling data points available, as there are for the Miners Ranch Water Treatment Plant, the TSD recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed sampling point to obtain the daily maximum interim limitation (*TSD, Table 5-2*). The interim limitation for copper is 10 ug/L (3.3 ug/L x 3.11), expressed as total recoverable metal.

Effluent Limitations for Other Parameters (Discharge 001)

Settleable Solids

The Basin Plan includes a water quality objective that receiving waters not contain settleable material in concentrations that result in its deposition to cause nuisance or adversely affect beneficial uses. The proposed Order retains monthly average and daily maximum limitations for settleable solids of 0.1 mL/L and 0.2 mL/L, respectively. These limitations reflect removal efficiencies for properly designed, constructed and operated wastewater treatment systems.

Suspended Solids

The Basin Plan includes a water quality objective that receiving waters not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses. The proposed Order contains average monthly and daily maximum limitations for suspended solids limit of 30 and 50 mg/L, respectively. The Regional Board has determined that suspended solids are more likely to be resuspended than settleable solids in the washwater settling pond before discharge, and therefore, suspended solids concentrations are more likely to vary in the discharge than concentrations of settleable solids. Further, the limits for settleable solids are set at or near the lowest detectable concentration of settleable solids (0.1 mL/L), as measured by the volumetric Imhoff method. Monitoring since 1998 has consistently shown non detectable concentrations of settleable solids. Suspended solids concentrations are likely to fluctuate above the analytical detection levels so that suspended solids monitoring will be a better indicator of treatment performance.

To establish limitations for suspended solids, the Regional Board has examined several general permits, which regulate wastewater discharges from water treatment plants. A summary of these suspended solids limitations is presented in the table, below.

TSS Effluent Limitations of General Permits

	Effluent Limitation		
	30 Day Average (mg/L)	7 Day Average (mg/L)	Maximum Daily (mg/L)
Washington	Settleable solids, not TSS, is limited		
California Regional Board 2	30	45	NL
West Virginia	30	NL	60
South Carolina	30	NL	60
Arkansas	20	NL	30
Massachusetts	30	NL	50
New Hampshire	20	NL	50

NL = no limit

The Regional Board has also relied on research performed for the U.S. EPA in 1987. (SAIC, Model Permit Package for the Water Supply Industry, EPA Contract No. 68-01-7043) This study found that 76 percent of WTPs surveyed used sedimentation lagoons for wastewater treatment. In these facilities, limitations of 30 mg/L and 45 mg/L were representative of the, then, current permitting practice for average monthly and daily maximum TSS limits, respectively. Analysis of actual monitoring data from these facilities showed the 95th percent occurrence (monthly average) and 99th percent occurrence (daily maximum) levels of treatment to be 28.1 mg/L and 44.4 mg/L, respectively. The study recommended limitations of 30 and 45 mg/L as the monthly average and daily maximum suspended solids limits for a model NPDES permit.

Using best professional pursuant to Section 402 (a) (1) (b) of the Clean Water Act, the Regional Board is proposing to establish average monthly and daily maximum, technology based limitations for suspended solids of 30 and 50 mg/L, respectively.

pH

This Order requires effluent pH to remain between 6.0 and 9.0 units. This requirement, in addition to receiving water pH limitations, will ensure that the pH level in the receiving water remains within the Basin Plan objective range of 6.5 to 8.5.

Chlorine

The previous Order No. 98-063 did not include effluent limitations for chlorine but did include a receiving water limitation that prohibited chlorine at detectable levels in the receiving water. The Basin Plan includes a narrative water quality objective for toxicity that requires all receiving waters to be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. To interpret narrative criteria, the Regional Board relies on its *Compilation of Water Quality Goals* (2000), which includes U.S. EPA recommended, chronic and acute criteria for protection of aquatic life of 11 and 19 ug/L, respectively. Because filter backwash water is dechlorinated finished water, the Regional Board finds that there is reasonable potential for chlorine to be present in effluent above these applicable water quality criteria. Without close attention to chlorination/dechlorination processes, such operating events as changes in chlorine application rates, increased backwash rates or frequencies, and/or exhaustion of dechlorination chemicals could result in the discharge of elevated concentrations of chlorine, causing an exceedance of the applicable water quality criteria. Because chlorine is not addressed by the CTR, the Regional Board has followed methodology from the Technical Support Document for Water Quality Based Toxics Control (TSD) (EPA/505/2-90-001) (1991) to determine effluent limitations for chlorine.

For chlorine, waste load allocations (WLAs) are determined from the applicable water quality criteria. The WLA addresses variability in effluent quality and is expressed as a single level of receiving water quality necessary to provide protection against long term or chronic effects. When no credit is provided for dilution and background data are not available, the WLA is set equal to the applicable water quality criterion (C). Here, the applicable water quality criteria for chlorine are

11 and 19 ug/L, and the WLAs are equal to the criteria. The long-term average discharge conditions (LTAs) are determined by multiplying the WLA times a multiplier to account for effluent variability. From Table 5-1 of the TSD, at the 99th percentile probability basis, the acute WLA multiplier is 0.321 and the chronic WLA multiplier is 0.527. The WLAs, WLA multipliers, and the LTAs for chlorine are summarized as follows.

	WLA		WLA Multiplier		LTA (µg/L)	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Chlorine	19	11	0.321	0.527	6.1	6.0

AMELs and MDELs are calculated by multiplying the most limiting (lowest) LTA by a multiplier that accounts for averaging periods, exceedance frequencies of the effluent limitations, and the effluent monitoring frequency. Here, the CV was set equal to 0.6 and, in the case of the AMEL, 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 5-2 of the TSD, the MDEL multiplier is 3.11, and the AMEL multiplier is 1.55. Effluent limits for chlorine are determined as follows.

	LTA	MDEL Multiplier	AMEL Multiplier	MDEL (mg/L)	AMEL (mg/L)
Chlorine	6.0	3.11	1.55	0.02	0.01

This Order adds an average monthly effluent limit for chlorine of 0.01 mg/L and a maximum daily effluent limit for chlorine of 0.02 mg/L.

Requirements for Dewatering and Other Low Threat Discharges

Currently, the Discharger is obligated to seek authorization under Regional Board Order No. 5-00-175, *General Order for Dewatering and Other Low Threat Discharges to Surface Waters*, prior to discharging water associated with construction, start up, testing, maintenance, and repair of its raw water supply and potable water distribution systems. Provisions in this Order pertaining to such discharges are meant to authorize such low threat discharges so that the Discharger is no longer obligated to seek coverage under the General Permit.

Storm Water Management

U.S. EPA regulations require coverage under an NPDES permit for facilities that discharge storm water associated with industrial activity. Although the previous Order No. 98-063 contained provisions pertaining to discharges of storm water, this current Order does not address such discharges, and the Discharger must seek authorization for storm water discharges under the *General Permit for Discharges of Storm Water Associated with Industrial Activities* (SWRCB, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001), if applicable.

Sludge Handling and Disposal

This Order requires the Discharger to review and update its existing Sludge Disposal Plan within 180 days of adoption of this Order, to assure proper handling and disposal of solids that are collected and/or generated at the water treatment plant.

Establishment of Mass-Based Effluent Limits and Effluent Flow Limit

The maximum daily flow limit in the previous Order No. 98-063 was 0.9 mgd, based on a filter backwash rate of 0.6 mgd and a filter-to-waste flow rate of 0.3 mgd. The Discharger has requested (e-mail communication from Jim Coffelt, Water Treatment Superintendent on 19 May 2004) a maximum daily flow limit of 1.03 mgd, based on a filter backwash rate of 5 percent of production (14.53 mgd x 0.05 = 0.73 mgd) and a filter-to-waste flow rate of 0.3 mgd. And, in the summer of 2004, the Discharger will be studying increased filter loading rates, which will result in a possible discharge rate of 1.66 mgd, based on a filter backwash rate of 7.5 percent of production (18.16 mgd x 0.075 = 1.36 mgd) and a filter-to-waste flow rate of 0.3 mgd. An increase in filter backwash rate is anticipated with higher loading rates on the filters. Therefore, this Order includes a maximum flow limit of 1.03 mgd, except during the special study period, when the Discharger will be studying increased filter loading rates, and the maximum daily (discharge) flow limit will be 1.66 mgd. The Discharger's estimates of filter backwash rates are generally in line with the industry rule-of-thumb that backwash rates will be 2 to 10 percent of production. This Order also provides for a permanent increase in the maximum daily flow limit to 1.66 mgd, if requested by the Discharger, and if the Department of Health Services approves continued operation at the filter loading rates examined by the Discharger in the summer of 2004. Any additional increase in the facility's discharge rate, above 1.66 mgd, due to plant expansion or increased production, must be approved by the Regional Board following submittal of a Report of Waste Discharge to modify the discharge permit. Mass based limits in this Order are based on effluent flow rates of 1.03 and 1.66 mgd, which reflect current and projected effluent flows, as explained above. For example, to calculate the mass-based limitation that corresponds to the maximum daily limit for suspended solids of 50 mg/L:

$$\text{Mass-based limit} = 50 \text{ mg/L} \times 1.03 \text{ mgd} \times 8.34 = 430 \text{ lbs/day.}$$

Permit Reopener

This Order contains provisions that allow the Order to be reopened if, after a review of any monitoring results, it is determined that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above water quality standards, and effluent limits based on those standards added. Additionally, if pollutants are detected in discharges from the Discharger's facility, but insufficient information exists to establish an effluent limit or determine if an effluent limit is necessary, then additional monitoring may be required to provide sufficient information.

The Discharger may conduct studies pertaining to Facility operations, the effluent discharge, and the receiving water. For example, such studies may include a site-specific metals translator study, or a mixing zone and dilution study. If requested, the Regional Board will review such studies and, if warranted, reopen this Order to make appropriate changes.

BASIS FOR MONITORING REQUIREMENTS

Section 308 of the CWA and U.S. EPA regulation 40 CFR 122.44 (i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. The Discharger is responsible for conducting monitoring and for reporting the results to the U.S. EPA using Discharge Monitoring Reports. The self-monitoring program requires monitoring of receiving water and effluent, storm water, sludge, and low threat discharges.

The Monitoring and Reporting Program retains monitoring of receiving water for pH and turbidity, and it includes visual monitoring of conditions upstream and downstream of the point of discharge. One time in the five year life cycle of the permit, receiving water must also be monitored, concurrently with effluent, for the CTR priority, toxic pollutants. These receiving water samples must be collected in an upstream/background location.

Effluent monitoring of discharges through Discharge 001 includes flow, pH, turbidity, settleable solids, and chlorine residual. This Order also adds effluent monitoring for suspended solids, aluminum, copper, acute and chronic toxicity, and the CTR pollutants. Monitoring for suspended solids is required to determine compliance with new limitations for suspended solids. Acute toxicity monitoring is required to assure compliance with the effluent limitation for toxicity in the Order and is established based on recommendations of the Basin Plan to assure compliance with the narrative toxicity objective. Chronic toxicity monitoring is required by the SIP in addition to acute toxicity monitoring and is to assure compliance with the narrative toxicity objective of the Basin Plan and to determine the need for a chronic toxicity limitation. Because both chronic and acute toxicity monitoring is required by the SIP, and because discharges from the water treatment facility are expected to exhibit low, if any, toxicity, chronic toxicity testing is required at the minimum possible frequency (one time during the permit term), and acute toxicity testing is required on an annual basis. Monitoring for the toxic pollutants is required to determine compliance with the effluent limitations established for those pollutants by this Order. In the case of aluminum, monitoring is required to determine the need for effluent limitations. Monitoring of the effluent and receiving water is also required once during the term of this Order for the CTR pollutants. Effluent monitoring requirements for Discharge 001 are summarized by the following table.

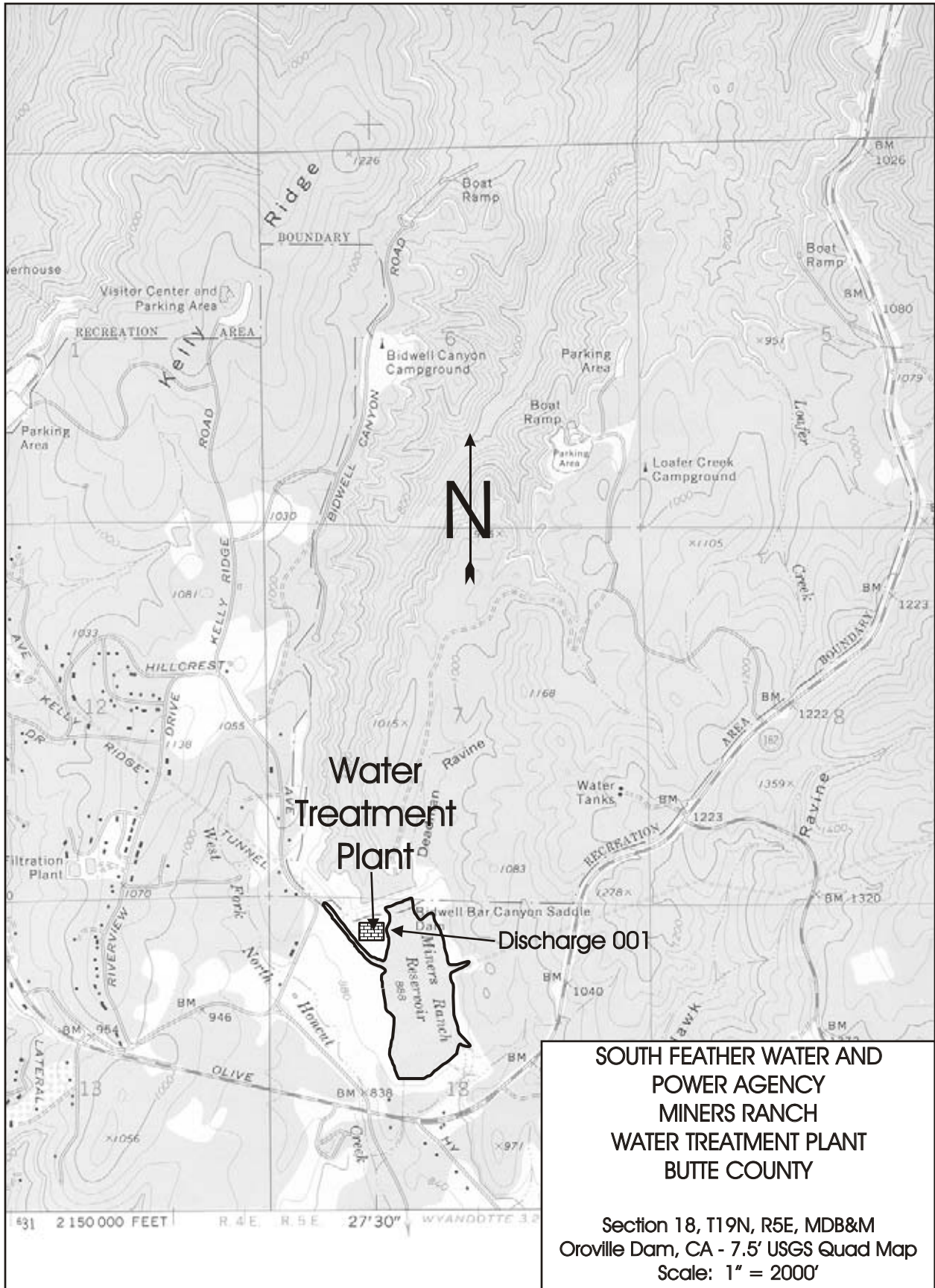
Effluent Monitoring Requirements – Discharge 001

Constituent	Units	Type of Sample	Sample Frequency
Flow	mgd	meter	continuous
pH	pH units	grab	weekly
Turbidity	NTUs	grab	weekly
Chlorine	mg/L	grab	weekly
Settleable Solids	mL/L	grab	twice per month
Suspended Solids	mg/L	grab	twice per month
Aluminum	µg/L	grab	quarterly
Copper	µg/L	grab	quarterly
Hardness	mg/L	grab	quarterly
Acute toxicity	TUa	grab	annually
Chronic Toxicity	TUc	grab	one time in permit lifecycle
CTR Pollutants	µg/L	24 hr composite	one time in permit lifecycle

In accordance with the Basin Plan and the SIP, the Monitoring and Reporting Program includes considerable detail regarding acute and chronic toxicity monitoring procedures, as well as considerable detail regarding analytical procedures and reporting requirements for the CTR. New monitoring and reporting requirements for low threat discharges are included in this Order, and sludge monitoring requirements of the previous Order are retained.

BJS

27 January 2005



COPPER
Hardness Dependent Maximum Daily Effluent Limitations (MDELs) and Average Monthly Effluent Limitations (AMELs)
Calculation Spreadsheet

Water Hardness* (mg/L as CaCO ₃)	CMC ¹ (acute) 1-hour Average (ug/L, dissolved)	CCC ² (chronic) 4-day Average (ug/L, dissolved)	ECA _{acute} ³ (ug/L, total recoverable)	ECA _{chronic} ⁴ (ug/L, total recoverable)	LTA _{acute} ⁵ (ug/L, total recoverable)	LTA _{chronic} ⁶ (ug/L, total recoverable)	MDEL ⁷ (ug/L, total recoverable)	AMEL ⁸ (ug/L, total recoverable)
<15	Calculate							
15	2.25	1.77	2.34	1.84	0.75	0.97	2.3	1.2
16	2.39	1.87	2.49	1.95	0.80	1.03	2.5	1.2
17	2.53	1.97	2.64	2.05	0.85	1.08	2.6	1.3
18	2.67	2.07	2.78	2.16	0.89	1.14	2.8	1.4
19	2.81	2.17	2.93	2.26	0.94	1.19	2.9	1.5
20	2.95	2.26	3.07	2.36	0.99	1.24	3.1	1.5
21	3.09	2.36	3.22	2.46	1.03	1.30	3.2	1.6
22	3.23	2.46	3.36	2.56	1.08	1.35	3.4	1.7
23	3.37	2.55	3.51	2.66	1.13	1.40	3.5	1.7
24	3.50	2.65	3.65	2.76	1.17	1.45	3.6	1.8
25	3.64	2.74	3.79	2.85	1.22	1.50	3.8	1.9
26	3.78	2.83	3.93	2.95	1.26	1.56	3.9	2.0
27	3.91	2.93	4.08	3.05	1.31	1.61	4.1	2.0
28	4.05	3.02	4.22	3.14	1.35	1.66	4.2	2.1
29	4.19	3.11	4.36	3.24	1.40	1.71	4.4	2.2
30	4.32	3.20	4.50	3.33	1.45	1.76	4.5	2.2
31	4.46	3.29	4.64	3.43	1.49	1.81	4.6	2.3
32	4.59	3.38	4.78	3.52	1.54	1.86	4.8	2.4
33	4.73	3.47	4.93	3.62	1.58	1.91	4.9	2.5
34	4.86	3.56	5.07	3.71	1.63	1.96	5.1	2.5
35	5.00	3.65	5.21	3.80	1.67	2.00	5.2	2.6
36	5.13	3.74	5.35	3.90	1.72	2.05	5.3	2.7
37	5.27	3.83	5.49	3.99	1.76	2.10	5.5	2.7
38	5.40	3.92	5.63	4.08	1.81	2.15	5.6	2.8
39	5.53	4.01	5.77	4.17	1.85	2.20	5.8	2.9
40	5.67	4.09	5.90	4.26	1.90	2.25	5.9	2.9
41	5.80	4.18	6.04	4.35	1.94	2.29	6.0	3.0
42	5.93	4.27	6.18	4.45	1.98	2.34	6.2	3.1
43	6.07	4.35	6.32	4.54	2.03	2.39	6.3	3.1
44	6.20	4.44	6.46	4.63	2.07	2.44	6.4	3.2
45	6.33	4.53	6.60	4.72	2.12	2.48	6.6	3.3
46	6.47	4.61	6.74	4.80	2.16	2.53	6.7	3.4
47	6.60	4.70	6.87	4.89	2.21	2.58	6.9	3.4
48	6.73	4.78	7.01	4.98	2.25	2.63	7.0	3.5
49	6.86	4.87	7.15	5.07	2.29	2.67	7.1	3.6
50	6.99	4.95	7.29	5.16	2.34	2.72	7.3	3.6
51	7.13	5.04	7.42	5.25	2.38	2.77	7.4	3.7
52	7.26	5.12	7.56	5.34	2.43	2.81	7.5	3.8
53	7.39	5.21	7.70	5.42	2.47	2.86	7.7	3.8
54	7.52	5.29	7.83	5.51	2.51	2.90	7.8	3.9
55	7.65	5.37	7.97	5.60	2.56	2.95	8.0	4.0
56	7.78	5.46	8.11	5.68	2.60	3.00	8.1	4.0
57	7.91	5.54	8.24	5.77	2.65	3.04	8.2	4.1
58	8.04	5.62	8.38	5.86	2.69	3.09	8.4	4.2
59	8.17	5.71	8.52	5.94	2.73	3.13	8.5	4.2
60	8.31	5.79	8.65	6.03	2.78	3.18	8.6	4.3
>60	Calculate							

* Water Hardness (mg/L as CaCO₃). Because the Discharger discharges to a reservoir that serves as both the "upstream" and "downstream" receiving water, use hardness of reservoir water at the water treatment plant intake structure.

¹ CMC (1-hour average, acute) = 0.960 x e^{(0.9422)(ln hardness)-1.700}, from CTR Freshwater Aquatic Life (ug/L, dissolved)

² CCC (4-day average, chronic) = 0.960 x e^{(0.8545)(ln hardness)-1.702}, from CTR Freshwater Aquatic Life (ug/L, dissolved)

³ ECA_{acute} = CMC / 0.960, (ug/L, total recoverable)

⁴ ECA_{chronic} = CCC / 0.960, (ug/L, total recoverable)

⁵ LTA_{acute} = ECA_{acute} x 0.321 (ug/L, total recoverable), assumes CV=0.6 for 10 samples or less per SIP.

⁶ LTA_{chronic} = ECA_{chronic} x 0.527 (ug/L, total recoverable), assumes CV=0.6 for 10 samples or less per SIP.

⁷ MDEL = LTA x 3.11 (ug/L, total recoverable), where LTA equals the lowest of LTA_{acute} and LTA_{chronic}, assumes CV=0.6 for 10 samples or less per SIP for Aquatic Life.

⁸ AMEL = LTA x 1.55 (ug/L, total recoverable), where LTA equals the lowest of LTA_{acute} and LTA_{chronic}, assumes CV=0.6 for 10 samples or less per SIP for Aquatic Life.