Bill Jennings
California Sportfishing Protection Alliance
3536 Rainier Avenue
Stockton, CA 95204
Tel: 209-464-5067
Fax: 209-464-1028
E-mail: deltakeep@aol.com

Mike Jackson
Law Office of Mike Jackson
P.O. Box 207
429 W. Main Street
Quincy, CA 95971
Tel: 530-283-1007
Fax: 530-283-0712
E-mail: mjatty@sbcglobal.net

Andrew Packard
Law Office of Andrew Packard
319 Pleasant Street
Petaluma, CA 94952
Tel: 707-763-7227
Fax: 707-763-9227
E-mail: andrew@packardlawoffices.com

For Petitioner California Sportfishing Protection Alliance

BEFORE THE STATE WATER RESOURCES CONTROL BOARD

In the Matter of Waste Discharge Requirements For Placer County, Sewer Maintenance District No. 1 Wastewater Treatment Plant; California Regional Water Quality Control Board –Central Valley Region Order No. R5-2010-0092; NPDES NO. CA0079316	**PETITION FOR REVIEW**

Pursuant to Section 13320 of California Water Code and Section 2050 of Title 23 of the California Code of Regulations (CCR), California Sportfishing Protection Alliance

("CSPA" or "petitioner") petitions the State Water Resources Control Board (State Board) to review and vacate the final decision of the California Regional Water Quality Control Board for the Central Valley Region ("Regional Board") in adopting Waste Discharge Requirements (NPDES NO. CA0079316) for Placer County, Sewer Maintenance District No. 1 Wastewater Treatment Plant, on 22 September 2010. *See* Order No. R5-2010-0092. The issues raised in this petition were raised in timely written comments.

1. NAME AND ADDRESS OF THE PETITIONERS:

California Sportfishing Protection Alliance
3536 Rainier Avenue
Stockton, California 95204
Attention: Bill Jennings, Executive Director

2. THE SPECIFIC ACTION OR INACTION OF THE REGIONAL BOARD WHICH THE STATE BOARD IS REQUESTED TO REVIEW AND A COPY OF ANY ORDER OR RESOLUTION OF THE REGIONAL BOARD WHICH IS REFERRED TO IN THE PETITION:

Petitioner seeks review of Order No. R5-2010-0092, Waste Discharge Requirements (NPDES NO. CA0079316) for the Placer County, Sewer Maintenance District No. 1 Wastewater Treatment Plant. A copy of the adopted Order is attached as Attachment No. 1.

3. THE DATE ON WHICH THE REGIONAL BOARD ACTED OR REFUSED TO ACT OR ON WHICH THE REGIONAL BOARD WAS REQUESTED TO ACT:

22 September 2010

4. A FULL AND COMPLETE STATEMENT OF THE REASONS THE ACTION OR FAILURE TO ACT WAS INAPPROPRIATE OR IMPROPER:

CSPA submitted detailed comment letters on 15 April 2010 and 8 August 2010. Those letters and the following comments set forth in detail the reasons and points and authorities why CSPA believes the Order fails to comport with statutory and regulatory requirements. The specific reasons the adopted Orders are improper are:

A. The compliance schedules in the Permit and the Cease and Desist Order do not meet the Basin Plan requirement that compliance be achieved in "the shortest practicable time".

The Permit, page F-9 contains the following with regard to *Planned Changes*: "Prior to the adoption of Order No. R5-2005-0074, the Discharger began to pursue regionalization with the City of Lincoln Wastewater Treatment and Reclamation Facility. As stated in Finding No. 11 of Order No. R5-2005-0074, the Discharger committed to making a determination by 2 January 2008 regarding whether to regionalize or complete and implement measures to comply with effluent limitations. If, after 2 January 2008, wastewater regionalization was not the selected compliance alternative, the Discharger agreed that sufficient time remained to complete and implement measures to come into compliance with the Order by March 2010. The Discharger has not yet connected to the City of Lincoln Wastewater Treatment and Reclamation Facility or completed measures to come into compliance with permit requirements."

Finding No. 11 of the existing NPDES permit, Order No. R5-2005-0074 states that: "After 2 January 2008, if wastewater regionalization is not the selected compliance alternative, the Discharger has agreed that there would be sufficient time remaining under the currently included compliance period to complete and implement measures to achieve full compliance with this Order." The existing NPDES permit also includes a compliance schedule for I/I correction measures (pages 61 and 62) to be implemented by 30 December 2009 and compliance schedules (page 63) for Bis(2-ethylhexyl)phthalate, Bromodichloromethane, Copper, Dioxins and Furans, Lead, PCBs, Silver, and Zinc which became effective on 1 March 2010.

Placer County's SMD-1 wastewater treatment plant remains in noncompliance despite their promise to complete and implement compliance measures by March 2010. The Regional Board's response to this continued noncompliance is simply to grant an additional five years for this recalcitrant Discharger. As stated in the Permit; the County promised that if regionalization was not feasible by 2 January 2008 they could implement a compliance project by March 2010, a period of 2 years and 3 months. If the County had the capability, as promised, to complete and implement a project within a little over two years, how is granting them a 5-year compliance period ""the shortest practicable time"? (Basin Plan, page IV-17.00) The Regional Board uses a five year compliance period as a default in virtually every permit it issues. There is rarely any analysis of the actual time to achieve compliance. In this case there has been no penalty associated with failing to do anything to achieve compliance during the 5-year life of the existing permit; instead the proposed excessively long compliance period appears to be a gift. Any granted compliance schedule should be based on Placer County's original promise to complete and implement a project within a little over two years.

B. The Permit establish Effluent Limitations for metals based on the hardness of the effluent and/or the downstream water and are therefore less stringent or altogether absent as compared to use of the ambient upstream receiving water hardness as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).

The lowest measured upstream ambient hardness was 20 mg/l. (Page F-24) "Therefore, in this Order the ECA for all concave down metals has been calculated using Equation 1 with a hardness of 141 mg/l (as $CaCO_3$)" (Page F-26, emphasis added) Concave down metals are chronic cadmium, chromium III, copper, nickel and zinc. ECA is the effluent concentration allowance.

For concave up metals, the Permit states that: "Thus, the ECA was calculated (Equation 3) based on a minimum observed upstream receiving water hardness…and the minimum effluent hardness." (Page F-28, emphasis added) Concave up metals are acute cadmium, lead and acute silver. Again, the minimum effluent hardness was 141 mg/l.

Constituent (total recoverable)	Max effluent concentration	ECA using 20 mg/l hardness (4 day/ 1 hour)	Permit developed ECA	Reasonable potential from permit	Reasonable potential using 20 mg/l hardness
Cadmium	0.036	0.8/0.91	3.2/0.70	No	No
Chromium III	0.16	58	50	No	No
Copper	21.9	2.5/3.1	13/2.4	Yes	Yes
Lead	25.2	.39/10	3.6/0.41	Yes	Yes
Nickel	2.7	13/130	70/13	No	Yes
Silver	0.02	.23	2.9/0.25	No	No
Zinc	48	31	160/31	No	Yes

Use of the upstream ambient hardness of 20 mg/l would have resulted in additional Effluent Limitations for nickel and zinc and significantly more stringent Effluent Limitations for copper and lead. The Permit is not protective of the beneficial uses of the receiving stream.

The term "Ambient"

The Regional Board rationalizes using the effluent hardness as the CTR does not define "ambient". The Regional Board then takes the liberty to make their own unique definition of the term to fit their goal. Federal Regulation 40 CFR 131.38(c)(4) states that: "For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations." (Emphasis added). There is no way imaginable that the wastewater effluent hardness can be termed the hardness of the surface water. The Regional Board completely ignores the Federal regulatory requirement to use "the actual ambient hardness of the surface water" in utilizing the effluent hardness to determine reasonable potential and to develop effluent limitations. The Regional Board ignores the federal requirement to use the hardness of the "surface water" and uses the effluent hardness for developing limitations for hardness dependant metals contrary to the federal regulation.

The definition of *ambient* is "in the surrounding area", "encompassing on all sides". It is reasonable to assume, after considering the definition of ambient, that EPA is referring to the hardness of the receiving stream before it is potentially impacted by an effluent discharge. It is also reasonable to make this assumption based on past interpretations and since EPA, in permit writers' guidance and other reference documents, generally assumes receiving streams have dilution, which would ultimately "encompass" the discharge. Ambient conditions are in-stream conditions unimpacted by the discharge. Confirming this definition, the SIP Sections 1.4.3.1 *Ambient Background Concentration as an Observed Maximum* and 1.4.3.2 state in part that: "If possible, preference should be given to ambient water column concentrations measured immediately upstream or near the discharge, but not within an allowed mixing zone for the discharge. The RWQCB shall have discretion to consider if any samples are invalid for use as applicable data due to evidence that the sample has been erroneously reported or the sample is not representative of the ambient receiving water column that will mix with the discharge."

The Regional Board has used the effluent hardness and the instream effluent hardness measured immediately downstream of the point of discharge, calling such "ambient". Ambient is defined as "surrounding"; not "in the middle of". Regional Board staff have begun to define any hardness used (effluent, upstream and downstream) as being "ambient". The result of using a higher effluent or downstream hardness value is that metals are toxic at higher concentrations, discharges have less reasonable potential to exceed water quality standards and the resulting Permits have fewer Effluent Limitations.

This is a discussion of wastewater discharges. Ambient is defined as that water surrounding the wastewater discharge. The wastewater discharge is called the "effluent". The effluent cannot surround itself; the effluent cannot be ambient unto itself. The effluent is surrounded by upstream water, the streambed and the air. This discussion is limited to the water column, therefore the wastewater discharge, the effluent, is surrounded by the upstream water. As the effluent flows downstream it mixes with the upstream water. This mixture of effluent and upstream water has been impacted and changed in character by the wastewater discharge; it is not "ambient".

The most typical wastewater discharge situation is where the receiving water hardness is lower than the effluent hardness. Metals are more toxic in lower hardness water. For example; if the receiving water hardness is 25 mg/l and the effluent hardness is 50 mg/l a corresponding chronic discharge limitation for copper based on the different hardness's would be 2.9 ug/l and 5.2 ug/l, respectively. Obviously, the limitation based on the true ambient (upstream) receiving water hardness is more restrictive.

The Federal Register, Volume 65, No. 97/Thursday, May 18th 2000 (31692), adopting the California Toxics Rule in confirming that the ambient hardness is the upstream hardness, absent the wastewater discharge, states that: "A hardness equation is most accurate when the

relationship between hardness and the other important inorganic constituents, notably alkalinity and pH, are nearly identical in all of the dilution waters used in the toxicity tests and in the surface waters to which the equation is to be applied. If an effluent raises hardness but not alkalinity and/or pH, using the lower hardness of the downstream hardness might provide a lower level of protection than intended by the 1985 guidelines. If it appears that an effluent causes hardness to be inconsistent with alkalinity and/or pH the intended level of protection will usually be maintained or exceeded if either (1) data are available to demonstrate that alkalinity and/or pH do not affect the toxicity of the metal, or (2) the hardness used in the hardness equation is the hardness of upstream water that does not include the effluent. The level of protection intended by the 1985 guidelines can also be provided by using the WER procedure."

On March 24, 2000 the US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) issued a biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act). The biological opinion was issued to the U.S. Environmental Protection Agency, Region 9, with regard to the "Final Rule for the Promulgation of Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California" (CTR)". The document represented the Services' final biological opinion on the effects of the final promulgation of the CTR on listed species and critical habitats in California in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.; Act).

The biological opinion contains the following discussion, beginning on page 205, regarding the use of hardness in developing limitations for toxic metals:

> "The CTR should more clearly identify what is actually to be measured in a site water to determine a site-specific hardness value. Is the measure of hardness referred to in the CTR equations a measure of the water hardness due to calcium and magnesium ions only? If hardness computations were specified to be derived from data obtained in site water calcium and magnesium determinations alone, confusion could be avoided and more accurate results obtained (APHA 1985). Site hardness values would thus not include contributions from other multivalent cations (e.g., iron, aluminum, manganese), would not rise above calcium + magnesium hardness values, or result in greater-than-intended site criteria when used in formulas. In this Biological opinion, what the Services refer to as hardness is the water hardness due to calcium + magnesium ions only.
>
> <u>The CTR should clearly state that to obtain a site hardness value, samples should be collected upstream of the effluent source(s). Clearly stating this requirement in the CTR would avoid the computation of greater-than-intended site criteria in cases where samples were collected downstream of effluents that raise ambient hardness, but not other important water qualities that affect metal toxicity (e.g., pH, alkalinity, dissolved organic</u>

carbon, calcium, sodium, chloride, etc.). Clearly, it is inappropriate to use downstream site water quality variables for input into criteria formulas because they may be greatly altered by the effluent under regulation. Alterations in receiving water chemistry by a discharger (e.g., abrupt elevation of hardness, changes in pH, exhaustion of alkalinity, abrupt increases in organic matter etc.) should not result, through application of hardness in criteria formulas, in increased allowable discharges of toxic metals. If the use of downstream site water quality variables were allowed, discharges that alter the existing, naturally-occurring water composition would be encouraged rather than discouraged. Discharges should not change water chemistry even if the alterations do not result in toxicity, because the aquatic communities present in a water body may prefer the unaltered environment over the discharge-affected environment. Biological criteria may be necessary to detect adverse ecological effects downstream of discharges, whether or not toxicity is expressed.

The CTR proposes criteria formulas that use site water hardness as the only input variable. In contrast, over twenty years ago Howarth and Sprague (1978) cautioned against a broad use of water hardness as a "shorthand" for water qualities that affect copper toxicity. In that study, they observed a clear effect of pH in addition to hardness. Since that time, several studies of the toxicity of metals in test waters of various compositions have been performed and the results do not confer a singular role to hardness in ameliorating metals toxicity. In recognition of this fact, most current studies carefully vary test water characteristics like pH, calcium, alkalinity, dissolved organic carbon, chloride, sodium, suspended solid s, and others while observing the responses of test organisms. It is likely that understanding metal toxicity in waters of various chemical makeups is not possible without the use of a geochemical model that is more elaborate than a regression formula. It may also be that simple toxicity tests (using mortality, growth, or reproductive endpoints) are not capable of discriminating the role of hardness or other water chemistry characteristics in modulating metals toxicity (Erickson *et al*. 1996). Gill surface interaction models have provided a useful framework for the study of acute metals toxicity in fish (Pagenkopf 1983; Playle *et al*. 1992; Playle *et al*. 1993a; Playle *et al*. 1993b; Janes and Playle 1995; Playle 1998), as have studies that observe physiological (e.g. ion fluxes) or biochemical (e.g. enzyme inhibition) responses (Lauren and McDonald 1986; Lauren and McDonald 1987a; Lauren and McDonald 1987b; Reid and McDonald 1988; Verbost et al. 1989; Bury *et al* 1999a; Bury *et al*. 1999b). Even the earliest gill models accounted for the effects of pH on metal speciation and the effects of alkalinity on inorganic complexation, in addition to the competitive effects due to hardness ions (Pagenkopf 1983). Current gill models make use of sophisticated, computer-based, geochemical programs to more accurately account for modulating effects in waters of different chemical makeup (Playle 1998). These programs have aided in the interpretation of physiological or biochemical responses in fish and in

> investigations that combine their measurement with gill metal burdens and traditional toxicity endpoints.
>
> The Services recognize and acknowledge that hardness of water and the hardness acclimation status of a fish will modify toxicity and toxic response. However the use of hardness alone as a universal surrogate for all water quality parameters that may modify toxicity, while perhaps convenient, will clearly leave gaps in protection when hardness does not correlate with other water quality parameters such as DOC, pH, Cl- or alkalinity and will not provide the combination of comprehensive protection and site specificity that a multivariate water quality model could provide. In our review of the best available scientific literature the Services have found no conclusive evidence that water hardness, by itself, in either laboratory or natural water, is a consistent, accurate predictor of the aquatic toxicity of all metals in all conditions.

Over or under protective?

The Regional Board's use of hardnesses other than the upstream is based on an approach developed by Dr. Robert Emerick, of Eco:Logic Engineers. Dr. Emerick developed a different approach for evaluating hardness-dependent metals that used effluent and downstream hardness values in assessing reasonable potential and developing effluent limits. He subsequently presented his approach at the Water Board's Training Academy and the Regional Board has adopted this methodology as a defacto policy in developing and issuing wastewater discharge permits. Dr. Emerick's approach has never been evaluated or adopted through the legally mandated rule-making procedures. Use of the policy has resulted in fewer and less stringent and less protective limits in numerous permits.

Federal Regulation 40 CFR 131.38(c)(4) states that: "For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations." (Emphasis added). The "Emerick" method employs the use of the effluent hardness to calculate hardness dependant metals criteria. The effluent is not surface water as required by 40 CFR 131.38(c)(4) and therefore the "Emerick" method cannot be used in determining reasonable potential or establishing aquatic life criteria for hardness dependant metals.

Use of the "Emerick" method considers only hardness. However there are numerous other components of a wastewater discharge that will affect the toxicity of the "hardness dependant metals" which are not evaluated in the method or elsewhere in the permit. For example, pH, alkalinity, dissolved organic carbon, calcium, sodium, and chloride levels which affect the toxicity of the cited metals can be substantially altered by the wastewater discharge. Not evaluating these other parameters and their impact on the toxicity of metals, the Central Valley

Regional Board cannot state that the limitations using the lowest recorded upstream hardness are overly protective.

In rationalizing their use of the effluent hardness, the Regional Board states that use of the lower upstream ambient hardness would be overly protective.

On 12 March 2009, EPA issued training materials on its Biotic Ligand Model (BLM) using hardness dependant copper. The BLM is a computer model that utilized 10 water chemistry parameter inputs to calculate a water quality criterion. The BLM shows that water quality can affect metal toxicity, in particular natural organic matter, and pH have a strong affect on copper, but hardness cations, alkalinity and sodium also play a role. Failure to consider these effects may make a water quality objective overprotective or underprotective for a large number of sites where permits for metal discharges are needed. (http://epa.gov/waterscience/standards/academy/special/blm/files/presentation.pdf)

For example, the available literature indicates that lower pH values can increase the toxicity of metals. The discharge pH at SMD-1 has been shown to be as low as 6.0 (page F-7). The Regional Board did not consider this information. Use of the lower "ambient" upstream hardness will result in lower effluent limitations for the regulated toxic metal constituents and yet may not, according to EPA's discussions with regard to the BLM, be adequately protective of the beneficial uses of the receiving stream.

The biotic ligand model is a metal bioavailability model based on recent information about the chemical behavior and physiological effects of metals in aquatic environments. Earlier freshwater aquatic life criteria for copper published by the Agency were based on empirical relationships of toxicity to water hardness. That is, a relationship was established linking the criteria concentrations with water hardness. These hardness-dependent criteria, however, represented combined effects of different water quality variables (such as pH and alkalinity) correlated with hardness. Unlike the empirically derived hardness-dependent criteria, the BLM explicitly accounts for individual water quality variables and addresses variables that EPA had not previously factored into the hardness relationship. Where the previous freshwater aquatic life criteria were hardness-dependent, these revised criteria are dependent on a number of water quality parameters (e.g., calcium, magnesium, dissolved organic carbon) described in the document. BLM-based criteria can be more stringent than the current hardness-based copper criteria and in certain cases the current hardness-based copper criteria may be overly stringent for particular water bodies. "Stringency" likely varies depending on the specific water chemistry of the site. The 1986 hardness-based equation and resulting copper criteria reflected the effects of water chemistry factors such as hardness (and any of the other factors that were correlated with hardness, chiefly, pH and alkalinity). However, the hardness-based criteria, unadjusted with the WER, did not explicitly consider the effects of DOC and pH, two of the more important parameters affecting copper toxicity. This application resulted in copper criteria that were

potentially under-protective (i.e., not stringent enough) at low pH and potentially over-protective (i.e., too stringent) at higher DOC levels.

The Regional Board also ignores the fact that US EPA has updated their Ambient Criteria for the Protection of Freshwater Aquatic Life for Copper utilizing the BLM. Use of the latest science presented in EPA's criteria would eliminate the hardness discussion.

Evaluation of hardness alone is insufficient for the Central Valley Regional Board to conclude that the use of the upstream ambient hardness is overly protective and may actually instead be under protective based on the expert advice from EPA, US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS). The Regional Board has no basis to state that an Effluent Limitation based on the upstream ambient hardness is overly protective.

The Davis Decision

The Regional Board cited the State Board's Water Quality Order (WQO)(No. 2008 0008) for the City of Davis as allowing complete discretion in utilizing the downstream hardness in deriving limits for toxic metals. SWRCB precedential Order No. WQ 2008-0008 (Corrected) regarding a petition for consideration of the City of Davis' NPDES Permit states and concludes that:

> "Based on the current record, it would be more appropriate to use the lowest reliable upstream receiving water hardness values of 78 mg/l for Willows Slough Bypass and 85 mg/l for Conaway Ranch Toe Drain for protection from acute toxicity impacts, regardless of when the samples were taken or whether they were influenced by storm events. Because high flow conditions may deviate from the design flow conditions for selection of hardness as specified in the CTR, it may not be necessary, in some circumstances, to select the lowest hardness values from high flow or storm event conditions. Regardless of the hardness used, the resulting limits must always be protective of water quality criteria under all flow conditions."
>
> "Conclusion: The Central Valley Water Board was justified in using upstream receiving water hardness values rather than effluent hardness values. However, for protection from acute toxicity impacts in the receiving waters, which can occur in short durations even during storm events, in this case, based on the existing record, the Central Valley Water Board should have used the lowest valid upstream receiving water hardness values of 78 mg/l for Willow Slough Bypass and 85 mg/l for Conaway Ranch Toe Drain. Effluent limitations must protect beneficial uses considering reasonable, worst-case conditions. We recognize that this approach does not necessarily agree with conclusions in other guidance stating that low flow conditions are the "worst-case" conditions. However, nothing in this Order is intended to suggest that low flows are inappropriate for determining the reasonable, worst-case conditions in other contexts." (Emphasis added)

WQO 2008 0008 in requiring the Regional Board to modify their permit states: "Revise the Fact Sheet to include a discussion of the appropriate hardness to use to protect from acute toxicity impacts (which can occur in short-term periods including storm events) in the receiving waters. The Fact Sheet should also state that the lowest valid upstream receiving water hardness values of 78 mg/l for Willow Slough Bypass and 85 mg/l for Conaway Ranch Toe Drain should be used to determine reasonable potential for the effluent to exceed the hardness-dependent metal CTR criteria, unless additional evidence and analysis, consistent with this Order, demonstrates that different hardness values are appropriate to use and are fully protective of water quality." The Regional Board did not use the lowest observed upstream hardness as required in WQO 2008 0008. The Regional Board has not provided additional evidence and analysis demonstrating that different hardness is fully protective of beneficial uses. To the contrary, the Regional Board does not address the March 24, 2000 the US Fish and Wildlife Service (Service) and the National Marine Fisheries Service (NMFS) CTR Biological Opinion cited above stating that the use of hardness alone is not protective of beneficial uses and recommending the sole use of the ambient upstream hardness in developing limits for toxic metals.

The SWRCB Order requires that the lowest observed hardness be used to develop limitations for hardness dependant metals regardless of where it is found. This approach is the most protective of water quality when only hardness is used to determine the potential of toxicity of metals. While the SWRCB Order is protective of water quality; the Order fails to discuss the regulatory requirement of the CTR that "…the actual ambient hardness of the surface water shall be used…" This could have been easily corrected as addressed by citing federal regulation 40 CFR 122.44(d) in utilizing the lower effluent hardness in being more stringent that the applicable regulation. The Davis case is different than the situation at SMD-1: at Davis the lower hardness was actually observed downstream while at SMD-1 the upstream hardness is clearly lower at 20 mg/l than the effluent or downstream waters.

Mixing zones

The Regional Board's arguments with regard to effluent and/or downstream receiving water hardness can only be made if in-stream mixing is considered. Mixing zones may be granted in accordance with extensive requirements contained in the SIP and the Basin Plan to establish Effluent Limitations. Mixing zones cannot be considered in conducting a reasonable potential analysis to determine whether a constituent will exceed a water quality standard or objective. The Regional Board's approach in using the effluent or downstream hardness to conduct a reasonable potential analysis and consequently establish effluent limitations can only be utilized if mixing is considered; otherwise the ambient (upstream) hardness results in significantly more restrictive limitations. A mixing zone allowance has not been discussed with regard to this issue and therefore does not comply with the SIP.

Conclusion

The issue is that the Regional Board fails to comply with the regulatory requirement to use the ambient instream hardness for limiting hardness dependant metals under the CTR. Failure to utilize the upstream ambient hardness for determining reasonable potential and developing limitations results in fewer and less restrictive Effluent Limitations. Use of the upstream ambient hardness of 20 mg/l instead of the significantly higher effluent hardness would have resulted in additional Effluent Limitations for nickel and zinc and significantly more stringent Effluent Limitations for copper and lead. The Permit is not protective of the beneficial uses of the receiving stream.

C. Effluent Limitations for arsenic and electrical conductivity (EC) are improperly regulated as an annual average contrary to Federal Regulations 40 CFR 122.45 (d)(2) and common sense.

Federal Regulation 40 CFR 122.45 (d)(2) requires that permit for POTWs establish Effluent Limitations as average weekly and average monthly unless impracticable. The Permit establishes Effluent Limitations for EC, iron and manganese as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitations for arsenic and EC in accordance with the Federal Regulation is not impracticable; to the contrary the Central Valley Regional Board has a long history of having done so. Proof of impracticability is properly a steep slope and the Regional Board has not presented any evidence that properly and legally limiting arsenic and EC is impracticable.

The Permit, page F-61 states that: "For effluent limitations based on Primary and Secondary MCLs, except nitrate plus nitrite and nitrite, this Order includes annual average effluent limitations. The Primary and Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis (except for nitrate and nitrite), when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate average weekly and average monthly effluent limitations."

The Regional Board's citation of Title 22 is incorrect since Title 22 addresses drinking water distribution systems not surface waters. The Basin Plan states that surface waters shall not exceed MCLs and does not prescribe any compliance time period. The Basin Plan states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses*." Again the Basin Plan does not prescribe time periods but instead states that limits may be more stringent than the MCLs.

Arsenic and many of its compounds are especially potent poisons. Low-level exposure to arsenic at concentrations found commonly in US drinking water compromises the initial immune response to H1N1 or swine flu infection according to NIEHS-supported scientists. The study, conducted in laboratory mice, suggests that people exposed to arsenic in their drinking water may be at increased risk for more serious illness or death in response to infection from the virus. (Courtney, D; Ely, Kenneth H.; Enelow, Richard I.; Hamilton, Joshua W. (2009). "Low Dose Arsenic Compromises the Immune Response to Influenza A Infection in vivo," *Environmental Health Perspectives*.) Immediate symptoms on an acute poisoning typically include vomiting, oesophageal and abdominal pain, and bloody "rice water" diarrhea. (http://www.who.int/mediacentre/factsheets/fs210/en/) Electrical conductivity (EC) is a measure of the salts in water. The EC levels are generally regulated for taste and odor impacts. Taste impacts occur instantaneously not over a year's period of time. High EC levels also impact the salt buildup in pipes and plumbing fixtures. High salt levels can discolor plumbing fixtures quickly. EC also contributes to scaling and sedimentation, *which* are other processes that have economic impacts. Scale is a mineral deposit that builds up on the insides of hot water pipes, boilers, and heat exchangers, restricting or even blocking water flow. Sediments are loose deposits in the distribution system or home plumbing.

D. The Permit removes Effluent Limitations for numerous constituents and is less stringent than the existing permit contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).

The Permit removes Effluent Limitations for alachlor, atrazine, bis (2-ethylhexyl) phthalate, chloroform, manganese, methyl tertiary butyl ether, oil and grease, persistent chlorinated hydrocarbon pesticides, phthalate acid esters, polychlorinated biphenyls, settleable solids, silver, TCDD-equivalents, tributyltin, turbidity and zinc.

As is shown above, zinc was removed due to the use of the effluent hardness, rather than the legally required instream ambient hardness in determining reasonable potential. Turbidity was removed despite the fact that the effluent limitation was exceeded (page F-5) at a level up to 10.4 NTU, which likely also caused exceedance of the turbidity Receiving Water Limitation based on the Basin Plan objective. Permit, page F-9 states, in part, that:

> "4. An inspection of the Facility was conducted on 27 May 2008. The following is a summary of the major findings from the inspection report: **a**. Composite effluent samples were stored too cold, in violation of the Standard Provisions. **c**. Daily grab samples were always collected in the morning, contrary to the intent of the Monitoring and Reporting Program. It was recommended that the Discharger vary the sample time by more than several minutes."

According to the inspection Findings the sampling data is not sufficiently reliable to eliminate the reasonable potential developed in the previous permit. The facility is located in the northern

half of the City of Auburn and contains most of the community's industrial dischargers; the sampling conducted in the early morning hours potentially missed all the industrial flows. The Permit states in several places that: "The Discharger implemented "clean" sampling procedures January 2007" but provides no laboratory QA/QC results to eliminate any prior sampling results. The Permit states on page F-50 that:

> "The discharge of blended secondary effluent, compared to a full tertiary discharge, will result in the discharge of additional pollutants. The RPA was based on tertiary treatment, and the blended discharge may not comply with the effluent limitations established in this Order."

The discharge was not sampled during worst case discharge periods therefore the data used to eliminate previously established Effluent Limitations is simply insufficient.

Most of the above individual citations are sufficient alone to warrant maintenance of the existing Effluent Limitations. In combination it is clear that the Permit, absent the previously established Effluent Limitations, is not sufficient to protect the beneficial uses of the receiving stream. As follows, the Permit does not meet the regulatory requirements for allowing the removal of Effluent Limitations.

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA's goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the requirements of the antibacksliding rule are met. The antibacksliding regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under CWA §304(b), which would result in limits less stringent than those in the previous BPJ-based permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant if: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

> (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have

materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)

(2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

(i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:

(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;

(B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

(C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;

(D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or

(E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

(ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result

in a violation of a water quality standard under section 303 applicable to such waters.

E. Federal Regulations, 40 CFR Part 133 requires a minimum of secondary treatment be provided. During wet weather flows, the Permit indicates that the required minimum level of treatment may not be provided by the Placer County SMD-1 wastewater treatment plant.

The Permit, pages F-4 and F-5 states that: "The Facility is designed to provide tertiary treatment for average dry weather flows of 2.18 MGD and peak wet weather flows of 3.5 MGD. However, the Discharger has historically had high levels of infiltration and inflow (I/I) during wet weather events that have resulted in flows exceeding 3.5 MGD. During severe wet weather events, a portion of the influent bypasses comminution and grit removal and is directed through a bar screen to the primary clarifiers. Typically, only two of the four primary clarifiers are utilized as clarifiers while the other two are utilized for equalization; however, during wet weather conditions, all four are used for clarification. The trickling filters do not have the capacity to treat all wastewater under wet weather conditions, and a portion of the wastewater bypasses the trickling filter and is directed from the RBCs to the secondary clarifier. Furthermore, flows exceeding 3.5 MGD are routed around the gravity filters and flow directly to the chlorine contact basins. Thus, the Facility discharges a combination of secondary and tertiary treated wastewater during severe wet weather events." (Emphasis added)

The Permit also states that:

- The maximum measured flow rate was 8.28 mgd. (Page F-7)

- The minimum percent removal of BOD and TSS was 82.8% and 82.3%, respectively. (page F-5) The minimum required percent removal for BOD and TSS are 85% as required by 40 CFR 133.

- The maximum turbidity level was 10.4 NTU. (page F-5)

During the maximum flow event of 8.28 mgd, 4.78 mgd would have been bypassed as described in the above paragraph. There is no indication that the flows bypassing the trickling filters would have received sufficient oxidation in the RBCs. It is doubtful that the wet weather design capacity of the RBCs would have a peaking factor sufficient to accommodate these excess flows. The relatively low recorded levels of BOD and TSS could be due to a dilute influent from I/I flows and do not reflect treatment. The technical information in the Permit would appear to indicate that a secondary level of treatment is not provided during periods of peak flow as is required by 40 CFR 133.

F. The Permit replaces Effluent Limitations for turbidity which were present in the existing permit; contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA's goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the requirements of the antibacksliding rule are met. The antibacksliding regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under CWA §304(b), which would result in limits less stringent than those in the previous BPJ-based permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant *if*: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit

modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

> (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)
>
> (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.
>
> (i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:
>
> (A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;

> (B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);
>
> (C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;
>
> (D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or
>
> (E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).
>
> (ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

The Permit Fact Sheet discusses Pathogens and states that the previous Order established Effluent Limitations for turbidity. Turbidity limitations are maintained in the Permit but have been moved to "Special Provisions", they are no longer Effluent Limitations. The Fact Sheet Pathogen discussion states that infectious agents in sewage are bacteria, parasites and viruses and that tertiary treatment is necessary to effectively remove these agents. This discussion also states that turbidity limitations were originally established: "…to ensure that the treatment system was functioning properly and could meet the limits for total coliform organisms. This discussion is incorrect. First; coliform organism limitations are also an indicator parameter of the effectiveness of tertiary treatment. The coliform limitations in the proposed and past Permit are significantly lower than the Basin Plan Water Quality Objective and are based on the level of treatment recommended by the California Department of Public Health (DPH). Second; both the

coliform limitations and turbidity are recommended by DPH as necessary to protect recreational and irrigated agricultural beneficial uses of the receiving water. Turbidity has no lesser standing than coliform organisms in the DPH recommendation. Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. There are no limitations for viruses and parasites in the Permit, which the Regional Board has indicated are necessary to protect the contact recreation and irrigated agricultural uses of the receiving water. Both coliform and turbidity limitations are treatment effectiveness indicators that the levels of bacteria viruses and parasites are adequately removed to protect the beneficial uses. Special Provisions are not Effluent Limitations as required by the Federal Regulations. The turbidity Effluent Limitations must be restored in accordance with the Clean Water Act and Federal regulations 40 CFR 122.44 (l)(1).

In discussing and analyzing turbidity, the Regional Board has consistently ignored the secondary maximum contaminant level (MCL) for drinking water. The Basin Plan, at Water Quality Objectives for Inland Surface Waters, Chemical Constituents (p. III-3.00), requires that "[a]t a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following Provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449." Municipal and domestic supply is an existing beneficial use of the surface water, which carries a Secondary MCL for turbidity of 5 NTU. The Permit states that the maximum turbidity level of the effluent was 10.4 NTU (page F-5). An Effluent Limitation for turbidity is required based on the drinking water quality standard.

The only rationale that can explain moving the turbidity from Effluent Limitations to Provisions is to protect Dischargers from mandatory minimum penalties as prescribed by the California Water Code, Section 13385. It is doubtful that it was intent of the legislature in adopting the mandatory penalty provisions to have the Regional Boards delete Effluent Limitations from permit to avoid penalties.

G. The Permit fails to include an Effluent for Chloroform as required by Federal Regulations 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377.

The Permit states that the *annual average* concentration for chloroform was 41 ug/l, but Table F-2 shows the maximum effluent concentration was 99 ug/l. Order No. R5-2005-0074 established effluent limitations for chloroform based on the California Environmental Protection Agency

(Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) cancer potency factor represented by the one-in-a-million cancer risk level in drinking water of 1.1 µg/L. Obviously, even the annual average exceeds the OEHHA cancer potency factor. The primary MCL for chloroform is 80 ug/l for total trihalomethanes of which chloroform is a part.

The Antibacksliding requirements have been addressed above.

The Regional Bases their conclusion to eliminate the Effluent Limitation on the following: "However, there are no immediate municipal uses downstream of the discharge and it is not appropriate to apply the OEHHA cancer potency factor to determine reasonable potential to exceed the Basin Plan's narrative chemical constituent objective." This statement and conclusion is contrary to all of the other Findings in the Permit, such as the following from page F-20: The State Water Board has issued numerous water rights, for domestic and irrigation uses, on Main Canal and downstream waters, the Sacramento River, the Bear River, and the Feather River, downstream of the discharge. Many of the waterways downstream of the discharge are managed by irrigation districts and retain the domestic and irrigation beneficial uses. Nevada Irrigation District controls the flows in Dry Creek, Coon Creek, and Camp Far West Ditch. Nevada Irrigation District staff confirmed the existence of domestic uses of this water by reporting that water from Camp Far West Ditch is utilized for in-home use. The Nevada Irrigation District requires the homeowner to purchase 5 gallons of bottled drinking water per month. The Nevada Irrigation District sells water from Coon Creek and Camp Far West Ditch and has assessed the principal uses as family garden use and pasture irrigation. Over a distance of approximately 25 miles on Camp Far West Ditch, there are 37 irrigation customers, two of whom have irrigation water connected to their homes. Riparian rights, for landowners along streams and rivers, are not recorded with the State Water Board and have precedence over other water rights and may include domestic and municipal uses. The wastewater discharge occurs in a residential area and the effluent immediately flows through numerous yards bordering Dry Creek. Home garden irrigation has been identified as an existing beneficial use of the stream." The Regional Board can't have it both ways, there are identified drinking water uses site specifically identified immediately downstream of the discharge.

Federal Regulation, 40 CFR 122.45 (d)(2) requires that permit for POTWs establish Effluent Limitations as a average weekly and average monthly. Even if the Regional Board was correct that Effluent Limitations based on MCLs were to be established as an annual average, this would not carry over to conducting the reasonable potential to determine if an Effluent Limitation is necessary. The Regional Board cites the SIP as being the source of their rationale for conducting a reasonable potential analysis and state in Finding M that: "To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000." Section 1.3 of the

SIP clearly requires comparison of the maximum effluent concentration (MEC) to the applicable water quality criterion to determine the need for an Effluent Limitation.

CSPA has long argued that the reasonable potential analysis must be done in accordance with Federal regulations, 40 CFR § 122.44(d)(1)(ii), which states "when determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the **variability of the pollutant or pollutant parameter in the effluent**, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water." Emphasis added. The reasonable potential analysis fails to consider the statistical variability of data and laboratory analyses as explicitly required by the federal regulations.

The Regional Board has failed to follow their own standard of using SIP Section 1.3 to develop Effluent Limitations and the mandated method from 40 CFR 122.44, but instead now makes up a new method with no regulatory or technical justification whatever.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

H. The Permit fails to include an Effluent for Manganese as required by Federal Regulations 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377.

The Permit states that the annual average concentration for manganese was 29 ug/l, but Table F-2 shows the maximum effluent concentration was 64.6 ug/l. Order No. R5-2005-0074 established effluent limitations for manganese based on the secondary MCL of 50 ug/l.

Federal Regulation, 40 CFR 122.45 (d)(2) requires that permit for POTWs establish Effluent Limitations as a average weekly and average monthly. Even if the Regional Board was correct that Effluent Limitations based on MCLs were to be established as an annual average, this would

not carry over to conducting the reasonable potential to determine if an Effluent Limitation is necessary. The Regional Board cites the SIP as being the source of their rationale for conducting a reasonable potential analysis and state in Finding M that: "To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000." Section 1.3 of the SIP clearly requires comparison of the maximum effluent concentration (MEC) to the applicable water quality criterion to determine the need for an Effluent Limitation.

CSPA has long argued that the reasonable potential analysis must be done in accordance with Federal regulations, 40 CFR § 122.44(d)(1)(ii), which states "when determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the **variability of the pollutant or pollutant parameter in the effluent**, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water." Emphasis added. The reasonable potential analysis fails to consider the statistical variability of data and laboratory analyses as explicitly required by the federal regulations.

The Regional Board has failed to follow their own standard of using SIP Section 1.3 to develop Effluent Limitations and the mandated method from 40 CFR 122.44, but instead now makes up a new method with no regulatory or technical justification whatever.

I. The Permit does not contain an Effluent Limitation for oil and grease in violation of Federal Regulations 40 CFR 122.44 and California Water Code Section 13377.

Total oil and grease was detected in the effluent at 5.4 mg/l (table F-2). TPHG was detected above the taste and odor threshold in four of 11 effluent samples (three of the four were estimated values). TPHK was detected above the SNARL in one of 11 effluent samples, while TPHD was detected above the SNARL in all 11 effluent samples (page F-36).

Oil and grease is highly toxic to aquatic life: toxic at concentrations as low as 0.1 mg/L and sublethal toxicities are reported at 10-100 µg/L. In fact, it has been shown that petroleum products can harm aquatic life at concentrations as low as 1 µg/l. Oil and grease is also persistent, bioaccumulative and highly toxic in sediment. The US EPA's water quality standard for oil and grease is stated as: "a) 0.01 of the lowest continuous flow 96-hour LC50 to several important freshwater and marine species, each having a demonstrated high susceptibility to oils and petrochemicals, b) Levels of oils or petrochemicals in the sediment which cause deleterious effects to the biota should not be allowed and c) surface waters shall be virtually free from floating nonpetroleum oils of vegetable or animal origin, as well as petroleum-derived oils"

Goldbook, 1986, Quality Criteria for Water, EPA 440/5-86-001. A table summarizing lethal toxicities of various petroleum products to aquatic life can be found in EPA's 1976 Quality Criteria for Water (Redbook, pp 210-215). The Basin Plan's narrative limit for oil and grease is stated as "[w]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses" Basin Plan, III-5.00.

Permit, page F-34 states that: "Oil and grease used to be a problem at many POTWs and was a necessary effluent limit to protect the treatment plant and receiving waters. However, implementation of fats oils and grease (FOG) and pretreatment programs, in conjunction with improved levels of treatment, have resulted in an overall reduction of oil and grease in wastewater treatment plant effluent." Obviously this is a "canned" statement that does not apply to this discharge. There were no "improved levels of treatment" at the SMD-1 wastewater treatment plant. There is also no "FOG" program documented in the Permit.

With regard to total petroleum hydrocarbons, the Permit states on page F-36 that: "However, there are no immediate municipal uses downstream of the discharge and it is not appropriate to apply the taste and odor thresholds or the SNARL to determine reasonable potential to exceed the Basin Plan's narrative taste and odor objective." This statement and conclusion is contrary to all of the other Findings in the Permit, such as the following from page F-20: The State Water Board has issued numerous water rights, for domestic and irrigation uses, on Main Canal and downstream waters, the Sacramento River, the Bear River, and the Feather River, downstream of the discharge. Many of the waterways downstream of the discharge are managed by irrigation districts and retain the domestic and irrigation beneficial uses. Nevada Irrigation District controls the flows in Dry Creek, Coon Creek, and Camp Far West Ditch. Nevada Irrigation District staff confirmed the existence of domestic uses of this water by reporting that water from Camp Far West Ditch is utilized for in-home use. The Nevada Irrigation District requires the homeowner to purchase 5 gallons of bottled drinking water per month. The Nevada Irrigation District sells water from Coon Creek and Camp Far West Ditch and has assessed the principal uses as family garden use and pasture irrigation. Over a distance of approximately 25 miles on Camp Far West Ditch, there are 37 irrigation customers, two of whom have irrigation water connected to their homes. Riparian rights, for landowners along streams and rivers, are not recorded with the State Water Board and have precedence over other water rights and may include domestic and municipal uses. The wastewater discharge occurs in a residential area and the effluent immediately flows through numerous yards bordering Dry Creek. Home garden irrigation has been identified as an existing beneficial use of the stream." The Regional Board can't have it both ways, there are identified drinking water uses site specifically identified immediately downstream of the discharge.

The Permit is for a domestic wastewater treatment plant. Domestic wastewater treatment plants, by their nature, receive oil and grease in concentrations from home cooking and restaurants that present a reasonable potential to exceed the Basin Plan water quality objective for oil and grease (Basin Plan III-5.00). Confirmation sampling is not necessary to establish that domestic wastewater treatment systems contain oil and grease in concentrations that present a reasonable potential to exceed the water quality objective. It is not unusual for sewerage systems to allow groundwater cleanup systems, such as from leaking underground tanks, to discharge into the sanitary sewer. Groundwater polluted with petroleum hydrocarbons can also infiltrate into the collection system as easily as sewage exfiltrates. The Central Valley Regional Board has a long established history of including oil and grease limitations in NPDES permits at 15 mg/l as a daily maximum and 10 mg/l as a monthly average, which has established BPTC for POTWs.

The California Water Code (CWC), Section 13377 states in part that: "…the state board or the regional boards shall…issue waste discharge requirements…which apply and ensure compliance with …water quality control plans, or for the protection of beneficial uses…" Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter. US EPA has interpreted 40 CFR 122.44(d) in *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program* (Factsheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that "where the preponderance of evidence clearly indicates the potential to cause or contribute to an exceedance of State water quality standards (even though the data may be sparse or absent) a limit MUST be included in the permit." Failure to include an effluent limitation for oil and grease in the Permit violates 40 CFR 122.44 and CWC 13377.

J. The Permit Fails to Include Limitations that are Protective of the Municipal and Domestic Beneficial Uses of the Receiving Stream Contrary to Federal Regulations 40 CFR 122.4, 122.44(d) and the California Water Code, Section 13377.

The Permit, on pages F-47 and F-48 states that:

> "In site-specific situations where a discharge is occurring to a stream with a downstream water intake used as a domestic water supply without treatment, the DPH has recommended the same Title 22 tertiary treatment requirements for the protection of MUN, as well as protecting REC-1 and AGR. DPH has also recommended a 20:1 dilution ratio in addition to the Title 22 tertiary treatment requirement where there are

> existing domestic water users of raw water near the treatment plant outfall. In this case, there are no such known uses that could be affected by the discharge, so tertiary treatment plus 20:1 dilution is not necessary to protect the MUN, REC-1 or AGR uses." The statement that there are no known drinking water intakes where treatment is not provided is simply wrong. There are very well documented drinking and domestic water intakes immediately downstream that do not provide treatment. The Permit, page F-20, states that : The State Water Board has issued numerous water rights, for domestic and irrigation uses, on Main Canal and downstream waters, the Sacramento River, the Bear River, and the Feather River, downstream of the discharge. Many of the waterways downstream of the discharge are managed by irrigation districts and retain the domestic and irrigation beneficial uses. Nevada Irrigation District controls the flows in Dry Creek, Coon Creek, and Camp Far West Ditch. Nevada Irrigation District staff confirmed the existence of domestic uses of this water by reporting that water from Camp Far West Ditch is utilized for in-home use. The Nevada Irrigation District requires the homeowner to purchase 5 gallons of bottled drinking water per month. The Nevada Irrigation District sells water from Coon Creek and Camp Far West Ditch and has assessed the principal uses as family garden use and pasture irrigation. Over a distance of approximately 25 miles on Camp Far West Ditch, there are 37 irrigation customers, two of whom have irrigation water connected to their homes. Riparian rights, for landowners along streams and rivers, are not recorded with the State Water Board and have precedence over other water rights and may include domestic and municipal uses. The wastewater discharge occurs in a residential area and the effluent immediately flows through numerous yards bordering Dry Creek. Home garden irrigation has been identified as an existing beneficial use of the stream."

In accordance with the Permit Findings "DPH has also recommended a 20:1 dilution ratio in addition to the Title 22 tertiary treatment requirement where there are existing domestic water users of raw water near the treatment plant outfall" the municipal and domestic beneficial uses of the receiving stream are not protected. There are documented domestic and municipal uses downstream of the wastewater treatment plant. The receiving stream does not provide a minimum dilution ratio of twenty to one.

The Permit contains very clear and explicit Findings that municipal and domestic supply (MUN) are beneficial uses of the receiving stream as designated in the Sacramento San Joaquin River Basins Water Quality Control Plan (Basin Plan). Federal Regulation, 40 CFR 122.4 (a), (d) and (g) require that no permit may be issued when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA, or regulations promulgated under the CWA, when imposition of conditions cannot ensure compliance with applicable water quality requirements and for any discharge inconsistent with a plan or plan amendment approved under Section 208(b) of the CWA. Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and

narrative water quality criteria to protect the beneficial uses of the receiving water. California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

Direct ingestion is a more sensitive use of water than contact recreation uses or eating food crops irrigated with treated sewage. In 1987 DPH issued the *Uniform Guidelines for the Disinfection of Wastewater* (Uniform Guidelines) as recommendations to the Regional Water Quality Control Boards regarding disinfection requirements for wastewater discharges to surface waters. The Uniform Guidelines recommend a "no discharge" of treated domestic wastewater to freshwater streams used for domestic water supply. Where is not possible to prevent a wastewater discharge: the Uniform Guidelines recommend that no discharge be allowed unless a minimum of a twenty-to-one in stream dilution is available. The DPH has reiterated the recommendations of the Uniform Guidelines to the Central Valley Regional Board on numerous occasions: specifically a 1 July 2003 letter to the Executive Officer (Thomas Pinkos); a 28 September 2000 Memorandum to regional and district engineers from Jeff Stone; and cite specific recommendations for the City of Jackson's wastewater discharge. A discharge of tertiary treated domestic wastewater to an ephemeral stream is not protective of the domestic and municipal beneficial uses of the receiving stream. It must be noted that the 18 August 1992 transmittal letter of the Uniform Guidelines removed the tertiary plus twenty to one dilution recommendations based on adoption of the Surface Water Treatment Rule. In this case, however as was the case with the City of Jackson, the downstream users do not have drinking water treatment systems in place.

CCR Title 22 is cited in the Permit as the source of information for requiring tertiary treatment to protect the contact recreation and food crop irrigation beneficial uses of the receiving stream. CCR Title 22 does not discuss or provide a level of treatment adequate to protect drinking water. To the contrary, Title 22 contains numerous requirements (60310) to prevent cross connections with potable water supplies, setback requirements from domestic supplies and wells, and warning signs not to drink the water: "RECLAIMED WATER DO NOT DRINK" verifying that tertiary treated domestic wastewater in not fit for human consumption. Tertiary treated wastewater discharged to ephemeral streams is not of adequate quality for municipal use and is therefore not protective of the DOM beneficial use.

The Permit does not protect the drinking water beneficial use of the receiving stream as is required by Federal Regulations 40 CFR 122.4, 122.44(d) and the California Water Code, Section 13377 and in accordance with these requirements cannot be issued.

K. The Permit fails to contain mass-based effluent limits as required by Federal Regulations 40 CFR 122.45(b).

Mass based Effluent Limitations are critically important for the discharge from the SMD-1 wastewater treatment plant since the facility has a history of bypassing inadequately treated wastewater during periods of high flow. The permit does not limit peak flows and the wet weather peak flows have routinely exceeded the capacity of the treatment system. The facility is plagued with infiltration and inflow (I/I) problems. The I/I flows should not contain large loads of pollutants, but the dilute influent can interfere with the system's ability to adequately treat waste. The facility is also subject to industrial flows, as evidenced by US EPA inspections and the requirements for an industrial pretreatment program. The industrial facilities may have similar issues during periods of high flow, yet could discharge excess pollutants if the facility is not regulated by mass.

Federal Regulation, 40 CFR 122.45 (b) requires that in the case of POTWs, permit Effluent Limitations, standards, or prohibitions shall be based on design flow. Concentration is not a basis for design flow. Mass limitations are concentration multiplied by the design flow and therefore meet the regulatory requirement.

Section 5.7.1 of U.S. EPA's T*echnical Support Document for Water Quality Based Toxics Control* (TSD, EPA/505/2-90-001) states with regard to mass-based Effluent Limits:

> "Mass-based effluent limits are required by NPDES regulations at 40 CFR 122.45(f). The regulation requires that all pollutants limited in NPDES permits have limits, standards, or prohibitions expressed in terms of mass with three exceptions, including one for pollutants that cannot be expressed appropriately by mass. Examples of such pollutants are pH, temperature, radiation, and whole effluent toxicity. Mass limitations in terms of pounds per day or kilograms per day can be calculated for all chemical-specific toxics such as chlorine or chromium. Mass-based limits should be calculated using concentration limits at critical flows. For example, a permit limit of 10 mg/l of cadmium discharged at an average rate of 1 million gallons per day also would contain a limit of 38 kilograms/day of cadmium.
>
> Mass based limits are particularly important for control of bioconcentratable pollutants. Concentration based limits will not adequately control discharges of these pollutants if the effluent concentrations are below detection levels. For these pollutants, controlling mass loadings to the receiving water is critical for preventing adverse environmental impacts.

> However, mass-based effluent limits alone may not assure attainment of water quality standards in waters with low dilution. In these waters, the quantity of effluent discharged has a strong effect on the instream dilution and therefore upon the RWC. At the extreme case of a stream that is 100 percent effluent, it is the effluent concentration rather than the mass discharge that dictates the instream concentration. Therefore, EPA recommends that permit limits on both mass and concentration be specified for effluents discharging into waters with less than 100 fold dilution to ensure attainment of water quality standards."

Federal Regulations, 40 CFR 122.45 (f), states the following with regard to mass limitations:

> "(1) all pollutants limited in permits shall have limitations, standards, or prohibitions expressed in terms of mass except:
>
> (i) For pH, temperature, radiation or other pollutants which cannot be expressed by mass;
>
> (ii) When applicable standards and limitations are expressed in terms of other units of measurement; or
>
> (iii) If in establishing permit limitations on a case-by-case basis under 125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation (for example, discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.
>
> (2) Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations."

Federal Regulations, 40 CFR 122.45 (B)(1), states the following: "In the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow."

> Traditional wastewater treatment plant design utilizes average dry weather flow rates for organic, individual constituent, loading rates and peak wet weather flow rates for hydraulic design of pipes, weir overflow rates, and pumps.
>
> Increased wet weather flow rates are typically caused by inflow and infiltration (I/I) into the sewer collection system that dilutes constituent loading rates and does not add to the mass of wastewater constituents.
>
> For POTWs priority pollutants, such as metals, have traditionally been reduced by the reduction of solids from the wastestream, incidental to treatment for organic material.

> Following adoption of the CTR, compliance with priority pollutants is of critical importance and systems will need to begin utilizing loading rates of individual constituents in the WWTP design process. It is highly likely that the principal design parameters for individual priority pollutant removal will be based on mass, making mass based Effluent Limitations critically important to compliance. The inclusion of mass limitations will be of increasing importance to achieving compliance with requirements for individual pollutants.
>
> As systems begin to design to comply with priority pollutants, the design systems for POTWs will be more sensitive to similar restrictions as industrial dischargers currently face where production rates (mass loadings) are critical components of treatment system design and compliance. Currently, Industrial Pretreatment Program local limits are frequently based on mass. Failure to include mass limitations would allow industries to discharge mass loads of individual pollutants during periods of wet weather when a dilute concentration was otherwise observed, upsetting treatment processes, causing effluent limitation processes, sludge disposal issues, or problems in the collection system.

In addition to the above citations, on June 26th 2006 U.S. EPA, Mr. Douglas Eberhardt, Chief of the CWA Standards and Permits Office, sent a letter to Dave Carlson at the Central Valley Regional Water Quality Control Board strongly recommending that NPDES permit effluent limitations be expressed in terms of mass as well as concentration.

L. The Permit contains an inadequate antidegradation analysis that does not comply with the requirements of Section 101(a) of the Clean Water Act, Federal Regulations 40 CFR § 131.12, the State Board's Antidegradation Policy (Resolution 68-16) and California Water Code (CWC) Sections 13146 and 13247.

CWC Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy for water quality control unless otherwise directed by statute, in which case they shall indicate to the State Board in writing their authority for not complying with such policy. The State Board has adopted the Antidegradation Policy (Resolution 68-16), which the Regional Board has incorporated into its Basin Plan. The Regional Board is required by the CWC to comply with the Antidegradation Policy.

Section 101(a) of the Clean Water Act (CWA), the basis for the antidegradation policy, states that the objective of the Act is to "restore and maintain the chemical, biological and physical integrity of the nation's waters." Section 303(d)(4) of the CWA carries this further, referring explicitly to the need for states to satisfy the antidegradation regulations at 40 CFR § 131.12 before taking action to lower water quality. These regulations (40 CFR § 131.12(a)) describe the federal antidegradation policy and dictate that states must adopt both a policy at least as stringent as the federal policy as well as implementing procedures.

California's antidegradation policy is composed of both the federal antidegradation policy and the State Board's Resolution 68-16 (State Water Resources Control Board, Water Quality Order 86-17, p. 20 (1986) ("Order 86-17); Memorandum from Chief Counsel William Attwater, SWRCB to Regional Board Executive Officers, "federal Antidegradation Policy," pp. 2, 18 (Oct. 7, 1987) ("State Antidegradation Guidance")). As a state policy, with inclusion in the Water Quality Control Plan (Basin Plan), the antidegradation policy is binding on all of the Regional Boards (Water Quality Order 86-17, pp. 17-18).

Implementation of the state's antidegradation policy is guided by the State Antidegradation Guidance, SWRCB Administrative Procedures Update 90-004, 2 July 1990 ("APU 90-004") and USEPA Region IX, "Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12" (3 June 1987) (" Region IX Guidance"), as well as Water Quality Order 86-17.

The Regional Board must apply the antidegradation policy whenever it takes an action that will lower water quality (State Antidegradation Guidance, pp. 3, 5, 18, and Region IX Guidance, p. 1). Application of the policy does not depend on whether the action will actually impair beneficial uses (State Antidegradation Guidance, p. 6). Actions that trigger use of the antidegradation policy include issuance, re-issuance, and modification of NPDES and Section 404 permits and waste discharge requirements, waiver of waste discharge requirements, issuance of variances, relocation of discharges, issuance of cleanup and abatement orders, increases in discharges due to industrial production and/or municipal growth and/other sources, exceptions from otherwise applicable water quality objectives, etc. (State Antidegradation Guidance, pp. 7-10, Region IX Guidance, pp. 2-3). Both the state and federal policies apply to point and nonpoint source pollution (State Antidegradation Guidance p. 6, Region IX Guidance, p. 4).

The federal antidegradation regulations delineate three tiers of protection for waterbodies. Tier 1, described in 40 CFR § 131.12(a)(1), is the floor for protection of all waters of the United States (48 Fed. Reg. 51400, 51403 (8 Nov. 1983); Region IX Guidance, pp. 1-2; APU 90-004, pp. 11-12). It states that "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." Uses are "existing" if they were actually attained in the water body on or after November 28, 1975, or if the water quality is suitable to allow the use to occur, regardless of whether the use was actually designated (40 CFR § 131.3(e)). Tier 1 protections apply even to those waters already impacted by pollution and identified as impaired. In other words, already impaired waters cannot be further impaired.

Tier 2 waters are provided additional protections against unnecessary degradation in places where the levels of water quality are better than necessary to support existing uses. Tier 2 protections strictly prohibit degradation unless the state finds that a degrading activity is: 1) necessary to accommodate important economic or social development in the area, 2) water quality is adequate to protect and maintain existing beneficial uses and 3) the highest statutory

and regulatory requirements and best management practices for pollution control are achieved (40 CFR § 131.12(a) (2)). Cost savings to a discharger alone, absent a demonstration by the project proponent as to how these savings are "necessary to accommodate important economic or social development in the area," are not adequate justification for allowing reductions in water quality (Water Quality Order 86-17, p. 22; State Antidegradation Guidance, p. 13). If the waterbody passes this test and the degradation is allowed, degradation must not impair existing uses of the waterbody (48 Fed. Reg. 51403). Virtually all waterbodies in California may be Tier 2 waters since the state, like most states, applies the antidegradation policy on a parameter-by-parameter basis, rather than on a waterbody basis (APU 90-004, p. 4). Consequently, a request to discharge a particular chemical to a river, whose level of that chemical was better than the state standards, would trigger a Tier 2 antidegradation review even if the river was already impaired by other chemicals.

Tier 3 of the federal antidegradation policy states "[w]here high quality waters constitute an outstanding national resource, such as waters of national and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water shall be maintained and protected (40 CFR § 131.12(a)(3)). These Outstanding National Resource Waters (ONRW) are designated either because of their high quality or because they are important for another reason (48 Fed. Reg. 51403; State Antidegradation Guidance, p. 15). No degradation of water quality is allowed in these waters other than short-term, temporary changes (Id.). Accordingly, no new or increased discharges are allowed in either ONRW or tributaries to ONRW that would result in lower water quality in the ONRW (EPA Handbook, p. 4-10; State Antidegradation Guidance, p. 15). Existing antidegradation policy already dictates that if a waterbody "should be" an ONRW, or "if it can be argued that the waterbody in question deserves the same treatment [as a formally designated ONRW]," then it must be treated as such, regardless of formal designation (State Antidegradation Guidance, pp. 15-16; APU 90-004, p. 4). Thus the Regional Board is required in each antidegradation analysis to consider whether the waterbody at issue should be treated as an ONRW. It should be reiterated that waters cannot be excluded from consideration as an ONRW simply because they are already "impaired" by some constituents. By definition, waters may be "outstanding" not only because of pristine quality, but also because of recreational significance, ecological significance or other reasons (40 CFR §131.12(a)(3)). Waters need not be "high quality" for every parameter to be an ONRW (APU 90-004, p. 4). For example, Lake Tahoe is on the 303(d) list due to sediments/siltation and nutrients, and Mono Lake is listed for salinity/TDC/chlorides but both are listed as ONRW.

The State Board's APU 90-004 specifies guidance to the Regional Boards for implementing the state and federal antidegradation policies and guidance. The guidance establishes a two-tiered process for addressing these policies and sets forth two levels of analysis: a simple analysis and a complete analysis. A simple analysis may be employed where a Regional Board determines that: 1) a reduction in water quality will be spatially localized or limited with respect to the waterbody, e.g. confined to the mixing zone; 2) a reduction in water quality is temporally

limited; 3) a proposed action will produce minor effects which will not result in a significant reduction of water quality; and 4) a proposed activity has been approved in a General Plan and has been adequately subjected to the environmental and economic analysis required in an EIR. A complete antidegradation analysis is required if discharges would result in: 1) a substantial increase in mass emissions of a constituent; or 2) significant mortality, growth impairment, or reproductive impairment of resident species. Regional Boards are advised to apply stricter scrutiny to non-threshold constituents, i.e., carcinogens and other constituents that are deemed to present a risk of source magnitude at all non-zero concentrations. If a Regional Board cannot find that the above determinations can be reached, a complete analysis is required.

Even a minimal antidegradation analysis would require an examination of: 1) existing applicable water quality standards; 2) ambient conditions in receiving waters compared to standards; 3) incremental changes in constituent loading, both concentration and mass; 4) treatability; 5) best practicable treatment and control (BPTC); 6) comparison of the proposed increased loadings relative to other sources; 7) an assessment of the significance of changes in ambient water quality and 8) whether the waterbody was a ONRW. A minimal antidegradation analysis must also analyze whether: 1) such degradation is consistent with the maximum benefit to the people of the state; 2) the activity is necessary to accommodate important economic or social development in the area; 3) the highest statutory and regulatory requirements and best management practices for pollution control are achieved; and 4) resulting water quality is adequate to protect and maintain existing beneficial uses. A BPTC technology analysis must be done on an individual constituent basis; while tertiary treatment may provide BPTC for pathogens, dissolved metals may simply pass through.

The Antidegradation Analysis discussion in the Permit discusses compared alternatives but fails to discuss the current sewer use fees and the costs to downstream water uses absent plant upgrades. Most importantly, the analysis fails to discuss any aspect of water quality. Numerous Effluent Limitations were removed from the permit, which are not discussed. The permit fails to regulate most constituents for mass, which is also not discussed which is critically important since high flows during wet weather are routinely bypassed with inadequate treatment. BPTC is not discussed. The plant bypasses of tertiary, and possibly secondary treatment is not discussed. Receiving water beneficial uses are not discussed. CTR compliance and the CTR compliance date of May 2010 are not discussed.

5. THE MANNER IN WHICH THE PETITIONERS ARE AGGRIEVED.

CSPA is a non-profit, environmental organization that has a direct interest in reducing pollution to the waters of the Central Valley. CSPA's members benefit directly from the waters in the form of recreational hiking, photography, fishing, swimming, hunting, bird watching, boating, consumption of drinking water and scientific investigation. Additionally, these waters are an important resource for recreational and commercial fisheries. Central Valley waterways also

provide significant wildlife values important to the mission and purpose of the Petitioners. This wildlife value includes critical nesting and feeding grounds for resident water birds, essential habitat for endangered species and other plants and animals, nursery areas for fish and shellfish and their aquatic food organisms, and numerous city and county parks and open space areas. CSPA's members reside in communities whose economic prosperity depends, in part, upon the quality of water. CSPA has actively promoted the protection of fisheries and water quality throughout California before state and federal agencies, the State Legislature and Congress and regularly participates in administrative and judicial proceedings on behalf of its members to protect, enhance, and restore declining aquatic resources. CSPA member's health, interests and pocketbooks are directly harmed by the failure of the Regional Board to develop an effective and legally defensible program addressing discharges to waters of the state and nation.

6. THE SPECIFIC ACTION BY THE STATE OR REGIONAL BOARD WHICH PETITIONER REQUESTS.

Petitioners seek an Order by the State Board to:

A. Vacate Order No. R5-2010-0092 (NPDES NO. CA0079316) and remand to the Regional Board with instructions prepare and circulate a new tentative order that comports with regulatory requirements.

B. Alternatively; prepare, circulate and issue a new order that is protective of identified beneficial uses and comports with regulatory requirements.

7. A STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT OF LEGAL ISSUES RAISED IN THE PETITION.

CSPA's arguments and points of authority are adequately detailed in the above comments and our 15 April 2010 comment letter. Should the State Board have additional questions regarding the issues raised in this petition, CSPA will provide additional briefing on any such questions. The petitioners believe that an evidentiary hearing before the State Board will not be necessary to resolve the issues raised in this petition. However, CSPA welcomes the opportunity to present oral argument and respond to any questions the State Board may have regarding this petition.

8. A STATEMENT THAT THE PETITION HAS BEEN SENT TO THE APPROPRIATE REGIONAL BOARD AND TO THE DISCHARGERS, IF NOT THE PETITIONER.

A true and correct copy of this petition, without attachment, was sent electronically and by First Class Mail to Ms. Pamela Creedon, Executive Officer, Regional Water Quality Control Board,

Central Valley Region, 11020 Sun Center Drive #200, Rancho Cordova, CA 95670-6114. A true and correct copy of this petition, without attachment, was sent to the Discharger in care of: Mr. Will Dickinson, Deputy Director, Placer County Department of Facility Services, 11476 C Avenue, Auburn, CA 95603.

9. A STATEMENT THAT THE ISSUES RAISED IN THE PETITION WERE PRESENTED TO THE REGIONAL BOARD BEFORE THE REGIONAL BOARD ACTED, OR AN EXPLANATION OF WHY THE PETITIONER COULD NOT RAISE THOSE OBJECTIONS BEFORE THE REGIONAL BOARD.

CSPA presented the issues addressed in this petition to the Regional Board in 15 May 2010 and 8 August 2010 comment letters that were accepted into the record.

If you have any questions regarding this petition, please contact Bill Jennings at (209) 464-5067 or Michael Jackson at (530) 283-1007.

Dated: 20 October 2010

Respectfully submitted,

Bill Jennings, Executive Director
California Sportfishing Protection Alliance

Attachment No. 1: Order No. R5-2010-0092

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

11020 Sun Center Drive, #200 Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • Fax (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

ORDER NO. R5-2010-0092
NPDES NO. CA0079316

WASTE DISCHARGE REQUIREMENTS FOR THE PLACER COUNTY DEPARTMENT OF FACILITY SERVICES PLACER COUNTY SEWER MAINTENANCE DISTRICT 1 WASTEWATER TREATMENT PLANT PLACER COUNTY

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	Placer County Department of Facility Services
Name of Facility	Placer County Sewer Maintenance District 1 Wastewater Treatment Plant
Facility Address	11755 Joeger Road, Auburn, CA 95603
	Placer County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the Placer County Department of Facility Services from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated Municipal Wastewater	38º 57' 56" N	121º 06' 36" W	Rock Creek
002	Treated Municipal Wastewater	38° 57' 54" N	121° 06' 36" W	Rock Creek

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**22 September 2010**
This Order shall become effective on:	**11 November 2010**
This Order shall expire on:	**1 September 2015**
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to Order expiration**

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **22 September 2010**.

Original Signed by Kenneth D. Landau for
PAMELA C. CREEDON, Executive Officer

Table of Contents

List of Tables

List of Attachments

I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	Placer County Department of Facility Services
Name of Facility	Placer County Sewer Maintenance District 1 Wastewater Treatment Plant
Facility Address	11755 Joeger Road
	Auburn, CA 95603
	Placer County
Facility Contact, Title, and Phone	Bryan Kangas, Supervising Plant Operator, (530) 886-1100
Mailing Address	11476 C Avenue, Auburn, CA 95603
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	2.18 million gallons per day (MGD), average dry weather flow

II. FINDINGS

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

A. Background. Placer County Department of Facility Services (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2005-0074 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079316. The Discharger submitted a Report of Waste Discharge, dated 5 October 2009, and applied for a NPDES permit renewal to discharge up to 2.7 MGD of treated wastewater from the Placer County Sewer Maintenance District 1 Wastewater Treatment Plant, hereinafter Facility. The application was deemed complete on 11 November 2009.

B. Facility Description. The Discharger owns and operates a POTW. The treatment system consists of headworks (influent flow meter, comminution, and aerated grit removal), four rectangular primary clarifiers, three rotating biological contactors (RBCs), two trickling filters, four circular clarifiers, six gravity filters with anthracite media, and chlorine disinfection and dechlorination in three chlorine contact chambers. Sludge is treated in primary and secondary digesters and is dewatered using a belt press and sludge drying beds. The dewatered sludge is disposed of at a landfill.

The Facility is designed to provide tertiary treatment for average dry weather flows of 2.18 MGD. However, the Discharger has historically had high levels of infiltration and inflow (I/I) during wet weather events. During severe wet weather events when flows exceed the capacity of the gravity filters of 3.5 MGD, the Facility bypasses the gravity filters and discharges a combination of secondary and tertiary treated wastewater.

Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to Rock Creek, a water of the United States, and a tributary to Dry Creek and, further, the Bear River and the Sacramento River within the Upper Coon-Upper Auburn watershed.

The Discharger periodically discharges wastewater to Rock Creek at Discharge Point No. 002, located approximately 200 feet upstream of Discharge Point No. 001, when Chlorine Contact Basin No. 3 is temporarily offline for routine maintenance. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

In October 2009, the Discharger submitted a Report of Waste Discharge that described plans to proceed with a project to upgrade the treatment process and expand the design capacity of the treatment plant to 2.7 MGD (average dry weather flow). As proposed in the Report of Waste Discharge, the upgraded and expanded Facility will include a new headworks, new primary clarifiers, new biological nutrient removal facilities, new secondary clarifiers and tertiary filters, new ultraviolet light (UV) disinfection facilities and new and renovated solids handling facilities. As discussed further in the Fact Sheet (Attachment F), this Order does not authorize the Discharger's proposed increase in flow.

C. Legal Authorities. This Order is issued pursuant to section 402 of the Clean Water Act (CWA) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the California Water Code (CWC; commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this Facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through L are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under CWC section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-Based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 122.44), require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR Part 133. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet.

G. Water Quality-Based Effluent Limitations (WQBELs). Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve

applicable water quality standards. This Order contains requirements, expressed as water quality-based requirements, that are necessary to achieve water quality standards. The Regional Water Board previously considered the factors listed in CWC section 13241 in establishing these requirements in Order No. R5-2005-0074. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised September 2009)*, for the Sacramento and San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-2.00 states that the "…*beneficial uses of any specifically identified water body generally apply to its tributary streams*." The Basin Plan does not specifically identify beneficial uses for Rock Creek, but does identify present and potential uses for the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge and the Bear River, to which Rock Creek, via several intermediate waterbodies, is tributary, as described further in section IV.C.2.a of the Fact Sheet (Attachment F). In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Rock Creek are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 002	Rock Creek	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); hydropower generation (POW); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); spawning, reproduction, and/or early development, warm and cold (SPWN); wildlife habitat (WILD); and navigation (NAV).

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." Rock Creek is not listed on the 303(d) list of impaired water bodies. Downstream water bodies listed on the 303(d) list of impaired water bodies include the Sacramento River from Knights Landing to the Delta (mercury and unknown toxicity), the Lower Bear River (diazinon), and Camp Far West Reservoir (mercury). TMDLs have not been adopted for Rock Creek, the Sacramento River from Knights Landing to the Delta, the Lower Bear River, or Camp Far West Reservoir. However, due to the pending development of the proposed Sacramento-San Joaquin Delta Mercury TMDL, effluent limitations for mercury are included in this Order.

Requirements of this Order implement the Basin Plan.

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

J. State Implementation Policy. On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes

implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board's *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits* (Compliance Schedule Policy) allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in accordance with a TMDL. All compliance schedules must be as short as possible, and may not exceed 10 years from the effective date of the adoption, revision, or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. The Regional Water Board, however, is not required to include a compliance schedule, but may issue a Time Schedule Order pursuant to CWC section 13300 or a Cease and Desist Order pursuant to CWC section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Compliance Schedule Policy, should consider feasibility of achieving compliance, and must impose a schedule that is as short as possible to achieve compliance with the effluent limitation based on the objective or criteria.

The Compliance Schedule Policy and the SIP do not allow compliance schedules for priority pollutants beyond 18 May 2010, except for new or more stringent priority pollutant criteria adopted by USEPA after 17 December 2008.

Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter, interim milestones and compliance reporting within 14 days after each interim milestone. The permit may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures. This Order includes compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedules and interim effluent limitations is included in the Fact Sheet (Attachment F).

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. (40 CFR 131.21 and 65 FR 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow and percent removal requirements for 5-day biochemical oxygen demand (BOD_5), and total suspended solids (TSS). The WQBELs consist of restrictions on aluminum, ammonia, arsenic, chlorine

residual, chlorodibromomethane, copper, chloroform, dichlorobromomethane, electrical conductivity, lead, mercury, nitrate plus nitrite, nitrite, and pH. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes effluent limitations for BOD_5, total coliform organisms, and TSS to meet numeric objectives or protect beneficial uses.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. Some effluent limitations in this Order are less stringent than those in Order No. R5-2005-0074. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

P. Endangered Species Act. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of

waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

Q. Monitoring and Reporting. 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

R. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the Fact Sheet.

S. Provisions and Requirements Implementing State Law. The provisions/requirements in sections V.B and VI.A.2.o of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

T. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

U. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED, that Order No. R5-2005-0074 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

B. Discharge of wastewater to Rock Creek at Discharge Point No. 002, at a time other than when Chlorine Contact Basin No. 3 is temporarily offline for routine maintenance and when daily average flows are at or below 2.18 MGD, is prohibited.

C. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by federal Standard Provisions I.G. and I.H. (Attachment D).

D. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the CWC.

E. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

F. The discharge or storage of waste classified as 'hazardous' or 'designated', as defined in Section 2521(a) and 2522(a) of Title 27, is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Point Nos. 001 and 002

1. Final Effluent Limitations – Discharge Point Nos. 001 and 002

a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point Nos. 001 and 002, with compliance measured at Monitoring Locations EFF-001 and EFF-002 as described in the Monitoring and Reporting Program:

Table 6. Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	25	--	--
	lbs/day[1]	182	273	455	--	--
Total Suspended Solids	mg/L	10	15	25	--	--
	lbs/day[1]	182	273	455	--	--
pH	standard units	--	--	--	6.5	8.2
Priority Pollutants						
Chlorodibromomethane	µg/L	0.41	--	0.82	--	--
Copper, Total Recoverable	µg/L	7.6	--	19	--	--
Dichlorobromomethane	µg/L	0.56	--	1.5	--	--
Lead, Total Recoverable	µg/L	2.3	--	6.5	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	68	--	151	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.4	--	3.9	--	--
	lbs/day[1]	25	--	71	--	--
Chloroform	µg/L	1.1	--	--	--	--
Nitrate Plus Nitrite (as N)	mg/L	10	--	--	--	--
Nitrite Nitrogen, Total (as N)	mg/L	1.0	--	--	--	--

[1] Mass-based effluent limitations are based on a permitted average dry weather flow of 2.18 MGD.

b. Percent Removal. The average monthly percent removal of BOD_5 and TSS shall not be less than 85 percent.

c. Acute Whole Effluent Toxicity. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

i. 70%, minimum for any one bioassay; and
ii. 90%, median for any three consecutive bioassays.

d. Chronic Whole Effluent Toxicity. There shall be no chronic toxicity in the effluent discharge.

e. Total Residual Chlorine. Effluent total residual chlorine shall not exceed:

i. 0.011 mg/L, as a 4-day average; and
ii. 0.019 mg/L, as a 1-hour average.

f. Average Dry Weather Flow. The average dry weather discharge flow shall not exceed 2.18 MGD.

g. Total Coliform Organisms. Effluent total coliform organisms shall not exceed:

i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median;
ii. 23 MPN/100 mL, more than once in any 30-day period; and
iii. 240 MPN/100 mL, as an instantaneous maximum.

h. Arsenic, Total Recoverable. The monthly average effluent concentration shall not exceed 10 µg/L.

i. Mercury, Total Recoverable. The total monthly mass discharge of total mercury shall not exceed 0.0018 lbs. This performance-based limitation shall be in effect until the Regional Water Board establishes final effluent limitations after adoption of a TMDL for mercury in the Sacramento-San Joaquin Delta.

j. Electrical Conductivity @ 25°C. For a calendar year, the annual average effluent electrical conductivity shall not exceed 700 µmhos/cm.

2. Interim Effluent Limitations

a. Effective immediately and ending on **31 August 2015**, the Discharger shall maintain compliance with the following limitations at Discharge Point Nos. 001 and 002, with compliance measured at Monitoring Locations EFF-001 and EFF-002 as described in the Monitoring and Reporting Program. These interim effluent limitations shall apply in lieu of all of the final effluent limitations specified for the same parameters during the time period indicated in this provision.

i. Total Ammonia Nitrogen (as N). The 1-hour average, 4-day average, and 30-day average effluent concentration of total ammonia nitrogen (as N) in the effluent shall not exceed the applicable interim effluent limitations in Attachments J, K, and L, respectively, based on the pH and temperature of the effluent at the time of effluent ammonia sampling.

ii. Total Coliform Organisms[1]. When the influent flow is greater than 3.5 MGD and the 7-day median receiving water temperature at Monitoring Location RSW-001 (as described in the MRP) is less than 60°F, effluent total coliform organisms shall not exceed:

(a) 2.2 most probable number (MPN) per 100 mL, as a as a 30-day median;
(b) 23 MPN/100 mL, more than once in any 30-day period; and
(c) 240 MPN/100 mL as an instantaneous maximum.

iii. BOD_5 and TSS[1]. When the influent flow is greater than 3.5 MGD and the 7-day median receiving water temperature at Monitoring Location RSW-001 (as described in the MRP) is less than 60°F, effluent BOD_5 and TSS shall not exceed:

Table 7. Interim Effluent Limitations for BOD_5 and TSS

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	20	30	50	--	--
	lbs/day[1]	364	546	910	--	--
Total Suspended Solids	mg/L	20	30	50	--	--
	lbs/day[1]	364	546	910	--	--

[1] Mass-based effluent limitations based on a permitted average dry weather flow of 2.18 MGD.

B. Land Discharge Specifications – Not Applicable

C. Reclamation Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Rock Creek:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

[1] If these conditions are not present, then the final effluent limitations for BOD_5, total coliform organisms, and TSS in sections IV.A.1.a and IV.A.1.g above are in effect.

3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.

4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen:**

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;

   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor

   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.

9. **Pesticides:**

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;

   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;

   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12.);

   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;

   f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in CCR, Title 22, division 4, chapter 15; nor

   g. Thiobencarb to be present in excess of 1.0 µg/L.

10. **Radioactivity:**

    a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor 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.

    b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

15. **Temperature.** The natural temperature to be increased by more than 5°F.

16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

17. **Turbidity.** The turbidity to exceed the following limitations:

    1. Where natural turbidity is less than 1 Nephelometric Turbidity Units (NTU), controllable factors shall not cause the downstream receiving water to exceed 2 NTU;

    2. Where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU;

    3. Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed more than 20 percent;

    4. Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTU; nor

    5. Where natural turbidity is greater than 100 NTUs, increases shall not exceed more than 10 percent.

B. Groundwater Limitations

1. The release of waste constituents from any transport, storage, treatment, or disposal component associated with the Facility or collection system shall not cause the underlying groundwater to be degraded.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions (federal NPDES standard conditions from 40 CFR Part 122) included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

   a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.

   b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

      i. violation of any term or condition contained in this Order;

      ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

      iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

      iv. a material change in the character, location, or volume of discharge.

      The causes for modification include:

      - *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

      - *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

      - *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional Water Board's own motion.

c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Regional Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

i. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or

ii. controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

i. Safeguard to electric power failure:

i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

ii. Upon written request by the Regional Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.

iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

j. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision contained in section VI.A.2.i. of this Order.

The technical report shall:

i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Regional Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.

l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

m. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

n. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211).

o. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by the Standard Provision contained in Attachment D section V.E.1. [40 CFR 122.41(l)(6)(i)].

p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

q. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, 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 Water 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 requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the CWC. Transfer shall be approved or disapproved in writing by the Executive Officer.

B. Monitoring and Reporting Program Requirements

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

C. Special Provisions

1. Reopener Provisions

a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including:

i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements

on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the interim mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

d. **Pollution Prevention.** This Order requires the Discharger prepare a pollution prevention plan following CWC section 13263.3(d)(3) for ammonia. Based on a review of the pollution prevention plan, this Order may be reopened for addition and/or modification of effluent limitations and requirements for ammonia.

e. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

f. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper and lead. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

g. **Increased Flow.** Upon availability of additional information indicating that an increase in discharge to Rock Creek is consistent with the antidegradation provisions of 40 CFR 131.12 and Resolution No. 68-16, this Order may be reopened to allow an increased discharge to Rock Creek.

h. **Dilution/Mixing Zone Study.** In order to allow dilution credits for the calculation of WQBELs for nitrate plus nitrite, the Discharger must submit an approved Dilution/Mixing Zone Study, in accordance with a workplan submitted to and approved by the Regional Water Board, which meets all of the requirements of Section 1.4.2.2 of the SIP. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements of Section 1.4.2.2 of the SIP, including sufficient data demonstrating that assimilative capacity is available

and that granting the mixing zone would not adversely impact biologically sensitive aquatic life resources or critical habitats, or produce undesirable or nuisance conditions, the Regional Water Board may reopen this Order to include effluent limitations based on an appropriate dilution factor for nitrate plus nitrite.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Chronic Whole Effluent Toxicity. For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exhibits toxicity as described in subsection ii below, the Discharger is required to initiate a TRE in accordance with an approved TRE Workplan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Workplan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. Toxicity Reduction Evaluation (TRE) Workplan. Within 90 days of the effective date of this Order, the Discharger shall submit to the Regional Water Board a TRE Workplan for approval by the Executive Officer. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance[1] and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.

ii. Accelerated Monitoring and TRE Initiation. When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.

iii. Numeric Toxicity Monitoring Trigger. The numeric toxicity monitoring trigger to initiate a TRE is > **1 TU_C** (where TU_C = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE when the effluent exhibits toxicity.

[1] See the Fact Sheet (Attachment F, section VII.B.2.a. for a list of USEPA guidance documents that must be considered in the development of the TRE Workplan.)

iv. Accelerated Monitoring Specifications. If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14 days of notification by the laboratory of the exceedance. Accelerated monitoring shall consist of four (4) chronic toxicity tests conducted once every 2 weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

(a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is evidence of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

(b) If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

(c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Regional Water Board including, at minimum:

(1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;

(2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

(3) A schedule for these actions.

b. Regionalization. By 1 February, annually, the Discharger shall submit a report documenting efforts towards regionalization. The report shall detail progress made towards regionalization over the past year and milestones necessary to complete regionalization with proposed dates for completion. Milestones to be evaluated include, but are not limited to, acquisition of funding, obtaining the necessary approvals from local and regulatory agencies, and completing construction of the regional sewer system. If the proposed dates for milestone completion are not met, the Discharger shall explain why and propose a revised date for completion. This report regarding regionalization must be combined and submitted with the Discharger's annual report.

3. Best Management Practices and Pollution Prevention

a. Salinity Evaluation and Minimization Plan. The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the Facility. The plan, including interim milestones and schedule for proposed implementation of minimization efforts, shall be completed and submitted to the Regional Water Board. Implementation of the identified salinity minimization tasks shall be in accordance with the Executive Officer-approved workplan.

b. Infiltration and Inflow (I/I) Reduction Program. The Discharger shall comply with the following time schedule to implement and complete an I/I reduction program. Further detail required in the I/I reduction program is included in Fact Sheet (Attachment F).

Task		Compliance Date
i.	Submit updated priority improvement list for I/I reduction and implementation schedule[3]	Within **6 months** of adoption of this Order
ii.	Complete repairs of the collection system identified in *WDR. F.9.c I&I Priority Improvement List and Schedule*, July 2007 and the updated priority list	Within **12 months** of completion of Task i.
iii.	Complete monitoring of flow in the collection system and the influent to the wastewater treatment plant	Within **12 months** of completion of Task ii
iv.	Maintain log of specific repairs to manholes, pipelines, and private sectors	Ongoing
v.	Submit annual report	**30 June,** annually
vi.	Submit final report assessing effectiveness of the I/I reduction program[4]	Within **3 years** of adoption of this Order

[3] The implementation schedule should identify a schedule for conducting additional flow metering using appropriate equipment and data analysis techniques that recognize the variations in I/I rates associated with changes in antecedent moisture conditions and varying rainfall rates.

[4] The final report shall include an analysis of a series of individual storm events to determine the effectiveness of I/I repairs.

c. Chemical Additives Evaluation and Minimization Study. The Discharger shall prepare and submit an evaluation and minimization study that identifies and quantifies chemical additives necessary for the proper operation and treatment of the Facility by 1 April 2011. The Study shall evaluate and implement feasible methods for reducing the amount of chemical additives while still providing adequate treatment. The results of the Study shall be incorporated into the Discharger's Operation and Maintenance Manual for the Facility.

4. Construction, Operation and Maintenance Specifications

a. Turbidity Operational Requirements. Effective 1 September 2015, the Discharger shall operate the treatment system to ensure that the turbidity measured at EFF-001 and EFF-002, as described in the MRP (Attachment E), shall not exceed 2 NTU as a daily average, 5 NTU more than 5 percent of the time within a 24 hour period, and 10 NTU, at any time. Effective immediately and ending 31 August 2015, the Discharger is not required to meet the turbidity operational requirements when the influent flow is greater than 3.5 MGD and the 7-day median receiving water temperature at RSW-001 is less than 60°F. The Discharger is required to meet the turbidity operational requirement when the influent flow is less than 3.5 MGD, or the influent flow is greater than 3.5 MGD and the 7-day median receiving water temperature at RSW-001 is greater than 60°F.

b. Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected, or equivalent, pursuant to the Department of Public Health (DPH; formerly the Department of Health Services) reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22) in accordance with the compliance schedule in Section VI.C.7.b, below.

c. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

d. Ultraviolet Light (UV) Disinfection System Operating Specifications. Once in operation, the Discharger shall operate the UV disinfection system in accordance with the following specifications in accordance with DPH recommendations and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWARF's "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*" first published in December 2000 revised as a Second Edition dated May 2003.

i. When using non-membrane filtration (e.g., granular, cloth, or other synthetic media) as part of the treatment process upstream of the UV disinfection system, the following operating specifications apply:

(a) The Discharger shall operate the UV disinfection system to provide a minimum UV dose per reactor or reactor train of 100 millijoules per square centimeter (mJ/cm2) at peak daily flow and shall maintain an adequate dose for disinfection while discharging to Rock Creek.

(b) The Discharger shall operate the treatment system to insure that turbidity prior to disinfection shall not exceed 2 NTU as a daily average, and 5 NTU more than 5 percent of the time within a 24-hour period, and 10 NTU, at any time.

(c) The UV transmittance (at 254 nanometers) in the wastewater exiting the UV disinfection system shall not fall below 55 percent of maximum at any time.

ii. When using membrane filtration (e.g., microfiltration or ultrafiltration) as part of the treatment process upstream of the UV disinfection system, the following specifications apply:

(a) The Discharger shall operate the UV disinfection system to provide a minimum UV dose per reactor or reactor train of 80 mJ/cm^2 at peak daily flow and shall maintain an adequate dose for disinfection while discharging to Rock Creek.

(b) The Discharger shall operate the treatment system to insure that turbidity prior to disinfection shall not exceed 0.2 NTU more than 5 percent of the time within a 24-hour period, and 0.5 NTU at any time.

(c) The UV transmittance (at 254 nanometers) in the wastewater exiting the UV disinfection system shall not fall below 65 percent of maximum at any time.

iii. The Discharger shall provide continuous, reliable monitoring of flow, UV transmittance, UV power, and turbidity.

iv. The quartz sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.

v. The lamp sleeves must be cleaned periodically as necessary to meet the requirements.

vi. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.

vii. The Facility must be operated in accordance with an operations and maintenance program that assures adequate disinfection.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Requirements.

i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR Part 403, including any subsequent regulatory revisions to 40 CFR Part 403. Where 40 CFR Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 CFR Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by USEPA or other appropriate parties, as provided in the CWA.

ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

iii. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 including, but not limited to:

(a) Implement the necessary legal authorities as provided in 40 CFR 403.8(f)(1);

(b) Enforce the pretreatment requirements under 40 CFR 403.5 and 403.6;

(c) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2); and

(d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3).

iv. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

(a) Wastes which create a fire or explosion hazard in the treatment works;

(b) Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

(c) Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

(d) Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

(e) Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Water Board approves alternate temperature limits;

(f) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

(g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and:

(h) Any trucked or hauled pollutants, except at points predesignated by the Discharger.

v. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

(a) Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or:

(b) Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

b. Sludge/Biosolids Discharge Specifications

i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.

ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.

iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.

iv. The use and disposal of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Regional Water Board are given the authority to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.

c. Biosolids Disposal Requirements

i. The Discharger shall comply with the Monitoring and Reporting Program for biosolids disposal contained in Attachment E.

ii. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least 90 days in advance of the change.

iii. The Discharger is encouraged to comply with the “Manual of Good Practice for Agricultural Land Application of Biosolids” developed by the California Water Environment Association.

d. Biosolids Storage Requirements

i. Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.

ii. Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.

iii. Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.

iv. Biosolids storage facilities shall be designed, maintained and operated to minimize the generation of leachate.

e. Collection System. On 2 May 2006, the State Water Board adopted State Water Board Order No. 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003 and any future revisions thereto. Order No. 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR. The Discharger has applied for and has been approved for coverage under State Water Board Order 2006-0003 for operation of its wastewater collection system.

Regardless of the coverage obtained under Order No. 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR 122.41(e)], report any non-compliance [40 CFR 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR 122.41(d)].

f. Continuous Monitoring Systems. This permit, and the Monitoring and Reporting Program which is a part of this permit, requires that certain parameters be monitored on a continuous basis. The wastewater treatment plant is typically staffed from 6:30 a.m. to 3:30 p.m. daily, and therefore not staffed on a full time basis. Permit violations or system upsets can go undetected during periods the facility is unstaffed. The Discharger is required to establish an electronic system for operator notification based on continuous recording device alarms. For any future facility upgrades, the Discharger shall upgrade the continuous monitoring and notification system simultaneously.

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

a. Compliance Schedule for Final Effluent Limitations for Ammonia. This Order requires compliance with the final effluent limitations for ammonia by **1 September 2015**. The Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations:

Task		Date Due
i.	Submit Method of Compliance Workplan/Schedule	Within 6 months after adoption of this Order
ii.	Update and Implement Pollution Prevention Plan (PPP)[1] for Ammonia	Within 90 days after adoption of this Order
iii.	Award Final Design and Environmental Consultant Contracts	1 May 2011
iv.	Complete Final Design of Improvements and Complete CEQA Documentation	31 July 2011

Task	Date Due
v. Obtain Bids and Project Funding and Award Construction Contract	31 December 2011
vi. Complete Construction of Improvements	31 December 2014
vii. Complete Startup and Performance Testing	30 April 2015
viii. Report of Compliance or Non-Compliance with Interim Milestones	14 days following the due date for Tasks iii through vii
ix. Progress Reports[2]	30 May, annually, until final compliance
x. Full Compliance	**1 September 2015**

[1] The PPP for ammonia shall be updated and implemented in accordance with CWC section 13263.3(d)(3) as outlined in the Fact Sheet (Attachment F, section VII.B.7.b).

[2] The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final compliance date.

b. Title 22, or Equivalent, Requirements. Effective immediately and ending 31 August 2015, when the influent flow is greater than 3.5 MGD and the 7-day median receiving water temperature at RSW-001 is less than 60°F, the coagulation and filtration systems shall be operated to the maximum extent possible and all wastewater shall receive full secondary treatment. When influent flows are less than 3.5 MGD, wastewater discharged to Rock Creek shall be oxidized, coagulated, filtered, and adequately disinfected, or equivalent, pursuant to DPH reclamation criteria, Title 22 CCR, Division 4, Chapter 3, (Title 22). By **1 September 2015**, all wastewater discharged to Rock Creek shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to DPH reclamation criteria, Title 22 CCR, Division 4, Chapter 3, (Title 22), or equivalent. This Order also requires compliance with the final effluent limitations for BOD_5, total coliform organisms, and TSS by **1 September 2015**. Until final compliance, the Discharger shall submit progress reports in accordance with the Monitoring and Reporting Program (Attachment E, section X.D.1).

VII. COMPLIANCE DETERMINATION

A. BOD_5 and TSS Effluent Limitations (Sections IV.A.1.a and IV.A.1.b). Compliance with the final effluent limitations for BOD_5 and TSS required in Limitations and Discharge Requirements section IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Limitations and Discharge Requirements section IV.A.1.b for percent removal shall be calculated using the arithmetic mean of BOD_5 and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Aluminium Effluent Limitations (Section IV.A.1.a). Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble

(inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

C. Total Mercury Mass Loading Effluent Limitations (Section IV.A.1.i).

The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the monitoring and reporting program, pretreatment program and any special studies shall be used for these calculations.

2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

D. Average Dry Weather Flow Effluent Limitations (Section IV.A.1.f). The average dry weather flow is intended to represent the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over 3 consecutive dry weather months (i.e., July, August, and September).

E. Total Coliform Organisms Effluent Limitation (Section IV.A.1.g.i). For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (e.g. Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) specified in this Order, the Discharger will be considered out of compliance.

F. Total Residual Chlorine Effluent Limitations (Section IV.A.1.e). Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive. Records supporting validation of false positives shall be maintained in accordance with Section IV Standard Provisions (Attachment D).

G. Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.d). Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with effluent limitation IV.A.1.d for chronic whole effluent toxicity.

H. Mass Effluent Limitations (Section IV.A.1.a). Compliance with mass effluent limitations will be determined during average dry weather periods only when groundwater is at or near normal and runoff is not occurring.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

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

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative
Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic
Pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV)
CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

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

The daily discharge may be determined by the analytical results of a composite sample taken over the course of 1 day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

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

Detected, but Not Quantified (DNQ)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit
Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA)
ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in CWC section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

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

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

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Attachment B, revised as of 3 July 1999.

Minimum Level (ML)
ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

Ocean Waters
The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent Pollutants
Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to CWC section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention
Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL)
RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System
The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water
Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

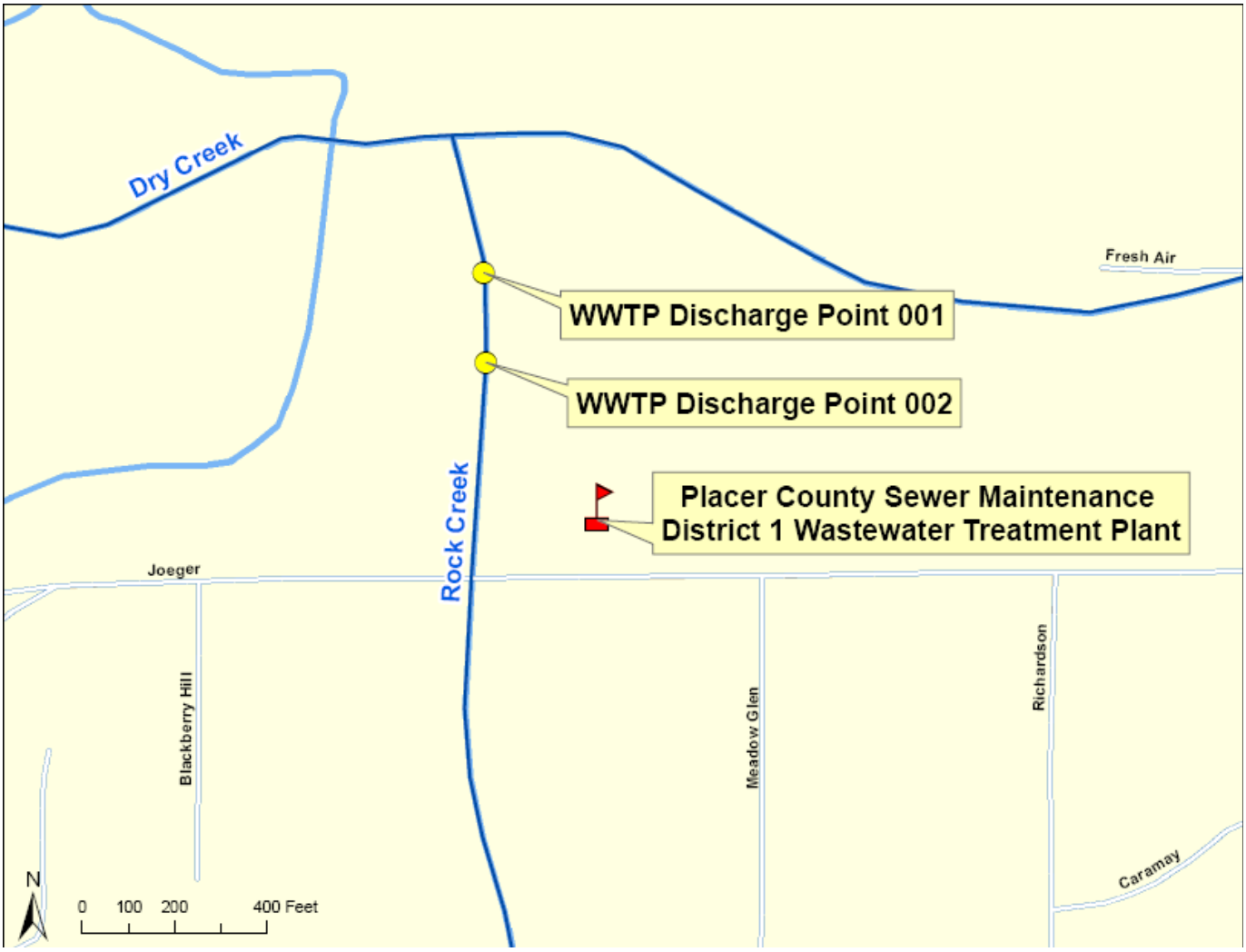
Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP



SITE LOCATION MAP

PLACER COUNTY DEPARTMENT OF FACILITY SERVICES
PLACER COUNTY SEWER MAINTENANCE DISTRICT 1 WASTEWATER TREATMENT PLANT
PLACER COUNTY

ATTACHMENT C – FLOW SCHEMATIC

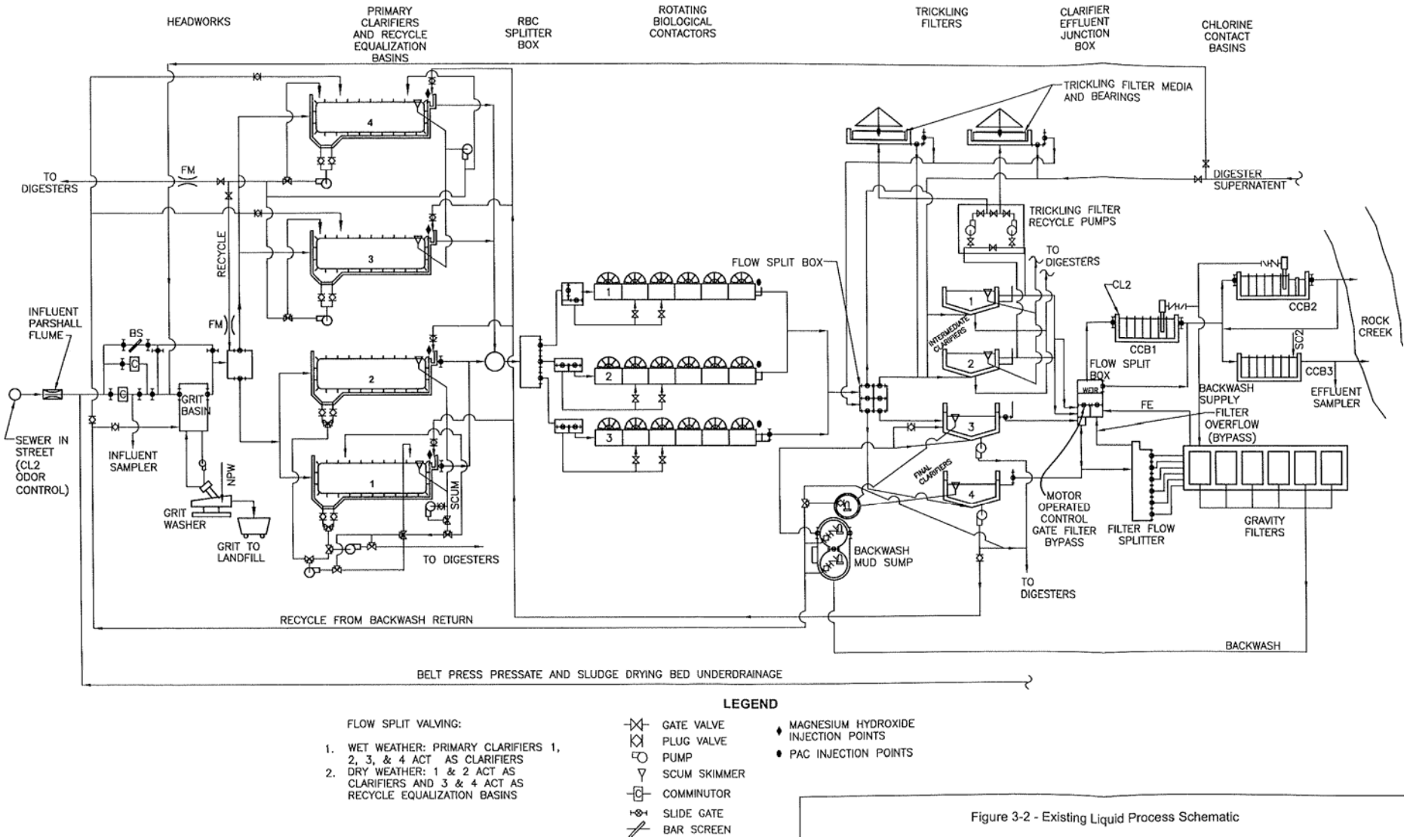


Figure 3-2 - Existing Liquid Process Schematic

ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

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

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location. (40 CFR 122.41(i)(4).)

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i).)

b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR 122.41(m)(3)(ii).)

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 CFR 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4) and 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Discharger (40 CFR 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard

Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

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

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR 122.41(l)(4)(ii).)

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

D. Compliance Schedules

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

E. Two-Hour and Twenty-Four Hour Reporting

1. The Discharger shall notify the Office of Emergency Services any noncompliance that may endanger health or the environment within 2-hours from the time the Discharger becomes aware of the circumstances. Any information shall be provided

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR 122.41(l)(6)(iii).)

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b) (40 CFR 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

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

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

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

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

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Table of Contents

List of Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Title 40 of the Code of Federal Regulations (CFR), section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.

B. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

C. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted at by a laboratory certified for such analyses by the Department of Public Health (DPH; formerly the Department of Health Services). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

D. All analyses shall be performed in a laboratory certified to perform such analyses by DPH. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board. The Discharger shall institute a Quality Assurance-Quality Control Program for any onsite field measurements such as pH, turbidity, temperature and residual chlorine. A manual containing the steps followed in this program must be kept onsite and shall be available for inspection by Regional Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

E. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

F. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

G. Laboratories analyzing monitoring samples shall be certified by DPH, in accordance with the provision of CWC section 13176, and must include quality assurance/quality control data with their reports.

H. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.

I. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.

J. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the influent into the Facility can be collected.
001	EFF-001	Downstream from the last connection through which wastes can be admitted into the outfall.
002	EFF-002	Approximately 200 feet upstream of EFF-001. (This discharge location is only to be used when Chlorine Contact Basin No. 3 is offline for maintenance.)
--	RSW-001	In Rock Creek, 50 feet upstream from both discharge locations.
--	RSW-002	In Rock Creek, downstream of both discharge locations and just prior to the confluence of Rock Creek and Dry Creek.
--	RSW-003	In Dry Creek, just prior to the confluence of Rock Creek and Dry Creek.
--	RSW-004	In Dry Creek, 150 feet downstream of the confluence of Rock Creek and Dry Creek.
--	BIO-001	A location where a representative sample of biosolids can be obtained.
--	SPL-001	A location where a representative sample of the municipal water supply can be obtained.
--	UVS-001	Ultraviolet light (UV) disinfection system.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the facility at INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-Hour Composite[1]	5/Week	[2]
Total Suspended Solids	mg/L	24-Hour Composite[1]	5/Week	[2]

[1] 24-hour flow proportioned composite.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations EFF-001 and EFF-002

1. The Discharger shall monitor the treated effluent at Monitoring Locations EFF-001 and EFF-002 as follows when discharging from Discharge Point Nos. 001 and 002, respectively. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level.

Table E-3. Effluent Monitoring – EFF-001 and EFF-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous[1]	--
Location of Discharge (Discharge Point No. 001 or 002)	--	--	1/Day	--
Filtration Bypassed (Yes or No)	--	--	1/Day	--
Conventional Pollutants				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-Hour Composite[2]	5/Week	[3]
	lbs/day	Calculate	5/Week	--
pH	standard units	Grab[4]	1/Day	[3]
Total Suspended Solids	mg/L	24-Hour Composite[2]	5/Week	[3]
	lbs/day	Calculate	5/Week	--
Priority Pollutants				
Arsenic, Total Recoverable	µg/L	Grab	1/Month	[3,5]
Chlorodibromomethane	µg/L	Grab	1/Month	[3,5]
Copper, Total Recoverable[6]	µg/L	24-Hour Composite[2]	1/Month	[3,5]
Dichlorobromomethane	µg/L	Grab	1/Month	[3,5]
Lead, Total Recoverable[6]	µg/L	24-Hour Composite[2]	1/Month	[3,5]
Mercury, Total Recoverable	µg/L	24-Hour Composite[2]	1/Month	[3,5,7]
Priority Pollutants and Other Constituents of Concern[8]	µg/L	24-Hour Composite[9]	1/Calendar Year[10]	[3,5,11]
Non-Conventional Pollutants				
Aluminum, Total Recoverable	µg/L	24-Hour Composite[2]	1/Month	[3,12]
Ammonia Nitrogen, Total (as N)	mg/L	Grab[4]	1/Day[13,14]	[3]
	lbs/day	Calculate	1/Day	--
Chlorine, Total Residual	mg/L	Meter	Continuous[1]	[3,15]
Chloroform	µg/L	Grab	1/month	[3]
Electrical Conductivity @ 25°C	µmhos/cm	Grab[4]	1/Day	[3]
	Annual Average	Calculate	1/Calendar Year	--
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month	[3]
Nitrate Plus Nitrite (as N)	mg/L	Grab[4]	2/Week	[3]
Nitrite Nitrogen, Total (as N)	mg/L	Grab[4]	2/Week	[3]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Temperature	°F/°C	Grab[4]	1/Day	[3]
Total Coliform Organisms	MPN/100 mL	Grab[4]	1/Day	[3]
Total Dissolved Solids	mg/L	Grab	1/Month	[3]
Turbidity	NTU	Meter[16]	Continuous[1]	[3]

[1] For continuous monitoring, the daily maximum, minimum, and average shall be reported.
[2] 24-hour flow proportioned composite.
[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[4] Daily grab samples shall not be collected at the same time each day.
[5] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
[6] Monitoring shall be conducted concurrently with effluent and receiving water hardness.
[7] Unfiltered methylmercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in USEPA Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by USEPA Method 1630/1631 (Revision E) with a method detection limit of 0.02 ng/L for methylmercury and 0.2 ng/L for total mercury.
[8] See List of Priority Pollutants and Other Pollutants of Concern in Attachment I.
[9] Volatile constituents shall be sampled in accordance with 40 CFR Part 136.
[10] Priority pollutants and other constituents of concern shall be sampled once per calendar year following the date of permit adoption at Monitoring Location EFF-001 only, and shall be conducted concurrently with upstream receiving water monitoring for priority pollutants, hardness (as $CaCO_3$), and pH. The Discharger is not required to conduct effluent monitoring for priority pollutants that have already been sampled in a given year, as required in Table E-3. See Attachment I for more detailed requirements related to performing the priority pollutant monitoring.
[11] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected pollutant.
[12] Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
[13] Concurrent with whole effluent toxicity monitoring.
[14] pH and temperature shall be recorded at the time of ammonia sample collection.
[15] Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L. Monitoring for chlorine residual is not required after the Discharger submits certification to the Regional Water Board that the use of its chlorine-based disinfection system and the use of other chlorine-containing agents in its treatment process has ceased. After certification that the use of chlorine-containing agents in the treatment process has ceased, the Discharger must immediately restart monitoring for chlorine residual upon any unplanned use of chlorine in the treatment process.
[16] Turbidity samples shall be collected from the outfall of the gravity filters.

2. In addition to the effluent monitoring requirements required in Table E-3, the Discharger shall monitor the treated effluent at Monitoring Location EFF-001 when the filters are bypassed, the influent flow is greater than 3.5 MGD, and the 7-day median receiving water temperature at RSW-001 is less than 60°F as follows.

Table E-4. Effluent Monitoring – EFF-001 When Bypassing Filters, Influent Flow is Greater than 3.5 MGD, and the 7-Day Median Receiving Water Temperature at RSW-001 is Less than 60°F

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Filter Effluent Flow	MGD	Meter	Continuous[1]	--
Chlorine Contact Basin Influent Flow	MGD	Meter	Continuous[1]	--
Turbidity	NTU	Meter	Continuous[1]	--

[1] For continuous monitoring, the daily maximum, minimum, and average shall be reported.

3. If the discharge to the receiving water ceases for more than 24 hours, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform quarterly acute toxicity testing, concurrent with effluent ammonia sampling.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be grab and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent Monitoring Location EFF-001.

3. *Test Species* – Test species shall be fathead minnows (Pimephales promelas).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition, and its subsequent amendments or revisions. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

5. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. Chronic Toxicity Testing. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency –* The Discharger shall perform quarterly three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in this Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   a. The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);

   b. The fathead minnow, *Pimephales promelas* (larval survival and growth test); and

   c. The green alga, *Selenastrum capricornutum* (growth test).

5. *Methods* – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002, and its subsequent amendments or revisions.

6. *Reference Toxicant* – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – For regular chronic toxicity monitoring, the testing shall be performed using 100% effluent and two controls. If toxicity is found in any regular effluent test, the Discharger must initiate accelerated monitoring using 100% effluent and two controls. The receiving water control shall be used as the diluent (unless the receiving water is toxic). Chronic toxicity testing shall be performed using the full dilution series identified in the following table for TRE monitoring.

Table E-5. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

8. *Test Failure* – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI.C. 2.a.iii. of the Order.)

C. WET Testing Notification Requirements. The Discharger shall notify the Regional Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

D. WET Testing Reporting Requirements. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. Chronic WET Reporting. Regular chronic toxicity monitoring results shall be reported to the Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:

a. The results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.

b. The statistical methods used to calculate endpoints;

c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

d. The dates of sample collection and initiation of each toxicity test; and

e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluation (TRE).

2. Acute WET Reporting. Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes ***(if applicable)***:

   a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.

   b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

   c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

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

1. The Discharger shall monitor Rock Creek and Dry Creek at Monitoring Locations RSW-001, RSW-002, RSW-003, and RSW-004 as follows:

Table E-6. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Conventional Pollutants				
Fecal Coliform Organisms	MPN/100 mL	Grab	1/Month	[1]
pH	standard units	Grab	1/Day[2]	[1]
Priority Pollutants				
Chloroform	µg/L	Grab	1/Month[4]	[1]
Priority Pollutants and Other Constituents of Concern[3]	µg/L	Grab	1/Calendar Year[4]	[1,5,6]
Non-Conventional Pollutants				
Aluminum	µg/L	Grab	1/Month[4]	[1]
Dissolved Oxygen	mg/L	Grab	2/Week	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Day	[1]
Hardness, Total (as $CaCO_3$)	mg/L	Grab	1/Month	[1]
Temperature	°F/°C	Grab	1/Day[2,7]	[1]
Turbidity	NTU	Grab	2/Week	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.
[2] Monitoring for pH and temperature shall be conducted concurrently with effluent ammonia sampling.
[3] See List of Priority Pollutants and Other Pollutants of Concern in Attachment I.
[4] Priority pollutants shall be sampled once per calendar year at RSW-001 and shall be conducted concurrently with effluent monitoring for priority pollutants. Aluminum and chloroform shall be sampled monthly at RSW-001 and shall be monitored concurrent with effluent monitoring. See Attachment I for more detailed requirements related to performing the priority pollutant and non-priority pollutant monitoring.
[5] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Regional Water Board or the State Water Board.
[6] In order to verify if bis (2-ethylhexyl) phthalate is truly present in the receiving water, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected pollutant.
[7] Between 1 October and 1 May, the Discharger shall calculate and report the 7-day median temperature for RSW-001 and RSW-003. The 7-day median is based on the previous seven daily sample results.

2. In addition to the receiving water monitoring requirements required in Table E-6, the Discharger shall monitor Rock Creek and Dry Creek at Monitoring Locations RSW-001, RSW-002, RSW-003, and RSW-004 when the filters are bypassed, the influent flow is greater than 3.5 MGD, and the 7-day median receiving water temperature at RSW-001 is less than 60°F as follows.

Table E-7. Receiving Water Monitoring Requirements When Bypassing Filters, Influent Flow is Greater than 3.5 MGD and the 7-Day Median Receiving Water Temperature at RSW-001 is Less than 60°F

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Coliform Organisms	MPN/100 mL	Grab	1/Day	[1]
Escherichia coli	MPN/100 mL	Grab	1/Day	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 and RSW-002 and the reach bounded by Monitoring Locations RSW-003 and RSW-004. Attention shall be given to the presence or absence of:

a. Floating or suspended matter;
b. Discoloration;
c. Bottom deposits;
d. Aquatic life;
e. Visible films, sheens, or coatings;
f. Fungi, slimes, or objectionable growths; and
g. Potential nuisance conditions.

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

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. A composite sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with EPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols).

b. Sampling records shall be retained for a minimum of **5 years**. A log shall be maintained of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.

B. Municipal Water Supply

1. Monitoring Location SPL-001

The Discharger shall monitor the municipal water supply at SPL-001 as follows.

Table E-8. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Electrical Conductivity @ 25°C	µmhos/cm	Grab[1]	1/Quarter	[2]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[2]

[1] If the water supply is from more than one source, electrical conductivity shall be reported as a weighted average and include copies of supporting calculations.
[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

C. Ultraviolet Light (UV) Disinfection System

1. Monitoring Location UVS-001

When the UV disinfection system is installed and becomes operational, the Discharger shall monitor the UV disinfection system at UVS-001 as follows:

Table E-9. Ultraviolet Light Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow rate	MGD	Meter	Continuous[1]
Turbidity [2]	NTU	Meter[3]	Continuous[1]
Number of UV banks in operation	Number	Meter	Continuous[1]
UV Transmittance	Percent (%)	Meter	Continuous[1]
UV Power Setting	Percent (%)	Meter	Continuous[1]
UV Dose [4]	MW-sec/cm^2	Calculated	Continuous[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency

[1] For continuous analyzers, the Discharger shall report documented routine meter maintenance activities, including date, time of day, and duration, in which the analyzer(s) is not in operation.

[2] Report daily average turbidity and maximum. If the influent exceeds 10 NTU, collect a sample for total coliform organisms and report the duration of the turbidity exceedance.

[3] The turbidity meter shall be stationed immediately after the filters, prior to the UV disinfection process.

[4] Report daily minimum UV dose, daily average UV dose, and weekly average UV dose. For the daily minimum UV dose, also report associated number of banks, gallons per minute per lamp, and UV transmittance used in the calculation. If effluent discharge has received less than the minimum UV dose and is not diverted from discharging to Rock Creek, report the duration and dose calculation variables associated with each incident.

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "*Emergency Planning and Community Right to Know Act*" of 1986.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State Water Board or the Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall report in the SMR the results for all monitoring specified in this Monitoring and Reporting Program under sections III through IX. The Discharger shall submit monthly SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

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

Table E-10. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month.	All	First day of second calendar month following month of sampling.
1/Day	First day of the calendar month following the permit effective date or on permit effective date if that date is first day of the month.	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	First day of second calendar month following month of sampling.
5/Week	First Sunday of the calendar month following the permit effective date or on permit effective date if on a Sunday.	Sunday through Saturday	First day of second calendar month following month of sampling.
2/Week	First Sunday of the calendar month following the permit effective date or on permit effective date if on a Sunday.	Sunday through Saturday	First day of second calendar month following month of sampling.
1/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month.	First day of calendar month through last day of calendar month	First day of second calendar month following month of sampling.
1/Quarter	Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date.	1 January through 1 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February
1/Calendar Year	1 January following (or on) permit effective date.	1 January through 31 December	1 February

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

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

b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

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

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

5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

6. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority and non-priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case

the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

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

a. 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 waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD_5 and TSS, shall be determined and recorded as needed to demonstrate compliance. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

c. A letter transmitting the SMRs shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

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

Regional Water Quality Control Board
Central Valley Region
NPDES Compliance and Enforcement Unit
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670-6114

C. Discharge Monitoring Reports (DMRs)

1. As described in section X.B.1 above, at any time during the term of this permit, the State Water Board or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the

Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

1. **Progress Reports.** As specified in the compliance time schedules required in the Special Provisions contained in section VI of the Order, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-11. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Compliance Schedules for Final Effluent Limitations for Ammonia, compliance with final effluent limitations. (Section VI.C.7.a)	**30 June**, annually, until final compliance
Title 22, or Equivalent, Requirements (Section VI.C.7.b)	**30 June**, annually, until final compliance

2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, or Pollution Prevention Plans required by Special Provisions VI.C of this Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.

3. Within 60 days of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP.

4. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage facilities.

5. **Annual Operations Report.** 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 Facility.

   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(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

   d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

   e. The Discharger may also be requested to submit an annual report to the Regional Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made 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.

   f. As required by section VI.C.2.b of this Order, the Discharger shall submit a report documenting efforts towards regionalization. The report shall detail progress made towards regionalization over the past year and milestones necessary to complete regionalization with proposed dates for completion. Milestones to be evaluated include, but are not limited to, acquisition of funding, obtaining the necessary approvals from local and regulatory agencies, and completing construction of the regional sewer system. If the proposed dates for milestone completion are not met, the Discharger shall explain why and propose a revised date for completion. This report regarding regionalization must be combined and submitted with the Discharger's annual report.

6. Annual Pretreatment Reporting Requirements

a. The Discharger shall submit annually a report to the Regional Water Board, with copies to USEPA Pacific Southwest Region and the State Water Board, describing its pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any conditions or requirements of this Order, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements. This annual report shall cover operations from 1 January through 31 December and is due by **28 February** of each year. The report shall contain, but not be limited to, the following information:

i. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by nondomestic users. This will consist of an annual full priority pollutant scan, with quarterly samples analyzed only for those pollutants detected in the full scan. The Discharger is not required to sample and analyze for asbestos. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The Discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which the Discharger believes may be causing or contributing to interference, pass through, or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

ii. A discussion of Upset, Interference, or Pass Through incidents, if any, at the treatment plant which the Discharger knows or suspects were caused by nondomestic users of the POTW system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent pass through or interference, or noncompliance with sludge disposal requirements.

iii. The cumulative number of industrial users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.

iv. An updated list of the Discharger's significant industrial users (SIUs) including their names and addresses, and a list of deletions, additions, and SIU name changes keyed to the previously submitted list. The Discharger shall provide

a brief explanation for each change. The list shall identify the SIUs subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall also indicate the SIUs subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall also indicate which SIUs are subject to local discharge limitations.

v. The Discharger shall characterize the compliance status of each SIU through the year of record by providing a list or table which includes the following information for each industrial user:

(a) Name of the SIU;

(b) Category, if subject to federal categorical standards;

(c) The type of wastewater treatment or control processes in place;

(d) The number of samples taken by the Discharger during the year;

(e) The number of samples taken by the SIU during the year;

(f) For an SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided;

(g) Whether the SIU complied with baseline monitoring report requirements (where applicable);

(h) Whether the SIU consistently achieved compliance;

(i) Whether the SIU inconsistently achieved compliance;

(j) A list of the standards violated during the year. Identify whether the violations were for categorical standards or local limits;

(k) Whether the SIU is in significant noncompliance with applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);

(l) Whether the SIU complied with schedule to achieve compliance (include the date final compliance is required);

(m) Whether the SIU did not achieve compliance and not on a compliance schedule; and

(n) Whether compliance status unknown.

(o) A summary of enforcement or other actions taken during the year to return the SIU to compliance. Describe the type of action, final compliance date, and the amount of fines and penalties collected, if any. Describe any proposed actions for bringing the SIU into compliance.

A report describing the compliance status of each industrial user characterized by the descriptions in items a. through o. above shall be submitted for each calendar quarter **within 21 days of the end of the quarter**. The report shall identify the specific compliance status of each such industrial user and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report. This quarterly reporting requirement shall commence upon issuance of this Order.

vi. A brief description of any programs the Discharger implements to reduce pollutants from nondomestic users that are not classified as SIUs.

vii. A brief description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning the program's administrative structure, local industrial discharge limitations, monitoring program or monitoring frequencies, legal authority or enforcement policy, funding mechanisms, or staffing levels.

viii. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

ix. A summary of activities to involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 CFR 403.8(f)(2)(vii).

x. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the industrial users. The summary shall include:

(a) the names and addresses of the industrial users subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

(b) the conclusions or results from the inspection or sampling of each industrial user.

xi. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

(a) Warning letters or notices of violation regarding the industrial users' apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the

apparent violation concerned the federal categorical standards or local discharge limitations.

(b) Administrative orders regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

(c) Civil actions regarding the industrial users' noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

(d) Criminal actions regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

(e) Assessment of monetary penalties. For each industrial user identify the amount of the penalties.

(f) Restriction of flow to the POTW.

(g) Disconnection from discharge to the POTW.

b. The Discharger shall submit a semi-annual SIU noncompliance status report to the Regional Water Board, USEPA Pacific Southwest Region, and the State Water Board. The report shall cover the period of 1 January through 30 June, and shall be submitted by 31 July. The report shall contain:

i. The name and address of all SIUs which violated any discharge or reporting requirements during the report period;

ii. A description of the violations including whether any discharge violations were for categorical standards or local limits;

iii. A description of the enforcement or other actions that were taken to remedy the noncompliance; and

iv. The status of active enforcement and other actions taken in response to SIU noncompliance identified in previous reports.

Duplicate signed copies of these Pretreatment Program reports shall be submitted to the Regional Water Board and the:

State Water Resources Control Board
Division of Water Quality
1001 I Street or P.O. Box 100
Sacramento, CA 95812

and the

Regional Pretreatment Coordinator
CWA Compliance Office (WTR-7)
75 Hawthorne Street
San Francisco, CA 94105-3901

ATTACHMENT F – FACT SHEET

Table of Contents

List of Tables

ATTACHMENT F – FACT SHEET

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

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	5A310104007
Discharger	Placer County Department of Facility Services
Name of Facility	Placer County Sewer Maintenance District 1 Wastewater Treatment Plant
Facility Address	11755 Joeger Road
	Auburn, CA 95603
	Placer County
Facility Contact, Title and Phone	Bryan Kangas, Supervising Plant Operator, (530) 886-1100
Authorized Person to Sign and Submit Reports	Will Dickinson, Deputy Director for Department of Facility Services, (530) 886-4980
Mailing Address	11476 C Avenue, Auburn, CA 95603
Billing Address	Same as Mailing Address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Reclamation Requirements	N/A
Facility Permitted Flow	2.18 million gallons per day (MGD), average dry weather flow
Facility Design Flow	2.18 MGD, average dry weather flow
Watershed	Upper Coon-Upper Auburn
Receiving Water	Rock Creek
Receiving Water Type	Inland surface water

A. Placer County Department of Facility Services (hereinafter Discharger) is the owner and operator of the Placer County Sewer Maintenance District 1 Wastewater Treatment Plant (hereinafter Facility), a POTW.

For the purposes of this Order, references to the "discharger" or "permittee" in

applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater to Rock Creek, a water of the United States, and is currently regulated by Order No. R5-2005-0074 which was adopted on 23 June 2005 and expires on 1 June 2010.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 5 October 2009. Supplemental information was requested on 5 October 2009, 20 October 2009, 22 October 2009, and 14 January 2010 and received on 27 October 2009, 10 November 2009, and 14 January 2010. A site visit was conducted on 5 October 2009 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the unincorporated area of North Auburn in Placer County and serves a population of approximately 16,900. The design average dry weather flow capacity of the Facility is 2.18 MGD. As described further in section II.E of this Fact Sheet, the Discharger is planning to either upgrade the treatment process to comply with effluent limitations or to cease the discharge and connect to the City of Lincoln Wastewater Treatment and Reclamation Facility.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system at the Facility consists of headworks (influent flow meter, comminution, and aerated grit removal), four rectangular primary clarifiers, three rotating biological contactors (RBCs), two trickling filters, four circular clarifiers, six gravity filters with anthracite media, and chlorine disinfection and dechlorination in three chlorine contact chambers. Magnesium hydroxide is added to the primary clarifier effluent to provide alkalinity required for nitrification. Sludge is treated in primary and secondary digesters and is dewatered using a belt press and sludge drying beds. The dewatered sludge is disposed of at a landfill.

The Facility is designed to provide tertiary treatment for average dry weather flows of 2.18 MGD. However, the Discharger has historically had high levels of infiltration and inflow (I/I) during wet weather events. During severe wet weather events, a portion of the influent bypasses comminution and grit removal and is directed through a bar screen to the primary clarifiers. Typically, only two of the four primary clarifiers are utilized as clarifiers while the other two are utilized for equalization; however, during wet weather conditions, all four are used for clarification. The trickling filters do not have the capacity to treat all wastewater under wet weather conditions, and a portion of the wastewater bypasses the trickling filter and is directed from the RBCs to the secondary clarifier. Furthermore, flows exceeding the capacity of the gravity filters of 3.5 MGD are routed around the gravity filters and flow directly to the chlorine contact basins. Thus, the Facility discharges a combination of secondary and tertiary treated wastewater

during severe wet weather events. Attachment C provides a flow schematic of the Facility.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 20, T13N, R8E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point No. 001 to Rock Creek, a water of the United States and a tributary to Dry Creek and, further, the Bear River and the Sacramento River, at a point latitude 38° 57' 56" N and longitude 121° 06' 36" W.

3. Treated municipal wastewater is discharged at Discharge Point No. 002 to Rock Creek, a water of the United States and a tributary to Dry Creek and, further, the Bear River and the Sacramento River, at a point latitude 38° 57' 54" N and longitude 121° 06' 36" W. Discharge Point No. 002 is located approximately 200 feet upstream of Discharge Point No. 001, and is used only when Chlorine Contact Basin No. 3 is temporarily offline for routine maintenance. This maintenance is allowed only at times when daily average plant flows are at or below 2.18 MGD.

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

Effluent limitations contained in Order No. R5-2005-0074 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2005-0074 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From July 2005 To August 2009)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Biochemical Oxygen Demand (5-day @ 25°C)	mg/L	10[1]	15[1]	25[1]	4.5	5.6	13.3
		20[2]	30[2]	50[2]			
	lbs/day	182[1,3]	273[1,3]	455[1,3]	62	175	273
		364[2,3]	546[2,3]	910[2,3]			
	% Removal	85	--	--	82.8[4]	--	--
Total Suspended Solids	mg/L	10[1]	15[1]	25[1]	6.2	11.7	23.5
		20[2]	30[2]	50[2]			
	lbs/day	182[1,3]	273[1,3]	455[1,3]	100	397	888
		364[2,3]	546[2,3]	910[2,3]			
	% Removal	85	--	--	82.3[4]	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2[1,5]	23/240[6]	--	--	>1,600
		2.2[2,7]	--				
Turbidity	NTU	--	2[1,8]	5 to 10[1,9]	--	--	4[10]/10.4[11]

Parameter	Units	Effluent Limitation			Monitoring Data (From July 2005 To August 2009)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Alachlor	µg/L	2	--	--	--	--	ND
	lbs/day	0.0364[3]	--	--	--	--	ND
Aluminum	µg/L	58	--	160	--	--	162
	lbs/day	1.1[3]	--	2.9[3]	--	--	4.5
Total Ammonia	mg/L	[12]	[13,14]	[15,16]	--	23.5[17]	28
	lbs/day	[18]	[18]	[18]	--	296[17]	350
Atrazine	µg/L	--	--	1.0[19]	--	--	ND
	lbs/day	--	--	0.0182[3,19]	--	--	ND
Chlorine Residual	mg/L	--	0.01[14]	0.02[16]	--	--	7.5
	lbs/day	--	0.182[3,14]	0.364[3,16]	--	--	83.8
Chloroform	µg/L	1.1	--	--	--	--	99
	lbs/day	0.020[3]	--	--	--	--	1.2
Manganese	µg/L	50	--	--	--	--	64.6
	lbs/day	0.910[3]	--	--	--	--	1.245
Mercury	lbs/day	0.00021[20]	--	--	--	--	0.000054
Methyl tertiary butyl ether	µg/L	5	--	--	--	--	ND
	lbs/day	0.0910[3]	--	--	--	--	ND
Total Nitrate Plus Nitrite (as N)	mg/L	10	--	--	--	--	49
	lbs/day	182[3]	--	--	--	--	736
Nitrite	mg/L	1	--	--	--	--	3.12
	lbs/day	18.2[3]	--	--	--	--	50.48
Oil and Grease	mg/L	10	--	15[19]	--	--	5.4
	lbs/day	182[3]	--	273[3,19]	--	--	NR
Phthalate Acid Esters	µg/L	3.0	--	--	--	--	38
	lbs/day	0.055[3]	--	--	--	--	NR
Persistent Chlorinated Hydrocarbon Pesticides	µg/L	0.00	--	0.0[19]	--	--	ND
	lbs/day	0.0000[3]	--	0.0[3,19]	--	--	ND
Settleable Solids	ml/L	0.1	--	0.2[19]	--	--	ND
Tributyltin	µg/L	0.04	--	0.12	--	--	0.0024
	lbs/day	0.00073[3]	--	0.0020[3]	--	--	NR
Bis (2-ethylhexyl) phthalate	µg/L	1.8[21]	--	--	--	--	22
		--	--	9.11[22]			
	lbs/day	0.0327[3,21]	--	--	--	--	0.283
Bromodichloromethane	µg/L	0.56[21]	--	--	--	--	14
		--	--	5.48[22]			
	lbs/day	0.0102[3,21]	--	--	--	--	NR
Copper	µg/L	[21,23]	--	[21,23]	--	--	10.1
		--	--	6.33[22]			
	lbs/day	[18,21]	--	[18,21]	--	--	0.141

Parameter	Units	Effluent Limitation			Monitoring Data (From July 2005 To August 2009)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Dioxin and Furans[24]	µg/L	1.3×10^{-8} [21]	--	--	--	--	9.41×10^{-10}
		--	--	10.36×10^{-6} [22]			
	lbs/day	2.36×10^{-10} [3,21]	--	--	--	--	NR
Lead	µg/L	[21,25]	--	[21,25]	--	--	1.24
		--	--	4.25[22]			
	lbs/day	[18,21]	--	[18,21]	--	--	0.014
Polychlorinated Biphenyls[26]	µg/L	1.7×10^{-4} [21]	--	--	--	--	ND
		--	--	17.73[22]			
	lbs/day	3.09×10^{-6} [3,21]	--	--	--	--	ND
PCB Aroclor 1016	µg/L	--	--	0.81	--	--	ND
PCB Aroclor 1221	µg/L	--	--	17.73	--	--	ND
PCB Aroclor 1260	µg/L	--	--	0.24	--	--	ND
Silver	µg/L	[21,27]	--	[21,27]	--	--	0.02
		--	--	3.14[22]			
	lbs/day	[18,21]	--	[18,21]	--	--	0.0002
Zinc	µg/L	[21,28]	--	[21,28]	--	--	48
		--	--	60.72[22]			
	lbs/day	[18,21]	--	[18,21]	--	--	1.341
pH	standard units	--	--	[29]	--	--	6 – 7.8
Flow	million gallons	--	--	[30]	--	--	8.26
Acute Toxicity	% Survival	--	--	[31]	--	--	60[4]

Parameter	Units	Effluent Limitation			Monitoring Data (From July 2005 To August 2009)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge

NR – Not reported.
ND – Not detected.
[1] Applies when flow is less than or equal to 3.5 MGD.
[2] Applies when wet weather flow is greater than 3.5 MGD and the 7-day median receiving water temperature at RSW-001 is less than 60°F.
[3] Based upon the design dry weather flow rate of 2.18 MGD (*x* mg/L x 8.345 x 2.18 MGD = *y* lbs/day).
[4] Represents the minimum value reported.
[5] 7-day median based on previous seven daily sample results.
[6] In a 30-day period, only a single sample may exceed 23 MPN/100 mL, and no sample shall exceed 240 MPN/100 mL.
[7] 30-day median based on previous 30 daily sample results.
[8] Applied as a 24-hour average effluent limitation.
[9] May not exceed 5 NTU more than 5% of the time in any 24-hour period and at no time exceed 10 NTU.
[10] Represents the maximum reported daily average turbidity value.
[11] Represents the maximum reported turbidity value.
[12] Floating effluent limitation calculated in accordance with Attachment E of Order No. R5-2005-0074.
[13] Floating effluent limitation calculated in accordance with Attachment D of Order No. R5-2005-0074.
[14] Applied as a 4-day average effluent limitation.
[15] Floating effluent limitation calculated in accordance with Attachment C of Order No. R5-2005-0074.
[16] Applied as a 1-hour average effluent limitation.
[17] Represents the maximum reported 4-day average value.
[18] Based upon the design dry weather flow rate of 2.18 MGD (*x* mg/L x 8.345 x 2.18 MGD = *y* lbs/day), where *x* is the value obtained from Attachment C through I, as specified above.
[19] Applied as an instantaneous maximum effluent limitation.
[20] Calculated from the maximum average flow rate of 2.56 MGD and maximum reported mercury concentration of 0.00987 µg/L (0.00000987 mg/L x 8.345 x 2.56 MGD) = 0.00021 lbs/day.
[21] Final effluent limitation effective 30 March 2010.
[22] Interim effluent limitation effective until 30 March 2010.
[23] Floating effluent limitation calculated in accordance with Attachment F of Order No. R5-2005-0074.
[24] Applies to the sum of all dioxins and furans.
[25] Floating effluent limitation calculated in accordance with Attachment G of Order No. R5-2005-0074.
[26] Applies to the sum of all aroclors.
[27] Floating effluent limitation calculated in accordance with Attachment H of Order No. R5-2005-0074.
[28] Floating effluent limitation calculated in accordance with Attachment I of Order No. R5-2005-0074.
[29] The discharge shall not have a pH less than 6.5 nor greater than 8.5.
[30] The average daily dry weather discharge flow shall not exceed 2.18 million gallons.
[31] Survival of aquatic organisms in 96-hour 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. Compliance Summary

1. The Regional Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2008-0537 on 20 June 2008, which proposed to assess an administrative civil liability of $36,000 against the Discharger for violations of Order Nos. 97-113 and

R5-2005-0074 between 1 January 2001 and 31 December 2007. The Discharger paid the mandatory minimum penalties.

2. On 12 May 2009, the Regional Water Board issued the Discharger a Notice of Violation and draft Record of Violations for effluent limitation violations for the period from 1 January 2008 through 31 December 2008. The Regional Water Board issued ACL Complaint No. R5-2009-0556 on 16 July 2009, which proposed to assess an administrative civil liability of $6,000 against the Discharger for violations of Order No. R5-2005-0074 between 1 January 2008 and 31 December 2008. The Discharger paid the mandatory minimum penalties.

3. On 8 October 2009, the Regional Water Board issued the Discharger a Notice of Violation and draft Record of Violations for effluent limitation violations for the period from 1 January 2009 through 31 July 2009. The Regional Water Board issued ACL Complaint No. R5-2009-0567 on 12 November 2009, which proposed to assess an administrative civil liability of $24,000 against the Discharger for violations of Order No. R5-2005-0074 between 1 January 2009 through 31 July 2009. The Discharger paid the mandatory minimum penalties.

4. An inspection of the Facility was conducted on 27 May 2008. The following is a summary of the major findings from the inspection report:

   a. Composite effluent samples were stored too cold, in violation of the Standard Provisions.

   b. Maintenance tasks were not completed according to the Discharger's maintenance schedules. It was recommended that the Discharger improve its maintenance program to make sure that all scheduled maintenance is conducted in order to avoid a violation caused by mechanical failure.

   c. Daily grab samples were always collected in the morning, contrary to the intent of the Monitoring and Reporting Program. It was recommended that the Discharger vary the sample time by more than several minutes.

5. An inspection of the Facility was conducted on 26 March 2009. The following is a summary of the major findings from the inspection report:

   a. Documentation of the analysts performing analyses was not included in Excelchem Environmental Laboratory's records.

   b. For industrial storm water, no Notice of Intent or storm water pollution prevention plan was available for review during the inspection.

E. Planned Changes

Prior to the adoption of Order No. R5-2005-0074, the Discharger began to pursue regionalization with the City of Lincoln Wastewater Treatment and Reclamation Facility. As stated in Finding No. 11 of Order No. R5-2005-0074, the Discharger committed to

making a determination by 2 January 2008 regarding whether to regionalize or complete and implement measures to comply with effluent limitations. If, after 2 January 2008, wastewater regionalization was not the selected compliance alternative, the Discharger agreed that sufficient time remained to complete and implement measures to come into compliance with the Order by March 2010. The Discharger has not yet connected to the City of Lincoln Wastewater Treatment and Reclamation Facility or completed measures to come into compliance with permit requirements.

The Discharger has indicated that it plans to upgrade the treatment process to comply with permit requirements in the report of waste discharge because the estimated cost to participate in regionalization is $41 million greater than the cost to upgrade the Facility. In addition to upgrading the Facility, the Discharger submitted a report titled *Antidegradation Analysis for the Placer County SMD1 Wastewater Treatment Plant, October 2009* (*Robertson-Bryan, Inc.*) on 10 November 2009 for an increased discharge to the receiving water from 2.18 MGD to 2.7 MGD (average dry weather flow). The Discharger stated that the increased discharge is necessary to accommodate wastewater flows by 2034 based on a review of planned growth within the service area. The proposed upgrade and expansion of the treatment process would consist of a new headworks with improved grit removal equipment, new primary clarifiers, possible flow equalization facilities, new biological nutrient removal facilities (including anoxic/aeration basins), new secondary clarifiers and tertiary filters (or membrane bioreactor facilities), new disinfection facilities (replacing chlorine disinfection), possible post-disinfection effluent aeration facilities, new operations/laboratory building, and new or renovated solids handling facilities. According to the report of waste discharge, construction would begin in early 2011 and would be completed by December 2014.

The Regional Water Board adopted Resolution No. R5-2009-0028 in Support of Regionalization, Reclamation, Recycling, and Conservation for Wastewater Treatment Plants on 23 April 2009, which requires the Regional Water Board to facilitate opportunities for regionalization and consider innovative permitting options when existing NPDES permit requirements, waste discharge requirements, and/or enforcement Orders inhibit the ability to implement regionalization. The Discharger reported at the April 2009 Board Meeting, and in a subsequent semi-annual progress report submitted 1 June 2009, that the Discharger is continuing to actively pursue regionalization.

As described further in section IV.D.4 of this Fact Sheet, this Order does not authorize the Discharger's proposed increase. This Order contains a reopener provision to reconsider the proposed increase upon availability of additional information indicating that an increase in discharge to Rock Creek is consistent with the antidegradation provisions of 40 CFR 131.12 and Resolution No. 68-16.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in the Findings in section II of this Order. The applicable plans, policies, and regulations relevant to the discharge include the following:

A. Legal Authorities

This Order is issued pursuant to regulations in the Clean Water Act (CWA) and the California Water Code (CWC) as specified in the Finding contained at section II.C of this Order.

B. California Environmental Quality Act (CEQA)

This Order meets the requirements of CEQA as specified in the Finding contained at section II.E of this Order.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** This Order implements the following water quality control plans as specified in the Finding contained at section II.H of this Order.

   a. *Water Quality Control Plan, Fourth Edition (Revised September 2009), for the Sacramento and San Joaquin River Basins* (Basin Plan)

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.

3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.J of this Order.

4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.

5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in this Fact Sheet (Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16.

6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order. Compliance with the anti-backsliding requirements is discussed in this Fact Sheet (Section IV.D.3).

7. **Emergency Planning and Community Right to Know Act**

   Section 13263.6(a) of the CWC, requires that "*the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has*

determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective".

The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis (RPA) based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to CWC section 13263.6(a).

However, as detailed elsewhere in this Order, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.

8. Storm Water Requirements

USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The Discharger submitted a Notice of Intent for coverage under the State Water Board's Industrial Stormwater General Order on 27 February 1998. Therefore, this Order does not regulate storm water at the Facility.

9. Endangered Species Act. This Order is consistent with the Endangered Species Act as specified in the Finding contained at section II.P of this Order.

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

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2006 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources* (40 CFR Part 130, et seq.)." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment*." Rock Creek is not listed on the 303(d) list of impaired water

bodies. Downstream water bodies listed on the 303(d) list of impaired water bodies include the Sacramento River from Knights Landing to the Delta (mercury and unknown toxicity), the Lower Bear River (diazinon), and Camp Far West Reservoir (mercury).

2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Regional Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. TMDLs have not been adopted for Rock Creek, the Sacramento River from Knights Landing to the Delta, the Lower Bear River, or Camp Far West Reservoir.

3. The 303(d) listings and TMDLs have been considered in the development of the Order. Due to the pending development of the proposed Sacramento-San Joaquin Delta Mercury TMDL, effluent limitations for mercury are included in this Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in section IV.C.3 of this Fact Sheet.

E. Other Plans, Polices and Regulations

1. **Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27).** Discharges of wastewater to land, including but not limited to evaporation ponds or percolation ponds, are exempt from the requirements of Title 27, CCR, based on section 20090 et seq. The Facility does not contain unlined treatment or storage facilities.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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 CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 CFR 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 CFR 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal regulations, 40 CFR 122.44(d)(1)(vi), further provide that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits*."

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States.

The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy, "*Policy for Application of Water Quality Objectives*", that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Regional Water Board's "*Policy for Application of Water Quality Objectives*")(40 CFR 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at III-8.00.) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)" in Title 22 of CCR.* The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: *"Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses*."

A. Discharge Prohibitions

1. As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 CFR 122.41(m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 CFR 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure

efficient operation, provided that the bypass does not cause violation of effluent and/or receiving water limitations.

2. Order No. R5-2005-0074 prohibited the discharge or storage of waste classified as 'hazardous' or 'designated', as defined in Section 2521(a) and 2522(a) of Title 27. This prohibition is retained in this Order.

3. Wastewater is discharged at Discharge Point No. 002 to Rock Creek when Chlorine Contact Basin No. 3 is temporarily offline for routine maintenance. This maintenance is allowed only at times when daily average plant flows are at or below 2.18 MGD. This Order prohibits the discharge of wastewater to Rock Creek at Discharge Point No. 002 except when Chlorine Contact Basin No. 3 is temporarily offline for routine maintenance.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR Part 133.

Regulations promulgated in 40 CFR 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the USEPA Administrator.

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR Part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

2. Applicable Technology-Based Effluent Limitations

a. BOD_5 and TSS. Federal regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. However, as described in section IV.C.3.c.xi, this Order requires water quality-based effluent limitations (WQBELs) more stringent than the applicable technology-based effluent limitations which are based on

tertiary treatment, which is necessary to protect the beneficial uses of the receiving stream. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month.

b. Flow. The Facility was designed to provide a tertiary level of treatment for up to a design average dry weather flow of 2.18 MGD. This Order requires that the average dry weather flow shall not exceed 2.18 MGD.

c. pH. The secondary treatment regulations at 40 CFR Part 133 also require that pH be maintained between 6.0 and 9.0 standard units.

Table F-3. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	2.18[1]	--	--	--	--
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	--	--	--
	lbs/day[2]	545	818	--	--	--
	% Removal	85	--	--	--	--
Total Suspended Solids	mg/L	30	45	--	--	--
	lbs/day[2]	545	818	--	--	--
	% Removal	85	--	--	--	--
pH	standard units	--	--	--	6.0	9.0

[1] The average dry weather discharge flow shall not exceed 2.18 MGD. The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (i.e., July, August, and September).

[2] Based on a design flow of 2.18 MGD.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in section IV.C.3.c.xi of this Fact Sheet.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including

numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

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 federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR 131.2 and 131.10, require that all waters of the State be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. 40 CFR 131.3(e) defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

a. Receiving Water and Beneficial Uses. Rock Creek converges with Dry Creek approximately 200 feet downstream of Discharge Point No. 001. In approximately 1.7 miles, Dry Creek merges with Orr Creek and is called Coon Creek. On Coon Creek, approximately 0.9 miles downstream of the confluence of Dry Creek and Orr Creek, the Nevada Irrigation District operates a diversion dam.

Downstream of the diversion dam in western Placer County and eastern Sutter County, Coon Creek flows approximately 25 miles through a relatively flat area where the flow meanders and splits into several channels, including Main Canal, Bunkham Slough, Markham Ravine, and East Side Canal. Flow from these channels eventually enters the Natomas Cross Canal. Flow from Natomas Cross Canal enters the Sacramento River just below the confluence with the Feather River.

The diversion dam pulls water from Coon Creek into the Camp Far West Ditch or Canal. Water from Camp Far West Ditch follows several paths to the Bear River, which is tributary to the Feather River and the Sacramento River. The majority of the water in Camp Far West Ditch flows into Yankee Slough, which flows directly to the Bear River just upstream of the confluence with the Feather River. A small volume of water in Camp Far West Ditch flows into Camp Far West Reservoir via Renken, Forbes, and Church Canals. Camp Far West Reservoir is constructed on the Bear River.

The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan does not specifically identify beneficial uses for Rock Creek, but does identify present and potential uses for bodies of water to which Rock Creek is tributary.

In western Placer County and eastern Sutter County, Rock Creek, Dry Creek, and Coon Creek are tributary to Natomas Cross Canal and the Sacramento River. The discharge enters a section of the Sacramento River between the Colusa Basin Drain and I Street Bridge, the first body of water downstream of Rock Creek, via Natomas Cross Canal, for which the Basin Plan has identified existing beneficial uses. The beneficial uses of the Sacramento River from the Colusa Basin Drain to the I Street Bridge, as identified in Table II-1 of the Basin Plan, are municipal and domestic supply (MUN); agricultural supply, including irrigation (AGR); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); spawning, reproduction, and/or early development, warm and cold (SPWN); wildlife habitat (WILD); and navigation (NAV).

Rock Creek, Dry Creek, and Coon Creek are also tributary to Camp Far West Reservoir and the Bear River via Camp Far West Ditch. The Bear River is the first body of water downstream of Rock Creek, for which the Basin Plan has identified existing beneficial uses. The beneficial uses of the Bear River, as

identified in Table II-1 of the Basin Plan, are MUN; AGR; hydropower generation (POW); REC-1; REC-2; WARM; COLD; warm and cold MIGR (potential); warm and cold SPWN (potential); and WILD.

Thus, beneficial uses applicable to Rock Creek, which are composed of the combination of uses of the Sacramento River from the Colusa Basin Drain to the I Street Bridge and the Bear River are as follows:

Table F-4. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001 and 002	Rock Creek	Existing: Municipal and domestic supply (MUN); agricultural supply, including irrigation and stock watering (AGR); hydropower generation (POW); water contact recreation, including canoeing and rafting (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms, warm and cold (MIGR); spawning, reproduction, and/or early development, warm and cold (SPWN); wildlife habitat (WILD); and navigation (NAV).

In reviewing whether the existing and/or potential uses of the Sacramento River from the Colusa Basin Drain to the I Street Bridge and the Bear River apply to Rock Creek, the Regional Water Board has considered the following facts:

i. Municipal and Domestic Supply and Agricultural Irrigation and Stock Watering

Municipal, domestic, and food crop irrigation beneficial uses have been site-specifically confirmed for waters downstream of the Facility. State Water Board Resolution No. 88-63, a part of the Basin Plan pursuant to Regional Water Board Resolution 89-056, requires the Regional Water Board to assign the beneficial uses of municipal and domestic supply to Rock Creek.

The State Water Board has issued numerous water rights, for domestic and irrigation uses, on Main Canal and downstream waters, the Sacramento River, the Bear River, and the Feather River, downstream of the discharge. Many of the waterways downstream of the discharge are managed by irrigation districts and retain the domestic and irrigation beneficial uses. Nevada Irrigation District controls the flows in Dry Creek, Coon Creek, and Camp Far West Ditch. Nevada Irrigation District staff confirmed the existence of domestic uses of this water by reporting that water from Camp Far West Ditch is utilized for in-home use. The Nevada Irrigation District requires the homeowner to purchase 5 gallons of bottled drinking water per month. The Nevada Irrigation District sells water from Coon Creek and Camp Far West Ditch and has assessed the principal uses as family garden use and pasture irrigation. Over a distance of approximately 25 miles on Camp Far West Ditch, there are 37 irrigation customers, two of whom have irrigation water

connected to their homes. Riparian rights, for landowners along streams and rivers, are not recorded with the State Water Board and have precedence over other water rights and may include domestic and municipal uses. The wastewater discharge occurs in a residential area and the effluent immediately flows through numerous yards bordering Dry Creek. Home garden irrigation has been identified as an existing beneficial use of the stream.

Rock Creek and Dry Creek are low flow streams and may provide groundwater recharge during periods of low flow. Groundwater is a source of drinking water. In addition to the existing water uses, growth in the area downstream of the discharge is expected to continue, creating potential for increased domestic and agricultural uses of the water downstream of the discharge.

ii. Hydropower Generation

The discharge of treated wastewater to Rock Creek will not impact the power supply beneficial use of the downstream waters.

iii. Water Contact and Non-contact Water Recreation

Regional Water Board staff previously surveyed the residents along Dry Creek and found recreational and irrigation use of the receiving stream commonly cited. Several swimming and picnic areas were observed on the banks of Dry Creek and Coon Creek. Properties along Dry Creek and upper Coon Creek are single-family dwellings. The properties have relatively flat terrain that slopes down to the creeks in their back yards. The Regional Water Board finds that there is public access to Rock Creek, Dry Creek, Coon Creek, Camp Far West Ditch, Camp Far West Reservoir, the Bear River, the Feather River, and to the sloughs and canals that are downstream of Coon Creek, Natomas Cross Canal, and the Sacramento River. Public use is likely to increase as the population increases. Exclusion or restriction of public use is unrealistic.

Hikers and campers, in the relatively uninhabited areas near the discharge point, Rock Creek, Dry Creek, upper Coon Creek, and Camp Far West Ditch have a reasonable expectation that those waters are as unpolluted as similar streams in the vicinity.

Camp Far West Reservoir, the Bear River, the Feather River, and the Sacramento River are also used extensively for contact and non-contact recreation.

iv. Warm and Cold Freshwater Habitats, Warm and Cold Spawning Habitats, Warm and Cold Migration Habitats, and Wildlife Habitat

The wastewater is discharged into Rock Creek, which flows into Dry Creek, Coon Creek, and downstream waters. The California Department of Fish and Game (DFG) has verified the presence of fish species consistent with both warm water fisheries and cold water fisheries for salmonids. Fish surveys have not been extensively conducted in the immediate receiving streams, however DFG staff have confirmed that oversummering of cold water fish species in deeper pools within Rock Creek and Dry Creek is reasonable. Riparian habitats are also a by-product of drainages and canals and provide numerous habitats for birds and mammals.

The Basin Plan (Table II-1) designates the Sacramento River and the Bear River as both cold and warm freshwater habitat. Therefore, pursuant to the Basin Plan (Table II-1, Footnote 2), the cold beneficial use designation applies to Rock Creek, Dry Creek, and Coon Creek. The cold water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L. This Order requires the discharge not cause the instream dissolved oxygen level to fall below 7.0 mg/L.

The U.S. Fish and Wildlife Service has designated the streams and rivers in the Sierra foothills, including Rock Creek, Dry Creek, Coon Creek, and Camp Far West Ditch, to be potential habitat for Red-Legged Frogs. DFG confirmed that the same drainages maintain habitat for Foothill Yellow-Legged Frogs and Western Pond Turtles (species of concern) and a variety of macro invertebrates.

The area surrounding the watersheds containing Rock Creek, Dry Creek, upper Coon Creek, Camp Far West Ditch, and downstream waters, provides a wide variety of habitat for wildlife.

v. Navigation

The discharge of treated wastewater to Rock Creek will not impact the navigation beneficial use of the downstream waters.

vi. Groundwater Recharge

In areas where the groundwater elevation is below the bottom of a stream, water from the stream will percolate to the groundwater. Rock Creek and Dry Creek are low flow streams at times and it is reasonable to assume that as stream water is lost by evaporation, the remaining flow downstream and percolation to groundwater will provide a source of municipal and domestic supply and irrigation water supply.

vii. Freshwater Replenishment

There is hydraulic continuity between Rock Creek and the Sacramento River and the Bear River. The discharge to Rock Creek contributes to the quantity and may impact the quality of the water in the downstream waters, including Camp Far West Reservoir, and the Bear River, Feather River, and Sacramento River.

Upon review of the flow conditions, habitat values, and beneficial uses of Rock Creek and Dry Creek, and the facts described above, the Regional Water Board finds that the beneficial uses identified in the Basin Plan for the Sacramento River from the Colusa Basin Drain to the I Street Bridge and the Bear River are applicable to Rock Creek and Dry Creek.

b. Effluent and Ambient Background Data. The RPA, as described in section IV.C.3 of this Fact Sheet, was based on data from July 2006 through June 2009, which includes effluent and ambient background data submitted in self-monitoring reports (SMRs) and annual priority pollutant monitoring. The Discharger implemented "clean" sampling procedures for phthalate acid esters (PAEs) in January 2007. Therefore, the RPA for PAEs was conducted using data from January 2007 through June 2009.

c. Hardness-Dependent CTR Metals Criteria. The *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP[5], the CTR[6] and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4), Table 4, note 4.) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. In some cases, the hardness of effluent discharges changes the hardness of the ambient receiving water. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008,

[5] The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

[6] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

p. 11). The Regional Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10.).

The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces criteria that ensure these metals do not cause receiving water toxicity, while avoiding criteria that are unnecessarily stringent.

i. Reasonable Potential Analysis

The SIP in Section 1.3 states, "*The RWQCB shall…determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective*." Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the maximum effluent concentration (MEC) and maximum receiving water background concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

(a) For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case downstream hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas in the receiving water affected by the discharge. Therefore, for this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection ii. below.

(b) For comparing the maximum receiving water background concentration to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case upstream hardness was used to adjust the criterion. In this evaluation the area outside the influence of the discharge is analyzed. For this situation, the discharge does not impact the upstream hardness. Therefore, the effect of the effluent hardness was not included in this evaluation.

The upstream receiving water hardness in Rock Creek ranged from 20 mg/L to 98 mg/L, based on 39 samples from July 2006 to June 2009. Thus, a minimum upstream receiving water hardness of 20 mg/L (as $CaCO_3$) represents the reasonable worst-case upstream hardness and was used to

adjust the criterion when comparing the maximum receiving water background concentration to the criterion. For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case downstream hardness was used to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection ii. below.

ii. Effluent Concentration Allowance (ECA) Calculation

A 2006 Study[7] developed procedures for calculating the effluent concentration allowance (ECA)[8] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. Simply using the lowest recorded upstream receiving water hardness to calculate the ECA may result in over or under protective WQBELs.

The equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \qquad \text{(Equation 1)}$$

Where:

H = hardness (as $CaCO_3$)
WER = water-effect ratio
m, b = metal- and criterion-specific constants

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants "m" and "b" are specific to both the metal under consideration, and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

$$\text{ECA} = C \text{ (when } C \leq B)^{9} \qquad \text{(Equation 2)}$$

[7] Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.

[8] The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate water quality-based effluent limitations in accordance with Section 1.4 of the SIP

[9] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e., C ≤ B).

Where:

C = the priority pollutant criterion/objective, adjusted for hardness (see Equation 1, above)

B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as "Concave Up Metals".

ECA for Concave Down Metals – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria. Therefore, based on any observed ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion) and the minimum effluent hardness, the ECA calculated using Equation 1 with a hardness equivalent to the minimum effluent hardness is protective under all discharge conditions (i.e., high and low dilution conditions and under all mixtures of effluent and receiving water as the effluent mixes with the receiving water). This is applicable whether the effluent hardness is less than or greater than the ambient background receiving water hardness.

The effluent hardness ranged from 141 mg/L to 301 mg/L (as $CaCO_3$), based on 23 samples from July 2006 to June 2009. The upstream receiving water hardness varied from 20 mg/L to 98 mg/L (as $CaCO_3$), based on 39 samples from July 2006 to June 2009. Using a hardness of 141 mg/L (as $CaCO_3$) to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in the example using copper shown in Table F-5, below. This example assumes the following conservative conditions for the upstream receiving water:

- The upstream receiving water is always at the lowest observed upstream receiving water hardness (i.e., 20 mg/L as $CaCO_3$)
- The upstream receiving water copper concentration is always at the CTR criteria (i.e., no assimilative capacity). Based on available data, the

receiving water never exceeded the CTR criteria for any metal with hardness-dependent criteria.

As demonstrated in Table F-5, using a hardness of 141 mg/L (as $CaCO_3$) to calculate the ECA for Concave Down Metals ensures the discharge is protective under all discharge and mixing conditions. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. Therefore, in this Order the ECA for all Concave Down Metals has been calculated using Equation 1 with a hardness of 141 mg/L (as $CaCO_3$).

Table F-5. Copper ECA Evaluation

Minimum Observed Effluent Hardness			**141 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness			**20 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Copper Concentration			**2.4 µg/L[1]**
Copper $ECA_{chronic}$[2]			**13 µg/L**
Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Copper[5] (µg/L)**
1%	21	2.5	2.5
5%	26	3.0	2.9
15%	38	4.1	3.9
25%	50	5.2	4.9
50%	81	7.8	7.4
75%	111	10	10
100%	141	13	13

1 Maximum assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of **20 mg/L (as $CaCO_3$)**.

2 ECA calculated using Equation 1 for copper criterion at a hardness of **141 mg/L (as $CaCO_3$)**.

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

4 Mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction.

ECA for Concave Up Metals – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the 2006 Study demonstrates that due to a different relationship between hardness and the metals criteria, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may be out of compliance. Therefore, the 2006 Study provides a mathematical approach to calculate the ECA to ensure that any mixture of effluent and receiving water is in compliance with the CTR criteria (see Equation 3, below). The ECA, as calculated using Equation 3, is based

on the reasonable worst-case ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion), and the minimum observed effluent hardness. The reasonable worst-case ambient background hardness depends on whether the effluent hardness is greater than or less than the upstream receiving water hardness. There are circumstances where the conservative ambient background hardness assumption is to assume that the upstream receiving water is at the highest observed hardness concentration. The conservative upstream receiving water condition as used in the Equation 3 below is defined by the term H_{rw}.

$$ECA = \left(\frac{m(H_e - H_{rw})\left(e^{m\{\ln(H_{rw})\}+b}\right)}{H_{rw}} \right) + e^{m\{\ln(H_{rw})\}+b} \qquad \text{(Equation 3)}$$

Where:

m, b = criterion specific constants (from CTR)

H_e = minimum observed effluent hardness

H_{rw} = minimum observed upstream receiving water hardness when the minimum effluent hardness is always greater than observed upstream receiving water hardness ($H_{rw} < H_e$)

-or-

maximum observed upstream receiving water hardness when the minimum effluent hardness is always less than observed upstream receiving water hardness ($H_{rw} > H_e$)[10]

A similar example as was done for the Concave Down Metals is shown for lead, a Concave Up Metal, in Table F-6, below. As previously mentioned, the minimum effluent hardness is 141 mg/L (as $CaCO_3$), while the upstream receiving water hardness ranged from 20 mg/L to 98 mg/L (as $CaCO_3$). In this case, the minimum effluent concentration is greater than the range of observed upstream receiving water hardness concentrations. Thus, the ECA was calculated (Equation 3) based on the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background lead concentration is at the CTR chronic criterion) and the minimum effluent hardness.

[10] When the minimum effluent hardness falls within the range of observed receiving water hardness concentrations, Equation 3 is used to calculate two ECAs, one based on the minimum observed upstream receiving water hardness and one based on the maximum observed upstream receiving water hardness. The minimum of the two calculated ECAs represents the ECA that ensures any mixture of effluent and receiving water is in compliance with the CTR criteria.

Using Equation 3 to calculate the ECA for all Concave Up Metals will result in WQBELs that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in Table F-6, for lead. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. Use of a lower ECA (e.g., calculated based solely on the lowest upstream receiving water hardness) is also protective, but would lead to unreasonably stringent effluent limits considering the known conditions. Therefore, Equation 3 has been used to calculate the ECA for all Concave Up Metals in this Order.

Table F-6. Lead ECA Evaluation

Minimum Observed Effluent Hardness	**141 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness	**20 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Lead Concentration	**0.4 µg/L[1]**
Lead $ECA_{chronic}$[2]	**3.6 µg/L**

Effluent Fraction	Mixed Downstream Ambient Concentration		
	Hardness[3] (mg/L) (as $CaCO_3$)	CTR Criteria[4] (µg/L)	Lead[5] (µg/L)
1%	21	0.44	0.44
5%	26	0.57	0.57
15%	38	0.93	0.88
25%	50	1.3	1.2
50%	81	2.4	2.0
75%	111	3.6	2.8
100%	141	4.9	3.6

1 Minimum assumed upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of **20 mg/L (as $CaCO_3$)**.

2 ECA calculated using Equation 3 for chronic criteria.

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

4 Mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.

d. Conversion Factors. The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.

e. Assimilative Capacity/Mixing Zone. Upstream of the discharge from the Facility, flows in Rock Creek and Dry Creek are both dependent on the flows released from the upstream reservoirs Rock Creek Lake and Halsey Afterbay, respectively. General information, from U.S. Geological Survey maps and site visits, indicates that Rock Creek and Dry Creek were intermittent streams prior to the year-round discharge. Based on the available information, Rock Creek and Dry Creek currently are low-flow or intermittent streams in the absence of the discharge from the Facility and the upstream reservoirs. The beneficial uses of Rock Creek and Dry Creek must be protected. Due to the low-flow/intermittent nature of the flows in Rock Creek and Dry Creek, no credit for receiving water dilution is available. Although the discharge flows may maintain aquatic habitat during low-flow conditions, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flow and released flows help support cold water aquatic life. Dry weather and low flow conditions occur primarily in the summer months but also occur throughout the year, particularly in low rainfall years. Significant dilution may occur during and after high rainfall events. However, the lack of available dilution during low-flow periods results in more stringent effluent limitations to protect recreational uses, drinking water supplies, agricultural irrigation supplies, and aquatic life.

At times, treated wastewater may be the main, or only, source of stream flow, with little or no dilution from natural flow, particularly in Rock Creek. The worst-case dilution in Rock Creek and Dry Creek is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero dilution within the receiving water is that discharge limitations must be end-of-pipe limits, rather than allowing for dilution provided by the receiving water. Therefore, this Order contains end-of-pipe effluent limitations.

f. Assimilative Capacity/Mixing Zone for Nitrate Plus Nitrite. The Discharger submitted a *Sewer Maintenance District No. 1 Wastewater Treatment Plant Mixing Zone Study for Nitrate and Nitrite* (Robertson-Bryan, Inc.) on 5 October 2009 requesting a mixing zone and dilution ratio for nitrate plus nitrite. Because the applicable water quality objective for nitrate plus nitrite is based on the Primary MCL, the Discharger proposed a dilution ratio of 0.98:1 based on the lowest observed monthly ratio of the minimum combined average monthly receiving water flows for Rock Creek and Dry Creek and the maximum monthly average effluent flows as shown in Table F-7. Based on a review of the study, the Regional Water Board is not allowing for the proposed mixing zone or dilution credits.

Table F-7. Effluent and Receiving Water Flow

Month	Maximum Monthly Effluent Flow[1] (MGD)	Minimum Monthly Receiving Water Flow[2] (MGD)	Dilution Ratio (streamflow : effluent)
January	2.6	4.7	1.8 : 1
February	2.3	5.1	2.2 : 1
March	3.4	3.3	0.98 : 1
April	3.1	3.2	1.0 : 1

Month	Maximum Monthly Effluent Flow[1] (MGD)	Minimum Monthly Receiving Water Flow[2] (MGD)	Dilution Ratio (streamflow : effluent)
May	1.8	3.0	1.6 : 1
June	1.6	3.0	1.8 : 1
July	1.6	2.2	1.4 : 1
August	1.4	1.5	1.0 : 1
September	1.4	2.0	1.4 : 1
October	1.5	1.5	1.0 : 1
November	1.6	2.7	1.7 : 1
December	2.8	3.4	1.2 : 1

[1] Maximum monthly average effluent flows observed between 1 July 2005 and 30 June 2009.
[2] Minimum combined monthly average stream flow for Rock Creek and Dry Creek observed between 1 January 1999 and 30 June 2009.

The Discharger's proposed mixing zone is for protection from short-term (monthly) health effects from nitrate based on the Primary MCL. The Discharger's study documents consistency with the requirements of section 1.4.2.2 of the SIP, including (1) the mixing zone is as small as practicable; (2) the mixing zone shall not compromise the integrity of the entire water body, dominate the receiving water body, or overlap a mixing zone from different outfalls; (3) the mixing zone shall not cause acutely toxic conditions to aquatic life, restrict passage of aquatic life, or adversely impact biologically sensitive or critical habitats; (4) the mixing zone shall not produce undesirable or nuisance aquatic life; (5) the mixing zone shall not result in floating debris, oil or scum, produce objectionable color, odor, taste, or turbidity; and (6) the mixing zone shall not be allowed at or near any drinking water intake.

Available upstream receiving water monitoring includes four data points for nitrate plus nitrite from 2002 in Rock Creek and Dry Creek. Nitrogen continuously cycles in the aquatic environment. The rate of cycling is temperature-controlled and thus very seasonal. As shown in Table F-7 above, effluent and receiving water flows also vary seasonally. The Discharger's study provides only a limited data set for nitrate plus nitrite, which may or may not be representative of current background receiving water conditions. Furthermore, the Discharger's study did not adequately consider the seasonality of nutrient cycling, concluding that the mixing zone would not contribute to a nuisance biostimulation condition based only on the lack of complaints from residents downstream and visual inspection of the creek. Excess nutrients in the receiving water can have many detrimental effects on beneficial uses, including municipal and domestic supply, contact recreation, and aquatic life. Based on the limited data set for nitrate plus nitrite to determine assimilative capacity, and the lack of analysis demonstrating that granting a mixing zone would not adversely impact biologically sensitive aquatic resources or critical habitats, or produce undesirable or nuisance conditions, it is not appropriate to grant dilution credits for nitrate plus nitrite at this time. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements of Section 1.4.2.2 of the SIP, including sufficient data demonstrating that assimilative capacity is available and that granting a mixing zone would not adversely impact biologically sensitive

aquatic resources or critical habitats, or produce undesirable or nuisance conditions, the Regional Water Board may reopen this Order to include effluent limitations based on an appropriate dilution factor for the protection of beneficial uses.

3. Determining the Need for WQBELs

a. The Regional Water Board conducted the RPA in accordance with section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[11] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency*." Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents, except for non-CTR constituents where the MCL is the applicable water quality objective and as otherwise described in sections IV.C.3.b and IV.C.3.c of this Fact Sheet. The RPA was based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs.

b. Constituents with No Reasonable Potential. WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential (see Attachment G); however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation. Based on new data and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion for the following constituents:

i. Alachlor. Order No. R5-2005-0074 established an effluent limitation for alachlor based on the Primary MCL of 2 µg/L and implementing the Basin Plan's chemical constituents objective. Alachlor was not detected in 22 effluent samples collected between July 2006 and June 2009. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for chemical constituents for alachlor.

ii. Atrazine. Order No. R5-2005-0074 established an effluent limitation for atrazine based on the National Ambient Water Quality Criteria (NAWQC) for protection of freshwater aquatic life of 1 µg/L and implementing the Basin Plan's narrative toxicity objective. Atrazine was not detected in 21 effluent samples collected between July 2006 and June 2009. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute

[11] See Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City).

to an in-stream excursion above the Basin Plan water quality objective for toxicity for atrazine.

iii. **Bis (2-ethylhexyl) Phthalate.** Order No. R5-2005-0074 established effluent limitations for bis (2-ethylhexyl) phthalate based on the CTR criterion for human health protection for consumption of water and aquatic organisms of 1.8 µg/L. Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of the detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. The Discharger implemented "clean" sampling procedures for bis (2-ethylhexyl) phthalate in January 2007. Bis (2-ethylhexyl) phthalate has not been detected in 18 effluent samples since January 2007. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for bis (2-ethylhexyl) phthalate.

iv. **Manganese.** Order No. R5-2005-0074 established effluent limitations for manganese based on the Secondary MCL of 50 µg/L and implementing the Basin Plan's chemical constituents objective. The maximum annual average receiving water and effluent concentrations were used to evaluate reasonable potential to exceed the Secondary MCL based on input from the DPH and the fact that MCLs are designed to protect human health over long exposure periods. Therefore, it was considered appropriate to analyze reasonable potential based on an annual average concentration. The maximum observed annual average effluent concentration for manganese was 29 µg/L. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for chemical constituents for manganese.

v. **Methyl Tertiary Butyl Ether.** Order No. R5-2005-0074 established effluent limitations for methyl tertiary butyl ether based on the Secondary MCL of 5 µg/L and implementing the Basin Plan's chemical constituent objective. Methyl tertiary butyl ether was not detected in 21 effluent samples collected between July 2006 and June 2009. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for chemical constituents for methyl tertiary butyl ether.

vi. **Oil and Grease.** Order No. R5-2005-0074 established effluent limitations for oil and grease based on the Basin Plan's narrative water quality objective, which states, "[w]*aters shall not contain oils, greases, waxes, or other materials in such concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.*" Oil and grease was not detected in 17 effluent samples collected between July 2006 and June 2009. Oil and grease used to be a problem at many POTWs and was a necessary effluent limit to protect the treatment plant and receiving waters. However, implementation of

fats oils and grease (FOG) and pretreatment programs, in conjunction with improved levels of treatment, have resulted in an overall reduction of oil and grease in wastewater treatment plant effluent. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for oil and grease.

vii. **Phthalate Acid Esters.** Order No. R5-2005-0074 established effluent limitations for phthalate acid esters based on the NAWQC for protection of freshwater aquatic life of 3 µg/L and implementing the Basin Plan's narrative toxicity objective. Phthalate acid esters represent a large family of chemicals widely used as plasticizers, primarily in the production of polyvinyl chloride (PVC) resins. Sources of the detected phthalate acid esters may be from plastics used for sampling or analytical equipment. The Discharger implemented "clean" sampling procedures for phthalate acid esters in January 2007. Phthalate acid esters have not been detected in 18 effluent samples since January 2007. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for toxicity for phthalate acid esters.

viii. **Persistent Chlorinated Hydrocarbon Pesticides.** Order No. R5-2005-0074 established effluent limitations for persistent chlorinated hydrocarbon pesticides based on the Basin Plan's narrative water quality objective, which states, "[t]*otal identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer.*" Persistent chlorinated hydrocarbon pesticides include: aldrin, dieldrin, chlordane, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha-BHC, beta-BHC, delta-BHC, and gamma-BHC or lindane), endosulfan (alpha and beta), endosulfan sulfate, toxaphene, 4,4'DDD, 4,4'DDE, and 4,4'DDT. Persistent chlorinated hydrocarbon pesticides were not detected in 26 effluent samples collected between July 2006 and June 2009. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for persistent chlorinated hydrocarbon pesticides.

ix. **Polychlorinated Biphenyls.** Order No. R5-2005-0074 established effluent limitations for polychlorinated biphenyls based on the CTR criterion for human health protection for consumption of water and aquatic organisms of 0.00017 µg/L. Polychlorinated biphenyls include Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260. Polychlorinated biphenyls were not detected in 24 effluent samples collected between July 2006 and June 2009. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for polychlorinated biphenyls.

x. Settleable Solids. For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.*" Order No. R5-2005-0074 established an AMEL of 0.1 ml/L and an instantaneous maximum effluent limitation of 0.2 ml/L for settleable solids. Settleable solids were not detected in the effluent based on 1,095 samples collected between July 2006 and June 2009. Therefore, the discharge from the Facility does not have a reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative objective for settleable solids and effluent limitations for settleable solids are not included in this Order.

xi. Silver. Order No. R5-2005-0074 established floating effluent limitations for silver based on the CTR criterion for protection of freshwater aquatic life and dependent on hardness. Silver was detected in the effluent once at a concentration of 0.02 µg/L, based on 19 samples collected between July 2006 and June 2009. Background receiving water monitoring for silver is not available. As described in section IV.C.2.c.i of this Fact Sheet, for comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case downstream hardness was used to adjust the criterion. Using the procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness for Concave Up Metals outlined in section IV.C.2.c.ii of this Fact Sheet, the applicable acute (1-hour average) criterion is 2.9 µg/L. This criterion was calculated using Equation 3 (defined in section IV.C.2.c.ii of this Fact Sheet) based on the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for silver (i.e., ambient background silver concentration is at the CTR acute criterion) and the minimum effluent hardness. Because concentrations of silver in the effluent do not exceed the applicable acute criterion, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for protection of freshwater aquatic life for silver.

xii. TCDD-Equivalents. Order No. R5-2005-0074 established effluent limitations for dioxins and furans, or TCDD-equivalents, based on the CTR criterion for protection of human health for consumption of water and aquatic organisms for 2,3,7,8-TCDD of 1.3×10^{-8} µg/L and implementing the Basin Plan's narrative toxicity objective. Based on 10 samples collected between July 2006 and June 2009, the MEC for TCDD-equivalents was 9.41×10^{-10} µg/L, based on a sample collected on 26 March 2009. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for toxicity.

xiii. Total Petroleum Hydrocarbons. As required by Order No. R5-2005-0074, the Discharger performed a study evaluating the presence of total petroleum hydrocarbons in the gasoline (TPH_G), kerosene (TPH_K), and diesel (TPH_D)

ranges in the effluent. The Discharger submitted their study results in a report titled *County of Placer Sewer Maintenance District No. 1 Effluent Assessment of Total Petroleum Hydrocarbons, September 2006* (Robertson-Bryan, Inc.). Because no applicable water quality criteria have been developed for TPH_G, TPH_K, and TPH_D, the study compared effluent levels of TPH_G to a taste and odor threshold of 5 µg/L and of TPH_K and TPH_D to the USEPA Suggested No Adverse Response Level (SNARL) for taste and odor of 100 µg/L. TPH_G was detected above the taste and odor threshold in four of 11 effluent samples (three of the four were estimated values). TPH_K was detected above the SNARL in one of 11 effluent samples, while TPH_D was detected above the SNARL in all 11 effluent samples. However, there are no immediate municipal uses downstream of the discharge and it is not appropriate to apply taste and odor thresholds or the SNARL to determine reasonable potential to exceed the Basin Plan's narrative taste and odor objective. This interpretation of the narrative taste and odor objective is consistent with other recently adopted permits in the Central Valley Region. In the absence of any applicable water quality criteria for TPH_G, TPH_K, and TPH_D, reasonable potential to cause or contribute to water quality objectives cannot be determined. Therefore, effluent limitations are not being established in this Order.

xiv. **Tributyltin.** Order No. R5-2005-0074 established effluent limitations for tributyltin based on the NAWQC for protection of freshwater aquatic life of 0.072 µg/L and implementing the Basin Plan's narrative toxicity objective. The MEC for tributyltin was 0.0024 µg/L, based on 23 samples collected between July 2006 and June 2009. Because concentrations of tributyltin in the effluent do not exceed the applicable aquatic life criterion, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan water quality objective for toxicity.

xv. **Zinc.** Order No. R5-2005-0074 established floating effluent limitations for zinc based on the CTR criterion for protection of freshwater aquatic life and dependent on hardness. The MEC for zinc was 48 µg/L, based on 19 samples collected between July 2006 and June 2009. Background receiving water monitoring for zinc is not available. As described in section IV.C.2.c.i of this Fact Sheet, for comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Davis Order, the reasonable worst-case downstream hardness was used to adjust the criterion. Using the procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness for Concave Down Metals outlined in section IV.C.2.c.ii of this Fact Sheet, the applicable chronic (4-day average) criterion is 160 µg/L. This criterion was calculated using Equation 1 (defined in section IV.C.2.c.ii of this Fact Sheet) based on the minimum effluent hardness. Because concentrations of zinc in the effluent do not exceed the applicable chronic criterion, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for protection of freshwater aquatic life for zinc.

c. Constituents with Reasonable Potential. The Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, arsenic, chlorine residual, chlorodibromomethane, chloroform, copper, dichlorobromomethane, electrical conductivity, lead, mercury, nitrate plus nitrite, nitrite, pathogens, and pH. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

i. Aluminum

(a) WQO. USEPA developed NAWQC for protection of freshwater aquatic life for aluminum. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The most stringent of these criteria, the chronic criterion of 87 µg/L, is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as $CaCO_3$). The upstream receiving water pH ranged from 6.3 – 9.5. The upstream receiving water hardness ranged from 20 mg/L to 98 mg/L. The minimum observed effluent hardness was 141 mg/L. The high hardness of the effluent is due to the addition of magnesium hydroxide in the primary clarifier effluent to provide alkalinity for nitrification, as reported in Table B-1 in Addendum B – Form 2A Part B, section B.3 of the Report of Waste Discharge. Although the effluent hardness may currently increase the downstream hardness, future modifications of the treatment process may result in changes in magnesium hydroxide use. These changes may reduce the effluent hardness and, consequently, the downstream receiving water hardness to levels supportive of the applicability of the NAWQC chronic criteria for aluminum. Therefore, without further site-specific and aluminum-specific information (i.e. Water Effect Ratio testing), the low pH values and low hardness observed (within 10 mg/L as $CaCO_3$) in the receiving water is supportive of the applicability of the NAWQC chronic criteria for aluminum, according to USEPA's development document.

(b) RPA Results. The MEC for aluminum was 162 µg/L. Background receiving water data for aluminum is not available. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

(c) WQBELs. This Order contains a final AMEL and MDEL for aluminum as shown in Table F-9 of this Fact Sheet based on protection of the Basin Plan's narrative toxicity objective.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 162 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures are be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for aluminum are not a new regulatory requirement within this permit; the previous permit, Order No. 2005-0074, and previous Cease and Desist Order No. 2005-0075 contained final effluent limitations based on the chronic criteria of 87 µg/L, and a 5-year compliance schedule for the discharger to comply with the limitations. Therefore, a compliance time schedule for compliance with the aluminum effluent limitations is established in Cease and Desist Order (CDO) No. R5-2010-0093 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

ii. Ammonia

(a) WQO. The NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Rock Creek has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in the downstream receiving waters is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The maximum permitted effluent pH is 8.2. The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. In a letter dated 22 February 2010, the Discharger requested an instantaneous maximum effluent pH limitation of 8.2 which reflects a level consistently achievable by the Facility. Data collected over the previous permit term indicate that pH in the effluent never exceeded 8.2, with a maximum reported pH value of 7.8. Therefore, at the request of the Discharger, this Order establishes a more stringent instantaneous maximum pH limitation of 8.2. In order to protect against the worst-case short-term exposure of an organism, the

permitted instantaneous maximum pH limitation of 8.2 was used to derive the acute criterion. The resulting acute criterion is 3.83 mg/L.

A chronic criterion was calculated for each day when paired temperature and pH were measured using downstream receiving water data for temperature and pH data from the Discharger's monthly monitoring reports from July 2006 through June 2009. Rolling 30-day average criteria were calculated using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC. The resulting lowest 30-day CCC is 2.30 mg/L (as N). The use of downstream receiving water monitoring for the calculation of the 30-day chronic criterion results in a more stringent criterion than using effluent monitoring. The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 2.30 mg/L (as N), the 4-day average concentration that should not be exceeded is 5.75 mg/L (as N).

(b) RPA Results. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger achieves some nitrification in the RBCs and trickling filters, but is unable to achieve complete nitrification. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. The MEC for ammonia was 15.1 µg/L. Background receiving water data for ammonia is not available. Because domestic wastewater contains ammonia and the MEC for ammonia exceeds the NAWQC, ammonia in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

(c) WQBELs. The Regional Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and MDEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order

contains a final AMEL and MDEL for ammonia as shown in Table F-9 of this Fact Sheet, based on protection of the Basin Plan's narrative toxicity objective.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 15.1 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. The Discharger submitted an infeasibility analysis on 4 May 2010. As discussed in section IV.E of this Fact Sheet, a compliance schedule has been included in this Order.

iii. Arsenic

(a) WQO. The Primary MCL for arsenic is 10 µg/L, which is used to interpret the Basin Plan's chemical constituent objective for the protection of the MUN beneficial use and is implemented as a monthly average.

(b) RPA Results. The maximum monthly average receiving water and effluent concentrations were used to evaluate reasonable potential to exceed the Primary MCL based on input from the DPH and the fact that MCLs are designed to protect human health over long exposure periods. The maximum observed monthly average effluent concentration of arsenic was 21.5 µg/L. Background receiving water data for arsenic is not available. Therefore, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL.

(c) WQBELs. This Order contains a monthly average effluent limitation for arsenic as shown in Table F-9 of this Fact Sheet, based on the Basin Plan's narrative chemical constituent objective for protection of the MUN beneficial use.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 21.5 µg/L is greater than applicable WQBELs. However, the remaining effluent concentrations were below the Primary MCL and the new limitation does not appear to put the Discharger in immediate non-compliance.

vi. Chloroform

a. WQO. There are no applicable CTR criteria or MCLs for chloroform. However, CalEPA has developed a Cancer Potency Factor as a Drinking Water Level of 1.1 mg/L and the California Office of Environmental Health Hazard Assessment (OEHHA) has developed a Public Health Goal (PHG) of 1.1 ug/L (tentatively 1 µg/L) for chloroform, which can be used to interpret the narrative toxicity and chemical constituents objective in the Basin Plan for the protection of the MUN beneficial use. The maximum effluent concentrations were used to evaluate reasonable potential to exceed the standard for chloroform of 1.1 µg/L.

b. RPA Results. The maximum effluent concentration was used to evaluate reasonable potential to exceed the standard for protection human health over long exposure periods. The maximum observed effluent concentration of chloroform was 99 µg/L. Background receiving water data for chloroform is not available. Therefore, chloroform in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the standard.

c. WQBELs. This Order contains a monthly average effluent limitation for chloroform as shown in Table F-9 of this Fact Sheet, based on the Basin Plan's narrative toxicity and chemical constituent objective for protection of the MUN beneficial use.

d. Plant Performance and Attainability. Analysis of the effluent data shows that out of a dataset of 23 monthly data points representing effluent concentrations measured between July 2006 and April 2009, 22 of the data points exceeded the monthly effluent limitation of 1.1 ug/L. The dataset ranged from 1 ug/L to 99 ug/L. Therefore, the limitation appears to put the Discharger in immediate non-compliance.

iv. Chlorine Residual

(a) WQO. USEPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 µg/L and 0.019 µg/L, respectively. These criteria are protective of the Basin Plan's narrative toxicity objective.

(b) RPA Results. The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. The Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to Rock Creek. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC.

(c) WQBELs. The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. This Order contains a 4-day average effluent limitation and 1-hour average effluent limitation for chlorine residual of 0.011 µg/L and 0.019 µg/L, respectively, based on USEPA's NAWQC, which implements the Basin Plan's narrative toxicity objective for protection of aquatic life. The Discharger is planning to

upgrade the Facility during the term of this permit to replace the existing chlorine disinfection system with a new ultraviolet light (UV) disinfection system. Therefore, monitoring requirements for chlorine residual may be discontinued upon completion of the UV disinfection system.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that concentrations of chlorine residual are consistently less than the applicable WQBELs. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

v. Chlorodibromomethane

(a) WQO. The CTR includes a criterion of 0.41 µg/L for chlorodibromomethane for the protection of human health for waters from which both water and organisms are consumed.

(b) RPA Results. The MEC for chlorodibromomethane was 0.97 µg/L. Background receiving water data for chlorodibromomethane is not available. Therefore, chlorodibromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) WQBELs. This Order contains a final AMEL and MDEL for chlorodibromomethane, as shown in Table F-9 of this Fact Sheet, based on the CTR criterion for the protection of human health.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 0.97 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for chlorodibromomethane are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the chlorodibromomethane effluent limitations is established in CDO No. R5-2010-0093 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

vi. Copper

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for copper. Section 1.3 of the SIP contains requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that CTR criteria be adjusted for hardness, as applicable. In

this case, the minimum observed effluent hardness was used to adjust the CTR criteria for copper when comparing the MEC to the criteria and the minimum observed receiving water hardness was used when comparing the maximum background receiving water copper concentrations to the criteria. Using the default conversion factors and reasonable worst-case measured hardness of the effluent, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 19 µg/L and 13 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, the applicable acute (1-hour average) and chronic (4-day average) criteria for the receiving water are 3.1 µg/L and 2.4 µg/L, respectively, as total recoverable.

(b) RPA Results. The MEC for copper was 21.9 µg/L (as total recoverable), which was observed on 4 January 2008. The Discharger concluded in Table 3.5 of the Report of Waste Discharge that this sample was an outlier because the concentration exceeds the 99th percentile of observed copper concentrations. The next highest effluent copper concentration observed was 10.1 µg/L. The report from the laboratory, Excelchem Environmental Labs, dated 21 January 2008, does not indicate that the 4 January 2008 sample result was caused by any laboratory error. Therefore, the sample is considered to be representative of the discharge and was used to conduct the RPA. Background receiving water data for copper is not available. Because the MEC exceeds the chronic criterion for the effluent, copper in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

(c) WQBELs. As described in section IV.C.2.c.ii of the Fact Sheet, the ECA_{acute} and $ECA_{chronic}$ were determined using the minimum observed effluent hardness, which is protective under all discharge and mixing conditions. This results in an ECA_{acute} and an $ECA_{chronic}$ for copper of 19 µg/L and 13 µg/L, respectively. This Order contains a final AMEL and MDEL for copper as shown in Table F-9 of this Fact Sheet, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. The Discharger reported in a letter dated 22 February 2010 that it anticipates consistent compliance with the new effluent limitations for copper and that a compliance schedule is unnecessary.

vii. Dichlorobromomethane

(a) WQO. The CTR includes a criterion of 0.56 µg/L for dichlorobromomethane for the protection of human health for waters from which both water and organisms are consumed.

(b) RPA Results. The MEC for dichlorobromomethane was 14 µg/L. Background receiving water data for dichlorobromomethane is not available. Therefore, dichlorobromomethane in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.

(c) WQBELs. This Order contains a final AMEL and MDEL for dichlorobromomethane, as shown in Table F-9 of this Fact Sheet, based on the CTR criterion for the protection of human health.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the MEC of 14 µg/L is greater than applicable WQBELs. Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for dichlorobromomethane are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the dichlorobromomethane effluent limitations is established in CDO No. R5-2010-0093 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

viii. Lead

(a) WQO. The CTR includes hardness dependent criteria for the protection of freshwater aquatic life for lead. Section 1.3 of the SIP contains requirements for conducting the RPA for CTR constituents. Step 1 of the RPA requires that CTR criteria be adjusted for hardness, as applicable. In this case, the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background lead concentration is at the CTR chronic criterion), and the minimum effluent hardness were used to adjust the CTR criterion when comparing the MEC to the criteria and the minimum observed receiving water hardness was used when comparing the maximum background receiving water lead concentrations to the criteria. Using the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background lead concentration is at the CTR chronic criterion) and the minimum effluent hardness, the applicable acute (1-hour average) and chronic (4-day average) criteria for the effluent are 92 µg/L and 3.6 µg/L, respectively, as total recoverable. Using the default conversion factors and reasonable worst-case measured hardness of the receiving water, the applicable acute (1-hour average) and chronic

(4-day average) criteria for the receiving water are 11 µg/L and 0.41 µg/L, respectively.

(b) RPA Results. The MEC for lead was 25.2 µg/L (as total recoverable), which was observed on 4 January 2008. The Discharger concluded in Table 3.5 of the Report of Waste Discharge that this sample was an outlier because the concentration exceeds the 99th percentile of observed lead concentrations. The next highest effluent lead concentration observed was 1.24 µg/L. The report from the laboratory, Excelchem Environmental Labs, dated 21 January 2008, does not indicate that the 4 January 2008 sample result was caused by any laboratory error. Therefore, the sample is considered to be representative of the discharge and was used to conduct the RPA. Background receiving water data for lead is not available. Because the MEC exceeds the chronic criterion for the effluent, lead in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of freshwater aquatic life.

(c) WQBELs. As described in section IV.C.2.c.ii of the Fact Sheet, the ECA_{acute} and $ECA_{chronic}$ were determined using the minimum observed upstream receiving water hardness, no receiving water assimilative capacity for lead (i.e., ambient background lead concentration is at the CTR chronic criterion) and the minimum effluent hardness, which is protective under all discharge and mixing conditions. This results in an ECA_{acute} and an $ECA_{chronic}$ for lead of 92 µg/L and 3.6 µg/L, respectively. This Order contains a final AMEL and MDEL for lead as shown in Table F-9 of this Fact Sheet, based on the CTR criterion for the protection of freshwater aquatic life.

(d) Plant Performance and Attainability. The Discharger reported in a letter dated 22 February 2010 that it anticipates consistent compliance with the new effluent limitations for lead and that a compliance schedule is unnecessary.

ix. Mercury

(a) WQO. The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that "…*more stringent mercury limits may be determined and implemented through use of the State's narrative criterion.*" In the CTR, USEPA reserved the

mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) RPA Results. The maximum observed effluent mercury concentration was 0.00323 µg/L. Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The discharge of mercury to surface waters in the Central Valley draining to the Sacramento San Joaquin Delta is being limited in order to protect the beneficial uses of the Delta.

(c) WQBELs. This Order contains a performance-based mass effluent limitation of 0.0018 lbs/month for mercury for the effluent discharged to the receiving water. This limitation is based on maintaining the mercury loading at the current level until a TMDL for the Delta waters can be established and USEPA develops mercury standards that are protective of human health. The mass limitation was derived using the maximum observed effluent mercury concentration and the design average dry weather flow rate of the current treatment plant (2.18 MGD):

Effluent concentration (mg/L) * Design average dry weather flow rate * 8.34 (conversion factor) * [365 days / 12 months] = lbs/month

If USEPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

(d) Plant Performance and Attainability. The effluent limitations for mercury are based on treatment plant performance. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

x. Nitrate and Nitrite

(a) WQO. DPH has adopted Primary MCLs for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DPH has also adopted a primary MCL of 10,000 µg/L for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1,000 µg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10,000 µg/L as Primary MCL) and NAWQC for protection of human health (10,000 µg/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

(b) RPA Results. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and

nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger does not currently provide denitrification. Nitrate and nitrite are known to cause adverse health effects in humans. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the discharge to cause or contribute to an in-stream excursion above the Primary MCLs for nitrite and nitrate.

(c) WQBELs. As described further in section IV.C.2.f of this Fact Sheet, dilution credits are not being considered for the calculation of effluent limitations for nitrate plus nitrite. Consistent with Order No. R5-2005-0074, this Order contains a final AMEL for nitrate plus nitrite of 10 mg/L and an AMEL for nitrite of 1 mg/L, based on the protection of the Basin Plan's narrative chemical constituents objective and to assure the treatment process adequately nitrifies and denitrifies the waste stream.

(d) Plant Performance and Attainability. The Discharger does not currently provide denitrification and, based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for nitrate plus nitrite and nitrite are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after 1 July 2000. Therefore, a compliance time schedule for compliance with the nitrate plus nitrite and nitrite effluent limitations is established in CDO No. R5-2010-0093 in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

xi. Pathogens

The Regional Water Board, when developing NPDES permits, implements recommendations by DPH for the appropriate disinfection requirements for the protection of MUN, REC-1 and AGR. The disinfection requirements in the proposed Order implement the DPH recommendations and are fully protective of the beneficial uses of the receiving water.

(a) WQO. DPH has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median. As

coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median limitation. The measure of coliform organisms is utilized as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as *"…an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.*" Title 22 is not directly applicable to surface waters; however, the Regional Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by the DPH's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation.

Total coliform organisms are an indicator of the level of pathogens in the effluent. Therefore, effluent limitations for total coliform organisms are necessary to control the discharge of pathogens, and have been included in this Order. In site-specific situations where a discharge is occurring to a stream with a downstream water intake used as a domestic water supply without treatment, the DPH has recommended the same Title 22 tertiary treatment requirements for the protection of MUN, as well as protecting REC-1 and AGR. DPH has also recommended a 20:1 dilution ratio in addition to the Title 22 tertiary treatment requirement where there are existing domestic water users of raw water near the treatment plant outfall. In this case, there are no such known uses that could be affected by the discharge, so tertiary treatment plus 20:1 dilution is not necessary to protect the MUN, REC-1 or AGR uses.

The chemical constituents narrative objective in the Basin Plan states, "[w]*aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses*." The narrative toxicity objective states, "[a]*ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" When necessary, the Regional Water Board adopts numeric effluent limitations to implement these objectives on a case-by-case basis implementing relevant numerical criteria and guidelines developed and/or published by other agencies and organizations (e.g., State Water Board, DPH, OEHHA, California Department of Toxic Substances Control, University of California Cooperative Extension, California Department of Fish and Game, USEPA, U.S. Food and Drug Administration, National Academy of Sciences, U.S. Fish and Wildlife

Service, Food and Agricultural Organization of the United Nations). In considering such criteria, the Regional Water Board evaluates whether the specific numerical criteria, which are available through these sources and through other information supplied to the Regional Water Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective."

For public water supplies, State and federal law require residual chlorine and/or UV disinfection of surface water. (*See, e.g.,* Surface Water Treatment Rule, 40 C.F.R. Part 141, Subpart H; Cal. Code of Regs. Title 22, section 64447.) Treating pathogens to a level more stringent than tertiary treatment requires a chlorine residual in the effluent that is toxic to aquatic life in the receiving water. Pathogens are not bio-accumulative, so discharges at the permitted levels in this Order do not threaten potential uses of the receiving water for untreated domestic use. Therefore, the requirement to implement tertiary treatment only when 20:1 dilution is not available adequately protects beneficial uses and is appropriate for this discharge under the case-by-case approach.

(b) RPA Results. The beneficial uses of Rock Creek include MUN, REC-1, and AGR, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Regional Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH.

(c) WQBELs

In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

In addition to coliform testing, an operational specification for turbidity has been included to monitor the effectiveness of treatment filter performance, and to immediately signal the Discharger to implement operational procedures to correct deficiencies in filter performance. Higher effluent turbidity measurements do not necessarily indicate that the effluent discharge exceeds the water quality criteria/objectives for pathogens (i.e., bacteria, parasites, and viruses), which are the principal infectious agents that may be present in raw sewage. Since turbidity is not a valid indicator parameter for pathogens, the turbidity limitations in Order No. R5-2005-0074 are not imposed to protect the receiving water from excess turbidity. The former turbidity limitations were not technology-based effluent limitations or WQBELs for either pathogens or turbidity. WQBELs are not required because the effluent does not have a reasonable potential to

cause or contribute to an exceedance of the applicable water quality objectives for turbidity.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

Final WQBELs for BOD_5 and TSS are based on the technical capability of the tertiary process, which is necessary to protect the beneficial uses of the receiving water. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the tertiary treatment process. The principal design parameter for wastewater treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed. Therefore, this Order requires AMELs for BOD_5 and TSS of 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD_5 and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities.

This Order contains effluent limitations for BOD_5, total coliform organisms, and TSS, and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Regional Water Board previously considered the factors in CWC section 13241 in establishing these requirements in Order No. R5-2005-0074.

DPH submitted a letter to the Regional Water Board on 15 July 2003 after a review of plant performance and related effluent quality, expected seasonality of contact recreation and irrigation, high wet weather flow rates, costs to expand to year-round tertiary treatment, and high influent flow rates at the Facility. The 15 July 2003 letter noted several exceptions to the requirement for tertiary treatment at the Facility, as follows:

"1. The plant is subject to very high flow rates during, and immediately following storm events. Plant flow that exceeds the capacity of the filters can be allowed to bypass the filtration process during these events, provided the filter capacity is at least 30% greater than the permitted average dry weather flow.

2. A 30-day median coliform bacteria count of 2.2 MPN/100 mL can be allowed during the cold weather season. This season can be defined either on the basis of months (e.g., November 1 through April 30), or by receiving water temperature. If you decide to implement the latter, we recommend that the 'cold weather season' be defined as beginning when the seven day median receiving water temperature first falls below 60°F, and ending when the seven-day median receiving water temperature first rises above 60°F."

A discharge in accordance with the DPH recommendation may not protect contact recreation, food crop irrigation, and will not protect the beneficial uses of domestic and municipal supply during periods when the receiving water temperature is less than 60°F and treatment plant effluent flows exceed 3.5 MGD. The beneficial uses of the receiving waters immediately downstream of the discharge have been well documented. It is unknown to what degree water contact recreational activities decrease at 60°F. The nearby American River has well documented periods of contact recreational activity when water temperatures are below 60°F. The discharge of blended secondary effluent, compared to a full tertiary discharge, will result in the discharge of additional pollutants. The RPA was based on tertiary treatment, and the blended discharge may not comply with the effluent limitations established in this Order. Domestic uses have been documented to exist downstream of Facility. Therefore, a tertiary level of treatment, or equivalent, is necessary under all discharge conditions to protect the beneficial uses of the receiving stream. This Order requires that the wastewater be disinfected and adequately treated to prevent disease (i.e., tertiary treatment) for all discharges regardless of flow.

(d) Plant Performance and Attainability. The Facility is not designed to provide full tertiary treatment for wet weather flows exceeding 3.5 MGD and discharges a blend of secondary and tertiary wastewater under those conditions. Therefore, the Discharger cannot currently comply with the effluent limitations for BOD_5, total coliform organisms, or TSS for all discharges. As discussed in section IV.E of this Fact Sheet, a compliance schedule has been included in this Order for compliance with Title 22 (or equivalent) requirements when the influent flow exceeds 3.5 MGD and the 7-day median receiving water temperature is less than 60°F.

xii. pH

(a) WQO. The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the *"…pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses."*

(b) RPA Results. The discharge of municipal wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan's numeric objectives for pH.

(c) WQBELs. An effluent limitation for pH of 6.5 as an instantaneous minimum is included in this Order based on protection of the Basin Plan objective for pH. In a letter dated 22 February 2010, the Discharger requested an instantaneous maximum pH limitation of 8.2 which reflects a level consistently achievable by the Facility. Data collected over the previous permit term indicate that pH in the effluent never exceeded 8.2, with a maximum reported pH value of 7.8. Therefore, at the request of the Discharger, this Order establishes a more stringent instantaneous maximum pH limitation of 8.2.

(d) Plant Performance and Attainability. Analysis of the effluent data shows that the pH of the effluent is consistently between 6.5 to 8.2. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

xiii. Salinity

(a) WQO. There are no USEPA water quality criteria for the protection of aquatic organisms for electrical conductivity (EC), total dissolved solids (TDS), sulfate, and chloride. The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for electrical conductivity, total dissolved solids, sulfate, and chloride.

Table F-8. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[2]	Effluent[3]	
			Average	Maximum
EC (µmhos/cm)	Varies[4]	900, 1600, 2200	650	1,090
TDS (mg/L)	Varies	500, 1000, 1500	374	486
Sulfate (mg/L)	Varies	250, 500, 600	32	36.1
Chloride (mg/L)	Varies	250, 500, 600	70.1	70.1

Parameter	Agricultural WQ Goal[1]	Secondary MCL[2]	Effluent[3]	
			Average	Maximum

[1] Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985).

[2] The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

[3] Average and maximum values based on monitoring data collected between July 2006 and June 2009.

[4] The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 µmhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

(1) Chloride. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

(2) Electrical Conductivity. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

(3) Sulfate. The secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.

(4) Total Dissolved Solids. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as

a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

(b) RPA Results.

(1) Chloride. The MEC for chloride was 70.1 mg/L, based on one sample collected on 9 October 2008, which does not exceed the agricultural water goal. Background receiving water data for chloride is not available.

(2) Electrical Conductivity. As required by Order No. R5-2005-0074, the Discharger submitted a report titled *County of Placer Sewer Maintenance District No. 1 Electrical Conductivity and Total Dissolved Solids Assessment, November 2006* (Robertson-Bryan, Inc.) evaluating the potential effects of EC and TDS in the receiving water. Based on the study, the Discharger concluded that 30-day average effluent concentrations never exceeded the Secondary MCL and occasionally exceeded the agricultural water quality goal. The Discharger further concluded that receiving water concentrations downstream of the discharge in Rock Creek and Dry Creek did not exceed either the Secondary MCL or the agricultural goal.

A review of the Discharger's monitoring reports submitted since the submittal of the report shows a maximum 12-month rolling average effluent EC concentration of 650 µmhos/cm, with a range from 332 µmhos/cm to 1,090 µmhos/cm. The maximum 12-month rolling average effluent EC concentration does not exceed the agricultural water quality goal of 700 µmhos/cm. The background receiving water EC averaged 109 µmhos/cm.

(3) Sulfate. Sulfate concentrations in the effluent ranged from 28.6 mg/L to 36.1 mg/L, with an average of 32 mg/L. These levels do not exceed

the secondary MCL. Background receiving water data for sulfate is not available.

(4) Total Dissolved Solids. The average TDS effluent concentration was 374 mg/L with concentrations ranging from 54 mg/L to 486 mg/L. These levels do not exceed the applicable water quality objectives. Background receiving water data for TDS is not available.

(c) WQBELs. Effluent limitations based on the MCL or the Basin Plan would likely require construction and operation of a reverse osmosis treatment plant. The State Water Board, in Water Quality Order 2005-005 (for the City of Manteca), states, "*…the State Board takes official notice [pursuant to Title 23 of California Code of Regulations, Section 648.2] of the fact that operation of a large-scale reverse osmosis treatment plant would result in production of highly saline brine for which an acceptable method of disposal would have to be developed. Consequently, any decision that would require use of reverse osmosis to treat the City's municipal wastewater effluent on a large scale should involve thorough consideration of the expected environmental effects.*" The State Water Board states in that Order, "*Although the ultimate solution to southern Delta salinity problems have not yet been determined, previous actions establish that the State Board intended for permit limitations to play a limited role with respect to achieving compliance with the EC water quality objectives in the southern Delta.*" The State Water Board goes on to say, "*Construction and operation of reverse osmosis facilities to treat discharges…prior to implementation of other measures to reduce the salt load in the southern Delta, would not be a reasonable approach*."

The Regional Water Board, with cooperation of the State Water Board, has begun the process to develop a new policy for the regulation of salinity in the Central Valley. In a statement issued at the 16 March 2006, Regional Water Board meeting, Board Member Dr. Karl Longley recommended that the Regional Water Board continue to exercise its authority to regulate discharges of salt to minimize salinity increases within the Central Valley. Dr. Longley stated, "*The process of developing new salinity control policies does not, therefore, mean that we should stop regulating salt discharges until a salinity Policy is developed. In the meantime, the Board should consider all possible interim approaches to continue controlling and regulating salts in a reasonable manner, and encourage all stakeholder groups that may be affected by the Regional Board's policy to actively participate in policy development.*"

Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. However, since the Discharger discharges to Rock Creek, a tributary of the Sacramento River, the Bear River, and eventually the Sacramento-San Joaquin Delta, of additional

concern is the salt contribution to Delta waters. Allowing the Discharger to increase its current salt loading may be contrary to the Region-wide effort to address salinity in the Central Valley. Therefore, to limit the discharge of salinity to current levels, this Order includes a final effluent limitation of 700 µmhos/cm to be applied as an annual average.

In order to ensure that the Discharger will continue to control the discharge of salinity, this Order includes a requirement to develop and implement a salinity evaluation and minimization plan. Also water supply monitoring is required to evaluate the relative contribution of salinity from the source water to the effluent.

(d) Plant Performance and Attainability. The maximum annual average effluent EC concentration was 680 µmhos/cm, which occurred in 2007. The Regional Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

4. WQBEL Calculations

a. This Order includes WQBELs for aluminum, ammonia, arsenic, chlorine residual, chlorodibromomethane, copper, dichlorobromomethane, electrical conductivity, lead, mercury, nitrate plus nitrite, nitrite, pH, and total coliform organisms. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

b. Effluent Concentration Allowance. For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$ECA = C + D(C - B)$ *where C>B, and*
$ECA = C$ *where C≤B*

where:
ECA = effluent concentration allowance
D = dilution credit
C = the priority pollutant criterion/objective
B = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

c. Basin Plan Objectives and MCLs. For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.

d. Aquatic Toxicity Criteria. WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e., LTA_{acute} and $LTA_{chronic}$) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.

e. Human Health Criteria. WQBELs based on human health criteria are also calculated in accordance with Section 1.4 of the SIP. The AMEL is set equal to the ECA and a statistical multiplier was used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\underbrace{M_A ECA_{acute}}_{LTA_{acute}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where:
multAMEL = statistical multiplier converting minimum LTA to AMEL
multMDEL = statistical multiplier converting minimum LTA to MDEL
MA = statistical multiplier converting acute ECA to LTA_{acute}
MC = statistical multiplier converting chronic ECA to $LTA_{chronic}$

See Section IV.D of this Fact Sheet for a summary of WQBELs contained in this Order.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E section V). This Order also contains effluent limitations for acute toxicity and chronic toxicity. The Order also requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

a. Acute Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant,*

animal, or aquatic life." (Basin Plan at page III-8.00) The Basin Plan also states that, *"…effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate…*". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Consistent with Order No. R5-2005-0074,, effluent limitations for acute toxicity have been included in this Order as follows:

> **Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
>
> | | |
> |---|---|
> | Minimum for any one bioassay---------- | 70% |
> | Median for any three or more consecutive bioassays --------- | 90% |

b. Chronic Aquatic Toxicity. The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00.) Based on chronic WET testing performed by the Discharger during the term of Order No. R5-2005-0074, as summarized in Addendum EC (Chronic Toxicity) – Form 2A Part E of the Report of Waste Discharge, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

No dilution has been granted in this Order for the chronic condition. Chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates that the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Therefore, this Order includes a narrative chronic toxicity effluent limitation.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[12] that contained numeric chronic

[12] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a).

toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, "*In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E, section V.). Furthermore, the Special Provision contained at VI.C.2.a of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates a pattern of toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if a pattern of effluent toxicity has been demonstrated.

D. Final Effluent Limitations

Table F-9. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Average Dry Weather Flow	MGD	2.18[2]	--	--	--	--	DC
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	25	--	--	TTC
	lbs/day[3]	182	273	455	--	--	
	% Removal	85	--	--	--	--	CFR

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Total Suspended Solids	mg/L	10	15	25	--	--	TTC
	lbs/day[3]	182	273	455	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.2	BP, PB
Priority Pollutants							
Arsenic, Total Recoverable	µg/L	10	--	--	--	--	MCL
Chlorodibromomethane	µg/L	0.41	--	0.82	--	--	CTR
Copper, Total Recoverable	µg/L	7.6	--	19	--	--	CTR
Dichlorobromomethane	µg/L	0.56	--	1.5	--	--	CTR
Lead, Total Recoverable	µg/L	2.3	--	6.5	--	--	CTR
Mercury, Total Recoverable	lbs/month	0.0018[4]	--	--	--	--	PB
Non-Conventional Pollutants							
Acute Toxicity	% Survival	--	--	[5]	--	--	BP
Aluminum, Total Recoverable	µg/L	68	--	151	--	--	NAWQC
Ammonia Nitrogen, Total (as N)	mg/L	1.4	--	3.9	--	--	NAWQC
	lbs/day[3]	25	--	71	--	--	
Chloroform	ug/L	1.1	--	--	--	--	PHG
Chlorine, Total Residual	mg/L	--	0.011[6]	0.019[7]	--	--	NAWQC
Chronic Toxicity	TUc	--	--	[8]	--	--	BP
Electrical Conductivity @ 25°C	µmhos/cm	700[9]	--	--	--	--	PB
Nitrate Plus Nitrate (as N)	mg/L	10	--	--	--	--	MCL
Nitrite Nitrogen, Total (as N)	mg/L	1.0	--	--	--	--	MCL
Total Coliform Organisms	MPN/100 mL	--	2.2[10]	23[11]	--	240	Title 22

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

[1] DC – Based on the design capacity of the Facility.
TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.
CFR – Based on secondary treatment standards contained in 40 CFR Part 133.
BP – Based on water quality objectives contained in the Basin Plan.
MCL – Based on the Primary Maximum Contaminant Level.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
PB – Based on the performance of the treatment system.
NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
PO – Based on effluent limitations established in Order No. R5-2005-0074.
Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).

[2] The average dry weather discharge flow shall not exceed 2.18 MGD. The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (i.e., July, August, and September).

[3] Based on a design flow of 2.18 MGD.

[4] The total monthly mass discharge of mercury from the Facility shall not exceed 0.0018 lbs.

[5] Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay: 70%
Median for any three or more consecutive bioassays: 90%

[6] Applied as a 4-day average effluent limitation.

[7] Applied as a 1-hour average effluent limitation.

[8] There shall be no chronic toxicity in the effluent discharge.

[9] For a calendar year, the annual average effluent electrical conductivity shall not exceed 700 µmhos/cm.

[10] Applied as a 7-day median effluent limitation.

[11] Effluent total coliform organisms are not to exceed 23 MPN/100 mL more than once in any 30-day period.

1. Mass-based Effluent Limitations

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations have been established in this Order for BOD_5, TSS, and ammonia, because they are oxygen-demanding substances. Mass-based effluent limitations have been established for mercury because it is a bioaccumulative pollutant and because the Sacramento – San Joaquin Delta is listed as impaired due to mercury. Mass-based effluent limitations were calculated based upon the permitted average dry weather effluent flow allowed in Section IV.A.1.f of the Limitations and Discharge Requirements.

Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

2. Averaging Periods for Effluent Limitations

40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. "*First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed.*" (TSD, pg. 96) This Order utilizes MDELs in lieu of average weekly effluent limitations for aluminum, ammonia, chlorodibromomethane, copper, dichlorobromomethane, and lead as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for BOD_5, TSS, pH, chlorine residual, and total coliform organisms, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

For effluent limitations based on Primary and Secondary MCLs, except nitrate plus nitrite and nitrite, this Order includes annual average effluent limitations. The Primary and Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis (except for nitrate and nitrite), when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate average weekly and average monthly effluent limitations.

3. Satisfaction of Anti-Backsliding Requirements

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

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order No. R5-2005-0074, with the exception of effluent limitations for alachlor, atrazine, bis (2-ethylhexyl) phthalate, manganese, methyl tertiary butyl ether, oil and grease, persistent chlorinated hydrocarbon pesticides, phthalate acid esters, polychlorinated biphenyls, settleable solids, silver, TCDD-equivalents, tributyltin, and zinc. Effluent limitations for these parameters have not been retained

from Order No. R5-2005-0074. Based on updated monitoring data that was not available at the time Order No. R5-2005-0074 was issued, these parameters do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Removal of the WQBELs in the previous permit is in accordance with CWA sections 303(d)(4) and 402(o), which allow for the removal of WQBELs for attainment waters where antidegradation requirements are satisfied. Removal of the WQBELs is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Therefore, the modifications to these effluent limitations do not violate anti-backsliding requirements.

Order No. R5-2005-0074 contained effluent limitations for turbidity. The prior limitations were solely an operational check to ensure the treatment system was functioning properly and could meet the limits for solids and coliform. The prior effluent limitations were not intended to regulate turbidity in the receiving water. Rather, turbidity is an operational parameter to determine proper system functioning and not a WQBEL.

This Order contains performance-based operational turbidity specifications to be met in lieu of effluent limitations. The revised Order does not include effluent limitations for turbidity. However, the performance-based specification in this Order is an equivalent limit that is not less stringent, and therefore does not constitute backsliding.

The revised operational specifications for turbidity are the same as the effluent limitations in Order No. R5-2005-0074. These revisions are consistent with State regulations implementing recycled water requirements.

The revision in the turbidity limitation is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16 because this Order imposes equivalent or more stringent requirements than Order No. R5-2005-0074 and therefore does not allow degradation.

Order No. R5-2005-0074 established final mass-based effluent limitations for aluminum, bromodichloromethane, chlorine residual, copper, and lead. 40 CFR 122.45(f)(1)(ii) states that mass limitations are not required when applicable standards and limitations are expressed in terms of other units of measurement. The numerical effluent limitations for aluminum, bromodichloromethane, chlorine residual, copper, and lead established in this Order are based on water quality standards and objectives, which are expressed in terms of concentration. Pursuant to 40 CFR 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with Federal Regulations. Compliance with the concentration-based limits will ensure that significantly less mass of the pollutants is discharged to the receiving water. Discontinuing mass-based effluent limitations for these parameters is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Any impact on existing

water quality will be insignificant. Therefore, relaxation of effluent limitations is allowed under CWA section 303(d)(4).

4. Satisfaction of Antidegradation Policy

The Discharger developed a report titled, *Antidegradation Analysis for the Placer County SMD1 Wastewater Treatment Plant, October 2009* (Robertson-Bryan Inc.), that provides an antidegradation analysis following the guidance provided by State Water Board APU 90-004. Pursuant to the guidelines, the Antidegradation Analysis evaluated whether changes in water quality resulting from the proposed increase in discharge to Rock Creek (from 2.18 MGD to 2.7 MGD of tertiary treated wastewater) are consistent with the maximum benefit to the people of the State, will not unreasonably affect beneficial uses, will not cause water quality to be less than water quality objectives, and that the discharge provides protection for existing in-stream uses and water quality necessary to protect those uses. Findings from the Antidegradation Analysis are summarized below.

a. Water quality parameters and beneficial uses which will be affected by the proposed expansion and the extent of the impact. This Order does not adversely impact beneficial uses of the receiving water or downstream receiving waters. All beneficial uses will be maintained and protected. This Order does not provide for an increase in the volume and mass of pollutants discharged directly to the receiving water. 40 CFR 131.12 defines the following tier designations to describe water quality in the receiving water body.

Tier 1 Designation: *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. (40 CFR 131.12)*

Tier 2 Designation*: Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control. (40 CFR 131.12)*

The tier designation is assigned on a pollutant-by-pollutant basis. The following is the potential effect of the increase in discharge on water quality in Rock Creek, as assessed in the Antidegradation Analysis:

i. Rock Creek was designated as a Tier 1 receiving water for aluminum, bis (2-ethylhexyl) phthalate, and iron because these constituents were detected

in the receiving water above water quality criteria. The SIP requires effluent limitations for pollutants when background concentrations exceed the applicable water quality criteria and the pollutant is detected in the effluent. Effluent limitations are included in this Order for aluminum. As discussed in section IV.C.3.b.iii of this Fact Sheet, bis (2-ethylhexyl) phthalate has not been detected in the effluent since the Discharger implemented "clean" sampling techniques and effluent limitations are not included in this Order. Effluent monitoring data for iron is not available at this time, and effluent limitations are not included in this Order. The proposed increase in discharge will not significantly lower water quality for these pollutants in Rock Creek or Dry Creek relative to the current conditions and will not impact Tier 1 designations.

ii. The proposed increase in discharge would use less than 10 percent of available assimilative capacity for all constituents assessed. Thus, the proposed increased discharge will be protective of beneficial uses, will maintain greater than 90 percent of assimilative capacity in Rock Creek, and will not change the Tier 2 designations.

iii. The proposed increase in discharge would use less than 10 percent of available assimilative capacity on a mass loading basis for total dissolved solids and the bioaccumulative constituents mercury and selenium, and will not change the Tier 2 designations.

b. Scientific Rationale for Determining Potential Lowering of Water Quality. The rationale used in the Antidegradation Analysis is based on 40 CFR 131.12, USEPA memorandum Regarding Tier 2 Antidegradation Reviews and Significance Thresholds (USEPA 2005), USEPA Region 9 Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12 (USEPA 1987), State Water Board Resolution No. 68-16, a State Water Board 1987 policy memorandum to the Regional Water Boards, and an Administrative Procedures Update (APU 90-004) issued by the State Water Board to the Regional Water Boards.

The scientific rationale used in the Antidegradation Analysis to determine if the Order allows a lowering of water quality is to determine the reduction of assimilative capacity. Assimilative capacity was calculated on a mass-balanced, concentration basis and, for bioaccumulative constituents, calculated on a mass loading basis. This approach is consistent with recent USEPA guidance and addresses a key objective of the antidegradation analysis to "[c]*ompare receiving water quality to the water quality objectives established to protect designated beneficial uses*" (APU 90-004). USEPA has recommended ten (10) percent as a measure of significance for identifying those substantial lowerings of water quality that should receive a full tier 2 antidegradation review. APU 90-004 requires the consideration of "feasible alternative control measures" as part of the procedures for a complete antidegradation analysis.

The Antidegradation Analysis analyzed each pollutant detected in the effluent and receiving water to determine if the proposed increase in discharge from 2.18 MGD to 2.7 MGD authorized by this Order potentially allows significant increase of the amount of pollutants present in the upstream and downstream receiving water influenced by the proposed discharge. Pollutants that significantly increase concentration or mass downstream would have required an alternatives analysis to determine whether implementation of alternatives to the proposed action would be in the best socioeconomic interest of the people of the region, and be to the maximum benefit of the people of the State. Details on the scientific rationale are discussed in detail in the Antidegradation Analysis.

The Regional Water Board concurs with this scientific approach.

c. Alternative Control Measures Considered. Resolution 68-16 requires that degradation of water quality be consistent with maximum benefit to the people of the State. APU 90-004 identifies factors to be considered for regulatory actions "*that, in the Regional Board's judgement* [sic]*, will result in a significant increase in pollutant loadings"* (i.e., when a complete antidegradation analysis is required) when determining whether the discharge is necessary to accommodate social or economic development and is consistent with maximum public benefit. USEPA has recommended ten (10) percent as a measure of significance for identifying those substantial lowerings of water quality that should receive a full tier 2 antidegradation review. The Regional Water Board is exercising its judgment to require a complete antidegradation analysis and implementation of feasible alternative control measures which might reduce, eliminate, or compensate for negative impacts.

i. Alternative Control Measures in Antidegradation Analysis. The Discharger considered several alternatives that would reduce or eliminate the lowering of water quality resulting from the proposed increase in discharge from 2.18 MGD to 2.7 MGD. A number of effluent disposal alternatives were assessed to determine if any alternative would substantially reduce or eliminate the lowering of water quality as a result of the proposed increase in discharge from 2.18 MGD to 2.7 MGD. These alternatives are summarized below.

(a) Higher level of treatment using microfiltration – The Discharger evaluated additional treatment through advanced treatment using microfiltration, in addition to the planned upgrades. The Discharger concluded that installation of advanced treatment facilities designed to eliminate all incremental changes in downstream water quality is not a feasible alternative as it would be very costly and would result in new environmental concerns associated with increased energy use.

(b) Zero discharge (i.e., 100% recycling of effluent) – The Discharger evaluated recycling the additional wastewater through landscape irrigation with storage during the non-irrigation season. In particular, the Discharger

evaluated recycling of wastewater for the irrigation of agricultural land in the southwest portion of Placer County; however, no viable water reuse customers have been identified by the Discharger. The reuse of wastewater for a hypothetical golf course irrigation project was also considered. However, the Discharger concluded that this alternative is not currently feasible due to the costs associated with construction and maintenance of the golf course, storage facilities, and delivery system and the lack of sufficient land to construct storage facilities.

(c) Flow restricted discharge – The Discharger considered a flow-restricted discharge. However, the Discharger concluded that this option is not viable due to the lack of available dilution for most of the year and the associated costs of finding additional land suitable for expanding storage capacity to accommodate periods of no discharge.

(d) Pollutant source minimization – The Discharger stated in the Antidegradation Analysis that pollutant source minimization is ongoing at the Facility. The Discharger submitted an Industrial Pretreatment Program to monitor and control sources of industrial pollutants entering the collection system in 2005. The Discharger proposed that these activities would be continued in addition to the planned upgrades to the Facility.

(e) Connection to other wastewater facilities in the region (i.e., regionalization) – The Discharger evaluated construction of a pumping station, wastewater storage facility, and regional pipeline to connect to the City of Lincoln Wastewater Treatment and Reclamation Facility in lieu of the proposed upgrades. Due to the high costs associated with regionalization, the Discharger determined that regionalization is not currently a feasible alternative.

(f) Change in drinking water source – The Discharger considered changing the source of drinking water. The current water source is surface water purchased through the Nevada Irrigation District and Placer County Water Agency that originates as Sierra snowpack and is taken from the Yuba River and Bear River watersheds or through Lake Spaulding. The source water quality is very high, with low turbidity and total dissolved solids. Therefore, the Discharger concluded that changing drinking water sources is not a feasible alternative to improve post-expansion receiving water quality.

The Discharger evaluated each of these alternatives in detail in the Antidegradation Analysis and submitted a summary of costs and rate increases associated with each alternative, as shown in Table F-10. As described above, the Discharger concluded that additional treatment or treatment at alternative facilities, recycling, a flow-restricted discharge, regionalization, and changing drinking water sources were infeasible.

Table F-10. Summary of Costs and Rate Increases for Alternatives Analysis

Alternative	Plan Elements	Construction Cost	Operations Cost	Annual Rate Increase	Annual Rate Increase Over Proposed Expansion
Proposed upgrade/expansion[1]	Flow equalization, biological nutrient removal, and UV disinfection system	$87,000,000	$10,321,000	$432	--
Higher level of treatment	Microfiltration added to proposed project	$5,600,000	$280,000	$468	$36
Zero discharge	181 million gallons of storage, 5 miles of pipeline, customers added to proposed project	$37,200,000	$960,000	$689	$257
Flow-restricted discharge[2]	--	--	--	--	--
Regionalization	Pipeline, reimbursements to the City of Lincoln for wastewater treatment plant expansion and collection system oversizing	$141,000,000	$11,199,095	$816	$384
Change in water supply[3]	--	--	--	--	--

[1] Past cost estimates are based on an expansion to 3.0 MGD, while the Discharger's proposed expansion would only be to 2.7 MGD. Given the current costs for construction and financing, the Discharger concludes that the past cost estimates for an expansion to 3.0 MGD are representative of the current anticipated costs for an expansion to 2.7 MGD.

[2] The Discharger did not provide cost information for this alternative because flow conditions are too infrequent or unreliable to provide any significant benefit.

[3] The Discharger did not provide cost information for this alternative because the Discharger already uses a high quality water source.

ii. Additional Information Considered by the Regional Water Board. Table 3-1 of the Report of Waste Discharge summarized the existing and projected demands within the service area. As shown in Table 3-1, the projected demand will not surpass the current treatment capacity of 2.18 MGD until after 2020. Furthermore, the projected demand of 2.7 MGD on which the Discharger's request is based is not expected until 2034. Based on the information provided in the Report of Waste Discharge, demand is not expected to exceed the current treatment capacity of the Facility within the term of this permit. However, in a letter dated 22 February 2010, the Discharger expressed the need to expand the Facility capacity concurrent with implementing the upgrades necessary to achieve compliance with this Order for economical and logistical reasons.

The Discharger reported at the April 2009 Board Meeting, and in a subsequent semi-annual progress report submitted 1 June 2009, that the Discharger is continuing to actively pursue regionalization. In a letter dated 22 February 2010, the Discharger indicated that the regionalization project

would take at least 2 years to complete beyond the 5 years requested for the proposed expansion project (i.e., in 7 years) due to delays associated with the slow pace of acquiring federal funding and the need to resolve complex issues between the Discharger and other local entities.

The Regional Water Board adopted Resolution No. R5-2009-0028 in Support of Regionalization, Reclamation, Recycling, and Conservation for Wastewater Treatment Plants on 23 April 2009, which requires the Regional Water Board to facilitate opportunities for regionalization and consider innovative permitting options when existing NPDES permit requirements, waste discharge requirements, and/or enforcement Orders inhibit the ability to implement regionalization. Resolution No. R5-2009-0028 identifies a number of potential benefits to regionalization including the following:

- "*Reducing discharges of wastewater into seasonal or ephemeral streams reduces habitat changes to the waterbodies that occur when wastewater is discharged into stream channels at locations, volumes or times when flow is not naturally present in the streams*."

- "*The costs of constructing, expanding, upgrading and maintaining wastewater collection and treatment systems are large, and can be a severe impact on small communities and small economically disadvantaged communities. Increased rates on most communities, but especially for the small communities in particular, result in the likelihood of a successful Proposition 218 challenge to rate increases, which may make compliance with regulations and improvements in water quality difficult or impossible for some communities. While the capital investment for regionalization of wastewater collection and treatment systems may result in a higher initial cost of upgrading an existing facility to meet current regulatory requirements, costs associated with meeting future regulatory requirements and system upgrades can be spread over a larger population and will ultimately reduce the per capita costs of wastewater treatment and disposal. Regionalization will also increase the technical and economical feasibility of a higher level of wastewater treatment, allowing the treated water to be a "resource" and not merely a "waste*."

The Discharger has stated that current financial projections do not support a finding that there is a future economic benefit to ratepayers through regionalization. As shown in Table F-10 (taken from the Antidegradation Analysis), both the capital cost and the ongoing operational cost of regionalization are higher than the proposed upgrade and expansion cost.

Furthermore, Resolution No. R5-2009-0028 makes several findings including:

- "*Coordinated management of water supplies and wastewaters on a regional basis must be promoted to achieve efficient utilization of water."*

- "*Evaluating regionalization, reclamation, recycling and/or conservation opportunities requires a balancing of these and many other considerations, including impacts to water quality, costs, authority to implement and other factors necessary to determine if regionalization, reclamation, recycling and/or conservation are feasible and practicable for the specific facility(ies).*"

- "*Focused, long-range planning is necessary to identify and implement regionalization, reclamation, recycling and/or conservation opportunities. This is a continuing process in that certain projects may not be technically or fiscally feasible at this time, but may become feasible as the community grows, treatment systems are upgraded, or other factors change with time.*"

As an example of the potential to treat the discharge as resource rather than a waste, through regionalization, the City of Lincoln Wastewater Treatment and Reclamation Facility has a Master Reclamation Permit (Order No. R5-2005-0040) to use recycled water for the irrigation of fodder crops, rice, impoundments, industrial process cooling, and other purposes in the local community, whereas the Discharger determined that reclamation of its wastewater is not feasible at this time, as described in section IV.D.4.c, above.

In order to continue evaluating the feasibility of regionalization, this Order requires annual reporting on the Discharger's efforts towards regionalization concurrent with the upgrade and expansion project.

d. Socioeconomic Evaluation. The objective of the socioeconomic analysis was to determine if the lowering of water quality in Rock Creek and Dry Creek is in the maximum interest of the people of the State. The socioeconomic evaluation considered:

i. The social benefits and costs based on the ability to accommodate socioeconomic development in the Placer County General Plan.

ii. The magnitude of the change in water quality from existing conditions, the water quality impacts, and expected effects on beneficial uses of Rock Creek, Dry Creek, and downstream waters.

iii. The feasibility and effectiveness of reducing the lowering of water quality by implementing alternatives to lowering of Rock Creek and Dry Creek water quality.

iv. The economic costs for alternatives and assessed alternative costs against the current project expansion cost estimate of $87 million, the increased cost for ratepayers, and the magnitude of the change in ratepayer costs.

e. Justification for Allowing Degradation

i. Antidegradation Analysis Rationale. The Antidegradation Analysis provided the following rationale to justify the proposed increase in discharge to the receiving water:

(a) Having new development in the region independently treat its wastewater in an effort to eliminate any incremental degradation of water quality in Rock Creek and Dry Creek would not be cost-effective, may not reduce loadings to downstream portions of the watershed (e.g., the Sacramento River), and may not improve water quality on a constituent concentration basis throughout Rock Creek and Dry Creek. Moreover, disposal of the new development's wastewater elsewhere may simply cause similar and possibly new forms of degradation elsewhere in Rock Creek and Dry Creek, in other surface waters,

(b) An evaluation of several alternatives, and their effects on water quality impacts and beneficial use protection, did not identify any feasible alternative control measures that would more effectively accommodate the planned and approved growth that would result from implementing the alternative, relative to implementing the proposed upgrade and expansion project. The alternatives were found to be infeasible for cost or logistic concerns, or both, when compared to the proposed upgrade project.

(c) The Discharger has sought to identify customers for use of recycled water. Currently, prospective customers can obtain water from the Nevada Irrigation District at a cheaper cost; however, the Discharger continues to pursue potential recycled water use opportunities to minimize discharges to surface waters.

(d) The Discharger will continue to operate a treatment system that meets and exceeds BPTC and will facilitate greater use of recycled water, upon demand for such water developing in the area.

(e) The limited degradation in receiving water quality that may occur as a result of planned increase in discharge is not significant and would accommodate important socioeconomic development in the service area while maintaining full protection of the beneficial uses of Rock Creek and Dry Creek.

(f) Downstream water quality, within Rock Creek and Dry Creek, resulting from the proposed increase in discharge would not cause a nuisance and would continue to be protective of all beneficial uses within Rock Creek, as well as uses of downstream waters.

ii. Regional Water Board Rationale. Potential degradation identified in the Antidegradation Analysis due to the increase in discharge from the currently regulated effluent flow is not justified by the following considerations:

(a) Projected demand for treatment will not exceed the current treatment capacity of 2.18 MGD until 2020, which is 5 years after the term of this permit; and

(b) The Discharger continues to pursue the regionalization alternative concurrent with the proposed expansion, and estimates that regionalization could be complete in 7 years, should funding become available and make this project feasible, which is before the demand in the service area is projected to approach the current permitted capacity, but after final effluent limitations in this Order become effective.

Given that projected demand for treatment will not exceed the treatment capacity of 2.18 MGD until 2020 and that regionalization continues to be a feasible option, provided that adequate funding options are available, the Regional Water Board finds that the increased flows associated with the expansion cannot be permitted. This Order includes a reopener that will allow the Regional Water Board to reopen the Order to allow an increased discharge to Rock Creek upon availability of additional information indicating that an increase in flow to Rock Creek is in the best interest of the people of the State.

This Order removes existing effluent limitations for constituent in which new monitoring data demonstrates that the effluent does not cause or contribute to an exceedance to a water quality criteria or objective. The Regional Water Board finds that the additional degradation associated with the removal of the corresponding effluent limitations does not reasonably affect the present and anticipated beneficial uses of the receiving waters, and allowing such degradation is to the maximum social and economical benefit of the people of the State.

5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow and percent removal requirements for BOD_5 and TSS. The WQBELs consist of restrictions on aluminum, ammonia, arsenic, chlorine residual, chlorodibromomethane, copper, dichlorobromomethane, electrical conductivity, lead, mercury, nitrate plus nitrite, nitrite, and pH. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes effluent limitations for BOD_5, total coliform organisms, and TSS to meet numeric objectives or protect beneficial uses.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific

procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

E. Interim Effluent Limitations

1. **Compliance Schedules for Ammonia and Title 22 (or Equivalent) Requirements.** The permit limitations for ammonia are more stringent than the limitations previously imposed. These new limitations are based on a new interpretation of the narrative objective for toxicity. The floating ammonia effluent limitations included in the existing Order No. R5-2005-0074 were applied directly as 1-hour average, 4-day average, and 30-day average effluent limitations which vary based on pH and temperature at the time of sampling. The fixed effluent limitations in the proposed NPDES Permit are applied as an MDEL and AMEL and are based on water quality criteria conservatively determined using worst-case pH and temperature conditions observed over the term of Order No. R5-2005-0074, as discussed in section IV.C.3.c.ii.

   In order to further determine whether the "newly interpreted water quality objective or criterion in a water quality standard" (i.e., the new, fixed effluent limitations for ammonia) results in a numeric permit limitation more stringent than the limit in the prior NPDES Permit issued to the Discharger, Central Valley Water Board staff evaluated the Discharger's ability to comply with the effluent limitations in Order No. R5-2005-0074 and the proposed NPDES Permit.

   Finding No. 36 of Order No. R5-2005-0074 stated that the Discharger claimed that the Facility was capable of adequately nitrifying the waste stream. A compliance schedule for the effluent limitations for ammonia was not necessary and was not included in Order No. R5-2005-0074 or CDO No. R5-2005-0075. Table 3.2 of the Discharger's Report of Waste Discharge indicates that the discharge exceeded the effluent limitations in Order No. R5-2005-0074 only twice out of 1,094 sampling events, based on monitoring data collected between 1 July 2006 and 30 June 2009. Therefore, the Discharger was consistently capable of achieving compliance with the floating effluent limitations in Order No. R5-2005-0074 for ammonia.

   Monitoring data collected between 1 July 2006 and 30 June 2009 indicates that the Discharger would be out of compliance with the fixed MDEL in this Order 258 times out of 1,095 samples, or 24 percent of the time. Based on the same data set, the Discharger would be out of compliance with the fixed AMEL in this Order 20 times out of 36 months, or 56 percent of the time. Based on monitoring data collected between 1 July 2006 and 30 June 2009, the new, fixed effluent limitations for

ammonia result in numeric permit limitations more stringent than the limit in the prior NPDES Permit issued to the Discharger.

The establishment of Title 22 (or equivalent) requirements has not been previously required for this discharge when the influent flow exceeds 3.5 MGD and the 7-day median receiving water temperature at RSW-001 is less than 60°F. This Order requires the Discharger to meet Title 22 (or equivalent) requirements for all flows, which represents a newly interpreted water quality objective that results in a permit limitation more stringent than the limitation previously imposed.

The Discharger has complied with the application requirements in paragraph 4 of the State Water Board's Compliance Schedule Policy, and the Discharger's application demonstrates the need for additional time to implement actions to comply with the new limitations, as described below. Therefore, a compliance schedule for compliance with the effluent limitations for ammonia and Title 22 (or equivalent) requirements is established in the Order.

a. **Demonstration that the Discharger needs time to implement actions to comply with a more stringent permit limitation specified to implement a new, revised, or newly interpreted water quality objective or criterion in a water quality standard.** Table 1 of the Infeasibility Report identifies constituents with the potential to exceed effluent limitations in the proposed NPDES Permit based on monitoring data collected between July 2005 and June 2009, including ammonia, BOD_5, total coliform organisms, and TSS. The Discharger states that the requested compliance schedules are driven primarily by the need to construct treatment plant upgrades.

b. **Diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream, and the results of those efforts.** The Infeasibility Report states that the Discharger has conducted a number of studies and prepared a number of reports that address potential sources of pollutants. Table 2 and sections 3.2, 3.3, 3.7, and 3.9 of the Infeasibility Report indicate that potential sources of these parameters include domestic and non-domestic sources. Table 2 also identifies sediments containing suspended solids entering the collection system with I/I as a potential source of TSS.

c. **Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have been established.** Section 4 of the Infeasibility Report states that the Discharger has not conducted pollution prevention activities because the Facility service area contains primarily residential and commercial users. However, the Discharger states that the County Code includes prohibitions against discharges to the sewer system that contain substances or have characteristics that would impact the Facility. The Infeasibility Report also states that the County Code sets uniform requirements for discharges into the collection system, including the disposal of industrial wastes.

d. A proposed schedule for additional source control measures or waste treatment. Table 4 of the Infeasibility Report provided a proposed compliance schedule, which includes design of improvements and preparation of a California Environmental Quality Act (CEQA) document, completion of final design, and completion of CEQA documentation by 31 July 2011; obtaining bids and project funding and awarding of construction contract by 31 December 2011; construction of improvements by 31 December 2014; completion of start-up and performance testing by 30 April 2015; and full compliance with effluent limitations by 1 May 2015.

e. Data demonstrating current treatment facility performance to compare against existing permit effluent limits, as necessary to determine which is the more stringent interim permit effluent limit to apply if a schedule of compliance is granted. This item was not addressed in the Infeasibility Report. However, interim effluent limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. The Discharger can consistently comply with the effluent limitations for ammonia, BOD_5, total coliform organisms, and TSS required by Order No. R5-2005-0074. Therefore, the proposed NPDES Permit requires compliance with interim effluent limitations based on the effluent limitations required by Order No. R5-2005-0074.

f. The highest discharge quality that can reasonably be achieved until final compliance is attained. This item was not addressed in the Infeasibility Report. However, compliance with the interim effluent limitations will ensure that the Discharger maintains the discharge at levels permitted by Order No. R5-2005-0074.

g. The proposed compliance schedule is as short as possible, given the type of facilities being constructed or programs being implemented, and industry experience with the time typically required to construct similar facilities or implement similar programs. The Discharger determined in the Infeasibility Report that the compliance schedule is as short as possible. The estimated durations for each task and estimated completion dates were included in Table 4 of the Infeasibilty Report. The Discharger stated that, since the project may be at least partially funded using a State Revolving Fund (SRF) loan, a duration of 5 months is proposed for obtaining bids and receiving approval-to-award and an SRF loan agreement from the State Water Board. The Infeasibility Report proposed a 36-month construction period because the upgrades must be constructed sequentially while the existing facilities remain in service. The proposed schedule also allowed 4 months after completion of construction for start-up, testing, and optimization of the treatment process.

Interim performance-based limitations have been established in this Order. The interim limitations were determined as described in section IV.E.2, below, and are in effect until the final limitations take effect. In addition, the Discharger shall prepare and implement a pollution prevention plan that is in compliance with CWC section 13263.3(d)(3). The interim numeric effluent limitations and source control measures

will result in the highest discharge quality that can reasonably be achieved until final compliance is attained.

2. **Interim Limitations for Ammonia and Title 22 (or Equivalent) Requirements.** The Compliance Schedule Policy requires the Regional Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeric effluent limitations are required for compliance schedules longer than 1 year. Interim effluent limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent.

   The interim limitations for ammonia in this Order are based on the current treatment plant performance and the final effluent limitations included in Order No. R5-2005-0074. Therefore, this Order includes interim floating 1-hour average limitations with a performance-based cap of 15.1 mg/L, reflecting the maximum observed effluent concentration from the Facility. In developing the interim limitation, where there are 10 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 in this Order are established as the mean plus 3.3 standard deviations of the available data.

   When there are less than 10 sampling data points available, the EPA *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001), or TSD, recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of 10 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 10 sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5 2).

   Interim limitations for Title 22 (or equivalent) requirements (i.e., for BOD_5, total coliform organisms, and TSS) are established at the levels allowed by Order No. R5-2005-0074 when influent flows exceed 3.5 MGD and the 7-day median receiving water temperature at RSW-001 is less than 60°F.

   The Regional Water 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 final effluent limitations cannot be achieved by 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. The interim limitations, however, establish an enforceable ceiling

concentration until compliance with the effluent limitation can be achieved. The limited, short-term degradation associated with the compliance schedule is consistent with State and federal policies and is authorized by 40 CFR 122.47 and the Compliance Schedule Policy.

The following table summarizes the calculations of the interim effluent limitations for ammonia and Title 22 (or equivalent) requirements:

Table F-11. Interim Effluent Limitation Calculation Summary

Parameter	Units	MEC	Mean	Std. Dev.	# of Samples	Interim Maximum Daily Effluent Limitation
Ammonia Nitrogen, Total (as N)	mg/L	15.1	2.4	3.0	1,095	[1]
Biochemical Oxygen Demand	mg/L	--	--	--	--	[2]
Total Coliform Organisms	MPN/100 mL	--	--	--	--	[2]
Total Suspended Solids	mg/L	--	--	--	--	[2]

[1] Because the MEC for ammonia was greater than the statistically calculated effluent limitation, the interim performance-based cap was established at the MEC. The interim limitations in this Order include a 1-hour average effluent limitation with a performance-based cap of 15.1 mg/L as determined in Attachment J; a 4-day average effluent limitation as determined in Attachment K, and a 30-day average effluent limitation as determined in Attachment L.

[2] Interim limitations established at the levels allowed by Order No. R5-2005-0074 when influent flows exceed 3.5 MGD and the 7-day median receiving water temperature at RSW-001 is less than 60°F.

F. Land Discharge Specifications – Not Applicable

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "[t]*he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.*" The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

a. pH. Order No. R5-2005-0030 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the Basin Plan, and allowed a 1-month averaging period for calculating pH change. The Regional Water Board adopted Resolution No. R5-2007-0136 on 25 October 2007, amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order does not require a receiving water limitation for pH change.

In Finding No. 14 of Resolution No. R-52007-0136 the Regional Water Board found that the change in the pH receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the state, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (Code of Federal Regulations, title 40, section 131.12).

Ammonia is the only constituent in the discharge regulated by this Order directly related to pH. The fixed ammonia effluent limitations in this Order are based on reasonable worse-case conditions. Although ammonia criteria is based on pH, and the pH receiving water limitations are more lenient in this Order than in the previous permit, the fixed ammonia limits are more stringent than the previous floating ammonia limits, and are developed to protect under worse case pH conditions. Therefore the relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Regional Water

Board finds that the relaxation of the pH receiving water limitation is to the maximum benefit to the people of the state, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

The revised receiving water limitation for pH, which is based on the amendment to the Basin Plan's pH water quality objective, reflects current scientifically supported pH requirements for the protection of aquatic life and other beneficial uses. The revised receiving water limitation for pH is more consistent with the current USEPA recommended criteria and is fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in pH when pH is maintained within the range of 6.5 to 8.5 are neither beneficial nor adverse and, therefore, are not considered to be degradation in water quality. Attempting to restrict pH changes to 0.5 pH units would incur substantial costs without demonstrable benefits to beneficial uses. Thus, any changes in pH that would occur under the revised pH limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore the proposed amendment will not violate antidegradation policies.

b. Turbidity. Order No. R5-2005-0030 established a receiving water limitation for turbidity specifying that discharges from the Facility shall not cause the turbidity to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the Basin Plan. The Regional Water Board adopted Resolution No. R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order limits turbidity to 2 NTU when the natural turbidity is less than 1 NTU.

In Finding No. 14 of Resolution No. R5-2007-0136 the Regional Water Board found that the change in the turbidity receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the state, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

This Order includes operational specifications that require the Discharger to operate the treatment system to insure that turbidity shall not exceed 2 NTU as a daily average, and 5 NTU more than 5 percent of the time within a 24 hour period, and 10 NTU, at any time. Because this Order limits the average daily discharge of turbidity to 2 NTU, the Order will be protective of the receiving water under all natural background conditions as defined in the Basin Plan's revised water quality objective for turbidity. The relaxation of the turbidity receiving water limitation will protect aquatic life and other beneficial uses and will not

unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Regional Water Board finds that the relaxation of the turbidity receiving water limitation is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

The revised receiving water limitation for turbidity, which is based on the amendment to the Basin Plan's turbidity water quality objective, reflects current scientifically supported turbidity requirements for the protection of aquatic life and other beneficial uses and, therefore, will be fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in turbidity allowed by the revised receiving water limitation, when ambient turbidity is below 1 NTU, would not adversely affect beneficial uses and would maintain water quality at a level higher than necessary to protect beneficial uses. Restricting low-level turbidity changes further may require costly upgrades, which would not provide any additional protection of beneficial uses. Thus, any changes in turbidity that would occur under the amended turbidity receiving water limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore, the relaxed receiving water limitations for turbidity will not violate antidegradation policies.

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in ground waters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits fecal coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. The Discharger contains all wastewater flows in systems that do not utilize land disposal. All wastewater is contained in treatment units. The wastewater collection and treatment systems do not threaten groundwater quality. Consistent with Order No. R5-2005-0074, this Order includes a groundwater limitation requiring that the discharge from the Facility shall not cause the underlying groundwater to be degraded.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for the Facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements). The monitoring frequencies for flow (continuous), BOD_5 (five times per week), and TSS (five times per week) have been retained from Order No. R5-2005-0074.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

2. Monitoring Location EFF-001

a. Effluent monitoring frequencies and sample types for flow (continuous), turbidity (continuous), chlorine residual (continuous), temperature (daily), electrical conductivity (daily), pH (daily), total coliform organisms (daily), ammonia (daily), nitrate plus nitrite (daily), nitrite (daily), BOD_5 (five times per week), TSS (five times per week), and total dissolved solids (monthly) have been retained from Order No. R5-2005-0074 to characterize the effluent and determine compliance with applicable effluent limitations. In a letter dated 22 February 2010, the Discharger requested reduced monitoring frequencies for total coliform organisms (five times per week), temperature (five times per week), pH (five times per week), ammonia (weekly), and electrical conductivity (twice per week). However, based on the Discharger's compliance history during the term of Order No. R5-2005-0074 and because the Facility is not designed to provide full tertiary treatment or nitrification/denitrification, the monitoring frequencies established in

this Order, which are consistent with Order No. R5-2005-0074, are considered appropriate and necessary for characterization of the effluent and determining compliance with applicable effluent limitations.

b. The Discharger requested in a letter dated 15 April 2010 that the monitoring frequency for nitrate plus nitrite and nitrite be reduced from daily to twice per week to reduce operating costs. Because the final effluent limitations for nitrate plus nitrite and nitrite in this Order that are necessary to protect beneficial uses are regulated on an average monthly basis, monitoring twice per week will provide sufficient monitoring data to determine compliance with the final effluent limitations. A compliance schedule with interim MDELs is included in CDO No. R5-2010-0093 because the Facility is not designed to provide full denitrification and the Discharger cannot comply with the final effluent limitations in this Order. Due to the costs of monitoring and the purpose of the interim MDELs, which are designed to limit the discharge at existing levels, daily monitoring for nitrate plus nitrite and nitrite is unnecessary. Therefore, this Order reduces the monitoring frequency for nitrate plus nitrite and nitrite from daily to twice per week.

c. Monitoring data collected over the term of Order No. R5-2005-0074 for oil and grease, iron, manganese, silver, tributyltin, zinc, bis (2-ethylhexyl) phthalate, chloroform, persistent chlorinated hydrocarbon pesticides, methyl tertiary butyl ether, alachlor, atrazine, TCDD-equivalents, phthalate acid esters, polychlorinated biphenyls, and settleable solids did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2005-0074.

d. In order to determine compliance with effluent limitations for aluminum, chloroform, copper, lead, mercury, and dichlorobromomethane, Order No. R5-2005-0074 established quarterly effluent monitoring requirements. Consistent with the monitoring requirements for other toxic pollutants in this Order and in recently adopted permits in the Central Valley Region, this Order revises the monitoring frequency from quarterly to monthly for these parameters. In a letter dated 22 February 2010, the Discharger requested that the monitoring frequency for these parameters be reduced to quarterly. However, because these parameters continue to exhibit reasonable potential to cause or contribute to exceedances of water quality objectives, monthly monitoring is considered appropriate and necessary for characterization of the effluent and determining compliance with applicable effluent limitations.

e. Monitoring data collected over the term of Order No. R5-2005-0074 for arsenic and chlorodibromomethane indicates reasonable potential to exceed water quality criteria and effluent limitations have been established in this Order. Therefore, monthly effluent monitoring for arsenic and chlorodibromomethane has been established in this Order to determine compliance with effluent limitations. In a letter dated 22 February 2010, the Discharger requested that the monitoring frequency be reduced to quarterly. However, because these

constituents exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives, monthly monitoring is considered appropriate and necessary for characterization of the effluent and determining compliance with applicable effluent limitations.

f. This Order establishes monthly effluent monitoring for hardness in order to collect adequate information to determine protective aquatic life criteria for hardness-based metals.

g. Priority pollutant data for the effluent has been provided by the Discharger over the term of Order No. R5-2005-0074, and was used to conduct a meaningful RPA. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order retains annual priority pollutant monitoring from Order No. R5-2005-0074 in order to collect data to conduct an RPA for the next permit renewal and to be consistent with pretreatment program requirements that require annual effluent monitoring. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

h. The Facility is designed to provide tertiary treatment for average dry weather flows of 2.18 MGD. However, the Discharger has historically had high levels of I/I during wet weather events. When influent flows are greater than the capacity of the filters of 3.5 MGD, the gravity filters are bypassed and the discharge consists of some combination of secondary and tertiary treated wastewater. This Order requires additional effluent monitoring for filter effluent flow, chlorine contact basin influent flow, and turbidity from the effluent outfall when the filters are bypassed, the influent flow is greater than 3.5 MGD, and the receiving water temperature at RSW-001 is less than 60°F.

3. Monitoring Location EFF-002

a. Treated municipal wastewater is periodically discharged at Discharge Point No. 002 when Chlorine Contact Basin No. 3 is temporarily offline for routine maintenance. This maintenance is allowed only at times when daily average plant flows are at or below 2.18 MGD. This Order establishes monitoring requirements at Monitoring Location EFF-002 consistent with those required at Monitoring Location EFF-001 to determine compliance with applicable effluent limitations at Discharge Point No. 002.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 96-hour bioassay testing, consistent with Order No. R5-2005-0074, is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Quarterly chronic WET testing, consistent with Order No. R5-2005-0074, is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

b. Receiving water monitoring frequencies (daily) and sample types (grab) for pH, temperature, electrical conductivity, and fecal coliform organisms (monthly) have been retained from Order No. R5-2005-0074. In a letter dated 22 February 2010, the Discharger requested that the monitoring frequency for pH be reduced to twice per week and the monitoring frequency for temperature be reduced to five times per week. Monitoring for pH and temperature are necessary to determine appropriate water quality criteria for ammonia. Therefore, this Order retains daily monitoring for pH and temperature, consistent with the monitoring frequency for effluent ammonia. The Discharger also requested that the monitoring frequency for fecal coliform organisms be discontinued because compliance with the effluent limitations for total coliform organisms would ensure that the Facility would not cause or contribute to an exceedance of the receiving water limitations for fecal coliform organisms. However, due to exceedances of the effluent limitations for total coliform organisms during the term of Order No. R5-2005-0074 and because the Facility does not provide full tertiary treatment for all discharges, monthly receiving water monitoring for fecal coliform organisms is considered appropriate and necessary to determine compliance with applicable receiving water limitations.

c. In a letter dated 22 February 2010, the Discharger requested that the monitoring frequency for dissolved oxygen and turbidity be reduced to twice per week. As requested, the monitoring frequency for dissolved oxygen and turbidity have been reduced to twice per week.

d. This Order discontinues annual receiving water monitoring for radionuclides, as it is no longer necessary to characterize the receiving water or determine compliance with receiving water limitations.

e. The Facility is designed to provide tertiary treatment for average dry weather flows of 2.18 MGD. However, the Discharger has historically had high levels of I/I during wet weather events. When influent flows are greater than the capacity of the gravity filters of 3.5 MGD, the gravity filters are bypassed and the discharge is some combination of secondary and tertiary treated wastewater. Therefore, when discharging commingled wastewater, additional daily receiving water monitoring is required for total coliform organisms and *Escherichia coli* to ensure that downstream beneficial uses are protected.

f. This Order requires monthly receiving water monitoring for hardness in order to collect adequate information to determine protective aquatic life criteria for hardness-based metals.

g. Consistent with the effluent monitoring requirements, annual monitoring for priority pollutants upstream of Discharge Point No. 001 at RSW-001 is required to collect the necessary data to determine reasonable potential as required in section 1.2 of the SIP. The hardness (as $CaCO_3$) of the upstream receiving water shall also be monitored concurrently with the priority pollutants as well as pH to ensure the water quality criteria/objectives are correctly adjusted for the receiving water when determining reasonable potential as specified in section 1.3 of the SIP. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

2. Groundwater – Not Applicable

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.5.b of this Order. Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

2. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater. This Order increases the monitoring frequency from annually to quarterly for electrical conductivity and total dissolved solids to characterize contributions of salinity to the Facility.

3. Ultraviolet Light Disinfection System Monitoring

UV disinfection system specifications and monitoring and reporting is required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV disinfection system monitoring requirements are imposed pursuant to requirements established by DPH and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWARF's "*Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse*".

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. Mercury. This provision allows the Regional Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Regional Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.

b. Pollution Prevention. This Order requires the Discharger prepare a pollution prevention plan following CWC section 13263.3(d)(3) for ammonia. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for ammonia based on a review of the pollution prevention plan.

c. Whole Effluent Toxicity. This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

d. Water Effects Ratio (WER) and Metal Translators. A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper and lead. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

e. Increased Flow. The Discharger indicated in the report of waste discharge plans to upgrade the treatment process to comply with permit requirements. In addition to upgrading the Facility, the Discharger submitted a report titled *Antidegradation Analysis for the Placer County SMD1 Wastewater Treatment*

Plant, October 2009 (Robertson-Bryan, Inc.) on 10 November 2009 for an increased discharge to the receiving water from 2.18 MGD to 2.7 MGD (average dry weather flow). As described in section IV.D.4 of this Fact Sheet, allowing an increase in flow to Rock Creek at this time is not consistent with State and federal antidegradation requirements. This reopener allows the Regional Water Board to reopen the Order to authorize an increase in flow upon submission of additional information indicating that a reduction in water quality is consistent with State and federal antidegradation requirements.

f. Dilution/Mixing Zone Study. As described in section IV.C.2.f of this Fact Sheet, the Discharger submitted an inadequate dilution/mixing zone study for nitrate plus nitrite and effluent limitations have been established without consideration of dilution credits. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements of Section 1.4.2.2 of the SIP, including sufficient data demonstrating that assimilative capacity is available and that granting a mixing zone would not adversely impact biologically sensitive aquatic resources or critical habitats, or produce undesirable or nuisance conditions, the Regional Water Board may reopen this Order to include effluent limitations based on an appropriate dilution factor for the protection of aquatic life.

2. Special Studies and Additional Monitoring Requirements

a. Chronic Whole Effluent Toxicity Requirements. The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at page III-8.00.) Based on whole effluent chronic toxicity testing performed by the Discharger from July 2006 through June 2009, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a TRE Workplan in accordance with USEPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity has been demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of >1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether toxicity is repeatedly or periodically present before requiring the implementation of a TRE.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, "*EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.*" Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Workplan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

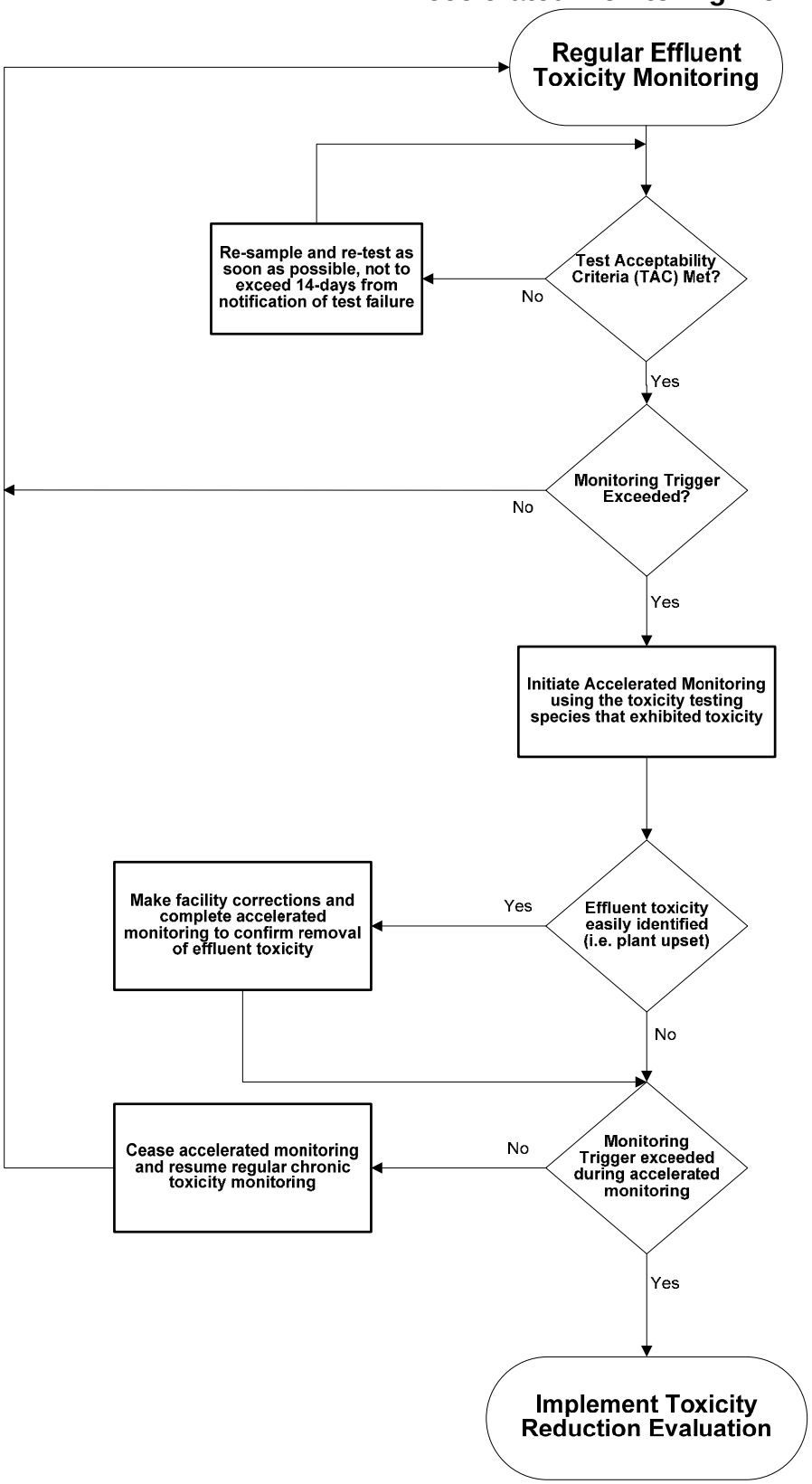
- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.
- Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.
- Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA/600/R-92/080, September 1993.
- Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.

- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.

- Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA-821-R-02-013, October 2002.

- Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



b. Regionalization. The Regional Water Board adopted Resolution No. R5-2009-0028 in Support of Regionalization, Reclamation, Recycling, and Conservation for Wastewater Treatment Plants on 23 April 2009, which requires the Regional Water Board to facilitate opportunities for regionalization and consider innovative permitting options when existing NPDES permit requirements, waste discharge requirements, and/or enforcement Orders inhibit the ability to implement regionalization. As described in section IV.D.4 of this Fact Sheet, Resolution No. R5-2009-0028 identifies a number of benefits to regionalization. The Discharger reported at the April 2009 Board Meeting and in a subsequent semi-annual progress report submitted 1 June 2009 that the Discharger is continuing to actively pursue regionalization. However, in a letter dated 22 February 2010, the Discharger indicated that the regionalization project would take at least 2 years to complete beyond the 5 years requested for the proposed expansion project (i.e., in 7 years) due to delays associated with the slow pace of acquiring federal funding and the need to resolve complex issues between the Discharger and other local entities. The Regional Water Board is supportive of the Discharger's efforts towards regionalization. Therefore, this Order requires the Discharger to report annually on efforts taken towards regionalization. The report shall detail progress made towards regionalization over the past year and milestones necessary to complete regionalization with proposed dates for completion. Milestones to be evaluated include, but are not limited to, acquisition of funding, obtaining the necessary approvals from local and regulatory agencies, and completing construction of the regional sewer system. If the proposed dates for milestone completion are not met, the Discharger shall explain why and propose a revised date for completion.

3. Best Management Practices and Pollution Prevention

a. Salinity Evaluation and Minimization Plan. An Evaluation and Minimization Plan for salinity is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to Rock Creek. Order No. R5-2005-0074 contained a provision requiring the Discharger to "*use the best practicable treatment or control technique currently available to limit mineralization to no more than a reasonable increment*." This requirement is not retained in this Order, however the development of a salinity evaluation and minimization plan should also ensure that mineralization is minimized.

b. Infiltration and Inflow (I/I) Reduction Program. The Discharger's wastewater collection system is subject to high flows due to I/I. When influent levels exceed the Facility's peak wet weather design capacity of 3.5 MGD due to I/I, effluent is discharged that is some combination of secondary and tertiary treated wastewater. I/I is typically due to faulty construction or inadequate maintenance. Reductions in I/I are necessary to reduce or eliminate discharges to Rock Creek that do not receive full tertiary treatment.

Provision F.9.c of Order No. R5-2005-0074 established a compliance schedule for an I/I reduction program. Pursuant to the requirement, the Discharger submitted a priority list for I/I reduction and an implementation schedule in the *WDR. F.9.c I&I Priority Improvement List and Schedule*, July 2007 (July 2007 Report). In accordance with the July 2007 Report, the Discharger implemented repairs and assessed the effectiveness of the program in the *Report on I/I Program Effectiveness Evaluation*, January 2010 (January 2010 Report).

The Discharger reported in the January 2010 Report that they have spent approximately $500,000 to reduce I/I by using in-pipe cameras and smoke testing to check the sewer for leaks or cross-connections, and by repairing manholes and pipelines. The Discharger repaired approximately 77 percent of the manholes and approximately 93 percent of the pipelines identified on the priority list submitted in the July 2007 Report. The Discharger also repaired additional manholes and pipelines that were not on the priority list.

Despite efforts to reduce I/I, the Discharger found in the January 2010 Report that a conclusive reduction in I/I as a result of repairs since February 2008 could not be demonstrated due to limited pre- and post-project data. The Discharger indicated that an additional 3 to 4 years would be necessary to collect the necessary data during precipitation events to characterize the relationship between precipitation and I/I.

Based on a review of the Discharger's January 2010 Report, additional measures are necessary to reduce levels of I/I in the Discharger's collection system. This Order requires the Discharger to complete the repairs identified in the priority list from the July 2007 Report. The Discharger must also re-evaluate the collection system and submit an updated priority list and implementation schedule for additional repairs within 6 months of adoption of this Order. The Discharger is required to maintain a log and shall submit an annual report with tabular summaries of work completed and work remaining to complete the repairs identified in the updated priority list. The Discharger shall complete repairs of the collection system in accordance with the updated priority list and implementation schedule within 18 months of adoption of this Order. The July 2007 Report indicates that defects on private property have been identified. These defects shall be corrected within 1 year and any new private sector defects discovered by the Discharger through ongoing sewer system investigations shall be corrected within 12 months of their discovery. With regard to these private sector defects, the annual report describing the Discharger's I/I correction activities in the previous year shall identify the types and locations of private sector defects identified within that year and private sector defects discovered in prior years that have not yet been corrected. The annual report shall then identify those defects subsequently corrected within that year. The annual report shall indicate the follow-up actions the Discharger intends to take within the next 12 months to correct those private sector defects identified but not yet repaired. The results of the Discharger's follow-up actions to correct the discovered but unrepaired

private sector defects shall then be reported in the annual report the following year.

In order to collect the information needed to assess the effectiveness of efforts to reduce I/I, the Discharger should conduct additional flow metering using appropriate equipment and data analysis techniques that recognize the variations in I/I rates associated with changes in antecedent moisture conditions and varying rainfall rates. As indicated in the January 2010 Report, flow metering is conducted using a portable flume flow meter. The use of a flume-type meter can be problematic in sewer systems with high rates of I/I because they can be difficult to calibrate across wide flow ranges and can be flooded out by high I/I rates, particularly if the sewer becomes surcharged. Due to the problems associated with this type of flow meter for the purposes of the Discharger's assessment, the Discharger shall evaluate the use of alternative flow metering devices, including Doppler type depth/velocity meters, which are traditionally used for I/I analysis.

In order to collect the information needed to assess the effectiveness of efforts to reduce I/I, the Discharger shall also analyze a series of individual storm events to determine the effectiveness of I/I repairs. Flow rate and volume comparisons should be between storms having similar rainfall patterns occurring before and after completion of repairs. This analysis should include several storm events, and at least one before/after pair of light, medium, and heavy intensity rainfalls. The Discharger shall identify areas within the collection system where significant pre-project data is available for comparison with post-project data after repairs have been completed.

The Discharger shall collect the information needed to assess the effectiveness of efforts to reduce I/I both before and after repairs have been made. A final report assessing the effectiveness of efforts to reduce I/I shall be submitted within 3 years of adoption of this Order.

c. Chemical Additives Evaluation and Minimization Study. The Discharger currently adds chemical additives to the treatment system to enhance nitrification and denitrification. The Regional Water Board generally discourages the addition of chemicals when unnecessary for treatment, because it increases the potential for salinity and other constituents to be discharged to the receiving waters. Therefore this Order requires the Discharger to prepare and submit an evaluation and minimization study that identifies and quantifies chemical additives necessary for the proper operation and treatment of the Facility. The Study shall evaluate and implement feasible methods for reducing the amount of chemical additives while still providing adequate treatment. The results of the Study shall be incorporated into the Discharger's Operation and Maintenance Manual for the Facility.

4. Construction, Operation, and Maintenance Specifications

a. Turbidity Operational Requirements. Turbidity is included as an operational specification as an indicator of the effectiveness of the treatment process and to assure compliance with effluent limitations for total coliform organisms. The tertiary treatment process utilized at this Facility is capable of reliably meeting a turbidity limitation of 2 NTU as a daily average. Failure of the treatment system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU. Turbidity specifications are included as operating criteria in section VI.C.4.a of this Order to ensure that adequate disinfection of wastewater is achieved.

b. This Order requires that wastewater be oxidized, coagulated, filtered, and adequately disinfected pursuant to DPH reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

c. Consistent with Order No. R5-2005-0074, this Order requires that the treatment facilities be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

d. Ultraviolet Light (UV) Disinfection System Operating Specifications. UV disinfection system specifications and monitoring and reporting requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. Monitoring and reporting of these parameters is necessary to determine compliance with minimum dosage requirements established by DPH and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWARF's "*Ultraviolet Disinfection Guidelines for Drinking*

Water and Water Reuse" first published in December 2000 and revised as a Second Edition dated May 2003. In addition, a memorandum dated 1 November 2004 issued by DPH to Regional Water Board executive officers recommended that provisions be included in permits to water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency of quartz sleeves as well as include provisions that specify minimum delivered UV dose that must be maintained (as recommended by the NWRI/AWWARF UV Disinfection Guidelines).

As described in section VII.B.4.a above, turbidity is included as an operational specification as an indicator of the effectiveness of the treatment process and to assure compliance with effluent limitations for total coliform organisms. The operational specification requires that, if using non-membrane filtration (e.g., granular, cloth, or other synthetic media) as part of the treatment process upstream of the UV disinfection system, turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period, and an instantaneous maximum of 10 NTU. If using membrane filtration (e.g., microfiltration or ultrafiltration) as part of the treatment process upstream of the UV disinfection system, turbidity prior to disinfection shall not exceed 0.2 NTU more than 5 percent of the time within a 24-hour period, and 0.5 NTU at any time.

Minimum UV dosage and turbidity specifications are included as operating criteria in section VI.C.4.d of this Order and section IX.C of the Monitoring and Reporting Program (Attachment E) to ensure that adequate disinfection of wastewater is achieved.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Pretreatment Requirements.

i. USEPA Region 9 staff conducted inspections of significant industrial users (SIUs) and metal finishing operations within the Discharger's service area in May 2003. As a result of those inspections two industrial users were issued Findings of Violation and Administrative Orders, while another was issued a Request for Information and Self-Monitoring Order. Other industries were identified within the Discharger's service area that may discharge constituents of concern. Therefore, Order No. R5-2005-0074 required the Discharger to submit for approval an Industrial Pretreatment Program. The Discharger submitted their Industrial Pretreatment Program to USEPA Region 9 and the Regional Water Board on 25 August 2005. USEPA Region 9 and the Regional Water Board have not yet approved the Discharger's submission. This Order does not require the Discharger to update their pretreatment program submission unless directed by USEPA or the Regional Water Board; however this Order does require implementation of the pretreatment program regardless of approval.

ii. The Discharger requested in a letter dated 22 February 2010 that pretreatment program requirements be discontinued based on the limited number of industrial users discharging to the Facility and because the design flow is less than 5 MGD. 40 CFR 403.8 allows USEPA and the Regional Water Board to require a POTW with a design flow of 5 MGD or less to develop a pretreatment program if it is found that circumstances warrant an order to prevent interference with the POTW or pass through. As described above, USEPA identified industries within the Discharger's service area that may discharge constituents of concern to the Facility. Because development of a pretreatment program was required by USEPA, this Order continues to require implementation of the Discharger's pretreatment program.

iii. The federal CWA section 307(b), and federal regulations, 40 CFR Part 403, require POTWs to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR Part 403.

iv. The Discharger shall implement and enforce its pretreatment program, which is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board, or USEPA may take enforcement actions against the Discharger as authorized by the CWA.

b. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on 2 May 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the Facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

c. Continuous Monitoring Systems. This Order, and the Monitoring and Reporting Program which is a part of this Order, requires that certain parameters

be monitored on a continuous basis. The Facility is typically staffed from 6:30 a.m. to 3:30 p.m. daily and unattended for 15 hours per day. Permit violations or system upsets can go undetected during this period. The Discharger has a system in place to automatically contact Facility operators in the event of alarms generated at the wastewater treatment plant. The Discharger is required to establish an electronic system for operator notification based on continuous recording device alarms. For any future facility upgrades, the Discharger shall upgrade the continuous monitoring and notification system simultaneously.

6. Other Special Provisions – Not Applicable

7. Compliance Schedules

a. The Discharger submitted a request, and justification (dated 4 May 2010), for a compliance schedule for ammonia. The compliance schedule justification included all items specified in paragraph 4 of the Compliance Schedule Policy, as discussed in section IV.E of this Fact Sheet. This Order establishes a compliance schedule for the new, final, WQBELs for ammonia and requires full compliance by 1 September 2015.

b. A pollution prevention plan for ammonia is required in this Order per CWC section 13263.3(d)(1)(C). In accordance with CWC section 13263.3(d)(3), the pollution prevention plan for ammonia shall, at a minimum, meet the following requirements:

i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.

ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.

iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.

iv. A plan for monitoring the results of the pollution prevention program.

v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.

vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.

vii. A description of the Discharger's existing pollution prevention programs.

viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.

ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

c. Title 22, or Equivalent, Requirements. Order No. R5-2005-0074 required a Title 22, or equivalent, level of treatment for flows less than 3.5 MGD, but did not require a Title 22, or equivalent, level of treatment when the influent flow is greater than 3.5 MGD and the 7-day median receiving water temperature is less than 60°F. This Order requires that all wastewater discharged to Rock Creek be oxidized, coagulated, filtered, and adequately disinfected pursuant to DPH reclamation criteria, Title 22 CCR, Division 4, Chapter 3, (Title 22), or equivalent. The Facility is not designed to provide full tertiary treatment for wet weather flows exceeding 3.5 MGD, and discharges a blend of secondary and tertiary wastewater under those conditions. In order to provide the time necessary for the Discharger to complete the necessary upgrades, a compliance schedule has been included. The compliance schedule allows the Discharger until 1 September 2015 to complete the necessary upgrades and come into compliance with Title 22, or equivalent, requirements. This Order also requires compliance with the final effluent limitations for BOD_5, total coliform organisms, and TSS by **1 September 2015**. As part of this compliance schedule, the Discharger will be required to provide interim status reports to the Regional Water Board regarding progress on the actual construction of the upgrades.

VIII. PUBLIC PARTICIPATION

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

A. Notification of Interested Parties

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

B. Written Comments

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

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on **9 August 2010**.

C. Public Hearing

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

Date: 23/24 September 2010
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

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

Please be aware that dates and venues may change. Our Web address is www.waterboards.ca.gov/centralvalley where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

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

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

E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday

through Friday. Copying of documents may be arranged through the Regional Water Board by calling (916) 464-3291.

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Cliff Raley at (916) 464-4836 or ceraley@waterboards.ca.gov.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	162	NA	87	750[1]	87[2]	--	--	--	200	Yes
Ammonia Nitrogen, Total (as N)	mg/L	15.1	NA	2.30	3.83[1]	2.30[3]	--	--	--	--	Yes
Antimony, Total Recoverable	µg/L	0.481	NA	6	--	--	14	4,300	--	6	No
Arsenic, Total Recoverable	µg/L	21.5[4]	NA	10	340	150	--	--	--	10	Yes
Bis (2-ethylhexyl) Phthalate	µg/L	<0.1[5]	NA	1.8	--	--	1.8	5.9	--	4	No
Cadmium, Total Recoverable	µg/L	0.036	NA	3.2[6]/0.70[7]	5.8[6]/0.74[7]	3.2[6]/0.70[7]	--	--	--	5	No
Chloride	mg/L	70.1	NA	106[8]	--	--	--	--	--	250	No
Chlorine, Total Residual	mg/L	7.5	NA	0.011	0.019[1]	0.011[2]	--	--	--	--	Yes
Chlorodibromomethane	µg/L	0.97	NA	0.41	--	--	0.41	34	--	80	Yes
Chloroform	µg/L	99	NA	1.1	--	--	--	--	--	80	Yes
Chromium, Total	µg/L	0.16	NA	50	--	--	--	--	--	50	No
Copper, Total Recoverable	µg/L	21.9	NA	13[6]/2.4[7]	19[6]/3.1[7]	13[6]/2.4[7]	1,300	--	--	1,000	Yes
Cyanide, Total (as CN)	µg/L	0.01	NA	5.2	22	5.2	700	220,000	--	150	No
Dichlorobromomethane	µg/L	14	NA	0.56	--	--	0.56	46	--	80	Yes
Di-n-octyl Phthalate	µg/L	<0.1[5]	NA	--	--	--	--	--	--	--	No
Electrical Conductivity @ 25°C	µmhos/cm	1,090	500	700[8]	--	--	--	--	--	900	No[9]
Iron, Total Recoverable	µg/L	47[4]	NA	300	--	--	--	--	--	300	No
Lead, Total Recoverable	µg/L	25.2	NA	3.6[6]/0.41[7]	92[6]/11[7]	3.6[6]/0.41[7]	--	--	--	15	Yes
Manganese, Total Recoverable	µg/L	29[4]	NA	50	--	--	--	--	--	50	No
Mercury, Total Recoverable	µg/L	0.00323	NA	0.050	--	--	0.050	0.051	--	2	Yes[10]
Methyl Tertiary Butyl Ether	µg/L	<0.5	NA	5	--	--	--	--	--	5	No
Nickel, Total Recoverable	µg/L	2.7	NA	70[6]/13[7]	627[6]/120[7]	70[6]/13[7]	610	4,600	--	100	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Nitrate Plus Nitrite, Total	mg/L	49	0.9	10	--	--	--	--	--	10	Yes
Nitrite Nitrogen, Total (as N)	mg/L	3.12	NA	1.0	--	--	--	--	--	1.0	Yes
Persistent Chlorinated Hydrocarbon Pesticides[11]	µg/L	<0.0019	NA	ND	--	--	--	--	ND	--	No
Phosphorus, Total (as P)	µg/L	8,580	NA	--	--	--	--	--	--	--	No
Phthalate Acid Esters[12]	µg/L	<0.1[5]	NA	3[13]	--	--	--	--	--	--	No
Polychlorinated Biphenyls[14]	µg/L	<0.04	NA	0.00017	--	0.014	0.00017	0.00017	--	0.5	No
Selenium, Total Recoverable	µg/L	1.2	NA	5.0	20	5.0	--	--	--	20	No
Silver, Total Recoverable	µg/L	0.02	NA	2.9[6]/0.25[7]	2.9[6]/0.25[7]	--	--	--	--	100	No
Sulfate	mg/L	36.1	NA	250	--	--	--	--	--	250	No
TCDD-Equivalents	µg/L	9.41×10^{-10}	NA	1.3×10^{-8}	--	--	1.3×10^{-8}	1.4×10^{-8}	--	0.00001	No
Total Dissolved Solids	mg/L	486	NA	450[8]	--	--	--	--	--	500	No[9]
Tributyltin	µg/L	0.0024	NA	0.072	0.46[1]	0.072[2]	--	--	--	--	No
Zinc, Total Recoverable	µg/L	48	NA	160[6]/31[7]	160[6]/31[7]	160[6]/31[7]	--	--	--	5,000	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential

General Note: All inorganic concentrations are given as a total recoverable.
MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not Available

Footnotes:
(1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
(2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 4-day Average.
(3) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.
(4) Represents the maximum observed monthly average concentration for comparison with the MCL.
(5) Represents monitoring data collected since the Discharger implemented “clean” sampling procedures in January 2007. See Section IV.C.3.c of the Fact Sheet (Attachment F).
(6) Criterion to be compared to the maximum effluent concentration.
(7) Criterion to be compared to the maximum upstream receiving water concentration.
(8) Water Quality for Agriculture.
(9) Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. See Section IV.C.3.d.xiv of the Fact Sheet (Attachment F).
(10) The Sacramento River from Knights Landing to the Delta, downstream of the discharge, is listed on the 2006 303(d) list as impaired for mercury. Therefore, this Order establishes a final, monthly average mass loading limitation for mercury.
(11) Persistent chlorinated hydrocarbon pesticides include aldrin, dieldrin, chlordane, endrin, endrin aldehyde, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha-BHC, beta-BHC, delta-BHC, and gamma-BHC or lindane), endosulfan (alpha and beta), endosulfan sulfate, toxaphene, 4,4’DDD, 4,4’DDE, and 4,4’DDT.
(12) Phthalate acid esters include bis (2-ethylhexyl) phthalate, butylbenzyl phthalate, di-n-butyl phthalate, di-n-octyl phthalate, diethyl phthalate, and dimethyl phthalate.
(13) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, Toxicity Information, Chronic Lowest Observed Effect Level.
(14) Polychlorinated biphenyls include Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260.

ATTACHMENT H – CALCULATION OF WATER QUALITY-BASED EFFLUENT LIMITATIONS

Parameter	Units	Most Stringent Criteria			Human Health Calculations[1]			Aquatic Life Calculations[1]											Final Limitations	
		HH	CMC	CCC	ECA_{HH} = $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	$MDEL_{HH}$	ECA_{acute}	ECA $Multipler_{acute}$	LTA_{Acute}	$ECA_{chronic}$	ECA $Multipler_{chronic}$	$LTA_{chronic}$	Lowest LTA	AMEL $Multipler_{95}$	$AMEL_{AL}$	MDEL $Multipler_{99}$	$MDEL_{AL}$	AMEL	MDEL
Aluminum, Total Recoverable	µg/L	200	750	87	200	2.2	441	750	0.27	202	87	0.47	40	40	1.7	68	3.7	151	68	151
Ammonia Nitrogen, Total (as N)	mg/L	--	3.83	2.30	--	--	--	3.83	0.17	0.65	2.30	0.61	1.4	0.65	2.2	1.4	6.0	3.9	1.4	3.9
Chlorodibromomethane	µg/L	0.41	--	--	0.41	2.01	0.82	--	--	--	--	--	--	--	--	--	--	--	0.41	0.82
Copper, Total Recoverable	µg/L	1,000	19[2]/3.1[3]	13[2]/2.4[3]	1,000	2.52	2,520	19[4]	0.20	3.9	13[4]	0.37	4.6	3.9	2.0	7.6	5.0	19	7.6	19
Dichlorobromomethane	µg/L	0.56	--	--	0.56	2.72	1.5	--	--	--	--	--	--	--	--	--	--	--	0.56	1.5
Lead, Total Recoverable	µg/L	15	92[2]/11[3]	3.6[2]/0.41[3]	15	2.92	44	92[4]	0.15	13	3.6[4]	0.27	0.96	0.96	2.4	2.3	6.8	6.5	2.3	6.5

[1] As described in section IV.C.2.e of the Fact Sheet (Attachment F), calculation of effluent limitations for the protection of human health and aquatic life are determined without the allowance of dilution credits.
[2] Criterion to be compared to the maximum effluent concentration.
[3] Criterion to be compared to the maximum upstream receiving water concentration.
[4] ECA determined as described in section IV.C.2.c.ii of the Fact Sheet (Attachment F).

ATTACHMENT I – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

I. Background. Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.waterboards.ca.gov/iswp/index.html). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Regional Water Board is requiring the following monitoring:

A. Drinking water constituents. Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.

B. Effluent and receiving water temperature. This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.

C. Effluent and receiving water hardness and pH. These are necessary because several of the CTR constituents are hardness and pH dependent.

II. Monitoring Requirements.

A. Annual Monitoring. Annual priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. The results of such monitoring shall be submitted to the Regional Water Board in accordance with the schedule listed in Table E-10 of the Monitoring and Reporting Program (Attachment E). Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. Concurrent Sampling. Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

C. Sample Type. All effluent samples shall be taken as 24-hour flow proportioned composite samples. All receiving water samples shall be taken as grab samples.

Table I-1. Priority Pollutants

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
VOLATILE ORGANICS						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
23	Dibromochloromethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B
SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzidine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
86	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C
INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
3	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality	0.063	0.002	EV-024/025
13	Zinc	7440666	Calif. Toxics Rule/ Basin Plan Objective	54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/ 515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/ 549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/EPA 547
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/GCMS
OTHER CONSTITUENTS						
	Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1
	Chloride	16887006	Agricultural Use	106,000		EPA 300.0
	Flow			1 CFS		
	Hardness (as $CaCO_3$)			5000		EPA 130.2
	Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
	Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0
	Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3
	Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
	Sulfate		Secondary MCL	250,000	500	EPA 300.0

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
	Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
	Sulfite (as SO_3)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	^{o}F		
	Total Disolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

(1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.

(2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.

(3) - For haloethers

(4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22°C.

(5) - For nitrophenols.

(6) - For chlorinated naphthalenes.

(7) - For phthalate esters.

(8) - Basin Plan objective = 2 ug/L for Salt Slough and specific constructed channels in the Grassland watershed.

(9) - Criteria for sum of alpha- and beta- forms.

(10) - Criteria for sum of all PCBs.

(11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include:

Method 1669: Sampling Ambient Water for Trace Metals at USEPA Water Quality Criteria Levels, USEPA; and

Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluoresence, USEPA

III. Additional Study Requirements

A. Laboratory Requirements. Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the Department of Public Health (DPH; formerly the Department of Health Services). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board.

The Discharger shall institute a Quality Assurance-Quality Control Program for any onsite field measurements such as pH, turbidity, temperature and residual chlorine. A manual containing the steps followed in this program must be kept onsite and shall be available for inspection by Regional Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

B. Criterion Quantitation Limit (CQL). The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the SIP or the detection limits for purposes of reporting (DLRs) below the controlling water quality criterion concentrations summarized in Table I-1 of this Order. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Table I-1 contains suggested analytical procedures. The Discharger is not required to use these specific procedures as long as the procedure selected achieves the desired minimum detection level.

C. Method Detection Limit (MDL). The method detection limit for the laboratory shall be determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of 14 May 1999).

D. Reporting Limit (RL). The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.

E. Reporting Protocols. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

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

2. Sample results less than the reported RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

3. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may shortened to "Est. Conc.). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (+ or – a percentage of the reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.

4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

F. Data Format. The monitoring report shall contain the following information for each pollutant:

1. The name of the constituent.

2. Sampling location.

3. The date the sample was collected.

4. The time the sample was collected.

5. The date the sample was analyzed. For organic analyses, the extraction data will also be indicated to assure that hold times are not exceeded for prepared samples.

6. The analytical method utilized.

7. The measured or estimated concentration.

8. The required Criterion Quantitation Limit (CQL).

9. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).

10. The laboratory's lowest reporting limit (RL).

11. Any additional comments.

ATTACHMENT J – INTERIM 1-HOUR AVERAGE EFFLUENT LIMITATIONS FOR AMMONIA

pH[1]	Ammonia Nitrogen, Total (as N) 1-Hour Average Effluent Limitation (mg/L)
6.5	15.1
6.6	15.1
6.7	15.1
6.8	15.1
6.9	15.1
7.0	15.1
7.1	15.1
7.2	15.1
7.3	15.1
7.4	15.1
7.5	13.3
7.6	11.4
7.7	9.64
7.8	8.11
7.9	6.77
8.0	5.62
8.1	4.64
8.2	3.83
8.3	3.15
8.4	2.59
8.5	2.14
8.6	1.77
8.7	1.47
8.8	1.23
8.9	1.04
9.0	0.885

[1] Effluent pH at time of effluent ammonia sampling.

$$CMC = \left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}} \right)$$

ATTACHMENT K – INTERIM 4-DAY AVERAGE EFFLUENT LIMITATIONS FOR AMMONIA

pH[1]	Ammonia Nitrogen, Total (as N) 4-Day Average Effluent Limitation (mg/L)									
	Temperature (°C/°F)[2]									
	0 (32)	14 (57)	16 (61)	18 (64)	20 (68)	22 (72)	24 (75)	26 (79)	28 (82)	30 (86)
6.5	16.7	16.7	15.1	13.3	11.8	10.3	9.04	7.95	6.99	6.14
6.6	16.4	16.4	14.9	13.1	11.5	10.1	8.91	7.83	6.88	6.05
6.7	16.1	16.1	14.6	12.9	11.3	9.94	8.74	7.68	6.75	5.94
6.8	15.7	15.7	14.3	12.8	11.1	9.71	8.54	7.51	6.60	5.80
6.9	15.3	15.3	13.9	12.2	10.7	9.44	8.30	7.30	6.41	5.64
7.0	14.8	14.8	13.4	11.8	10.4	9.12	8.02	7.05	6.19	5.45
7.1	14.2	14.2	12.9	11.3	9.95	8.75	7.69	6.76	5.94	5.22
7.2	13.5	13.5	12.3	10.8	9.46	8.32	7.31	6.43	5.65	4.97
7.3	12.7	12.7	11.5	10.1	8.91	7.84	6.89	6.05	5.32	4.68
7.4	11.8	11.8	10.8	9.46	8.31	7.31	6.42	5.65	4.96	4.36
7.5	10.9	10.9	9.92	8.72	7.66	6.74	5.92	5.20	4.57	4.02
7.6	9.94	9.94	9.03	7.94	6.98	6.14	5.39	4.74	4.17	3.66
7.7	8.95	8.95	8.13	7.15	6.28	5.52	4.85	4.27	3.75	3.3
7.8	7.96	7.96	7.23	6.36	5.59	4.91	4.32	3.79	3.34	2.93
7.9	6.99	6.99	6.36	5.59	4.91	4.32	3.80	3.34	2.93	2.58
8.0	6.08	6.08	5.53	4.86	4.27	3.76	3.30	2.90	2.55	2.24
8.1	5.24	5.24	4.77	4.19	3.68	3.24	2.85	2.50	2.20	1.93
8.2	4.48	4.48	4.07	3.58	3.15	2.77	2.43	2.14	1.88	1.65
8.3	3.81	3.81	3.46	3.04	2.68	2.35	2.07	1.82	1.60	1.40
8.4	3.22	3.22	2.93	2.58	2.26	1.99	1.75	1.54	1.35	1.19
8.5	2.72	2.72	2.48	2.18	1.91	1.68	1.48	1.30	1.14	1.00
8.6	2.30	2.30	2.09	1.84	1.61	1.42	1.25	1.10	0.964	0.848
8.7	1.95	1.95	1.77	1.55	1.37	1.20	1.06	0.928	0.816	0.717
8.8	1.65	1.65	1.50	1.32	1.16	1.02	0.897	0.788	0.693	0.609
8.9	1.41	1.41	1.28	1.13	0.992	0.872	0.766	0.674	0.592	0.520
9.0	1.22	1.22	1.11	0.971	0.854	0.751	0.660	0.580	0.510	0.448

[1] Effluent pH at time of effluent ammonia sampling.

[2] Effluent temperature at time of effluent ammonia sampling.

$$2.5CCC = 2.5 \times \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times Min\left(2.85 \text{ or } 1.45 \times 10^{0.028\times(25-T)}\right)$$

ATTACHMENT L – INTERIM 30-DAY AVERAGE EFFLUENT LIMITATIONS FOR AMMONIA

pH[1]	Ammonia Nitrogen, Total (as N) 30-Day Average Effluent Limitation (mg/L)									
	Temperature (°C/°F)[2]									
	0 (32)	14 (57)	16 (61)	18 (64)	20 (68)	22 (72)	24 (75)	26 (79)	28 (82)	30 (86)
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.8550	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.7270	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.6150	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.5200	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.4390	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.3710	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.3150	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.2690	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.2320	0.204	0.179

[1] Effluent pH at time of effluent ammonia sampling.
[2] Effluent temperature at time of effluent ammonia sampling.

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times Min\left(2.85 \text{ or } 1.45 \times 10^{0.028\times(25-T)}\right)$$

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

CENTRAL VALLEY REGION

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

ORDER NO. R5-2007-0132-02
(as amended by Order No. R5-2010-0097)
NPDES NO. CA0079049
WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF DAVIS WASTEWATER TREATMENT PLANT YOLO COUNTY

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	City of Davis
Name of Facility	Wastewater Treatment Plant
Facility Address	45400 County Road 28H, Davis, CA, 95616, Yolo County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a **major** discharge.	

The discharge by the City of Davis from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated Municipal Wastewater	38 º, 35', 24" N	121 º, 39', 50" W	Willow Slough Bypass
002	Treated Municipal Wastewater	38 º, 34', 33" N	121 º, 38', 02" W	Conaway Ranch Toe Drain

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**25 October 2007**
This Order shall become effective on:	**50 Days after Order Adoption Date**
This Order shall expire on:	**1 October 2012**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to Order expiration date**

IT IS HEREBY ORDERED, that Order No. 5-01-067 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **25 October 2007** and amended on **5 February 2009 and 23 September 2010.**

Original Signed by Kenneth D. Landau for
PAMELA C. CREEDON, Executive Officer

Table of Contents

List of Tables

List of Attachments

I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	City of Davis
Name of Facility	Wastewater Treatment Plant
Facility Address	45400 County Road 28H
	Davis, CA 95616
	Yolo County
Facility Contact, Title, and Phone	Keith Smith, Utilities Engineer, (530) 757-5676
Mailing Address	23 Russell Blvd., Davis, CA 95616
Type of Facility	POTW (Standard Industrial Classification: 4952)
Facility Design Flow	7.5 million gallons per day, average dry weather flow

II. FINDINGS

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

A. Background. The City of Davis (hereinafter Discharger) is currently discharging pursuant to Order No. 5-01-067 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079049. The Discharger submitted a Report of Waste Discharge, dated 1 September 2005**,** and applied for an NPDES permit renewal to discharge up to an average dry weather flow of 7.5 million gallons per day of treated wastewater from its wastewater treatment plant, hereinafter Facility or WWTP. The application was deemed complete on 17 October 2005.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates the WWTP. The treatment system consists of a mechanical bar screen, an aerated grit tank, three primary sedimentation tanks, a primary anaerobic digester, a secondary anaerobic digester, three sludge lagoons, two aeration ponds (typically used in winter), three facultative oxidation ponds, a Lemna pond, an overland flow system, a chlorine contact tank, and restoration wetlands (used when discharging to Conaway Toe Drain). Biosolids are dewatered in on-site lagoons and the dried biosolids are land applied on-site in the overland flow fields. Wastewater is discharged from Discharge 001 (see table on cover page) to the Willow Slough Bypass and from Discharge 002 to the Conaway Ranch Toe Drain, both of which are waters of the United States and tributary to the Yolo Bypass within the Sacramento River watershed. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)[1] require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at Part 133 for the existing WWTP and Best Professional Judgment (BPJ) in accordance with Part 125, section 125.3 for the upgraded WWTP. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. Water Quality-based Effluent Limitations. Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The Regional Water Board has considered the factors listed in CWC section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet.

CFR Section 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) EPA

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-2.00 states that the "…*beneficial uses of any specifically identified water body generally apply to its tributary streams*." Willow Slough Bypass is tributary to the Conaway Ranch Toe Drain and both streams are tributary to the Yolo Bypass. The Basin Plan does not specifically identify beneficial uses for the Willow Slough Bypass and Conaway Ranch Toe Drain, but does identify present and potential uses for the Yolo Bypass. These beneficial uses are as follows: agricultural supply, including stock watering; water contact recreation; non-contact water recreation; warm freshwater habitat; potential cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning, reproduction, and/or early development; and wildlife habitat.

In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Basin Plan designates beneficial uses for the Yolo Bypass and these beneficial uses do not include municipal/domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to the Willow Slough Bypass and Conaway Ranch Toe Drain are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	**Willow Slough Bypass**	Existing: Agricultural supply (AGR), water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), migration of aquatic organisms (MIGR), spawning, reproduction, and/or early development (SPWN), and wildlife habitat (WILD). Potential Cold freshwater habitat (COLD).
002	**Conaway Ranch Toe Drain**	Existing: Agricultural supply (AGR), water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), migration of aquatic organisms (MIGR), spawning, reproduction, and/or early development (SPWN), and wildlife habitat (WILD). Potential Cold freshwater habitat (COLD).

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" Neither the Willow Slough Bypass, the Conaway Ranch Toe Drain, nor the Yolo Bypass are listed as WQLSs in the 303(d) list of impaired water bodies. However, these water bodies are tributary to the Sacramento/San Joaquin Delta (northern portion), which is listed as a WQLS for chlorpyrifos, DDT, diazinon, exotic species, group A pesticides (aldrin, dieldrin, chlordane, endrin, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), endosulfan, and toxaphene), mercury, polychlorinated biphenyls, and unknown toxicity in the 303(d) list of impaired water bodies. This Order includes monitoring requirements for mercury, and unknown toxicity. This Order includes effluent limitations for mercury and toxicity for both Discharge 001 and Discharge 002. The reasoning for these effluent limitations is explained in the Fact Sheet.

Requirements of this Order implement the Basin Plan.

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About forty criteria in the NTR applied in California. On

18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.

J. State Implementation Policy. On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See In the Matter of Waste Discharge Requirements for Avon Refinery (State Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment et al. v. State Water Resources Control Board, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was 25 September 1995 (See Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency (USEPA) policies and administrative decisions (for example, the USEPA Whole Effluent Toxicity (WET) Control Policy.) The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion,

compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation that exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order includes compliance schedules and interim effluent limitations and/or discharge specifications. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) and/or discharge specifications is included in the Fact Sheet.

L. Alaska Rule. On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 CFR § 131.21; 65 Fed. Reg. 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD_5 and TSS. The water quality-based effluent limitations include restrictions on turbidity and pathogens. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. These limitations are more stringent than required by the CWA. Specifically, this Order includes effluent limitations for BOD, TSS, turbidity and pathogens that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241 in establishing these requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on 1 May 2001 and amended in September 2005. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000,

but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent than those in the previous Order. As discussed in detail in the Fact Sheet this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

P. Tertiary Treatment Requirements. The beneficial uses of the Yolo Bypass include water contact recreation and agricultural irrigation supply, and there is at times, less than 20:1 dilution. To protect these beneficial uses, the Regional Water Board finds that wastewater must be disinfected and adequately treated to prevent disease. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites in the waste stream. The Regional Board finds that wastewater must be treated to tertiary standards (filtered), or equivalent, to protect contact recreational and food crop irrigation uses.

Q. Salinity Limitations. This Order contains interim effluent limitations for electrical conductivity (EC). This Order requires the Discharger to study appropriate EC, boron, sodium, and chloride levels to protect agricultural beneficial use in areas irrigated with water from the Willow Slough Bypass, Conaway Ranch Toe Drain, and/or Yolo Bypass diverted downstream from the discharge. A final EC effluent limitation will be included in the subsequent renewal of this Order. Final boron, chloride, and/or sodium effluent limitations will also be included in the subsequent renewal of the Order if they are determined to have reasonable potential and cannot be adequately regulated by the EC effluent limitation.

R. Monitoring and Reporting. Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and

monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

S. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

California Water Code section 13263.3(d) allows the Regional Water Board to require a discharger to complete and implement a pollution prevention plan under specific situations. This Order requires pollution prevention plans for cyanide, selenium, aluminum, and iron, consistent with CWC 13263.3(d)(1)(D). The rationale for the requirement to provide pollution prevention plans for these constituents is included in the Fact Sheet. The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

T. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, V.B, and VI.C. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

U. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

V. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

C. Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the California Water Code.

D. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Points 001, 002

1. Final Effluent Limitations – Discharge Point 001

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at EFF-001 as described in the attached MRP (Attachment E), unless otherwise specified:

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6a:

Table 6a. Effluent Limitations - Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C[1]	mg/L	10	15	20		
	lbs/day[2]	630	940	1300		
Total Suspended Solids[1]	mg/L	10	15	20		
	lbs/day[2]	630	940	1300		
pH	standard units				6.5	8.0
Settleable Solids[1]	mL/L	0.1		0.2		
Turbidity[1]	NTU					10
Total Coliform Organisms[1]	MPN/100 mL					240
Aluminum, Total Recoverable[3]	ug/L	71		140		
Ammonia (1 March – 31 October)	mg/L	1.6		3.8		
	lbs/day[2]	100		240		
Ammonia (1 November– 29 February)	mg/L	2.2		3.3		
	lbs/day[2]	140		210		
Cyanide	ug/L	3.8		9.5		
Iron, Total Recoverable	mg/L	0.8		2		
Selenium, Total Recoverable	ug/L	4.4		7.1		
	lbs/day[2]	0.28		0.44		

1. Compliance is to be measured at Monitoring Location EFF-A as described in the attached MRP.
2. Based on an average dry weather flow of 7.5 mgd.
3. Compliance with the effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

b. **Percent Removal.** Effective 25 October 2017, the average monthly percent removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.

c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

   i. 70%, minimum for any one bioassay; and
   ii. 90%, median for any three consecutive bioassays.

d. **Mercury.** The total monthly mass discharge of total mercury shall not exceed 0.038 lbs/month.

e. **Temperature.** The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.

f. **Total Residual Chlorine[2].** Effluent total residual chlorine shall not exceed:

   i. 0.01 mg/L, as a 4-day average; and
   ii. 0.02 mg/L, as a 1-hour average.

g. **Turbidity.** Effective 25 October 2017, effluent turbidity shall not exceed:

   i. 2 NTU, as a daily average; and
   ii. 5 NTU, more than 5% of the time within a 24-hour period.

h. **Total Coliform Organisms.** Effective 25 October 2017, effluent total coliform organisms shall not exceed:

   i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median; and
   ii. 23 MPN/100 mL, more than once in any 30-day period.

i. **Tertiary Treatment.** Effective 25 October 2017, wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the Department of Public Health (DPH) reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3, (Tile 22) or equivalent.

j. **Average Dry Weather Discharge Flow.** The Average Dry Weather Discharge Flow shall not exceed 7.5 million gallons per day as a total from Discharge 001 and Discharge 002.

k. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

[2] Compliance is to be measured at Monitoring Location EFF-A as described in the attached MRP.

2. Final Effluent Limitations – Discharge Point 002

The Discharger shall maintain compliance with the following effluent limitations at Discharge Point 002, with compliance measured at Monitoring Location EFF-002, as described in the attached MRP (Attachment E), unless otherwise specified:

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6b:

Table 6b. Effluent Limitations - Discharge Point 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C[1]	mg/L	10	15	20		
	lbs/day[2]	630	940	1300		
Total Suspended Solids[1]	mg/L	10	15	20		
	lbs/day[2]	630	940	1300		
pH	standard units				6.5	8.0
Settleable Solids[1]	mL/L	0.1		0.2		
Turbidity[1]	NTU					10
Total Coliform Organisms[1]	MPN/100 mL					240
Aluminum, Total Recoverable[3]	ug/L	71		140		
Ammonia (1 March – 31 October)	mg/L	2.1		4.8		
	lbs/day[2]	130		300		
Ammonia (1 November– 29 February)	mg/L	2.9		5.6		
	lbs/day[2]	180		350		
Copper, Total Recoverable	ug/L	16		34		
Iron, Total Recoverable	mg/L	0.8		2		
Selenium, Total Recoverable	ug/L	4.4		7.2		
	lbs/day[2]	0.28		0.45		

1. Compliance is to be measured at Monitoring Location EFF-A as described in the attached MRP.
2. Based on an average dry weather discharge flow of 7.5 mgd.
3. Compliance with the effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

b. **Percent Removal:** Effective 25 October 2017, the average monthly percent removal of BOD 5-day 20°C and total suspended solids shall not be less than 85 percent.

c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

i. 70%, minimum for any one bioassay; and
ii. 90%, median for any three consecutive bioassays.

d. **Mercury.** The total monthly mass discharge of total mercury shall not exceed 0.038 lbs/month.

e. **Temperature.** The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F.

f. **Total Residual Chlorine[3].** Effluent total residual chlorine shall not exceed:

   i. 0.01 mg/L, as a 4-day average;
   ii. 0.02 mg/L, as a 1-hour average; and

g. **Turbidity.** Effective 25 October 2017, effluent turbidity shall not exceed:

   i. 2 NTU, as a daily average; and
   ii. 5 NTU, more than 5% of the time within a 24-hour period.

h. **Total Coliform Organisms.** Effective 25 October 2017, effluent total coliform organisms shall not exceed:

   i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median; and
   ii. 23 MPN/100 mL, more than once in any 30-day period.

i. **Tertiary Treatment.** Effective 25 October 2017, wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DPH reclamation criteria, Title 22 California Code of Regulations, Division 4, Chapter 3, (Tile 22) or equivalent.

j. **Average Dry Weather Discharge Flow.** The Average Dry Weather Discharge Flow shall not exceed 7.5 million gallons per day as a total from Discharge 001 and Discharge 002.

k. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

3. Interim Effluent Limitations – Discharge Point 001

a. During the period beginning on the effective date of this Order and ending on October 25, 2017, the Discharger shall maintain compliance with the following limitations at D-001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP, unless otherwise specified. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

[3] Compliance is to be measured at Monitoring Location EFF-A as described in the attached MRP.

Table 7a. Interim non-CTR Effluent Limitations – Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C[1]	mg/L	30	45	90		
	lbs/day[2]	1876	2815	5633		
Total Suspended Solids[1]	mg/L	50	75	150		
	lbs/day[2]	3129	4694	9388		
pH	standard units				6.5	8.5
Turbidity[1,3]	NTU					
Total Coliform Organisms[1]	MPN/100 mL					500
Aluminum, Total Recoverable[4]	ug/L			2200		
Ammonia	mg/L			20.5		
	lbs/day[2]			1280		
Iron, Total Recoverable	mg/L			4.0		

1. Compliance is to be measured at Monitoring Location EFF-A as described in the attached MRP.
2. Based on an average dry weather discharge flow of 7.5 mgd.
3. No limitation for turbidity during the period beginning on the effective date of this Order and ending on October 25, 2017.
4. Compliance with the effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

b. During the period beginning on the effective date of this Order and ending 18 May 2010, the Discharger shall maintain compliance with the following limitations at D-001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP. These interim effluent limitations shall apply in lieu of all final effluent limitations specified for the same parameters during the time period indicated in this provision.

Table 7b. Interim CTR Effluent Limitations – Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Annual Average	Instantaneous Maximum
Cyanide	ug/L			9.6		
Selenium, Total Recoverable	ug/L			7.1		
	lbs/day[1]			0.44		

1. Based on an average dry weather discharge flow of 7.5 mgd.

c. The Discharger shall maintain compliance with the following limitation at D-001, with compliance measured at Monitoring Location EFF-A as described in the attached MRP.

Electrical Conductivity. The electrical conductivity shall not exceed 2050 umhos/cm as an annual average.

4. Interim Effluent Limitations – Discharge Point 002

a. During the period beginning on the effective date of this Order and ending on October 25, 2017, the Discharger shall maintain compliance with the following limitations at D-002, with compliance measured at Monitoring Location EFF-002 as described in the attached MRP, unless otherwise specified. These interim effluent limitations shall apply in lieu of all final effluent limitations specified for the same parameters during the time period indicated in this provision.

Table 7c. Interim non-CTR Effluent Limitations – Discharge Point 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C[1]	mg/L	30	45	90		
	lbs/day[2]	1876	2815	5633		
Total Suspended Solids[1]	mg/L	50	75	150		
	lbs/day[2]	3129	4694	9388		
pH	standard units				6.5	8.5
Turbidity[1,3]	NTU					
Total Coliform Organisms[1]	MPN/100 mL					500
Aluminum, Total Recoverable[4]	ug/L			6500		
Ammonia	mg/L			13.2		
	lbs/day[2]			826		
Iron, Total Recoverable	mg/L			14		

1. Compliance is to be measured at Monitoring Location EFF-A as described in the attached MRP.
2. Based on an average dry weather discharge flow of 7.5 mgd.
3. No limitation for turbidity during the period beginning on the effective date of this Order and ending on October 25, 2017.
4. Compliance with the effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

b. During the period beginning on the effective date of this Order and ending 18 May 2010, the Discharger shall maintain compliance with the following limitations at D-002, with compliance measured at Monitoring Location EFF-002 as described in the attached MRP. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

Table 7d. Interim CTR Effluent Limitations – Discharge Point 002

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Annual Average	Instantaneous Maximum
Selenium, Total Recoverable	ug/L			7.2		
	lbs/day[1]			0.45		

1. Based on an average dry weather discharge flow of 7.5 mgd.

c. The Discharger shall maintain compliance with the following limitation at D-002, with compliance measured at Monitoring Location EFF-A as described in the attached MRP:

Electrical Conductivity. The electrical conductivity shall not exceed 2050 umhos/cm as an annual average.

B. Land Discharge Specifications

1. The discharge of waste classified as "hazardous" as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or "designated", as defined in section 13173 of the CWC, to the treatment ponds is prohibited.

2. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas or property owned by the Discharger.

3. As a means of discerning compliance with Land Discharge Specification 2, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/L.

4. Effluent entering the ponds shall not have a pH less than 6.5 or greater than 9.0.

C. Reclamation Specifications – NOT APPLICABLE

D. Wetlands Specifications

a. If the geometric mean selenium concentration in avian eggs exceeds 4 ug/g (dry weight basis) in any one sampling period, the Discharger shall submit a remedial action workplan to reduce the concentrations in avian eggs. The workplan shall be implemented immediately upon approval of the Executive Officer.

b. If the geometric mean selenium concentration in avian eggs exceeds 8 ug/g (dry weight basis) in any one sampling period, the Discharger shall immediately cease the discharge of wastewater into the wetlands. Wastewater shall not be reintroduced until it can be shown to the satisfaction of the Executive Officer that the concentrations have been sufficiently reduced to protect wildlife and maintain the mean avian egg selenium concentration below 8 ug/g.

c. Toxic pollutants shall not be present in the water column, sediments, or biota in concentrations that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in concentrations that are harmful to human health or aquatic resources. The discharge into the wetlands shall not cause aquatic communities and populations, including vertebrate, invertebrate and plant species, to be degraded as determined by acute or chronic toxicity analysis, wetlands monitoring or technical reports required by the Executive Officer.

d. The wetlands must be managed so as not to create vector problems and to minimize the occurrence of avian botulism and other infectious diseases. The local mosquito abatement district or Yolo County Environmental Health Department shall be consulted annually to determine if changes need to be made in procedures in managing the wetlands for vector control.

E. Biosolids Specifications

a. The direct or indirect discharge of screenings, residual sludge, harvested lemna vegetation, biosolids, and other solids removed from liquid wastes to surface waters or surface water drainage courses, or to the wetlands is prohibited.

b. Effective 1 December 2008, the direct or indirect discharge of screenings, residual sludge, harvested lemna vegetation, biosolids, and other solids removed from liquid wastes to the overland flow fields is prohibited.

c. The discharge of waste classified as “hazardous” or “designated” as defined in Section 2521 (a) and Section 2522 (a) of Chapter 15, is prohibited.

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Willow Slough Bypass and/or Conaway Ranch Toe Drain:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than ten percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.

2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.

4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.

5. **Dissolved Oxygen:**

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
   c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.

6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5..

9. **Pesticides:**

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer.
   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.).
   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable.

10. **Radioactivity:**

    a. Radionuclides to be present in concentrations; that are harmful to 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.

11. **Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

12. **Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

13. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

14. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

15. **Temperature.** The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at RSW-001U and RSW-001D and/or RSW-002U and RSW-002D.

16. **Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant,

animal, or aquatic life.

17. Turbidity. The turbidity to increase as follows:

a. More than 1 Nephelometric Turbidity Unit (NTU) 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 NTU where natural turbidity is between 50 and 100 NTUs.
d. More than 10 percent where natural turbidity is greater than 100 NTUs.

Compliance to be determined based on the difference in turbidity at RSW-001U and RSW-001D and/or RSW-002U and RSW-002D.

B. Groundwater Limitations

The discharge shall not cause the groundwater to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.

Release of waste constituents from any storage, treatment, or disposal component associated with the WWTP shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the WWTP to contain waste constituents in concentrations in excess of natural background quality or that listed below, whichever is greater:

a. Total coliform organisms median of 2.2 MPN/100 mL over any seven-day period.
b. Chemical constituents in concentrations that adversely affect beneficial uses, including the constituent concentration listed below:

Parameter	Units	Limitation
Nitrate (as N)	mg/L	10

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

   a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, Division 3, Chapter 26.

   b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

i. violation of any term or condition contained in this Order;

ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under section 405(d) of the Clean Water Act, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.

- *Change in sludge use or disposal practice.* Under 40 Code of Federal Regulations (CFR) 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional Water Board's own motion.

c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Regional Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

i. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or

ii. controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.

i. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

j. Safeguard to electric power failure:

   i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.

   ii. Upon written request by the Regional Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.

   iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

k. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision VI.A.2.m.

The technical report shall:

i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Regional Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.

m. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in

a manner such that all work can be clearly attributed to the professional responsible for the work.

n. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board and USEPA.

o. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.

p. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

q. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.

r. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.

s. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

t. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

u. For POTWs, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211).

v. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by Attachment D, Section V.E.1 [40 CFR section 122.41(l)(6)(i)].

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

b. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including:

   i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

   ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order may be reopened and the effluent mass limitation modified or an effluent concentration limitation imposed. If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to an NPDES permit, then this Order may be reopened to reevaluate the interim mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.

d. **Pollution Prevention.** This Order requires the Discharger to prepare and implement pollution prevention plans following CWC section 13263.3(d)(3) for cyanide, selenium, aluminum, and iron. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents. The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

e. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent

limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

f. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. If the Discharger performs studies to determine site-specific WERs and/or additional site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

g. **Ammonia.** Floating Ammonia Effluent Concentration Limitations. If Regional Water Board staff determines that floating ammonia effluent limitations (based on pH and Temperature of the effluent and/or receiving water) are appropriate, this Order may be reopened to include revised final ammonia effluent limitations and monitoring requirements.

h. **Constituent Study.** If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective this Order may be reopened and effluent limitations added for the subject constituents.

i. **Manganese Study.** This Order requires the Discharger to complete and submit a report on the results of a site-specific investigation of appropriate manganese levels to protect agricultural beneficial use in areas irrigated with water from the Willow Slough Bypass, Conaway Ranch Toe Drain, and/or Yolo Bypass diverted downstream from the discharge. Based on a review of the results of the Manganese Study, this Order may be reopened to add final effluent limitations for manganese.

j. **EC, Boron, Sodium, and Chloride Study.** This Order requires the Discharger to complete and submit a report on the results of a site-specific investigation of appropriate EC, boron, sodium, and chloride levels to protect agricultural beneficial use in areas irrigated with water from the Willow Slough Bypass, Conaway Ranch Toe Drain, and/or Yolo Bypass diverted downstream from the discharge. Based on a review of the results of the EC, Boron, Sodium, and Chloride Study, this Order may be reopened to add final effluent limitations for EC, boron, sodium, and chloride.

k. **Reuse Feasibility Study.** This Order requires the Discharger to complete and submit a report on the results of a feasibility evaluation for the reuse of treated effluent on the Conaway Ranch. Based on a review of the results of the Reuse Feasibility Study, this Order may be reopened to include additional requirements and/or to amend compliance dates to implement reuse on the Conaway Ranch if the Discharger determines that reuse is feasible.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic

whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the toxicity numeric monitoring trigger established in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent reoccurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. **Toxicity Reduction Evaluation (TRE) Work Plan. Within 90 days of the effective date of this Order,** the Discharger shall submit to the Regional Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with EPA guidance[4] and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.

ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.

iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is > **1 TUc** (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14-days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a six-week period (i.e. one test every two weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

[4]See Attachment F (Fact Sheet) Section VII.B.2.a. for a list of EPA guidance documents that must be considered in development of the TRE Workplan.

a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

b) If the source(s) of the toxicity is easily identified (i.e. temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and initiate a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of the test results exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Regional Water Board including, at minimum:

1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including TRE WET monitoring schedule;
2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
3) A schedule for these actions.

b. **Constituent Study.** There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives: fluoride and nickel for both Discharge 001 and Discharge 002, zinc, lead, oil and grease, and diethyl phthalate for Discharge 001, and acrolein, cyanide, and persistent chlorinated hydrocarbon pesticides for Discharge 002. The Discharger shall comply with the following time schedule in conducting a study of these constituents' potential effect in surface waters:

Task	Compliance Date
Submit Workplan and Time Schedule	Within 6 months of effective date of this Order
Begin Study	Upon approval by the Executive Officer
Complete Study	Within two years following Workplan approval
Submit Study Report	Within three months of completion of study

c. **Manganese Study.** The Discharger shall complete and submit a report on the results of a site-specific investigation of appropriate manganese levels to protect agricultural beneficial use in areas irrigated with water from the Willow Slough

Bypass, Conaway Ranch Toe Drain, and/or Yolo Bypass diverted downstream from the discharge. The study shall evaluate how soil chemistry affects manganese requirements and recommend site-specific numeric values for manganese that fully protect agricultural uses.

Task	Compliance Date
Submit Workplan and Time Schedule	Within 12 months of adoption date of this Order
Complete Study	Within three years of adoption date of this Order
Submit Study Report	Within three months of completion of study

d. **EC, Boron, Sodium, and Chloride Study:** The Discharger shall complete and submit a report on the results of a site-specific investigation of appropriate EC, boron, sodium, and chloride levels to protect agricultural beneficial use in areas irrigated with water from the Willow Slough Bypass, Conaway Ranch Toe Drain, and/or Yolo Bypass diverted downstream from the discharge. The study shall determine the sodium adsorption ratio of soils in the affected area, the effects of rainfall and flood-induced leaching, and background water quality. The study shall evaluate how climate, soil chemistry, background water quality, rainfall, and flooding affect EC, boron, sodium, and chloride requirements. Based on these factors, the study shall recommend site-specific numeric values for EC, boron, sodium, and chloride that fully protect agricultural uses.

The Discharger shall comply with the following time schedule to complete the study:

Task	Compliance Date
Submit Workplan and Time Schedule	1 February 2011
Complete Study	27 February 2015
Submit Study Report	Within three months of completion of study

In lieu of completing a site-specific study, if appropriate, the Discharger may submit a report showing it has implemented EC study results from other dischargers in the area (e.g., City of Woodland).

e. **Best Practicable Treatment or Control (BPTC) Evaluation Tasks**. The Discharger shall propose a work plan and schedule for providing BPTC as required by Resolution 68-16. The technical report describing the work plan and schedule shall contain a preliminary evaluation of each component and propose a time schedule for completing the comprehensive technical evaluation.

Following completion of the comprehensive technical evaluation, the Discharger shall submit a technical report describing the evaluation's results and critiquing each evaluated component with respect to BPTC and minimizing the discharge's impact on groundwater quality. Where deficiencies are documented, the

technical report shall provide recommendations for necessary modifications (*e.g.*, new or revised salinity source control measures, lining the ponds, lining the sludge lagoons, WWTP component upgrade and retrofit) to achieve BPTC and identify the source of funding and proposed schedule for modifications. The schedule shall be as short as practicable but in no case shall completion of the necessary modifications exceed four years past the Executive Officer's determination of the adequacy of the comprehensive technical evaluation, unless the schedule is reviewed and specifically approved by the Regional Water Board. The technical report shall include specific methods the Discharger proposes as a means to measure processes and assure continuous optimal performance of BPTC measures. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

Task	Compliance Date
1 Submit technical report: work plan and schedule for comprehensive evaluation	**Within 6 months** following Order adoption
2 Commence comprehensive evaluation	**30 days** following Executive Officer approval of Task 1.
3 Complete comprehensive evaluation	**2 years and 8 months** following commencement of Task 2.
4 Submit technical report: comprehensive evaluation results	**60 days** following completion of Task 3.
5 Submit annual report describing the overall status of BPTC implementation and compliance with groundwater limitations over the past reporting year	To be submitted in accordance with the MRP (Attachment E, Section IX.D.1.)

f. **Groundwater Monitoring.** To determine compliance with Groundwater Limitations V.B., the groundwater monitoring network shall include one or more background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. All monitoring wells shall comply with the appropriate standards as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 74-81 (December 1981), and any more stringent standards adopted by the Discharger or County pursuant to CWC section 13801.

The Discharger must evaluate the need for additional background groundwater quality data to evaluate degradation associated with the existing treatment facility and proposed wastewater reuse site. The Discharger must also consider additional groundwater monitoring wells as necessary for this evaluation. The Discharger, after two years of monitoring, shall characterize natural background quality of monitored constituents in a technical report, to be submitted by1

September 2012. For each groundwater monitoring parameter/constituent identified in the Monitoring and Reporting Program (Attachment E, Section VII.B.), the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and a comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27 California Code of Regulations Section 20415(e)(10), and shall be based on data from at least four consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with the calculated background concentration.

If the monitoring shows that any constituent concentrations are increased above background water quality, the Discharger shall submit a technical report describing the groundwater technical report results and critiquing each evaluated component of the Facility with respect to BPTC and minimizing the discharge's impact on groundwater quality. This technical report must be submitted according to the schedule described in Section VI.C.2.e of this Order. In no case shall the discharge be allowed to exceed the Groundwater Limitations. This Order may be reopened and additional groundwater limitations added.

g. **Reuse Feasibility Study.** To determine the feasibility of reusing treated effluent at the Conaway Ranch and thereby eliminating its discharge to surface water, the Discharger shall evaluate the technical, logistical and economic feasibility of conveying treated effluent to the Conaway Ranch for agricultural reuse consistent with Title 22 of the California Code of Regulations. Studies to determine the feasibility of reuse should include, but are not limited to, water balance analysis, nutrient and salt balance (agronomic rates for crop types to be grown), potential groundwater impact evaluations, evaluation of current groundwater background quality at the Conaway Ranch site, evaluation of treatment needs, evaluation of impacts to receiving water if discharge removed, and economic impacts to the City. The Discharger shall comply with the following time schedule in conducting the studies to determine the feasibility of reuse at the Conaway Ranch. If the City fails to comply with the study requirements set forth below, this Order may be reopened and the compliance schedule for meeting final effluent limitations may be revised to eliminate the remaining time available to evaluate reuse.

	Task	**Compliance Date**
1	Submit technical report: work plan and schedule for comprehensive evaluation	1 June 2009
2	Commence comprehensive evaluation	1 July 2009
3	Complete comprehensive evaluation	By 1 July 2010
4	Submit technical report: comprehensive evaluation results	1 September 2010

Task	Compliance Date
5. Submit City's Preferred Option for Compliance[5]	25 October 2010
6 Submit annual report describing the overall status of Reuse Feasibility	To be submitted in accordance with the MRP (Attachment E, Section IX.D.1.)

h. **Priority Pollutant Metals Study.** For a one-year period, **beginning no later than 31 January 2011**, the Discharger shall conduct monthly upstream receiving water monitoring for hardness-dependant priority pollutant metals (i.e., cadmium, chromium III, copper, lead, nickel, silver, and zinc), hardness, alkalinity, EC, pH, and TSS at RSW-001 and RSW-003. The Discharger shall submit a report summarizing the monitoring results **no later than 3 months** following the final monthly monitoring event. If there is no flow at RSW-001 or RSW-003 monitoring is not required and the report shall state that there was no flow.

3. Best Management Practices and Pollution Prevention

a. **Pollutant Minimization Program.** The Discharger shall develop and conduct a Pollutant Minimization Program (PMP) as further described below when there is evidence (e.g., sample results reported as DNQ when the effluent limitation is less than the MDL, sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either: 1) A sample result is reported as DNQ and the effluent limitation is less than the RL; or 2) A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP Section IX.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

i. An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;

[5] "Preferred Option for Compliance" means a written statement from the City Council, or its duly authorized representative, submitted to the Regional Water Board Executive Officer regarding the option the City intends to pursue for compliance with this Order. The City's identification of a "Preferred Option for Compliance" does not limit in any way the City's discretion with respect to complying with this Order and the California Environmental Quality Act, including but not limited to the discretion to (i) make such modifications deemed necessary and feasible to mitigate significant environmental impacts, (ii) select other feasible alternatives to avoid or substantially lessen such impacts, (iii) balance the benefits of the project against its significant unavoidable impacts prior to taking final action if such significant impacts cannot otherwise be substantially lessened or avoided, or (iv) determine not to proceed with the Preferred Option for Compliance.

ii. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;

iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and

v. An annual status report that shall be sent to the Regional Water Board including:

(1) All PMP monitoring results for the previous year;

(2) A list of potential sources of the reportable priority pollutant(s);

(3) A summary of all actions undertaken pursuant to the control strategy; and

(4) A description of actions to be taken in the following year.

b. **Pollution Prevention Plan for cyanide, selenium, aluminum, and iron.** The Discharger shall prepare and implement a pollution prevention plan for cyanide, selenium, aluminum, and iron in accordance with CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet, Attachment F, VII.B.3. A work plan and time schedule for preparation of the pollution prevention plan shall be completed and submitted **within 6 months of the effective date of this Order** for approval by the Executive Officer. The Pollution Prevention Plan shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.). The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

c. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare and implement a salinity evaluation and minimization plan to address sources of salinity from the wastewater treatment system. The plan shall be completed and submitted to the Regional Water Board **within 9 months of the effective date of this Order** for approval by the Executive Officer.

d. **Salinity Reduction.** The Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the Willow Slough Bypass and Conaway Ranch Toe Drain. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.).

e. **Dioxin Congeners Source Evaluation and Minimization Plan.** The Discharger shall prepare and implement a dioxin congeners evaluation and minimization plan to address sources of dioxin-like congeners detected in the

WWTP influent and effluent. The plan shall be completed and submitted to the Regional Water Board **within one year of the effective date of this Order** for the approval by the Executive Officer.

4. Construction, Operation and Maintenance Specifications

a. **Treatment Pond Operating Requirements**

i. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

ii. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

iii. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
b) Weeds shall be minimized.
c) Dead algae, vegetation, and debris shall not accumulate on the water surface.

iv. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow.

v. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the non-irrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements**

i. The Discharger shall implement its approved pretreatment program and the program shall be an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board or the U.S. Environmental Protection Agency (USEPA) may take enforcement actions against the Discharger as authorized by the CWA.

ii. The Discharger shall enforce the Pretreatment Standards promulgated under sections 307(b), 307(c), and 307(d) of the Clean Water Act. The Discharger shall perform the pretreatment functions required by 40 CFR Part 403 including, but not limited to:

a) Adopting the legal authority required by 40 CFR 403.8(f)(1);

b) Enforcing the Pretreatment Standards of 40 CFR 403.5 and 403.6;

c) Implementing procedures to ensure compliance as required by 40 CFR 403.8(f)(2); and

d) Providing funding and personnel for implementation and enforcement of the pretreatment program as required by 40 CFR 403.8(f)(3).

iii. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

a) Wastes which create a fire or explosion hazard in the treatment works;

b) Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

c) Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

d) Any waste, including oxygen demanding pollutants (BOD, *etc*.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

e) Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Water Board approves alternate temperature limits;

f) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and:

h) Any trucked or hauled pollutants, except at points predesignated by the Discharger.

iv. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

a) Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or:

b) Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

b. **Sludge/Biosolids Discharge Specifications**

i. Collected screenings, residual sludge, biosolids, harvested lemna vegetation, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste,* as set forth in Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy these specifications.

ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.

iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations V.B. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations V.B.

c. **Biosolids Disposal Requirements**

i. The Discharger shall comply with the Monitoring and Reporting Program for biosolids disposal contained in Attachment E.

ii. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.

iii. The Discharger is encouraged to comply with the “Manual of Good Practice for Agricultural Land Application of Biosolids” developed by the California Water Environment Association.

d. **Biosolids Storage Requirements**

i. Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.

ii. Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.

iii. Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.

iv. Biosolids storage facilities shall be designed, maintained and operated to minimize the generation of leachate.

e. **Collection System.** On 2 May 2006, the State Water Board adopted State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order 2006-0003 and any future revisions thereto. Order 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR. The Discharger has applied for and has been approved for coverage under State Water Board Order 2006-0003 for operation of its wastewater collection system.

Regardless of the coverage obtained under Order 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR section 122.41(e)], report any non-compliance [40 CFR section 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR. section 122.41(d)].

f. This permit, and the Monitoring and Reporting Program which is a part of this permit, requires that certain parameters be monitored on a continuous basis. The wastewater treatment plant is not staffed on a full time basis. Permit violations or system upsets can go undetected during this period. The Discharger is required to establish an electronic system for operator notification for continuous recording device alarms. For existing continuous monitoring systems, the electronic notification system shall be installed **within six months of adoption** of this permit. For systems installed following permit adoption, the notification system shall be installed simultaneously.

6. Other Special Provisions

a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, 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 Water 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 requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The

statement shall comply with the signatory and certification requirements in the Federal Standard Provisions (Attachment D, Section V.B.) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules

a. **Title 22 Disinfection Requirements. By 25 October 2017,** wastewater discharged to the Willow Slough Bypass and Conaway Ranch Toe Drain shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DPH reclamation criteria, Title 22 CCR, Division 4, Chapter 3, (Title 22) or equivalent. Until final compliance, the Discharger shall submit progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.).

b. **Compliance Schedules for Final Effluent Limitations for BOD, TSS, turbidity, total coliform organisms, aluminum, ammonia, and iron**

i. **By 25 October 2017,** the Discharger shall comply with final effluent limitations for BOD, TSS, turbidity, total coliform organisms, aluminum, ammonia, and iron. On 25 July 2007, the Discharger submitted a compliance schedule justification for BOD, TSS, turbidity, total coliform organisms, aluminum, ammonia, and iron. As this compliance schedule is greater than one year, the Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.)

ii. **Corrective Action Plan/Implementation Schedule.** The Discharger shall submit to the Regional Water Board a revised corrective action plan and implementation schedule including Reuse Feasibility Study measures to assure compliance with the final effluent limitations for BOD, TSS, turbidity, total coliform organisms, aluminum, ammonia, and iron by 1 August 2009.

iii. **Treatment Feasibility Study.** If the Discharger determines that wastewater reuse is not feasible (Section VI.C.2.e of this Order), the Discharger is required to perform an engineering treatment feasibility study examining the feasibility, costs and benefits of different treatment options that may be required to remove BOD, TSS, turbidity, total coliform organisms, aluminum, ammonia, and iron from the discharge. A work plan and time schedule for preparation of the treatment feasibility study shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The treatment feasibility study shall be completed and submitted to the Regional Water Board **by 25 October 2012**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.).

c. **Compliance Schedules for Final Effluent Limitations for cyanide, and selenium**

i. **By 18 May 2010,** the Discharger shall comply with the final effluent limitations for cyanide and selenium. The Discharger submitted a compliance schedule justification for cyanide on 22 January 2007 and a compliance schedule justification for selenium on 30 January 2007. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than one year, the Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.)

ii. **Corrective Action Plan/Implementation Schedule.** The Discharger shall submit to the Regional Water Board a corrective action plan and implementation schedule to assure compliance with the final effluent limitations for cyanide and selenium by six months of the effective date of this Order.

iii. **Pollution Prevention Plan.** The Discharger shall prepare and implement a pollution prevention plan for cyanide and selenium, in accordance with CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet, Attachment F, VII.B.3. A work plan and time schedule for preparation of the pollution prevention plan shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The Pollution Prevention Plan shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.). The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

iv. **Treatment Feasibility Study.** The Discharger is required to perform an engineering treatment feasibility study examining the feasibility, costs and benefits of different treatment options that may be required to remove cyanide and selenium from the discharge. A work plan and time schedule for preparation of the treatment feasibility study shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The treatment feasibility study shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section IX.D.1.).

VII. COMPLIANCE DETERMINATION

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

A. BOD and TSS Effluent Limitations. Compliance with the final effluent limitations for BOD and TSS shall be ascertained by 24-hour composite samples. Compliance with effluent limitations for percent removal shall be calculated using the arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

B. Aluminum Effluent Limitations. Compliance with the effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

C. Total Mercury Mass Loading Effluent Limitations. The procedures for calculating mass loadings are as follows:

1. The total pollutant mass load for each individual calendar month shall be determined using an average of all effluent concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the monitoring and reporting program, pretreatment program and any special studies shall be used for these calculations.
2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.

D. Average Dry Weather Discharge Flow Effluent Limitations. The Average Daily Discharge Flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the Average Dry Weather Discharge Flow effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

E. Mass Effluent Limitations. Compliance with the mass effluent limitations will be determined during average dry-weather periods only when groundwater is at or near normal and runoff is not occurring.

F. Total Coliform Organisms Effluent Limitations. For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last seven days for which analyses have been completed. If the 7-day median of total coliform organisms exceeds a most

probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period.

G. Total Residual Chlorine Effluent Limitations. Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive.

H. Chronic Whole Effluent Toxicity Effluent Limitation. Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with effluent limitations IV.A.1.k and IV.A.2.k for chronic whole effluent toxicity.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

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

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Practicable Treatment or Control (BPTC): BPTC is a requirement of State Water Resources Control Board Resolution 68-16 – "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (referred to as the "Antidegradation Policy"). BPTC is the treatment or control of a discharge necessary to assure that, *"(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."* Pollution is defined in CWC section 13050(l). In general, an exceedance of a water quality objective in the Basin Plan constitutes "pollution".

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Coefficient of Variation (*CV*) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

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

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

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

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

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

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

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of 3 July 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent

bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements. The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

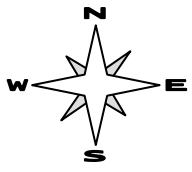
x is the observed value;

μ is the arithmetic mean of the observed values; and

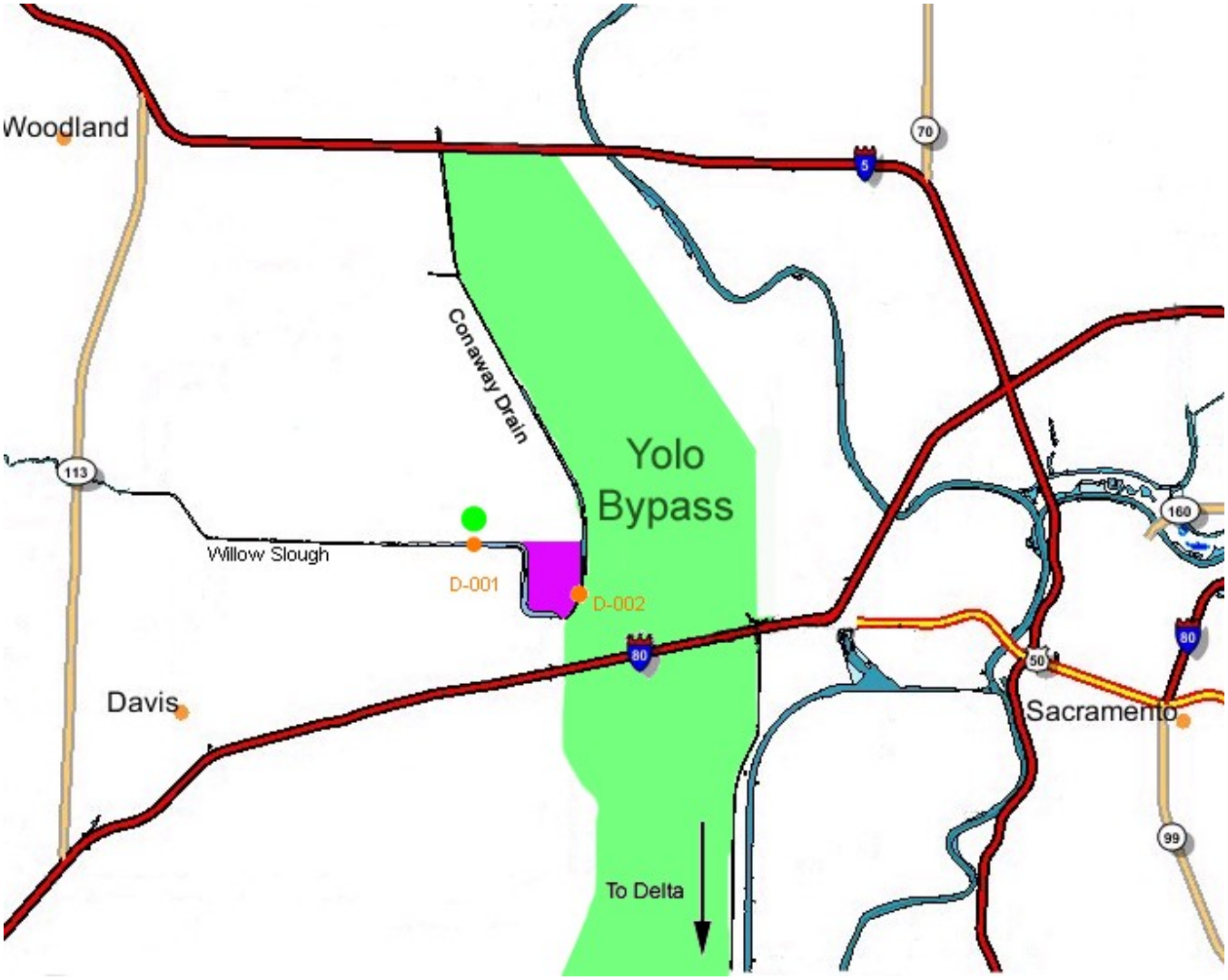
n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

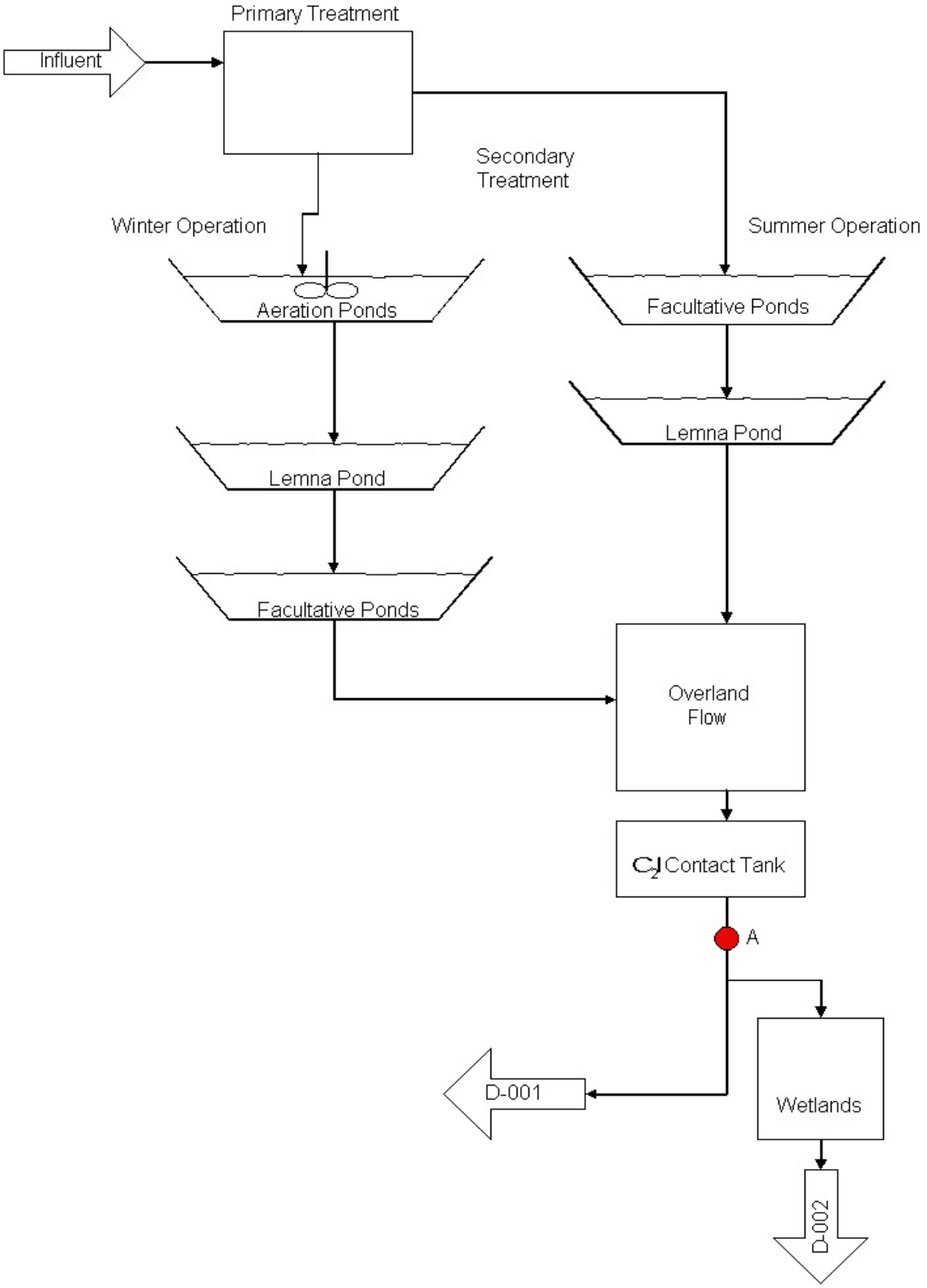
ATTACHMENT B1 – SITE MAP

Drawing Reference: **QUAD SHEET NAME** U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *Photorevised 1973* *Not to scale*	SITE LOCATION MAP CITY OF DAVIS WASTEWATER TREATMENT PLANT YOLO COUNTY	

ATTACHMENT B2 – AREA MAP



ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

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

C. Duty to Mitigate

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

D. Proper Operation and Maintenance

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

E. Property Rights

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

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

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR § 122.41(i)(4).)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR § 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR § 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR § 122.41(m)(4)(i)(A));

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR § 122.41(m)(4)(i)(B)); and

   c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR § 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR § 122.41(m)(4)(ii).)

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR § 122.41(m)(3)(i).)

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR § 122.41(m)(3)(ii).)

H. Upset

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

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 CFR § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR § 122.41(n)(3)(iv))

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR § 122.41(n)(4))

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

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

B. Duty to Reapply

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

C. Transfers

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

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

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

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR § 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Discharger (40 CFR § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

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

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR § 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR § 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR § 122.22(b)(2)); and

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

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

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR § 122.41(l)(4)(ii).)

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

D. Compliance Schedules

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

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 CFR § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR § 122.41(l)(6)(iii).)

F. Planned Changes

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

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

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

H. Other Noncompliance

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

I. Other Information

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

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

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

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

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

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

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Table of Contents

List of Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and state regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.

B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Public Health. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Public Health. Laboratories that perform sample analyses shall be identified in all monitoring reports.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	Influent to the WWTP
001 & 002	EFF - A	Effluent after the disinfection process
001	EFF-001	Discharge 001 to Willow Slough Bypass
002	EFF-002	Discharge 002 to Conaway Ranch Toe Drain
	LND-001	Overland Flow System
001	RSW-001U	Willow Slough Bypass, 30 ft upstream of Discharge 001
001	RSW-001D	Willow Slough Bypass, 200 ft downstream of Discharge 001
002	RSW-002U	Conaway Ranch Toe Drain, 30 ft upstream of Discharge 002
002	RSW-002D	Conaway Ranch Toe Drain, 375 ft downstream of Discharge 002
	RGW-001	Groundwater Monitoring Well 1
	RGW -002	Groundwater Monitoring Well 2
	RGW -003	Groundwater Monitoring Well 3
	RGW -004	Groundwater Monitoring Well 4
	RGW -005	Groundwater Monitoring Well 5
	RGW -006	Groundwater Monitoring Well 6
	PND-001	Oxidation Pond 1
	PND-002	Oxidation Pond 2
	PND-003	Oxidation Pond 3
	PND-004	Aeration Pond 1
	PND-005	Aeration Pond 2
	PND-006	Lemna Pond
	WTL-001	Wetlands Influent
	WTL-002	Wetlands WW Tract
	WTL-003	Wetlands Tract 6
	WTL-004	Wetlands Tract 7
	WTL-005	Wetlands Effluent
	SED-001	Wetlands Sediment
	SPL-001	Water Supply
	BIO-001	Sludge Lagoons

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the facility at INF-001 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	
BOD 5-day 20°C	mg/L, lbs/day	24-hr Composite[1]	3/week	
Total Suspended Solids	mg/L, lbs/day	24-hr Composite[1]	3/week	
Electrical Conductivity	umhos/cm	Grab	1/year	
pH	pH units	Grab	1/day	

1. 24-hour flow proportional composite.

IV. EFFLUENT MONITORING REQUIREMENTS

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed below, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

A. Monitoring Location EFF-A

The Discharger shall monitor effluent at EFF-A as follows, when discharging to Discharge Point 001 and/or Discharge Point 002. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
BOD 5-day 20°C[1]	mg/L, lbs/day	24-hr Composite[2]	3/week	
Total Suspended Solids[1]	mg/L, lbs/day	24-hr Composite[2]	3/week	
Total Coliform Organisms[3]	MPN/100 mL	Grab[4]	5/week	
Settleable Solids[1]	mL/L	Grab[4, 5]/24-hr Composite[2]	3/week	
Turbidity[6, 1]	NTU	Meter	Continuous	
Total Residual Chlorine[7]	mg/L	Meter	Continuous	
Electrical Conductivity @ 25°C[1]	µmhos/cm	Grab[4]	5/week	

1. Prior to completion of the upgraded tertiary WWTP, BOD, TSS, settleable solids, turbidity, and electrical conductivity may be monitored at EFF-001 and EFF-002 in lieu of at EFF-A.[2.] 24-hour flow proportioned composite.
3. Samples shall be collected downstream of the last chlorine addition, before de-chlorination.
4. Grab samples shall not be collected at the same time each day.
5. Grab samples are required in lieu of composite samples due to the equalizing nature of the existing land based treatment system. Composite samples are required when the treatment system is upgraded to a continuous flow system.
6. Turbidity shall be monitored beginning on the effective date of the final turbidity effluent limitation in this Order or when filtration is added to the treatment process, whichever is sooner. If filtration has not yet been added, then the monitoring reports shall so state. Turbidity results shall be reported as described in IX.B.
7. Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L. Samples shall be collected downstream of last chlorine addition, after de-chlorination. Results shall be reported as described in IX.B.

B. Monitoring Location EFF-001

1. The Discharger shall monitor effluent at EFF-001 as follows, when discharging to Discharge Point 001. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-4. Effluent Monitoring Discharge 001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	Mgd	Meter	Continuous	
Temperature	°C (F)	Grab[1]	1/week	
pH	Standard units	Meter	Continuous	
Dissolved Oxygen	mg/L	Grab[1]	1/week	
Total Ammonia (as N)[2, 3]	mg/L, lbs/day	Grab[1]	5/week	
Total Dissolved Solids	mg/L	Grab[1]	1/month	
Aluminum, Total Recoverable[4]	ug/L	Grab[1]	1/month	
Boron	ug/L	Grab[1]	1/month	
Chloride, Total Recoverable	mg/L	Grab[1]	1/month	
Cyanide, Total Recoverable	ug/L	Grab[1]	1/month	
TCDD Equivalents[5]	pg/L	Grab[1]	Quarterly/ Annually[6]	
Hardness (as $CaCO_3$)[7]	mg/L	Grab[1]	Monthly	
Iron, Total Recoverable	mg/L	Grab[1]	1/month	
Mercury, Total Recoverable	ug/L	Grab[1]	1/month	
Oil and grease	mg/L	Grab[1]	Quarterly	
Selenium, Total Recoverable	ug/L, lbs/day	Grab[1]	1/month	
Sodium, Total Recoverable	mg/L	Grab[1]	1/month	
Standard Minerals[8]	mg/L	Grab[1]	1/year	
Priority Pollutants[9, 10, 11, 12]	ug/L	As Appropriate[1, 13]	1/year	

1. Grab samples shall not be collected at the same time each day
2. Concurrent with biotoxicity monitoring.
3. Temperature and pH data shall be collected on the same date and at the same time as the ammonia sample.
4. Compliance with the effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
5. TCDD Equivalents include the 17 congeners identified as TCDD Equivalents in the SIP.
6. Quarterly for eight consecutive quarters following the effective date of this Order, then annually throughout the remainder of the effectiveness of this Order.
7. Hardness samples to be taken concurrently with metals samples.
8. Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).
9. Priority Pollutants is defined as USEPA Priority Pollutants and consists of the constituents listed in the most recent National Toxics Rule and California Toxics Rule.
10. For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
11. Concurrent with receiving surface water sampling and effluent hardness, pH, and temperature sampling.
12. All peaks are to be reported, along with any explanation provided by the laboratory.
13. Volatile samples and phthalate esters shall be grab samples, the remainder shall be 24-hour composite samples.

C. Monitoring Location EFF-002

1. The Discharger shall monitor effluent at EFF-002 as follows, when discharging from Discharge Point 002. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

Table E-5. Effluent Monitoring Discharge 002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	
Temperature	°C (F)	Grab[1]	1/week	
pH	Standard units	Meter	Continuous	
Dissolved Oxygen	mg/L	Grab[1]	1/week	
Total Ammonia (as N) [2,3]	mg/L, lbs/day	Grab[1]	5Xs/week	
Total Dissolved Solids	mg/L	Grab[1]	1/month	
Aluminum, Total Recoverable[4]	ug/L	Grab[1]	1/month	

Boron	ug/L	Grab[1]	1/month	
Chloride, Total Recoverable	ug/L	Grab[1]	1/month	
Copper, Total Recoverable	ug/L	Grab[1]	1/month	
TCDD Equivalents [5]	pg/L	Grab[1]	Quarterly/ Annually [6]	
Hardness (as $CaCO_3$) [7]	mg/L	Grab[1]	Monthly	
Iron, Total Recoverable	mg/L	Grab[1]	1/month	
Mercury, Total Recoverable	ug/L	Grab[1]	1/month	
Oil and grease	mg/L	Grab[1]	Quarterly	
Selenium, Total Recoverable	ug/L, lbs/day	Grab[1]	1/month	
Sodium, Total Recoverable	mg/L	Grab[1]	1/month	
Standard Minerals [8]	mg/L	Grab[1]	1/year	
Priority Pollutants [9, 10, 11, 12]	µg/L	As Appropriate[1, 13]	1/year	

1. Grab samples shall not be collected at the same time each day.
2. Concurrent with biotoxicity monitoring.
3. Temperature and pH data shall be collected on the same date and at the same time as the ammonia sample.
4. Compliance with the effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
5. TCDD Equivalents include the 17 congeners identified as TCDD Equivalents in the SIP.
6. Quarterly for eight consecutive quarters following the effective date of this Order, then annually throughout the remainder of the effectiveness of this Order.
7. Hardness samples to be taken concurrently with metals samples.
8. Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).
9. Priority Pollutants is defined as USEPA Priority Pollutants and consists of the constituents listed in the most recent National Toxics Rule and California Toxics Rule.
10. For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
11. Concurrent with receiving surface water sampling and effluent hardness, pH, and temperature sampling.
12. All peaks are to be reported, along with any explanation provided by the laboratory.
13. Volatile samples and phthalate esters shall be grab samples, the remainder shall be 24-hour composite samples.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity Testing. The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – the Discharger shall perform monthly acute toxicity testing, concurrent with effluent ammonia sampling.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring locations EFF-001 and EFF-002.

3. *Test Species* – Test species shall be larval stage (15 to 30 days old) rainbow trout (*Oncorhchus mykiss*).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

5. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

6. *Ammonia Toxicity* – The acute toxicity testing may be modified to eliminate ammonia-related toxicity until **25 October 2017**, at which time the Discharger shall be required to implement the test without modifications to eliminate ammonia toxicity.

B. Chronic Toxicity Testing. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency* – the Discharger shall perform quarterly three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be grab samples. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001U sampling location when discharging through Discharge 001 and RSW-002U when discharging through Discharge 002, as identified in the Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g. reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
   - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
   - The green alga, *Selenastrum capricornutum* (growth test).

5. *Methods* – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition,* EPA/821-R-02-013, October 2002.

6. *Reference Toxicant* – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – The chronic toxicity testing shall be performed using the dilution series identified in Table E-6, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic). If the receiving water is toxic, laboratory control water may be used as the diluent, in which case, the receiving water should still be sampled and tested to provide evidence of its toxicity.

8. *Test Failure* –The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

   b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual.

9. *Ammonia Toxicity* – The chronic toxicity testing may be modified to eliminate ammonia-related toxicity until 25 October 2017, at which time the Discharger shall be required to implement the test without modifications to eliminate ammonia toxicity.

Table E-6. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	75[1]	50[1]	25[1]	12.5[1]	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

1. These dilutions are only required during accelerated sampling, not during routine sampling.

C. WET Testing Notification Requirements. The Discharger shall notify the Regional Water Board within 24-hrs after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

D. WET Testing Reporting Requirements. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:
   a. The results expressed in TUc, measured as 100/NOEC, and also measured as $100/LC_{50}$, $100/EC_{25}$, $100/IC_{25}$, and $100/IC_{50}$, as appropriate.
   b. The statistical methods used to calculate endpoints;
   c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
   d. The dates of sample collection and initiation of each toxicity test; and
   e. The results compared to the numeric toxicity monitoring trigger.

   Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, (i.e., either quarterly, monthly, accelerated, or TRE).

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

3. **TRE Reporting.** Reports for Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes (If applicable):

a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.

b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

c. Any information on deviations or problems encountered and how they were dealt with.

VI. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001U, RSW-001D, RSW-002U and RSW-002D

1. The Discharger shall monitor the Willow Slough Bypass at RSW-001U and RSW-001D and the Conaway Ranch Toe Drain at RSW-002U and RSW-002D as follows:

Table E-7. Receiving Water Monitoring Requirements – Surface Water

Parameter	Units	Sample Type	Minimum Sampling Frequency[1]	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/week	
pH[2]	Standard Units	Grab	1/week	
Temperature[2]	°F (°C)	Grab	1/week	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	
Fecal Coliform Organisms	MPN/100 mL	Grab	1/month	
Hardness	mg/L	Grab	Quarterly	
Turbidity	NTU	Grab	1/month	

1. At specified frequency or when discharged.
2. pH and temperature shall be determined at the time of sample collection for ammonia.

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

a. Floating or suspended matter	e. Visible films, sheens, or coatings
b. Discoloration	f. Fungi, slimes, or objectionable growths
c. Bottom deposits	g. Potential nuisance conditions
d. Aquatic life	h. Flow Direction
	i. Upstream Conditions

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

B. Monitoring Location RGW-001, RGW -002, RGW -003, RGW -004, RGW -005, and RGW –006

1. The Discharger shall monitor the groundwater at RGW-001, RGW-002, RGW-003, RGW-004, RGW-005, and RGW-006 as follows:

Table E-8. Receiving Water Monitoring Requirements – Groundwater

Parameter[1]	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to Groundwater	feet	Grab	1/month	
Groundwater Elevation	feet	Grab	1/month	
Nitrate (as N)	mg/L	Grab	Quarterly	
Nitrite (as N)	mg/L	Grab	Quarterly	
Heavy Metals (Title 22)	mg/L	Grab	1/year	
Total Trihalomethanes[2]	ug/L	Grab	1/year	
Dissolved Oxygen	mg/L	Grab	1/month	
pH	Standard Units	Grab	1/month	
Temperature	°F (°C)	Grab	1/month	
Total Dissolved Solids	mg/L	Grab	1/month	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/month	
Total Coliform Organisms	MPN/ 100 mL	Grab	1/month	
Fecal Coliform Organisms	MPN/ 100 mL	Grab	1/month	
Ammonia (as N)	mg/L	Grab	1/month	
Nitrate + Nitrite (as N)	mg/L	Calculated	Quarterly	

1. Prior to sampling, the groundwater monitoring wells shall be pumped until the temperature, specific conductivity, and pH have stabilized to ensure representative samples.
2. Total Trihalomethanes include bromoform, chloroform, dibromochloromethane, and bromodichloromethane.

2. Groundwater monitoring results for the constituents above shall be submitted monthly and include a site map showing the location of the wells and the direction and gradient of groundwater flow.

3. A groundwater report shall be submitted as part of the Report of Waste Discharge for the renewal of this Order. The report must contain a brief written description of any groundwater investigation and sampling work completed during the term of this Order, a site map showing the location of all monitoring wells, and tables showing all groundwater monitoring data collected since the wells were installed, including groundwater depth and elevation data, pH, EC, and all other monitored constituents.

VIII. OTHER MONITORING REQUIREMENTS

A. Pond monitoring

1. The Discharger shall monitor the ponds at monitoring locations PND 001, PND 002, PND 003, PND 004, PND 005, and PND 006 as follows:

Table E-9. Pond Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Freeboard	feet	Grab	1/day	
pH	pH Units	Grab	1/week	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/week	
Nitrate (as N)	mg/L	Grab	1/month	
Nitrite (as N)	mg/L	Grab	1/month	
TKN (as N)	mg/L	Grab	1/month	
Ammonia (as N)	mg/L	Grab	1/month	
Odors	Observation	--	1/week	
Levee Condition	Observation	--	1/week	
Dissolved Oxygen	mg/L	Grab	1/month	

B. Wetlands Monitoring

1. The Discharger shall monitor the wetlands at monitoring locations WTL-001 and WTL-005 as follows:

Table E-10. Wetlands Monitoring Requirements – Influent and Effluent

Parameter	Units	Sample Type	Minimum Sampling Frequency[3, 4]	Required Analytical Test Method
Selenium	ug/L	Grab	1/month	
Chronic Toxicity	--	Grab	Quarterly	
Metals[1]	ug/L	Grab	Quarterly	
Ammonia[2] (as N)	mg/L	Grab	1/month	
pH	pH units	Grab	1/month	
Specific Conductivity	umhos/cm	Grab	1/month	
Nitrate (as N)	mg/L	Grab	1/month	
Nitrite (as N)	mg/L	Grab	1/month	
TKN (as N)	mg/L	Grab	1/month	
Temperature	°F (°C)	Grab	1/month	
Hardness	mg/L	Grab	Quarterly	

1. Metal sampling shall include aluminum, antimony, arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, silver, and zinc.
2. pH and temperature shall be determined at the time of sample collection for ammonia.
3. Influent sampling may be sampled immediately after dechlorination.
4. If not discharging effluent from the wetlands, no effluent wetlands monitoring is required. If not discharging to the wetlands, influent wetlands monitoring is not required.

2. The Discharger shall monitor the wetlands at monitoring locations WTL-002, WTL-003, and WTL-004 as follows:

Table E-11. Wetlands Monitoring Requirements - Tracts

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Selenium	ug/L	Grab	1/month	
Metals[1]	ug/L	Grab	Quarterly	
pH	pH units	Grab	1/month	
Specific Conductivity	umhos/cm	Grab	1/month	
Temperature	°F (°C)	Grab	1/month	
Hardness	mg/L	Grab	Quarterly	
Dissolved Oxygen	mg/L	Grab	1/month	

1. Metal sampling shall include aluminum, antimony, arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, silver, and zinc.

3. A wetlands food chain monitoring program shall continue to evaluate the selenium concentration in two aquatic invertebrate species, *Corixid sp.* and *Notonecta sp*. Samples shall be collected and analyzed during February through June. Samples shall be collected from the wastewater and stormwater tracts every year during February through June. The odd numbered tracts shall be sampled in odd numbered years and the even numbered tracts shall be sampled in even number years.

4. Composite sediment samples shall be taken during the water bird nesting season (February through June) from the upper 2 – 3 inches of wetlands sediments at the same locations as the food chain samples. The Discharger shall monitor sediment at monitoring locations SED-001 as follows:

Table E-12. Wetlands Sediment Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Selenium	mg/kg	Grab	1/year	
Nitrate (as N)	mg/kg	Grab	1/year	
Nitrite (as N)	mg/kg	Grab	1/year	
Metals[1]	mg/kg	Grab	1/year	

1. Metal sampling shall include aluminum, antimony, arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, silver, and zinc.

5. Wildlife monitoring shall consist of a wildlife census and avian egg monitoring. The census shall be conducted on an established transect that is representative of the wetlands. The survey's focus shall be on aquatic birds, but incidental observations of other wildlife species shall also be recorded. The census shall be conducted every other month throughout the year. Avian eggs shall be collected and evaluated for selenium content annually from February through June. The program shall monitor at least one shorebird and one waterfowl species. A minimum of ten eggs per species will be collected using not more than one egg per sample nest except

when there are less than ten nests. If there are less than ten nests for some species, then one egg per nest must be collected. Egg sampling shall take place in representative locations thought the wetlands. The Discharger shall report the geometric mean selenium concentration in avian eggs in µg/g (dry weight basis).

C. Municipal Water Supply

1. Monitoring Location SPL-001

The Discharger shall monitor the Municipal Water Supply at SPL-001 as follows. A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Municipal water supply samples shall be collected at approximately the same time as effluent samples.

Table E-13. Municipal Water Supply Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids	mg/L	Grab	1/year	
Electrical Conductivity @ 25°C[1]	µmhos/cm	Grab	1/year	
Selenium	mg/L	Grab	1/year	
Standard Minerals[2]	mg/L	Grab	1/year	

1. If the water supply is from more than one source, the EC shall be reported as a weighted average and include copies of supporting calculations.
2. Standard minerals shall include all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

IX. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

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

2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.

5. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

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

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

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

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

6. **Multiple Sample Data.** When determining compliance with an AMEL , AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values

around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Monitoring results shall be submitted to the Regional Water Board by the **first day** of the second month following sample collection. Quarterly, semiannual and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

3. 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 waste discharge requirements (e.g., effluent limitations and discharge specifications, receiving water limitations, special provisions, etc.). The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended Solids, shall be determined and recorded as needed to demonstrate compliance. In addition, the following shall be calculated and reported in the SMRs:

   a. **Annual Average Limitations.** For constituents with effluent limitations specified as "calendar annual average", the Discharger shall report the calendar annual average in the December SMR. The calendar annual average shall be calculated as the average of the monthly averages for the calendar year.

   b. **Mass Loading Limitations.** For BOD_5, TSS, and ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMRs. The mass loading shall be calculated as follows:

      Mass Loading (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34

      When calculating daily mass loading, the daily average flow and constituent concentration shall be used. For weekly average mass loading, the weekly average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used.

   c. **Mercury.** The Discharger shall calculate and report effluent total annual mass loading of total mercury in the December SMR. The total annual mass loading

shall be calculated as specified in Section VII.C. of the Limitations and Discharger Specifications.

d. **Removal Efficiency (BOD_5 and TSS).** The Discharger shall calculate and report the percent removal of BOD_5 and TSS in the SMRs. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Specifications.

e. **Average Dry Weather Flow.** The Discharger shall calculate and report the average dry weather flow for the Facility discharge in the December SMR. The average dry weather flow shall be calculated annually as specified in Section VII.D. of the Limitations and Discharge Specifications.

f. **Total Coliform Organisms Effluent Limitations.** The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in Section VII.F. of the Limitations and Discharge Specifications.

g. **Dissolved Oxygen, Temperature, and Turbidity Receiving Water Limitations.** The Discharger shall state whether results complied with limitations.

h. **Wetlands and Wetlands Sediment Monitoring.** The Discharger shall submit wetlands and wetlands sediment monitoring results and requirements with the annual reports.

4. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

5. 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.

6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

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

   Regional Water Quality Control Board
   Central Valley Region
   NPDES Compliance and Enforcement Unit
   11020 Sun Center Dr., Suite #200
   Rancho Cordova, CA 95670-6114

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

Table E-14. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	**Permit effective date**	**All**	**Submit with monthly SMR**
1/day	**Permit effective date**	**(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.**	**Submit with monthly SMR**
1/week	**Sunday following permit effective date or on permit effective date if on a Sunday**	**Sunday through Saturday**	**Submit with monthly SMR**
3/week	**Sunday following permit effective date or on permit effective date if on a Sunday**	**Sunday through Saturday**	**Submit with monthly SMR**
1/month	**First day of calendar month following permit effective date or on permit effective date if that date is first day of the month**	**1st day of calendar month through last day of calendar month**	**Submit with monthly SMR**
Quarterly	**Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date**	**1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December**	**1st day of second month after end of the monitoring period**
3/year	**Closest of 1 January, 1 May, or 1 September following (or on) permit effective date**	**1 January through 30 April 1 May through 31 August 1 September through 31 December**	**30 days from the end of the monitoring period**
2/year	**Closest of 1 January or 1 July following (or on) permit effective date**	**1 January through 30 June 1 July through 31 December**	**30 days from the end of the monitoring period**
1/year	**1 January following (or on) permit effective date**	**1 January through 31 December**	**1st day of second month after end of the monitoring period**

C. Discharge Monitoring Reports (DMRs)

1. As described in Section IX.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated cannot be accepted unless they follow the exact same format as EPA form 3320-1.

D. Other Reports

1. **Progress Reports.** As specified in the compliance time schedules required in Special Provisions VI, progress reports shall be submitted in accordance with the following reporting requirements. At a minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-15. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Pollution Prevention Plan for cyanide and selenium	**1 December**, annually, after approval of work plan until final compliance
Pollution Prevention Plan for aluminum and iron	**1 December**, annually, after approval of work plan until final compliance
Salinity Reduction Annual Reports	**1 December**, annually
Title 22 Disinfection Requirements	**1 December**, annually, until final compliance

Special Provision	Reporting Requirements
BPTC Evaluation Tasks	**1 February**, annually**,** following completion of Task 4 of BPTC Evaluation Compliance Schedule
Reuse Feasibility Study	**1 June**, annually, after submittal of work plan until final compliance if reuse is feasible.
Compliance Schedules for Final Effluent Limitations for cyanide and selenium compliance with final effluent limitations	**1 June**, annually, until final compliance
Compliance Schedules for Final Effluent Limitations for BOD, TSS, turbidity, total coliform organisms, aluminum, ammonia, and iron, compliance with final effluent limitations	**1 June**, annually, after completion of the reuse feasibility study if the Discharger determines that reuse if not feasible until final compliance
Compliance Schedules for Final Effluent Limitations for cyanide, and selenium. (Treatment Feasibility Study)	**1 June**, annually, after approval of work plan until final compliance
Compliance Schedules for Final Effluent Limitations for BOD, TSS, turbidity, total coliform organisms, aluminum, ammonia, and iron. (Treatment Feasibility Study)	**1 June**, annually, after completion of the reuse feasibility study if the Discharger determines that reuse if not feasible until final compliance

2. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.

3. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Facilities (such as wet wells, regulated impoundments, tanks, highlines, *etc*.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage facilities.

4. **Annual Operations Report.** By **30 January** 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 Facility.

   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(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

   d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

   e. The Discharger may also be requested to submit an annual report to the Regional Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made 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.

5. **Annual Pretreatment Reporting Requirements.** The Discharger shall submit annually a report to the Regional Water Board, with copies to USEPA Region 9 and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

   An annual report shall be submitted by **28 February** and include at least the following items:

   a. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants EPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by industrial users.

      Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall

also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass-Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto.

b. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by industrial users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through, Interference, or noncompliance with sludge disposal requirements.

c. The cumulative number of industrial users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.

d. An updated list of the Discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The Discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:

   i. complied with baseline monitoring report requirements (where applicable);
   ii. consistently achieved compliance;
   iii. inconsistently achieved compliance;
   iv. significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
   v. complied with schedule to achieve compliance (include the date final compliance is required);
   vi. did not achieve compliance and not on a compliance schedule; and
   vii. compliance status unknown.

   A report describing the compliance status of each industrial user characterized by the descriptions in items iii. through vii. above shall be submitted for each calendar quarter **within 21 days of the end of the quarter**. The report shall identify the specific compliance status of each such industrial user and shall also identify the compliance status of the POTW with regards to audit/pretreatment

compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report. This quarterly reporting requirement shall commence upon issuance of this Order.

e. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the industrial users. The summary shall include:

   i. the names and addresses of the industrial users subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and
   ii. the conclusions or results from the inspection or sampling of each industrial user.

f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

   i. Warning letters or notices of violation regarding the industrial users' apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations.
   ii. Administrative orders regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
   iii. Civil actions regarding the industrial users' noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
   iv. Criminal actions regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
   v. Assessment of monetary penalties. For each industrial user identify the amount of the penalties.
   vi. Restriction of flow to the POTW.
   vii. Disconnection from discharge to the POTW.

g. A description of any significant changes in operating the pretreatment program which differ from the information in the Discharger's approved Pretreatment Program including, but not limited to, changes concerning: the program's administrative structure, local industrial discharge limitations, monitoring program

or monitoring frequencies, legal authority or enforcement policy, funding mechanisms, resource requirements, or staffing levels.

h. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

Duplicate signed copies of these Pretreatment Program reports shall be submitted to the Regional Water Board and the:

State Water Resources Control Board
Division of Water Quality
P.O. Box 944213
Sacramento, CA 94244-2130

and the

Regional Administrator
U.S. Environmental Protection Agency W-5
75 Hawthorne Street
San Francisco, CA 94105

ATTACHMENT F – FACT SHEET

Table of Contents

List of Tables

ATTACHMENT F – FACT SHEET

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

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	5A570100001
Discharger	City of Davis
Name of Facility	Wastewater Treatment Plant
Facility Address	45400 County Road 28H
	Davis, CA, 95616
	Yolo County
Facility Contact, Title and Phone	Keith Smith, Utilities Engineer, (530) 757-5676
Authorized Person to Sign and Submit Reports	Keith Smith, Utilities Engineer, (530) 757-5676
Mailing Address	23 Russell Blvd., Davis, CA 95616
Billing Address	23 Russell Blvd., Davis, CA 95616
Type of Facility	POTW (Standard Industrial Classification: 4952)
Major or Minor Facility	Major
Threat to Water Quality	--
Complexity	--
Pretreatment Program	Y
Reclamation Requirements	NA
Facility Permitted Flow	7.5 million gallons per day (average dry weather flow)
Facility Design Flow	7.5 million gallons per day (average dry weather flow)
Watershed	Sacramento River Watershed
Receiving Water	Willow Slough Bypass and Conaway Ranch Toe Drain
Receiving Water Type	inland surface water

A. The City of Davis (hereinafter Discharger) is the owner and operator of the City of Davis wastewater treatment plant (hereinafter WWTP or Facility).

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Regional Water Board adopted Order No. R5-2007-0132 on 25 October 2007. The permit was subsequently petitioned by the California Sportfishing Protection Alliance, and on 18 November 2008, the State Water Board adopted Order WQ 2008-0008 remanding the permit to the Regional Water Board for modification. The State Water Board remand required the Regional Water Board address items related to chronic whole effluent toxicity, the hardness for calculating CTR hardness-dependent aquatic life criteria for CTR metals to protect from acute toxicity impacts, the re-evaluation of the reasonable potential analysis for copper, lead, nickel, silver, and zinc due to possible changes in hardness, and to allow the use of the City of Woodland's EC site-specific study or other studies for determination of an appropriate final electrical conductivity effluent limitation.

C. On 5 February 2009, the Regional Water Board adopted Order No. R5-2007-0132-01 amending Order No. R5-2007-0132 to extend the time schedule for compliance with effluent limitations for biochemical oxygen demand, total suspended solids, turbidity, total coliform organisms, aluminum, ammonia, and iron. The amended compliance schedule also included interim milestone dates for the Discharger to submit a preferred option for compliance and a specific reopener provision was adopted to include additional requirements and/or amend compliance dates to implement reuse of treated wastewater on Conaway Ranch if the Discharger determines that reuse is feasible.

D. The Facility discharges wastewater to the Willow Slough Bypass and the Conaway Ranch Toe Drain, waters of the United States, and is currently regulated by Order 5-01-067 which was adopted on 16 March 2001 and expired on 16 March 2006. On 8 May 2003, effluent limitations for biochemical oxygen demand (BOD), total suspended solids (TSS), turbidity, settleable solids, chlorine residual, ammonia, bis(2-ethylhexyl)phthalate, persistent chlorinated hydrocarbon pesticides, copper, dioxin and congeners, PAH's and total coliform organisms were stayed by a State Water Board Stipulation Order Resolving Petition for Review (OCC File A-1374) (Stipulation). The Stipulation required the Regional Water Board to "develop the permit on remand in light of the current record and new information developed on remand." The terms and conditions of the current Order that were not subject to the stipulation have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order.

E. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 1 September 2005. Supplemental information was requested on 15 September 2005 and received on 17 October 2005. A site visit was conducted on 31 January 2005, to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the City of Davis and serves a population of approximately 65,000. The WWTP design average dry weather flow capacity is 7.5 mgd.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment train is flexible and varies according to the flow and season and alternates between Discharge 001 and Discharge 002. The treatment train consists of screening; aerated grit removal; primary sedimentation; aerated ponds (used in winter operation); a lemna pond; oxidation ponds; overland flow; disinfection; and dechlorination for both Discharge 001 and Discharge 002. Discharge 002 additionally passes through treatment wetlands after disinfection and dechlorination. The wetlands include seven tracts, each constructed with flexibility to flow to adjacent downgradient cells. The wetlands has the ability to recirculate the treated flow from the latter two tracts to the first tract. Stormwater and domestic wastewater may be commingled in the wetlands. The overland flow fields are comprised of 160 acres of Fescue, Bermuda, and a variety of native and non-native grass and broadleaf species divided into 15 separate zones over which wastewater is distributed and allowed to sheet flow at a two percent slope.

Sludge is anaerobically digested in a primary and secondary digester and then is transferred to one of three unlined on-site lagoons to dry. Supernatant is directed to the headworks. Class B biosolids (satisfying minimum digestion time and tested by coliform samples) are land applied in September or October to a fifth (thirty-three acres) of the overland flow fields scheduled for periodic terrace renovation.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 29 and 30, T9N, R3E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated municipal wastewater is discharged at Discharge Point 001 to Willow Slough Bypass and is discharged at Discharge Point 002 to Conaway Ranch Toe Drain, waters of the United States tributary to the Yolo Bypass at the points Latitude 38°, 35', 24" N and longitude 121°, 39', 50" W (Discharge Point 001) and Latitude 38°, 34', 33"N and longitude 121°, 38', 02"W (Discharge Point 002). Discharge Points 001 and 002 are in the Lower Putah Creek Hydrologic Area (511.20) of the Valley Putah-Cache Hydrologic Unit.

3. Willow Slough Bypass and the Conaway Ranch Toe Drain have very low flow during the dry seasons. At times, flow upstream of the discharge in both receiving waters is immeasurably small or nonexistent. At times, effluent discharge from the Davis WWTP may provide the majority of the flow in Willow Slough Bypass, with little or no dilution from natural flow.

4. The Davis Restoration Treatment Wetlands were created through the City of Davis, US Army Corps of Engineers, Yolo Basin Foundation, and California Waterfowl Association. These wetlands were created to support restoration of wetlands in the northwestern flyway, provide additional wastewater treatment and stormwater treatment. In addition, the wetlands were seen to enhance wildlife habitat. The wetlands are used for guided tours for school children and others interested in wildlife. Public access to the Restoration Treatment Wetlands is controlled through the City of Davis in conjunction with the Yolo Basin Foundation.

5. The Willow Slough Bypass is tributary to the Conaway Ranch Toe Drain and both streams are tributary to the Yolo Bypass. The Yolo Bypass is tributary to the Sacramento/San-Joaquin Delta. Discharge Points 001 and 002 are located immediately before the location where Conaway Ranch Toe Drain and the Willow Slough Bypass discharge into the Yolo Bypass. Effluent from each outfall discharges to receiving waters tributary to the Yolo Bypass. The outfalls are located just upstream of the location where these tributaries enter the Yolo Bypass.

6. The Conaway Ranch Toe Drain and Willow Slough Bypass are used for the irrigation of crops and provide irrigation water to seasonal wetlands. The designated beneficial uses of the Yolo Bypass include agriculture. The December 2000 *Recreation, Land Use, and Dilution Study of the Tule Canal and Toe Drain* (Study) provided by the City of Woodland found that melons and tomatoes are grown in the Yolo Bypass. The State of California Department of Water Resources 1997 Yolo County Land Use Survey shows tomatoes and either melons, squash, or cucumbers grown in the Yolo Bypass in the vicinity of the City's discharge.

7. The designated beneficial uses of the Yolo Bypass include water contact recreation. The Study discussed in the preceding paragraph found that recreational fishing (including human consumption of fish) and swimming occurs within the Yolo Bypass.

8. The designated beneficial uses of the Yolo Bypass include warm freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat and potential cold freshwater aquatic habitat. The *Habitat Improvement for Native Fish in the Yolo Bypass*, states that "considering the four runs of salmon present, adult migration may occur in any month," which indicates the presence of salmonids in the Yolo Bypass year-round.

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

Effluent limitations/Discharge Specifications contained in the previous Order for discharges from Discharge Points 001 and 002 (Monitoring Locations EFF-001 and EFF-002) and representative monitoring data from the term of the previous Order are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data – Discharge 001

Parameter	Units	Effluent Limitation						Monitoring Data (From September 2002 – To September 2005)				
						Instananeous		Highest				Lowest
		Average Monthly	Average Weekly	Maximum Daily	Monthly Median	Minimum	Maximum	Average Monthly	Average Weekly	Monthly Median	Daily	Daily
BOD[1]	mg/L lbs/day	30 1876	45[2] 2815	90[2] 5633				21.6 1246	26 1349		30 1854	
TSS	mg/L lbs/day	50 3129	75[2] 4694	150[2] 9388				54.7 2769	67 2769		82 4715	
Settleable Solids	mL/L	0.1		0.2				>0.1			0.1	
pH						6.5	8.5				8.1	7.2
Chlorine Residual	mg/L			0.02							2.95	
Total Coliform Organisms[3]	MPN/ 100mL			500	23					4	33	
Selenium	ug/L lbs/day		5.0 0.3						5.6 0.2			

1. 5-day, 20°C biochemical oxygen demand (BOD).
2. To be ascertained by a 24-hour composite.
3. The total coliform organism sample may be collected immediately following the disinfection process.

Table F-3. Historic Effluent Limitations and Monitoring Data – Discharge 002

Parameter	Units	Effluent Limitation						Monitoring Data (From September 2002– To September 2005)				
						Instananeous		Highest				Lowest
		Average Monthly	Average Weekly	Maximum Daily	Monthly Median	Minimum	Maximum	Average Monthly	Average Weekly	Monthly Median	Daily	Daily
BOD[1]	mg/L lbs/day	30 1876	45[2] 2815	90[2] 5633				21.1 587	24 1316		26 1750	
Total Suspended Solids	mg/L lbs/day	50 3129	75[2] 4694	150[2] 9388				83 2310	90.8 3248		126 3852	
Settleable Solids	mL/L	0.1		0.2				>0.1			0.3	
pH						6.5	8.5				8.7	7.0
Chlorine Residual	mg/L			0.02							0.00	
Total Coliform Organisms[3]	MPN/ 100mL			500	23					4	1600	
Selenium	ug/L lbs/day		5.0 0.3						3.4 0.2			

1. 5-day, 20°C biochemical oxygen demand (BOD).
2. To be ascertained by a 24-hour composite.
3. The total coliform organism sample may be collected immediately following the disinfection process.

For Both discharges 001 and 002:

The average dry weather (generally May through October) discharge flow shall not exceed 7.5 million gallons.

Survival of aquatic organisms in 96-hour 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. Compliance Summary

Waste Discharge Requirements Order No. 5-01-067 requires that survival of aquatic organisms in 96-hour bioassays of undiluted waste be no less than 70% for any one bioassay and 90% for the median of any three or more consecutive bioassays. As discussed in section IV.C.5 of this Fact Sheet, toxicity monitoring indicates that the Discharger has violated this effluent limitation.

The Discharger has exceeded the TSS monthly average and weekly average limitations and has exceeded the total coliform, settleable solids, and chlorine residual limitation.

The Discharger will evaluate the feasibility of reusing treated effluent at the Conaway Ranch for agricultural reuse to eliminate its surface water discharge. If reuse is not feasible, the Discharger is proposing to construct a new WWTP. Upon completion of the new tertiary facility, the character of the wastewater discharged will be significantly improved over the equivalent to secondary level of treatment currently provided. This Order contains limitations based on the discharge from the existing facility. According to the Discharger, if reuse is not feasible, the new treatment system will be designed with the goal of achieving full compliance with Waste Discharge Requirements. However, due to the nature of emerging contaminants, additional measures may be required after construction, but prior to the final compliance date, to assure that all emerging contaminants respond satisfactorily to the proposed treatment process. Based on a characterization of the discharge quality, following startup of the new WWTP, this Order may be reopened and modified.

E. Planned Changes

If reuse is not feasible and the Discharger finds it necessary to construct a new WWTP, the Discharger anticipates it will take longer than five years (one permit term) to complete the upgrade to tertiary. The Discharger has projected that a new tertiary treatment system could be completed as early as 2015 or as late as the end of 2018 for facilities to provide a tertiary (or equivalent) level of treatment and year-round nitrification/denitrification. The Discharger anticipates the new treatment system would be able to comply with priority pollutant water quality standards for all constituents except selenium. Removal of the overland flow system as part of the upgrade to tertiary would improve the effluent quality for most constituents, but would likely cause an increase in effluent selenium. Achieving compliance with the CTR effluent selenium limitations would most likely require a change in the City's water supply.

This Order includes a time schedule for the completion of tertiary treatment, as described in the Discharger's 25 July 2007 Infeasibility Report as the shortest practicable compliance schedule. This Order also incorporates time necessary to evaluate the feasibility of agricultural reuse at Conaway Ranch and the elimination of a surface water discharge. The Discharger anticipates that to conduct the necessary studies and evaluate the feasibility of reuse it will take two years from the adoption date of this Order. If the Discharger determines that it is not feasible prior to the end of the two year study period, the Discharger will immediately resume its plans to construct a new WWTP.

This Order contains limitations based on both the existing discharge and the discharge from the proposed tertiary facility if reuse at Conaway Ranch is determined to be infeasible.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in Section II of the Limitations and Discharge Requirements (Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

A. Legal Authority

See Limitations and Discharge Requirements - Findings, Section II.C.

B. California Environmental Quality Act (CEQA)

See Limitations and Discharge Requirements - Findings, Section II.E.

C. State and Federal Regulations, Policies, and Plans

Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), for the Sacramento and San Joaquin River Basins* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. Resolution No. 88-63 also states, "Any body of water which has a current specific designation previously assigned to it by a Regional Board in Water Quality Control Plans may retain that designation at the Regional Board's discretion." The Basin Plan specifically does not assign municipal and domestic supply as a beneficial use of the Yolo Bypass. In accordance with the tributary rule as described in Finding II.H, since the discharge is to tributaries of the Yolo Bypass just outside of the Yolo Bypass, this Order does not apply a beneficial use of municipal and domestic use to the receiving streams. This Order applies the Basin Plan-assigned beneficial uses of the Yolo Bypass to the receiving streams, which are as follows: agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; potential cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning, reproduction, and/or early development; and wildlife habitat.

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 federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the

requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

This Order contains Effluent Limitations requiring a tertiary level of treatment, or equivalent, which is necessary to protect the beneficial uses of the receiving water. The Regional Water Board has considered the factors listed in CWC section 13241 in establishing these requirements, as discussed in more detail in Section IV.C.3.o.

Antidegradation Policy. Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution 68-16.

Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.3.

***Emergency Planning and Community Right to Know Act*.** Section 13263.6(a), California Water Code, requires that "*the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRKA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective*".

The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this facility. Therefore, a reasonable potential analysis based on information from Emergency Planning and Community Right to Know Act (EPCRA) cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to CWC section 13263.6(a).

However, as detailed elsewhere in this Order, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.

***Stormwater Requirements*.** USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the stormwater program and are obligated to comply with the Federal Regulations.

Endangered Species Act. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

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

1. Under section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave partial approval to California's 2006 section 303(d) List of Water Quality Limited Segments. EPA approved the waters and pollutants identified in California's three part Section 303(d) list with the exception of Walnut Creek for toxicity and may identify additional waters and pollutants for inclusion on the 303(d) list if necessary. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum*

allowable load of critical pollutants so that water quality objectives can be met in the segment." Neither the Conaway Ranch Toe Drain, the Willow Slough Bypass, nor the Yolo Bypass are listed on California's 2006 section 303(d) List of Water Quality Limited Segments. The listing for the Sacramento/San Joaquin Delta (northern delta), to which the receiving waters are tributary, includes: chlorpyrifos, DDT, diazinon, exotic species, group A pesticides, mercury, polychlorinated biphenyls, and unknown toxicity. This Order includes monitoring for mercury and unknown toxicity.

Chlorpyrifos, DDT, diazinon, group A pesticides (a type of persistent chlorinated hydrocarbon pesticide), and polychlorinated biphenyls were not detected in the effluent, but the Discharger's Report of Waste Discharge showed pentachlorophenol (a persistent chlorinated hydrocarbon pesticide) was detected in Discharge 001 above the numerical water quality objective. The Discharger has provided the Regional Water Board with information indicating that the detected sample for pentachlorophenol was the result of laboratory error and that the detected sample was analyzed using the incorrect EPA method. Another sample taken the same day and analyzed using the correct EPA method resulted in pentachlorophenol being not detected. Due to laboratory error, the Regional Water Board has excluded the detected result for pentachlorophenol from its reasonable potential analysis. Therefore, this Order does not contain effluent limitations for chlorpyrifos, DDT, diazinon, group A pesticides, and polychlorinated biphenyls in both Discharge 001 and Discharge 002. The effluent in both Discharge 001 and Discharge 002 showed toxicity and this Order includes an acute toxicity limitation for both Discharge 001 and Discharge 002. Mercury was detected in both Discharge 001 and Discharge 002 at concentrations below the numerical water quality objective. Therefore, this Order does not contain effluent concentration-based limitations for mercury. However, because mercury is a bioaccumulative constituent, the discharge of mercury to the Willow Slough Bypass and Conaway Ranch Toe Drain may impact the downstream Sacramento/San Joaquin Delta as a mass loading, and an effluent mass limitation for mercury is included in this Order.

2. **Total Maximum Daily Loads.** The USEPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. A TMDL has not yet been established for mercury in the Sacramento/San Joaquin Delta. Therefore, this Order contains a performance-based effluent mass limitation for mercury for the effluent discharge to the Willow Slough Bypass and Conaway Ranch Toe Drain to maintain the mercury loading at the current level until a total maximum daily load (TMDL) can be established and EPA develops mercury standards that are protective of human health.

E. Other Plans, Polices and Regulations

1. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq*. (hereafter Title 27). The

exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

a. The waste consists primarily of domestic sewage and treated effluent;

b. The waste discharge requirements are consistent with water quality objectives; and

c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

2. The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this Order are consistent with the Policy.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

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.

The Federal CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., § 1311(b)(1)(C); 40 CFR, § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal Regulations, 40 CFR, §122.44(d)(1)(vi), further provide that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.*"

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives" that specifies that the Regional Water Board "*will, on a case-by-case basis,*

adopt numerical limitations in orders which will implement the narrative objectives." This Policy complies with 40 CFR §122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) EPA's published water quality criteria, (2) a proposed state criterion (*i.e*., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e*., the Regional Water Board's "Policy for Application of Water Quality Objectives")(40 CFR 122.44(d)(1) (vi) (A), (B) or (C)), or (3) an indicator parameter. The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses.

A. Discharge Prohibitions

1. As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Following publication of the secondary treatment regulations, legislative history indicates that Congress was concerned that USEPA had not "sanctioned" the use of certain biological treatment techniques that were effective in achieving significant reductions in BOD_5 and TSS for secondary treatment. Therefore to prevent unnecessary construction of costly new facilities, Congress included language in the 1981 amendment to the Construction Grants statues [section 23 of Pub. L. 97-147] that required USEPA to provide allowance for alternative biological treatment technologies such as trickling filters or waste stabilization ponds. In response to this requirement, definition of secondary treatment was modified on 20 September 1984 and 3 June 1985, and published in the revised secondary treatment regulations contained in section 133.105. These regulations allow alternative limitations for facilities using trickling filters and waste stabilization ponds that meet the requirements for "equivalent to secondary treatment." These "equivalent to secondary treatment" limitations are *up to* 45 mg/L (monthly average) and *up to* 65 mg/L (weekly average) for BOD_5 and TSS.

Therefore, POTWs that use waste stabilization ponds, identified in section 133.103, as the principal process for secondary treatment and whose operation and maintenance data indicate that the TSS values specified in the equivalent-to-secondary regulations cannot be achieved, can qualify to have their minimum levels of effluent quality for TSS adjusted upwards.

Furthermore, in order to address the variations in facility performance due to geographic, climatic, or seasonal conditions in different States, the Alternative State Requirements (ASR) provision contained in section 133.105(d) was written. ASR allows States the flexibility to set permit limitations above the maximum levels of 45 mg/L (monthly average) and 65 mg/L (weekly average) for TSS from lagoons. However, before ASR limitations for suspended solids can be set, the effluent must meet the BOD limitations as prescribed by 40 section 133.102(a). Presently, the maximum TSS value set by the State of California for lagoon effluent is 95 mg/L. This value corresponds to a 30-day consecutive average or an average over duration of less than 30 days.

In order to be eligible for equivalent-to-secondary limitations, a POTW must meet all of the following criteria:

- The principal treatment process must be either a trickling filter or waste stabilization pond.
- The effluent quality consistently achieved, despite proper operations and maintenance, is in excess of 30 mg/L BOD_5 and TSS.
- Water quality is not adversely affected by the discharge. (40 CFR § 133.101(g).)

The treatment works as a whole provides significant biological treatment such that a minimum 65 percent reduction of BOD_5 is consistently attained (30-day average).

2. Applicable Technology-Based Effluent Limitations

a. **BOD_5 and TSS.** Federal Regulations, 40 CFR, Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. Tertiary treatment is necessary to protect the beneficial uses of the receiving stream and the final effluent limitations for BOD_5 and TSS are based on the technical capability of the tertiary process. BOD_5 is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The secondary and tertiary treatment standards for BOD_5 and TSS are indicators of the effectiveness of the treatment processes. The principal design parameter for wastewater treatment plants is the daily BOD_5 and TSS loading rates and the corresponding removal rate of the system. In applying 40 CFR Part 133 for weekly and monthly average BOD_5 and TSS limitations, the application of tertiary treatment processes results in the ability to achieve lower levels for BOD_5 and TSS than the secondary standards currently prescribed; the 30-day average BOD_5 and TSS limitations have been revised to 10 mg/L, which is technically based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD_5 and TSS is included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. See Table F-4 for final technology-based effluent limitations required by this Order. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of BOD_5 and TSS must be achieved by a secondary treatment plant, it must also be achieved by a tertiary (i.e., treatment beyond secondary level) treatment plant. This Order contains a limitation requiring an average of 85 percent removal of BOD_5 and TSS over each calendar month.

b. **Flow.** Monitoring data from September 2002 through September 2005 shows the dry weather flow is typically 5.5 to 6.0 mgd and has remained fairly constant. The Facility was designed to provide an equivalent to secondary level of treatment for up to an average dry weather design flow of 7.5 mgd. Therefore, this Order contains an Average Dry Weather Discharge Flow effluent limit of 7.5 mgd.

Summary of Technology-based Effluent Limitations
Discharge Points –001 and 002

Table F-4. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD_5	mg/L	10	15	20		
	lbs/day[1]	630	940	1300		
	% removal	85				
TSS	mg/L	10	15	20		
	lbs/day[1]	630	940	1300		
	% removal	85				
pH	standard units				6.5	8.5

1. Based on 7.5 mgd (permitted flow) times limit in mg/L times 8.3454 (conversion factor).

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

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

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Receiving Water.** Discharge 001 is to the Willow Slough Bypass and Discharge 002 is to the Conaway Ranch Toe Drain. Refer to Section III for the beneficial uses of the receiving water.

b. **Metal Translators.** Federal Regulations at 40 CFR 122.45(c) require that permit effluent limits for metals shall be expressed as "total recoverable metal" as defined in 40 CFR part 136. The criteria for metals is typically in the form of "dissolved metal", therefore, a dissolved-to-total metal translator is needed to convert the dissolved concentrations to total recoverable when calculating water quality-based effluent limits.

For priority pollutant metals, the SIP at section 1.4.1 requires the use of USEPA default translators specified in the CTR. Alternatively, the SIP allows the use of site-specific metals translators that "…can be developed from field data by either direct determination of the fraction dissolved, or by development of a site-specific partition coefficient that relates the fraction dissolved to ambient background conditions such as pH, suspended load, or organic carbon."

The Discharger submitted a study titled, "Metals translator Monitoring Study – Copper, Lead and Nickel", dated January 2007, which was developed in accordance with the SIP and USEPA guidance[1]. The Discharger requested the use of site-specific metals translators for copper, nickel, and lead for Discharge Point 001 (Willow Slough Bypass) based on the results of the study.

During the study, the Discharger collected water quality data twice a week for a 5-week period during low receiving water conditions, which is recommended by USEPA's guidance. Samples were collected of the effluent at Discharge 001 and in Willow Slough Bypass approximately 3 miles downstream of Discharge 001. Metals translators were developed for copper, nickel, and lead in accordance with the SIP and USEPA's guidance as shown in Table F-5, below.

Table F-5. Summary of Site Specific Translators

	Acute		Chronic	
	Receiving Water	Effluent	Receiving Water	Effluent
Copper	0.32	0.68	0.37	0.58
Lead	0.17	0.81	0.20	0.65
Nickel	0.54	0.78	0.37	0.71

The Study results demonstrate that the dissolved fractions in the effluent are greater than in the downstream mixed receiving water. A mixing zone has not been allowed in this Order. Therefore, site-specific translators based on the mixed downstream receiving water monitoring data are not appropriate, because end-of-pipe effluent limits are required. The site-specific translators for copper, lead, and nickel based on the effluent monitoring data are appropriate for development of end-of-pipe water quality-based effluent limits. Therefore, this Order allows the use of the site-specific metals translators based on the effluent, as shown in Table F-5, above.

c. **Hardness Dependant CTR Metals Criteria**

The *California Toxics* Rule and the *National Toxics* Rule contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness, the lower the water quality criteria. The metals with hardness-dependant criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

[1] "The Metals Translator: Guidance For Calculating a Total Recoverable Permit Limit from a Dissolved Criterion", EPA 823-B-96-007, June 1996

This Order has established the criteria for hardness-dependant metals based on the reasonable worst-case ambient hardness as required by the SIP[2], the CTR[3], and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of "receiving water" or "actual ambient" hardness, respectively, to determine effluent limitations for these metals (SIP, § 1.2; 40 CFR § 131.38(c)(4), Table 4, note 4.) The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. In some cases, the hardness of effluent discharges changes the hardness of the ambient receiving water. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Regional Water Board thus has considerable discretion in determining ambient hardness (*Id.*, p.10.).

The hardness values must also be protective under all flow conditions (*Id.*, pp. 10-11). As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces criteria that ensure these metals do not cause receiving water toxicity, while avoiding criteria that are unnecessarily stringent.

i. **Reasonable Potential Analysis (RPA).** The SIP in Section 1.3 states, "The RWQCB shall…determine whether a discharge may : (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective.: Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the Maximum Effluent Concentration (MEC) and Maximum Ambient Background Concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependant CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

- For comparing the MEC to the applicable criterion, in accordance with the SIP, CTR, and Order WQO 2008-0008, the reasonable worst-case downstream hardness was used to adjust the criterion. In this evaluation, the portion of the receiving water affected by the discharge is analyzed. For hardness-dependant criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas in the receiving water affected by the discharge. Therefore,

[2] The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependant metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

[3] The CTR requires that, for waters with a hardness of 400 mg/L (as $CaCO_3$), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent withy the design discharge conditions for design flows and mixing zones.

for this situation it is necessary to consider the hardness of the effluent in determining the applicable hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream hardness is outlined in subsection ii, below.

- For comparing the Maximum Ambient Background Concentration to the applicable criterion, in accordance with the SIP, CTR, and Order WQO 2008-0008, the reasonable worst-case upstream hardness was used to adjust the criterion. In this evaluation, the area outside the influence of the discharge is analyzed. For this situation, the discharge does not impact the upstream hardness. Therefore, the effect of the effluent hardness was not included in this evaluation.

  Discharge Point No. 001 (Willow Slough Bypass). Upstream receiving water hardness data for Willow Slough Bypass ranged from 78 to 800 mg/L (as $CaCO_3$), based on 104 samples from 4 January 2005 to 9 February 2009. The minimum observed upstream receiving water hardness, 78 mg/L as $CaCO_3$, was used to adjust the CTR criteria when comparing Maximum Background Ambient Concentration to the criterion for Discharge 001.

  Discharge Point No. 002 (Conaway Ranch Toe Drain). Upstream receiving water hardness data for Conaway Ranch Toe Drain ranged from 85 mg/L to 560 mg/L (as $CaCO_3$), based on 35 samples from 3 February 2005 to 2 April 2008. The minimum observed upstream receiving water hardness of 85 mg/L (as $CaCO_3$) was used to adjust the CTR criteria when comparing the Maximum Ambient Concentration to the criterion for Discharge 002.

ii. **Effluent Concentration Allowances (ECA) Calculations.** A 2006 Study[4] developed procedures for calculating the effluent concentration allowance (ECA)[5] for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g. high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. Simply using the lowest recorded upstream receiving water hardness to calculate the ECA may result in over or under protective water quality-based effluent limitations.

The equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

[4] Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.

[5] The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate water quality-based effluent limitations in accordance with Section 1.4 of the SIP.

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \qquad \text{(Equation 1)}$$

Where:

H = hardness (as $CaCO_3$)
WER = water-effect ratio
m, b = metal- and criterion-specific constants

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants "m" and "b" are specific to both the metal under consideration, and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

$$\text{ECA} = C \quad \text{(when } C \le B\text{)}^6 \qquad \text{(Equation 2)}$$

Where

C = the priority pollutant criterion/objective, adjusted for hardness (see Equation 1, above)

B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as "Concave Down Metals". "Concave Down" refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as "Concave Up Metals".

ECA for Concave Down Metals – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria. Therefore, based on any observed ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion) and the minimum effluent hardness, the ECA calculated using Equation 1 with a hardness

[6] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e. C ≤ B)

equivalent to the minimum effluent hardness is protective under all discharge conditions (i.e., high and low dilution conditions and under all mixtures of effluent and receiving water as the effluent mixes with the receiving water). This is applicable whether the effluent hardness is less than or greater than the ambient background receiving water hardness.

Willow Slough Bypass (Discharge Point No. 001) and Conaway Ranch Toe Drain (Discharge Point No. 002) - The effluent hardness for Discharge 001 and 002 ranged from 260 mg/L to 610 mg/L (as $CaCO_3$), based on 33 samples from 11 January 2005 to 2 March 2009. The upstream receiving water hardness varied from 78 mg/L to 800 mg/L (as $CaCO_3$), for the Willow Slough Bypass, based on 104 samples from 4 January 2005 to 9 February 2009, and ranged from 85 mg/L to 560 mg/L (as $CaCO_3$), for the Conaway Ranch Toe Drain, based on 35 samples from 3 February 2005 to 2 April 2008. Using a hardness of 260 mg/L (as $CaCO_3$) to calculate the ECA for all Concave Down Metals will result in water quality-based effluent limitations that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in the example using copper shown in Table F-6, below. This example assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 78 mg/L as $CaCO_3$).
- Upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity). Based on available data, the receiving waters (i.e., Willow Slough Bypass and Conaway Ranch Toe Drain) never exceeded the CTR criteria for any metal with hardness-dependent criteria.

As demonstrated in Table F-6, using a hardness of 260 mg/L (as $CaCO_3$) for Discharge 001 and Discharge 002 to calculate the ECA for Concave Down Metals ensures the discharge is protective under all discharge and mixing conditions. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. An ECA based on a lower hardness (e.g. lowest upstream receiving water hardness) would also be protective, but would result in unreasonably stringent effluent limits considering the known conditions. Therefore, in this Order the ECA for all Concave Down Metals for Discharge 001 and Discharge 002 has been calculated using Equation 1 with a hardness of 260 mg/L (as $CaCO_3$).

Table F-6. Copper ECA Evaluation (Discharge 001)

Minimum Observed Effluent Hardness	260 mg/L (as $CaCO_3$)
Minimum Observed Upstream Receiving Water Hardness	78 mg/L (as $CaCO_3$)
Maximum Assumed Dissolved Upstream Receiving Water Copper Concentration	7.4 µg/L[1]
Dissolved Copper $ECA_{chronic}$[2]	20.3 µg/L

Effluent Fraction	Mixed Downstream Ambient Concentration		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Copper[5] (µg/L)**
1%	79.82	7.4	7.4
5%	87.1	8.0	7.9
15%	105.3	9.4	9.2
25%	123.5	10.7	10.5
50%	169	14.0	13.8
75%	214.5	17.2	17.0
100%	260	20.3	20.3

[1] Maximum assumed upstream receiving water dissolved copper concentration calculated using Equation 1 for chronic criterion at a hardness of 78 mg/L (as $CaCO_3$).

[2] Dissolved ECA calculated using Equation 1 for chronic criterion at a hardness of 260 mg/L (as $CaCO_3$).

[3] Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

[4] Mixed downstream ambient criteria (as dissolved) are the chronic criteria calculated using Equation 1 at the mixed hardness.

[5] Mixed downstream ambient copper concentration (dissolved) is the mixture of the receiving water and effluent dissolved copper concentrations at the applicable effluent fraction.

ECA for Concave Up Metals - For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the 2006 Study demonstrates that due to a different relationship between hardness and the metals criteria, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may be out of compliance. Therefore, the 2006 Study provides a mathematical approach to calculate the ECA to ensure that any mixture of effluent and receiving water is in compliance with the CTR criteria (see Equation 3, below). The ECA, as calculated using Equation 3, is based on the reasonable worst-case ambient background hardness, no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion), and the minimum observed effluent hardness. The reasonable worst-case ambient background hardness depends on whether the effluent hardness is greater than or less than the upstream receiving water hardness. There are circumstances where the conservative ambient background hardness assumption is to assume that the upstream receiving water is at the highest observed hardness concentration. The conservative upstream receiving water condition as used in the Equation 3 below is defined by the term H_{rw}.

$$ECA_{I} = \left(\frac{m(H_e - H_{rw})\left(e^{m\{\ln(H_{rw})\}+b}\right)}{H_{rw}} \right) + e^{m\{\ln(H_{rw})\}+b} \qquad \text{(Equation 3)}$$

m, b = criterion specific constants (from CTR)san jose

H_e = minimum observed effluent hardness

H_{rw} = minimum observed upstream receiving water hardness when the minimum effluent hardness is always greater than observed upstream receiving water hardness ($H_{rw} < H_e$)

-or-

maximum observed upstream receiving water hardness when the minimum effluent hardness is always less than observed upstream receiving water hardness ($H_{rw} > H_e$)[7]

Willow Slough Bypass (Discharge 001) and Conaway Ranch Toe Drain (Discharge Point No. 002) - A similar example as was done for the Concave Down Metals is shown for silver, a Concave Up Metal, in Tables F-6 and F-7, below. As previously mentioned, the minimum effluent hardness is 260 mg/L (as $CaCO_3$), while the upstream receiving water hardness ranged from 78 mg/L to 800 mg/L[8] (as $CaCO_3$) for the Willow Slough Bypass. In this case, the minimum effluent concentration is within the range of observed upstream receiving water hardness concentrations. Therefore, Equation 3 was used to calculate two ECAs, one based on the minimum observed upstream receiving water hardness and one based on the maximum observed upstream receiving water hardness. Using Equation 3, the lowest ECA results from using the minimum upstream receiving water hardness, the minimum effluent hardness, and assuming no receiving water assimilative capacity for silver (i.e., ambient background lead concentration is at the CTR chronic criterion).

[7] When the minimum effluent hardness falls within the range of observed receiving water hardness concentrations, Equation 3 is used to calculate two ECAs, one based on the minimum observed upstream receiving water hardness and one based on the maximum observed upstream receiving water hardness. The minimum of the two calculated ECAs represents the ECA that ensures any mixture of effluent and receiving water is in compliance with the CTR criteria.

[8] A hardness of 400 mg/L (as $CaCO^3$) was used for the maximum receiving water hardness. The CTR requires a maximum hardness of 400 mg/L (as $CaCO^3$) for use in the metals criteria equations.

Table F-7. Silver ECA Evaluation Using Minimum Receiving Water Hardness (Discharge 001)

Minimum Observed Effluent Hardness	260 mg/L (as $CaCO_3$)
Minimum Observed Upstream Receiving Water Hardness	78 mg/L (as $CaCO_3$)
Maximum Assumed Upstream Receiving Water Silver Concentration	2.8 µg/L[1]
Silver ECA_{acute}[2]	13.3 µg/L

Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Silver[5] (µg/L)**
1%	79.8	2.8	2.8
5%	87.1	3.2	3.2
15%	105.3	4.4	4.2
25%	123.5	5.8	5.3
50%	169.0	10.0	8.0
75%	214.5	15.1	10.6
100%	260.0	21.0	13.3

[1] Maximum assumed upstream receiving water silver concentration calculated using Equation 1 for acute criterion at a hardness of 78 mg/L (as $CaCO_3$).

[2] ECA calculated using Equation 3 for acute criteria.

[3] Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

[4] Mixed downstream ambient criteria and the acute criteria calculated using Equation 1 at the mixed hardness.

[5] Mixed downstream ambient lead concentration is the mixture of the receiving water and effluent silver concentrations at the applicable effluent fraction.

Table F-8. Silver ECA Evaluation Using Maximum Receiving Water Hardness (Discharge 001)

Minimum Observed Effluent Hardness	260 mg/L (as $CaCO_3$)
Maximum Observed Upstream Receiving Water Hardness	400 mg/L (as $CaCO_3$)
Maximum Assumed Upstream Receiving Water Silver Concentration	43.7 µg/L[1]
Silver ECA_{acute}[2]	17.5 µg/L

Effluent Fraction	**Mixed Downstream Ambient Concentration**		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Silver[5] (µg/L)**
1%	398.6	43.8	43.7
5%	393.0	42.7	42.
15%	379.0	40.1	39.4
25%	365.0	37.6	36.4
50%	330.0	31.6	28.7
75%	295.0	26.1	21.0
100%	260.0	21.0	13.3

[1] Maximum assumed upstream receiving water silver concentration calculated using Equation 1 for chronic criterion at a hardness of 400 mg/L (as $CaCO_3$).

[2] ECA calculated using Equation 3 for acute criteria.

[3] Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

[4] Mixed downstream ambient criteria and the acute criteria calculated using Equation 1 at the mixed hardness.

[5] Mixed downstream ambient silver concentration is the mixture of the receiving water and effluent silver concentrations at the applicable effluent fraction.

Using Equation 3 to calculate the ECA for all Concave Up Metals will result in water quality-based effluent limitations that are protective under all potential effluent/receiving water mixing scenarios and under all known hardness conditions, as demonstrated in Tables F-6 and F-7, for silver. In this example, the effluent is in compliance with the CTR criteria and any mixture of the effluent and receiving water is in compliance with the CTR criteria. Use of a lower ECA (e.g., calculated based solely on the lowest upstream receiving water hardness) is also protective, but would lead to unreasonably stringent effluent limits considering the known conditions. Therefore, Equation 3 has been used to calculate the ECA for all Concave Up Metals in this Order.

Table F-9 summarizes the ECAs calculated for all hardness-dependant metals.

Table F-9. Summary of ECA Evaluations for Discharge 001 and Discharge 002

Metals	Effluent Concentration Allowances, ECAs (ug/L) as total recoverable metals			
	Discharge 001		Discharge 002	
	acute	chronic	acute	chronic
Copper	49[1]	35[1]	34	21
Chromium III	1417	169	1520	181
Cadmium	12	5.2	12	5.2
Lead	134[1]	8.6[1]	240	9.4
Nickel	1300[1]	160[1]	1100	120
Silver	13	-	14	-
Zinc	270	270	270	270

[1] Site specific metal translators used for copper, lead, and nickel at Discharge 001.

c. Assimilative Capacity/Mixing Zone

The State Water Resources Control Board Water Quality Order (WQO) No. 2002-0015, states that the use of the harmonic mean to determine flow rates is inappropriate for ephemeral streams where there is no consistent background dilution. The impact of considering a receiving stream to be ephemeral is that all limitations are "end of pipe" without any benefit of dilution. Since the receiving streams' flows are, at times, immeasurably small to nonexistent, this Order contains "end of pipe" limitations, with no dilution credits.

3. Determining the Need for WQBELs

a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00.) With regards to the narrative chemical constituents objective, the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*" in Title 22 of CCR. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal*

water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."

b. Federal regulations 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. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board finds that the Discharge 001 and Discharge 002 1) each have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for selenium, aluminum, ammonia, chlorine residual, and iron; and 2) each exceed the agricultural water quality screening values for electrical conductivity (EC), total dissolved solids (TDS), boron, sodium, chloride, and manganese. Additionally, Discharge 001 has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for cyanide. Water quality-based effluent limitations (WQBELs) for selenium, aluminum, ammonia, chlorine residual, iron, and cyanide are included in this Order. At this time, manganese, boron, chloride, sodium, TDS, and EC do not have a final limitation, as described in Sections IV.C.4.m, IV.C.4.q and IV.C.4.t. A detailed discussion of the RPA for each constituent is provided below. In response to the 16 May 2005 Alameda Court Order Granting Writ of Administrative Mandamus for the City of Woodland, the RPA for each constituent was typically based on about three years of data. Unless otherwise noted, the data used in the reasonable potential analysis and effluent limitations was from January 2002 through May 2005 for CTR constituents, and May 2002 through May 2005 for non-CTR constituents. The RPA dataset used for CTR constituents was greater than three years to include all of the 13267 priority pollutant data collected in 2002.

c. The Regional Water Board conducted the RPA in accordance with section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[9] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency."* Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

d. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.

e. **Aluminum.** USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0.

[9] See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City)

USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. U.S. EPA Document 440/5-86-008, *Ambient Water Quality Criteria for Aluminum*, August 1988, contains the following national criteria for aluminum: "The procedures described in the 'Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses' indicate that, except possibly where a locally important species is very sensitive, freshwater aquatic organisms and their uses should not be affected unacceptably, when the pH is between 6.5 and 9.0, if the four-day average concentration of aluminum does not exceed 87 µg/L more than once every three years on the average and if the one-hour average concentration does not exceed 750 µg/L more than once every three years on the average." The Ambient Criteria for aluminum is not restricted based on hardness.

The observed maximum concentration for aluminum in Discharge 001 was 700 µg/L, based on eight samples collected between May 2002 and May 2005, while the maximum observed upstream Willow Slough aluminum concentration was 700 µg/L, based on one sample collected in 2002. The observed maximum concentration for aluminum in Discharge 002 was 3200 µg/L, based on ten samples collected between May 2002 and May 2005, while the maximum observed upstream Conaway Ranch Toe Drain aluminum concentration was 3500 µg/L, based on one sample collected in 2002. Therefore, aluminum in both discharges has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan's narrative toxicity objective. This Order contains final Average Monthly Effluent Limitations (AMEL) and Maximum Daily Effluent Limitations (MDEL) for aluminum of 71 µg/L and 140 µg/L, respectively, based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life for both discharges. (See Attachment F, Tables F-6a and F-6b for WQBEL calculations).

In USEPA's *Ambient Water Quality Criteria for Aluminum—1988* [EPA 440/5-86-008], USEPA states that "[a]*cid-soluble aluminum…is probably the best measurement at the present…*"; however, USEPA has not yet approved an acid-soluble test method for aluminum. Replacing the ICP/AES portion of the analytical procedure with ICP/MS would allow lower detection limits to be achieved. Based on USEPA's discussion of aluminum analytical methods, this Order allows the use of the alternate aluminum testing protocol described above to meet monitoring requirements.

Based on the sample results in the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives

adopted after 25 September 1995 (See Basin Plan at page IV-16). The water quality-based effluent limitations for aluminum are based on a new interpretation of the narrative standard for protection of receiving water beneficial uses. Therefore, a compliance schedule for compliance with the aluminum effluent limitations is established in the Order.

Interim performance-based maximum daily effluent limitations of 2200 μg/L for Discharge 001 and 6500 μg/L for Discharge 002 have been established in this Order. The interim limitations were determined as described in Attachment F, Section IV.E.1, and are in effect until 25 October 2017. As part of the compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final aluminum effluent limitations. In addition, the Discharger shall submit an engineering treatment feasibility study and prepare and implement a pollution prevention plan developed in accordance with CWC section 13263.3(d)(3). The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

f. **Ammonia.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger does not currently use nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. Applying 40 CFR section122.44(d)(1)(vi)(B), it is appropriate to use USEPA's Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms.

USEPA's *Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life*, for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average, criteria continuous concentration or CCC) standards based on pH and temperature. It also recommends a maximum four-day average concentration of .2.5 times the criteria continuous concentration. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because the Yolo Bypass has a beneficial use of potential cold freshwater habitat and salmonids are known to be in the Yolo Bypass year-round, the recommended criteria for waters where salmonids and early life stages are present were used. USEPA's recommended criteria are show below:

$$CCC_{30-day} = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times MIN\left(2.85, 1.45 \cdot 10^{0.028(25-T)}\right), \text{ and}$$

$$CMC = \left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}} \right),$$

where *T* is in degrees Celsius

The temperature of the effluent and receiving streams vary seasonally. As requested by the Discharger, this Order contains seasonal limitations for ammonia.

The maximum permitted effluent pH is 8.0. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.0 was used to derive the CMC. For Discharges 001 and 002, the resulting CMC is 5.62 mg/L.

Using effluent and receiving water data from 1 July 2006 to 31 July 2009, with data from 1 March 2006 to 31 October 2009 for dry season and 1 November 2006 to 29 February 2009 for wet season, the paired 30-day rolling average temperature and pH were used to calculate a CCC for the effluent and downstream receiving water for each day when temperature and pH were measured. The resulting lowest 99.9% 30-day average CCC for Discharges 001 and 002 are shown below.

	Ammonia, mg/L (as N)	
	Lowest 99.9% 30-day average CCC	
	Discharge 001	**Discharge 002**
1 Nov – 29 Feb	1.91	3.15
1 Mar – 31 Oct	1.27	1.61

Discharge 001 – The Regional Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 3-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the

maximum daily effluent limitation (MDEL). The remainder of the WQBEL calculation for ammonia was performed according to SIP procedures. This Order contains an AMEL and MDEL for ammonia of 1.6 mg/L and 3.8 mg/L (as N), respectively, based on the 30-day CCC, for the period from 1 March to 31 October and an AMEL and MDEL for ammonia of 2.2 mg/L and 3.3 mg/L (as N), respectively, based on the 30-day CCC, for the period from 1 November to 29 February.

Discharge 002 – The Regional Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 3-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the average monthly effluent limitation (AMEL) and the maximum daily effluent limitation (MDEL). The remainder of the WQBEL calculation for ammonia was performed according to SIP procedures. This Order contains an AMEL and MDEL for ammonia of 2.1 mg/L and 4.8 mg/L (as N), respectively, based on the 30-day CCC, for the period from 1 March to 31 October and an AMEL and MDEL for ammonia of 2.9 mg/L and 5.6 mg/L (as N), respectively, based on the 30-day CCC, for the period from 1 November to 29 February.

Effluent Limitations for ammonia are included in this Order to assure the treatment process adequately nitrifies the waste stream to protect the aquatic habitat beneficial uses.

Based on the sample results in the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives adopted after 25 September 1995 (See Basin Plan at page IV-16). The water quality-based effluent limitations for ammonia are based on a new interpretation of the narrative standard for protection of receiving water beneficial uses. Therefore, a compliance schedule for compliance with the ammonia effluent limitations is established in the Order.

Interim performance-based maximum daily effluent limitations of 20.5 μg/L for Discharge 001 and 13.2 for Discharge 002 have been established in this Order. The interim limitations were determined as described in Attachment F, Section IV.E.1., and are in effect until 25 October 2017. As part of the

compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final ammonia effluent limitations. In addition, the Discharger shall submit an engineering treatment feasibility study.

g. **Bis (2-ethylhexyl) phthalate.** Bis (2-ethyl-hexyl) phthalate is used primarily as one of several plasticizers in polyvinyl chloride (PVC) resins for fabricating flexible vinyl products. According to the Consumer Product Safety Commission, USEPA, and the Food and Drug Administration, these PVC resins are used to manufacture many products, including soft squeeze toys, balls, raincoats, adhesives, polymeric coatings, components of paper and paperboard, defoaming agents, animal glue, surface lubricants, and other products that must stay flexible and noninjurious for the lifetime of their use. The NTR criterion for Human health protection for consumption of aquatic organisms only is 5.9 µg/l.

   The observed maximum concentration in Discharge 001 for bis (2-ethylhexyl) phthalate was 40 µg/L, based on 21 samples collected between January 2002 and May 2005, while the maximum observed upstream receiving water bis (2-ethyl-hexyl) phthalate concentration was 9 µg/L, based on five samples collected between January 2002 and December 2002. The observed maximum concentration in Discharge 002 for bis (2-ethyl-hexyl) phthalate was 59 µg/L, based on 20 samples collected between January 2002 and May 2005, while the maximum observed upstream receiving water bis (2-ethyl-hexyl) phthalate concentration was non-detect, based on four samples collected between April 2002 and July 2002. However, bis (2-ethylhexyl) phthalate grab samples showed all nondetected or J-flagged values for Discharge 001, with a maximum J-flag value of 2.8 ug/L, and were all nondetect for Discharge 002. Many of these grab samples were taken simultaneously with a composite sample showing results above the criteria. Composite sampling uses plastic tubing, which may contaminate the sample and result in erroneous data. Using the grab sampling data only, neither discharge has a reasonable potential to cause or contribute to an in stream excursion above the NTR criterion for bis (2-ethylhexyl)phthalate. The detention provided by the ponds at the WWTP equalizes short-term peaks in the data, such that grab sampling and composite sampling should be somewhat similar. Since the composite sampling may have contaminated the samples, concurrent grab sampling did not show values above the criteria, and the WWTP uses a pond system, this Order does not include an effluent limitation for bis (2-ethylhexyl) phthalate. This Order requires priority pollutant monitoring, including bis (2-ethylhexyl) phthalate grab samples, that will verify whether the concentration of bis (2-ethylhexyl) phthalate in the WWTP effluent remains below the criteria.

h. **Chlorine Residual.** The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. The Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to the Willow Slough Bypass and prior to discharge to the wetlands, which discharge to the Conaway Ranch Toe Drain. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute

to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The USEPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] contains statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average one-hour limitation is considered more appropriate than an average daily limitation. Average one-hour and four-day limitations for chlorine, based on these criteria, are included in this Order. The Discharger can immediately comply with these new effluent limitations for chlorine residual.

i. **Copper.** The CTR includes hardness-dependant criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentration to total concentrations. The USEPA default conversion factors for copper in freshwater of 0.96 for both the acute and the chronic criteria were used for the discharge from EFF-002 to the Conaway Ranch Toe Drain. The Discharger submitted *Metals translator Monitoring Study – Copper, Lead and Nickel,* dated January 2007, which proposed site-specific translators for copper based on the dissolved to total metal ratios in the effluent from Discharge 001 and in the Willow Slough Bypass. The site-specific metal translators based on the effluent from Discharge 001 have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for EFF-001 for copper (see Section IV.C.2.b of the Fact Sheet).

Discharge 001 - For the effluent, the applicable copper chronic criterion (maximum 4-day average concentration) is 35 µg/L and the applicable acute criterion (maximum (1-hour concentration) is 49 µg/L, as total recoverable, (see Table F-9, above). The MEC for total copper in Discharge 001 was 15 µg/L, based on thirty-two samples collected between July 2005 and November 2008. For the receiving water, the applicable copper chronic criterion is 13 µg/L and the applicable acute criterion is 16 µg/L, as total recoverable, based on a hardness of 78 mg/L (as $CaCO_3$), using USEPA default translators. The maximum observed upstream Willow Slough Bypass total copper concentration was 5.7 µg/L, based on five samples collected between January 2002 and December 2002. Based on this information, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for copper.

Discharge 002 – For the effluent, the applicable copper chronic criterion is 21 µg/L and the applicable acute criterion is 34 µg/L, as total recoverable, based on a hardness of 260 mg/L (as $CaCO_3$). The MEC for total copper in Discharge 002 was 39 µg/L, based on twenty-three samples collected between May 2005 and May 2009. For the receiving water, the applicable copper chronic criterion is 8.1 µg/L and the applicable acute criterion is 12 µg/L, as total recoverable, based on a hardness of 85 mg/L (as $CaCO_3$). The maximum observed upstream Conaway Ranch Toe Drain total copper concentration was 13 µg/L, based on six

samples collected between March 2002 and September 2002. Based on this information, the discharge exhibits reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for copper. No dilution is allowed since the discharge is to an ephemeral stream. Using the acute and chronic ECAs for copper shown in Table F-9, above, this Order contains final Average Monthly Effluent Limitations (AMEL) and Maximum Daily Effluent Limitations (MDEL) for copper of 16 µg/L and 34 µg/L (total recoverable), respectively.

As explained in Attachment F, Sections VI.B.4 and VI.B.7, this Order requires annual monitoring of copper in Discharge 001 (as part of the priority pollutant monitoring) and monthly monitoring of copper in Discharge 002.

j. **Cyanide.** The CTR includes maximum 1-hour average and 4-day average cyanide concentrations of 22 µg/L and 5.2 µg/L, respectively, for the protection of freshwater aquatic life. The observed maximum concentration for cyanide in Discharge 001 was 6 µg/L, based on ten samples collected between January 2002 and May 2005. The observed maximum concentration for cyanide in Discharge 002 was 2.9 µg/L, based on twelve samples collected between January 2002 and May 2005. Therefore, Discharge 001 has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for cyanide. No dilution is allowed due to periods of no measurable flow in the receiving water. An AMEL and MDEL for cyanide of 3.8 µg/L and 9.5 µg/L, respectively, are included in this Order for Discharge 001 based on CTR criteria for the protection of freshwater aquatic life (See Attachment F, Tables F-5a and F-5b for WQBEL calculations).

The Discharger is unable to comply with these limitations. Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion. Using the statistical methods for calculating interim effluent limitations described in Attachment F, Section IV.E.1., an interim performance-based maximum daily limitation of 9.6 µg/L was calculated for Discharge 001.

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 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*." The new water quality-based effluent limitations for cyanide become effective on **18 May 2010**.

This Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final cyanide effluent limitations. The interim effluent limitations are in effect through **17 May 2010**. As part of the compliance schedule for cyanide, the Discharger shall develop and implement a pollution prevention program in compliance with CWC section 13263.3(d)(3) and submit an engineering treatment feasibility study.

The Discharger has indicated in their Infeasibility Report that additional time may be required beyond 17 May 2010 to comply with final effluent limits for cyanide. Based on the Discharger's performance in implementing their corrective action plan and implementation schedule, the Regional Water Board may consider at a future date issuance of a Time Schedule Order to provide additional time to comply with final effluent limits for cyanide.

k. **Electrical Conductivity. (see Subsection s. Salinity)**

l. **Iron.** The current USEPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life is 1 mg/L for iron. The observed maximum concentration for iron in Discharge 001 was 1.3 mg/L, based on four samples collected between August 2002 and December 2002. The observed maximum concentration for iron in Discharge 002 was 4.6 mg/L, based on four samples collected between May 2002 and September 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective. No dilution is allowed due to periods of no measurable flow in the receiving water. An AMEL and MDEL of 0.8 mg/L and 2 mg/L, respectively for iron for both discharges is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective.

Based on the sample results in the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives adopted after 25 September 1995 (See Basin Plan at page IV-16). The water quality-based effluent limitations for iron are based on a new interpretation of the narrative standard for protection of receiving water beneficial uses. Therefore, a compliance schedule for compliance with the iron effluent limitations is established in the Order.

Interim performance-based maximum daily effluent limitations of 4.0 ug/L for Discharge 001 and 14 ug/L for Discharge 002 have been established in this Order. The interim limitations were determined as described in Attachment F, Section IV.E.1., and is in effect until 25 October 2017. As part of the compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final iron effluent

limitations. In addition, the Discharger shall submit an engineering treatment feasibility study and prepare and implement a pollution prevention plan developed in accordance with CWC section 13263.3(d)(3). The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

m. **Lead.** The CTR includes hardness-dependant criteria for the protection of freshwater aquatic life for lead. The criteria for lead are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentration to total concentrations. The USEPA default conversion factors for lead in freshwater were used for the discharge from EFF-002 to the Conaway Ranch Toe Drain. The Discharger submitted *Metals translator Monitoring Study – Copper, Lead and Nickel,* dated January 2007, which proposed site-specific translators for lead based on the dissolved to total metal ratios in the effluent from Discharge 001 and in the Willow Slough Bypass. The site-specific metal translators based on the effluent from Discharge 001 have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for EFF-001 for lead (see Section IV.C.2.b of the Fact Sheet).

Discharge 001 – For the effluent, the applicable lead chronic criterion (maximum 4-day average concentration) is 8.6 µg/L and the applicable acute criterion (maximum 1- hour concentration) is 134 µg/L, as total recoverable, (see Table F-9, above). The MEC for total lead in Discharge 001 was 0.62 µg/L, based on nine samples collected between August 2005 and November 2008. For the receiving water, the applicable lead chronic criterion is 3.0 µg/L and the applicable acute criterion is 61 µg/L, as total recoverable, based on the minimum observed receiving water hardness of 78 mg/L (as $CaCO_3$) and using USEPA's default translators. The maximum observed upstream Willow Slough Bypass total lead concentration was 0.29 µg/L based on one sample collected on 27 February 2002. Based on this information, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for lead.

Discharge 002 – For the effluent, the applicable lead chronic criterion (maximum 4-day average concentration) is 9.4 µg/L and the applicable acute criterion (maximum 1- hour concentration) is 240 µg/L, as total recoverable, (see Table F-9, above). The MEC for total lead in Discharge 002 was 0.74 µg/L, based on six samples collected between May 2005 and March 2009. For the receiving water, the applicable lead chronic criterion is 2.6 µg/L and the applicable acute criterion is 66 µg/L, as total recoverable, based on the minimum observed receiving water hardness of 85 mg/L (as $CaCO_3$). The maximum observed upstream receiving water total lead concentration was 1.70 ug/L based on one sample collected on 7 May 2002. Based on this information, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for lead.

n. **Manganese.** The recommended agricultural water quality goal for manganese, that would apply the narrative chemical constituent objective, is 200 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture

Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (Ayers and Westcot 1985 Study). The observed maximum concentration for manganese for Discharge 001 was 740 µg/L, based on four samples collected between May 2002 and September 2002. The observed maximum concentration for manganese for Discharge 002 was 960 µg/L, based on four samples collected between August 2002 and December 2002. The observed maximum concentration in both discharges exceeded the agricultural water quality screening value of 200 mg/L. No dilution is allowed due to periods of no measurable flow in the receiving water.

The Ayers and Westcot 1985 Study states, that manganese is "[t]oxic to a number of crops at a few-tenths to a few mg/l, but usually only in acid soils." This Order requires the Discharger to conduct site-specific studies to determine the appropriate manganese level to protect beneficial uses of the area. It is the intent of the Regional Water Board to include a final effluent limitation, if necessary, that is protective of manganese in a subsequent permit renewal or amendment, based on the results of approved site-specific studies.

o. **Mercury.** The Sacramento/San Joaquin Delta has been listed as an impaired water body pursuant to section 303(d) of the Clean Water Act because of mercury. Mercury bioaccumulates in fish tissue and, therefore, discharge of mercury to the receiving water is likely to contribute to exceedances of the narrative toxicity objective and impacts on beneficial uses. Because the receiving waters are tributary to the Sacramento/San Joaquin Delta, which has been listed as an impaired water body for mercury, the discharge must not cause or contribute to increased mercury levels. This Order contains a performance-based mass mercury Effluent Limitation of 0.038 lbs/month. This limitation is based on maintaining the mercury loading at the current level until a total maximum daily load (TMDL) can be established and USEPA develops mercury standards that are protective of human health. The mass limitation was derived using the maximum observed effluent mercury concentration and the reported average daily effluent flow rate. Compliance time schedules have not been included since the discharge currently meets the concentration based limitation and the mass limitation can be met through implementation measures and/or by limiting new sewer discharges containing mercury concentrations. If USEPA develops new water quality standards for mercury, this permit may be reopened and the Effluent Limitations adjusted.

p. **Nickel.** The CTR includes hardness-dependant criteria for the protection of freshwater aquatic life for nickel. The criteria for nickel are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentration to total concentrations. The USEPA default conversion factors for nickel in freshwater of 0.998 and 0.997 for acute and the chronic criteria, respectively, were used for the discharge from EFF-002 to the Conaway Ranch Toe Drain. The Discharger submitted *Metals translator Monitoring Study – Copper, Lead and Nickel,* dated January 2007, which proposed site-specific translators for nickel based on the dissolved to total metal ratios in the effluent from Discharge 001 and in the Willow Slough Bypass. The site-specific metal

translators based on the effluent from Discharge 001 have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for EFF-001 for nickel (see Section IV.C.2.b of the Fact Sheet).

Discharge 001 - For the effluent, the applicable nickel chronic criterion (maximum 4-day average concentration) is 160 µg/L and the applicable acute criterion (maximum 1-hour concentration) is 1300 µg/L (see Table F-9, above). The MEC for nickel in Discharge 001 was 27 µg/L, based on nine samples collected between August 2005 and November 2008. For the receiving water, the applicable nickel chronic criterion is 59 µg/L and the applicable acute criterion is 487 µg/L, as total recoverable, based on the minimum observed receiving water hardness of 78 mg/L (as $CaCO_3$) and using USEPA's default translators. The maximum observed Willow Slough Bypass total nickel concentration was 14 µg/L based on six samples collected between January 2002 and December 2002. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for nickel.

Discharge 002 – For the effluent, the applicable chronic nickel criterion is 120 µg/L and the applicable acute criterion is 1100 µg/L (see Table F-9, above). The MEC for nickel in Discharge 002 was 33 µg/L, based on six samples collected between May 2005 and March 2009. For the receiving water, the applicable nickel chronic criterion is 46 µg/L and the applicable acute criterion is 410 µg/L, based on the minimum receiving water hardness of 78 mg/L (as $CaCO_3$). The maximum observed Conaway Ranch Toe Drain nickel concentration was 3 µg/L based on six samples collected between March 2002 and September 2002. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion of the CTR criteria for nickel.

q. **Pathogens**. The designated beneficial uses of the Yolo Bypass include water contact recreation and agricultural irrigation supply. The City of Woodland's *December 2000 - Recreation, Land Use, and Dilution Study of the Tule Canal and Toe Drain* (Study) indicates that the Yolo Bypass has been used for water contact recreation, including fishing (with human consumption of fish) and swimming. Additionally, the Willow Slough Bypass and Conaway Ranch Toe Drain are used for duck hunting, and the wetlands at the WWTP are open to the public and used as an educational facility for schoolchildren. The Study indicates that crops grown in the area with the potential to be irrigated with Yolo Bypass waters include food crops that require irrigation water be treated to a tertiary level to protect the public health. The State of California Department of Water Resources 1997 Yolo County Land Use Survey shows tomatoes and either melons, squash, or cucumbers grown in the Yolo Bypass within the vicinity of the City's discharge. These crops require irrigation water be treated to a tertiary level to protect public health.

The California Department of Health Services (DHS) has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater.

Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 m/ as a 7-day median. Title 22 is not directly applicable to surface waters; however, the Regional Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by DHS's reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. To protect public health, DHS recommends that discharges to receiving streams with contact recreation and less than 20:1 dilution be oxidized, coagulated, filtered and adequately disinfected to provide a median total coliform organisms concentration of 2.2 MPN/100 mL at some point in the treatment process. The stringent disinfection criteria of Title 22 are appropriate since the receiving waters, at times, do not provide a 20:1 receiving water to effluent dilution ratio.

To protect the beneficial uses, the Regional Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream. The wastewater must be treated to tertiary standards (filtered), or equivalent, to protect contact recreational and food crop irrigation uses.

Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. As coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median limitation. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DHS.

In addition to coliform testing, a turbidity effluent limitation has been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process, or equivalent, is capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations. Therefore, to ensure compliance with the DHS recommended Title 22 disinfection criteria, weekly average effluent limitations are impracticable for turbidity.

This Order contains effluent limitations and a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. In accordance with CWC section 13241, the Regional Water Board has considered the following:

i. The past, present and probable future beneficial uses of the receiving stream include agricultural irrigation, agricultural stock watering, body contact water recreation, other non-body contact water recreation, warm freshwater aquatic habitat, potential cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, and wildlife habitat.

ii. The environmental characteristics of the hydrographic unit, including the quality of the available water, will be improved by the requirement to provide tertiary treatment for this wastewater discharge. The water quality in the Yolo Bypass includes tertiary-treated water from the City of Woodland WWTP. Tertiary treatment will allow for the reuse of the undiluted wastewater for food crop irrigation and contact recreation activities that would otherwise be unsafe according to recommendations from the California Department of Health Services (DHS).

iii. Fishable and swimmable water quality conditions can be reasonably achieved through the coordinated control of all factors that affect water quality in the area.

iv. The economic impact of requiring an increased level of treatment has been considered. The Discharger estimates the cost to upgrade the WWTP to tertiary or equivalent to be $140 million dollars. Much of this cost is for upgrades necessary to comply with the mandatory California Toxics Rule (CTR) limitations. The Wastewater User Charge Survey Reports, prepared by the State Board, show the City's monthly user charges prior to fiscal year 2006-2007 have been lower than the State monthly average, but recently the charges have increased in anticipation of the requirement to upgrade the WWTP. Effective the summer of 2007, the City has a monthly user charge of $39.00, which covers the existing operation and management of the WWTP and preliminary design and planning for WWTP upgrades.

    The loss of beneficial uses within downstream waters, without the tertiary treatment requirement, which could include prohibiting the irrigation of food crops and prohibiting public access for contact recreational purposes, would have a detrimental economic impact. In addition to pathogen removal to protect irrigation and recreation, tertiary treatment may also aid in meeting discharge limitations for other pollutants, such as heavy metals, reducing the need for advanced treatment specific for those pollutants.

v. The need for developing housing in the area has been considered. The Discharger is not requesting the WWTP be permitted to discharge an

increased flow, which indicates the City does not anticipate needing additional treatment plant capacity to accommodate housing development within the next five years. However, any housing development in the area may be facilitated by improved water quality, which protects the contact recreation and irrigation uses of the receiving water. Any growth in the area will place greater demand on the available resources and will increase the potential for activities, such as contact recreation, that needs an improved surface water quality.

vi. It is the Regional Water Board's policy, (Basin Plan, page IV-12.00, Policy 2) to encourage the reuse of wastewater. The Regional Water Board requires dischargers to evaluate how reuse or land disposal of wastewater can be optimized. The need to develop and use recycled water is facilitated by providing a tertiary level of wastewater treatment that will allow for a greater variety of uses in accordance with CCR, Title 22. DHS recommends that, in order to protect the public health, relatively undiluted wastewater effluent must be treated to a tertiary level for contact recreational and food crop irrigation uses. Without tertiary treatment, the downstream waters could not be safely utilized for contact recreation or the irrigation of food crops.

Title 22 contains reclamation criteria for the reuse of wastewater, and requires recycled water be disinfected and treated to a tertiary level when used to irrigate food crops where the recycled water may come into contact with the edible portion of the crop. Tertiary treatment will allow for the continued reuse of the undiluted wastewater for food crop irrigation and contact recreation activities, which is otherwise unsafe according to recommendations from the DHS. These crops require irrigation water be treated to a tertiary level to protect public health.

vii. The Regional Water Board has considered the factors specified in CWC section 13263, including considering the provisions in CWC section 13241, in adopting the disinfection and filtration requirements under Title 22 criteria. The Regional Water Board finds, on balance, that these requirements are necessary to protect the beneficial uses of the Yolo Bypass, including water contact recreation and irrigation uses.

The establishment of tertiary limitations has not been previously required for this discharge; therefore, a schedule for compliance with the tertiary treatment requirements is included in Special Provisions VI.C.7.a. of this Order. This Order provides interim effluent limitations for BOD, TSS, and total coliform, which the Discharger is currently capable of meeting. Full compliance with the final effluent limitations for BOD, TSS, total coliform, and turbidity are not required by this Order until 25 October 2017.

r. **pH.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "…*pH shall not be depressed below 6.5 nor raised above 8.5.*"

Order R5-2007-0132-01 contains instantaneous minimum and maximum pH effluent limitations of 6.5 and 8.5, respectively, based on the Basin Plan objectives for pH. The Discharger is upgrading the Facility to tertiary and year-round nitrification/denitrification and has requested a more stringent instantaneous maximum pH of 8.0 to allow less stringent ammonia limits, which are based on pH-dependent ammonia criteria. For Discharge 001 (non-wetlands treatment), the instantaneous maximum pH was 8.06 and averaged 7.51, based on 1,582 samples collected between 1 June 2001 and 31 July 2009. For Discharge 002 (wetlands treatment), the instantaneous maximum pH was 8.7 and averaged 7.79, based on 1,118 samples collected between 1 July 2001 and 24 June 2009. Based on pH effluent data for Discharge 001, which does not include wetlands treatment that can elevate pH, it appears the discharge can consistently comply with a more stringent instantaneous maximum pH limit. The Discharger's proposed facility upgrades include more conventional treatment methods that will allow more consistent control for pH. Therefore, it is reasonable to require the more stringent instantaneous maximum pH limit of 8.0 and allow corresponding less stringent ammonia effluent limits. This allows the Discharger to design treatment facilities for ammonia removal based on the expected effluent quality of more conventional treatment systems typically used for nitrification/denitrification (e.g., activated sludge).

Instantaneous minimum and maximum effluent limitations for pH of 6.5 and 8.0, respectively, are included in this Order based on the Basin Plan objectives for pH and the capability of the future treatment system to control pH.

Based on the samples in the effluent, it appears the Discharger may be in non-compliance upon issuance of the permit. New or modified controls measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days. The current treatment system either discharges directly to Willow Slough Bypass (Discharge 001) or through a wetland system into Conaway Ranch Toe Drain (Discharge 002) depending on the season. This system cannot meet the final effluent limitations therefore, an interim pH of 8.5 for Discharge 001 and Discharge 002 are established in this Order

s. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sodium, boron, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a narrative water quality objective for EC, TDS, boron, sodium, and chloride.

Table F-10. Salinity Water Quality Goals[1]

Parameter	Agricultural WQ Goal[2]	Effluent –Discharge 001		Effluent –Discharge 002	
		Average	Maximum	Average	Maximum
EC (µmhos/cm)	varies[3]	1871	3688	1991	3273
TDS (mg/L)	varies[3]	1062	1300	1155	1512
Boron (mg/L)	varies[3]	1800	1800	2150	2400
Chloride (mg/L)	varies[3]	260	270	290	330
Sodium (mg/L)	varies[3]	200	200	250	250

1. Secondary maximum contaminant levels (MCLs) are not applicable for this discharge because the Yolo Bypass is not designated as having a MUN beneficial use.
2. Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1, R.S. Ayers and D.W. Westcot, Rome, 1985 (Ayers and Westcot, 1985 Study).
3. The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 umhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

i. **Boron.** The recommended agricultural water quality goal for boron is 700 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (Ayers and Westcot 1985 Study). In addition to the mineral elements N, P, K, S, Ca, and Mg, defined as macronutrients, plants require other mineral elements, which are generally described as micronutrients; due to the relatively small amounts required.

   The Discharger has not historically monitored its effluent for boron. Thus, there is limited effluent data for boron. Effluent data from 2005 indicates that boron was detected in Discharge 001 at a maximum concentration of 1800 µg/l. Effluent data from 2006 and 2007 showed boron ranged from 1300 ug/l to 2400 ug/l with an average concentration of 1870 ug/l. The agricultural water quality screening value for boron is 700 µg/l. The observed maximum concentration of boron in both discharges exceeded the agricultural water quality screening value.

   This Order requires the Discharger to conduct site-specific studies to determine the appropriate boron level to protect beneficial uses. It is the intent of the Regional Water Board to include a final effluent limitation that is protective of boron in a subsequent permit renewal or amendment, based on the results of approved site-specific studies.

ii. **Chloride.** The recommended agricultural water quality goal for chloride is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (Ayers and Westcot 1985 Study). The

106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

At Discharge 001, chloride concentrations ranged from 250 mg/L to 270 mg/L, with an average of 260 mg/L, for four samples collected by the Discharger from August 2002 through December 2002. Background concentrations in Willow Slough Bypass ranged from 28 mg/L to 190 mg/L, with an average of 90 mg/L, for five samples collected by the Discharger from January 2002 through December 2002. At Discharge 002, chloride concentrations ranged from 330 mg/L to 230 mg/L, with an average of 285 mg/L, for four samples collected by the Discharger from May 2002 through September 2002. Background concentrations in Conaway Ranch Toe Drain ranged from 27 mg/L to 70 mg/L, with an average of 45 mg/L, for five samples collected by the Discharger from March 2002 through September 2002. The observed maximum concentration in both discharges exceeded the agricultural water quality screening value of 106 mg/L. The chloride data indicates that effluent chloride may correlate with effluent EC levels.

This Order requires the Discharger to conduct site-specific studies to determine the appropriate chloride level to protect beneficial uses. It is the intent of the Regional Water Board to include a final effluent limitation that is protective of chloride in a subsequent permit renewal or amendment, based on the results of approved site-specific studies.

iii. **Electrical Conductivity (EC).** *The Basin Plan designates agriculture as a beneficial use of the Yolo Bypass.* The Basin Plan states, "Waters shall not contain constituents in concentrations that adversely affect beneficial uses." The Basin Plan's "Policy for Application of Water Quality Objectives" provides that in implementing narrative water quality objectives, the Regional Water Board will consider numerical criteria and guidelines developed by other agencies and organizations. This application of the Basin Plan is consistent with Federal Regulations, 40 CFR 122.44(d). The agricultural water quality goal, that would fully protect the agricultural beneficial use, is 700 µmhos/cm as a long-term average based on the Ayers and Westcot 1985 Study. Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield and to prevent restriction on use of water for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts. The United Nations report indicates that site-specific factors, such as rainfall and flooding, should be considered in determining protective EC levels in irrigation water. Significant flooding occurs in the Yolo Bypass, which could affect EC requirements for irrigation waters used in the bypass.

At Discharge 001, EC ranged from 903 µmhos/cm to 2546 µmhos/cm, with an average of 1885 µmhos/cm for 542 samples collected from May 2002 through May 2005. These levels exceed the agricultural screening value. The background receiving water EC averaged 852 µmhos/cm in 95 sampling events collected by the Discharger (R-1 data) from May 2002 through May 2005. At Discharge 002, EC ranged from 3273 µmhos/cm to 612 µmhos/cm, with an average of 1967 µmhos/cm for 497 samples collected from May 2002 through May 2005. These levels exceed the agricultural screening value. The background receiving water EC averaged 855 µmhos/cm in 41 sampling events collected by the Discharger (R-3 data) from May 2002 through May 2005. No dilution is allowed due to periods of no measurable flow in the receiving stream.

The City's water supply comes from groundwater wells, with a weighted average electrical conductivity of approximately 950 umhos/cm. As the source water is above the secondary MCL for drinking water, the use of water softeners further increases the WWTP's influent EC. From May 2002 through May 2005, influent EC averaged 2190 umhos/cm, and ranged from 1460 to 4120 umhos/cm. The Discharger anticipates that the most cost effective method for lowering the level of electrical conductivity in the WWTP effluent is to obtain new municipal water supplies by using groundwater contained in the deep aquifer and/or by obtaining surface water supplies. The Discharger's consideration of projects to improve the quality of the water supply is a longer-term plan that would, if approved, be completed sometime between 2015 and 2020.

To protect the receiving water from further salinity degradation, an interim performance-based annual average EC effluent limitation of 2050 umhos/cm for both discharges is included in this Order. The interim limitation was determined as described in Attachment F, Section IV.E.1. This Order requires the Discharger to conduct site-specific studies to determine the appropriate EC level to protect beneficial uses. It is the intent of the Regional Water Board to include a final EC effluent limitation in a subsequent permit renewal or amendment, based on the results of approved site-specific studies.

State Water Board Order No. WQO 2008-0008 (City of Davis) concluded that the EC interim limitation was appropriate, but remanded the permit to the Regional Water Board to allow the Discharger use the results from the City of Woodland's EC site-specific study, in lieu of conducting a new study. The study provision has been modified to make this change.

iv. **Sodium.** The recommended agricultural water quality goal for sodium is 69 mg/L as a long-term average based on the Ayers and Westcot 1985 Study

At Discharge 001, a March 2001 sample had a sodium concentration of 200 mg/L. At Discharge 002, two samples collected July 2001 and October 2001 each had sodium concentrations of 250 mg/L. Background concentrations for sodium were not available for either receiving stream. The observed maximum concentration in both discharges exceeded the agricultural water quality screening value of 69 mg/L. There is insufficient sodium data to demonstrate whether sodium concentrations correlate with EC levels.

This Order requires the Discharger to conduct site-specific studies to determine the appropriate sodium level to protect beneficial uses. It is the intent of the Regional Water Board to include a final effluent limitation that is protective of sodium in a subsequent permit renewal or amendment, based on the results of approved site-specific studies.

v. **Total Dissolved Solids (TDS).** The recommended agricultural water quality goal for TDS is 450 mg/L as a long-term average based on the Ayers and Westcot 1985 Study. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

At Discharge 001, the average TDS effluent concentration was 1062 mg/L and ranged from 1300 mg/L to 755 mg/L for 21 samples collected by the Discharger from May 2002 through May 2005. These concentrations exceed the applicable water quality screening values. The background receiving water (Willow Slough Bypass) TDS ranged from 330 mg/L to 960 mg/L, with an average of 650 mg/L in six sampling events performed by the Discharger from January 2002 through December 2002. At Discharge 002, the average TDS effluent concentration was 1155 mg/L and ranged from 660 mg/L to1512 mg/L for 16 samples collected by the Discharger from May 2002 through May 2005. These concentrations exceed the applicable water quality screening values. The background receiving water TDS (Conaway Ranch Toe Drain) ranged from 300 mg/L to 690 mg/L, with an average of 500 mg/L in six sampling events performed by the Discharger from March 2002 through September 2002.

The TDS effluent concentration varied with the level of EC in the effluent, at a ratio of approximately 60 percent. Additionally, a comparison of each effluent TDS datum to the corresponding EC datum demonstrated that the percent reduction in EC necessary to achieve 700 umhos/cm was greater than the percent reduction in TDS necessary to achieve 450 mg/L. Since the TDS is directly related to the EC, this Order contains an interim effluent limitation for EC instead of TDS. Using EC instead of TDS to measure salinity is more cost-effective and allows continuous monitoring.

t. **Selenium.** Exposure to high doses of selenium can be toxic. The most frequently reported symptoms of selenosis (chronic selenium toxicity) are hair and nail brittleness and loss. Other symptoms may include gastrointestinal disturbances, skin rashes, a garlic breath odor, fatigue, irritability, and nervous system abnormalities.

The January 2002 through May 2005 effluent monitoring data reports indicates that selenium was detected in all the effluent samples. Detected concentrations of selenium ranged from 1.2 µg/l to 5.6 µg/l in Discharge 001 and 1 ug/l to 4 ug/l in Discharge 002. Using the Discharger's monitoring from 2002, the maximum observed concentrations of selenium in the Willow Slough Bypass and Conaway Ranch Toe Drain were 25 ug/l and 12 ug/l, respectively. The agricultural water quality screening value for selenium is 20 µg/l. USEPA established CTR criteria for the protection of freshwater aquatic life for selenium. The continuous concentration (four-day average) and the maximum concentration (one-hour average) criteria for selenium are 5.0 ug/l and 20 ug/l, respectively. The maximum detected concentration of selenium in Discharge 001 exceeds the water quality criteria. The maximum concentration of selenium in the Conaway Ranch Toe Drain exceeds the water quality criteria and selenium was detected in Discharge 002. Therefore, an effluent limitation for selenium is included in this Order for both discharges.

Based on the sample results in the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives adopted after 25 September 1995 (See Basin Plan at page IV-16). Order No. 5-01-067 included a weekly selenium limitation based off the same selenium criteria. However, the selenium limitation in Order No. 5-01-067 used the 4-day average criteria as the weekly average limit. Since this Order contains selenium limitations based on the statistical conversion of the 4-day average criteria to daily and monthly limitations, the effluent limitations in this Order are more stringent. Therefore, a compliance schedule for compliance with the selenium effluent limitations is established in the Order.

Interim performance-based maximum daily effluent limitations of 7.1 ug/L for Discharge 001 and 7.2 ug/L for Discharge 002 have been established in this Order. The interim limitations were determined as described in Section IV.E.1., and are in effect through 17 May 2010. As part of the compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final selenium effluent limitations. In addition, the Discharger shall submit an engineering treatment feasibility study and prepare and implement a pollution prevention plan

developed in accordance with CWC section 13263.3(d)(3). The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

As part of its WWTP upgrade, the City of Davis plans to remove its overland flow system. Removal of the overland flow system should improve effluent quality for other constituents, but may cause effluent selenium concentrations to increase. The City anticipates that the new tertiary WWTP will not be able to remove selenium to the same degree as the existing equivalent to secondary WWTP. In the short term, this Order's interim selenium effluent limitations may need to be adjusted for the new WWTP. In the long term, the City is investigating options to meet final selenium effluent limitations with source control instead of treatment.

The source of selenium in the Discharger's influent is primarily due to the high levels of selenium contained in the municipal water supply. The municipal water supply for the City of Davis is primarily from groundwater sources. The Discharger anticipates that the most cost effective method for lowering the level of selenium in the Discharger's effluent is to obtain new municipal water supplies by using groundwater contained in the deep aquifer and/or by obtaining surface water supplies. The Discharger's consideration of projects to improve the quality of the water supply is a longer-term plan that would be completed sometime between 2015 and 2020.

The Discharger has indicated in the 30 January 2007 supplement to the Infeasibility Report that additional time may be required beyond 18 May 2010 to comply with final effluent limits for selenium. Based on the Discharger's performance in implementing their corrective action plan and implementation schedule to obtain new municipal water supplies, the Regional Water Board may consider at a future date issuance of a Time Schedule Order to provide additional time to comply with final effluent limits for selenium.

u. **Settleable Solids.** For inland surface waters, the Basin Plan states that "[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses." This Order contains average monthly and average daily effluent limitations for settleable solids.

Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order. A daily maximum effluent limitation for settleable solids is included in the Order, in lieu of a weekly average, to ensure that the treatment works operate in accordance with design capabilities.

v. **Silver.** The CTR includes hardness-dependant criteria for the protection of freshwater aquatic life for silver. The criteria for metals are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The USEPA default conversion factors for silver in freshwater for acute criteria is 0.85.

Discharge 001 – For the effluent, the applicable silver acute criterion (maximum 1-hour concentration) is 13 µg/L (see table F-9, above). The MEC for silver in Discharge 001 was 0.09 µg/L, based on nine samples collected between August 2005 and November 2008. For the receiving water, the applicable silver acute criterion is 2.6 µg/L, based on the minimum observed receiving water hardness of 78 mg/L (as $CaCO_3$). The maximum observed upstream Willow Slough Bypass silver concentration was not detected (method detection limit of 0.2 µg/L), based on one sample collected on 27 February 2002. Based on this information, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for silver.

Discharge 002 – For the effluent, the applicable silver acute criterion (maximum 1-hour concentration) is 14 µg/L (see table F-9, above). The MEC for silver in Discharge 002 was 4.2 µg/L, based on six samples collected between May 2005 and March 2009. For the receiving water, the applicable silver acute criterion is 3.1 µg/L, based on minimum observed receiving water hardness of 85 mg/L (as $CaCO_3$). The maximum observed receiving water silver concentration was 0.03 µg/L, based on one sample collected on 7 May 2002. Based on this information, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for silver.

w. **Sodium.** (see Subsection s. Salinity)

x. **Zinc.** The CTR includes hardness-dependant criteria for the protection of freshwater aquatic life for zinc. The criteria for zinc are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The USEPA default conversion factors for zinc in freshwater for acute and chronic criteria is 0.978 and 0.986, respectively.

Discharge 001 - For the effluent, the applicable zinc acute and chronic criterion are 270 µg/L (see table F-9, above). The MEC for zinc in Discharge 001 was 24 µg/L, based on ten samples collected between August 2005 and November 2008. For the receiving water, the applicable zinc acute and chronic criteria is 97 µg/L based on the minimum observed receiving water hardness of 78 mg/L (as $CaCO_3$). The maximum observed upstream Willow Slough Bypass total zinc concentration was 3 µg/L based on one sample collected on 27 February 2002. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for zinc.

Discharge 002 - For the effluent, the applicable zinc acute and chronic criteria are 270 µg/L (see table F-9, above). The MEC for zinc in Discharge 002 was 41 µg/L, based on six samples collected between May 2005 and March 2009. For the receiving water, the applicable zinc acute and chronic criteria are 100 µg/L based on the minimum observed receiving water hardness of 85 mg/L (as $CaCO_3$). The maximum observed receiving water zinc concentration was 16 µg/L, based on one sample collected on 7 May 2002. Therefore, the discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for zinc.

y. **2,3,7,8-TCDD and Congeners.** The CTR includes a criterion for 2,3,7,8-TCDD of 0.014 pg/L for the protection of human health based on ingestion of organisms only. The CTR does not include criteria for other dioxin congeners and there are no formally promulgated numeric water quality criteria for the other dioxin congeners. Therefore, determination of reasonable potential and effluent limitations, when appropriate, would be based on an interpretation of the Basin Plan narrative toxicity standard.

Dioxins occur as a large number of different isomers (congeners). In addition to 2,3,7,8-TCDD, there are many congeners of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) that exhibit toxic effects similar to those of 2,3,7,8-TCDD. Since human exposure to dioxins occurs as a complex mixture of these congeners, a methodology referred to as the Toxic Equivalency Factor (TEF) was developed to assess the health risks posed by mixtures of these compounds. The TEF methodology is a relative potency scheme that ranks the dioxin-like toxicity of a particular congener relative to 2,3,7,8-TCDD, which is the most potent congener. The TEF scheme used for inland surface waters, enclosed bays, and estuaries of California is provided in Section 3 of the SIP.

The SIP is the statewide, adopted Policy that Regional Water Boards must follow for implementing the CTR. In regards to 2,3,7.8-TCDD and its congeners the SIP reads:

> *"Whether or not an effluent limitation is required for 2,3,7,8-TCDD in accordance with Section 1.3 of the Policy, each RWQCB shall require (as described below) major and minor POTW and industrial dischargers in its region to conduct effluent monitoring for the 2,3,7,8-TCDD congeners listed above. The purpose of the monitoring is to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach."*

To date, the multi-media control strategy referenced in the SIP has not been developed. The introduction to the SIP states, in part, that the Policy establishes monitoring requirements for 2,3,7,8-TCDD equivalents. The SIP does not explicitly direct the Regional Water Boards to establish effluent limits when dioxin congeners are detected in the effluent. Rather it directs the discharger to report the data and in its report to multiply each measured or estimated congener concentration by its respective TEF value (described above) and report the sum of these values to the Regional Water Board. The SIP further states:

> *"Based on the monitoring results, the RWQCB may, at its discretion, increase the monitoring requirement (e.g., increase sampling frequency) to further investigate frequent or significant detections of any congener. At the conclusion of the three-year monitoring period, the SWRCB and RWQCBs will assess the data (a total of six samples each from major POTWs and*

industrial dischargers, and a total of two samples each from minor POTWs and industrial dischargers), and determine whether further monitoring is necessary."

The Discharger has been performing dioxin and furan congeners monitoring of the Facility effluent since April 1994. 2,3,7,8-TCDD was not detected in any of the samples collected in the Facility effluent. In the effluent, two of the congeners (1,2,3,4,6,7,8-HeptaCDD and OCDD) were reported as individually detected from May 2002 through May 2005 in both Discharge 001 and Discharge 002. Additionally, total HpCDD, total HxCDF, and total PeCDF were detected in both Discharge 001 and Discharge 002, total TCDF and total TCDD were detected in Discharge 001, and total HxCDD was detected in Discharge 002. However, of the detected values of 1,2,3,4,6,7,8-HeptaCDD, all were estimated values (i.e., j-flagged) and all but one of the detected values of OCDD were estimated values.

The Discharger performed a Dioxin Study from 1994 to1999 after US EPA monitoring detected dioxin-like congeners in the WWTP sludge. The Study found concentrations of 2,3,7,8-CDDs and 2,3,7,8-CDFs in the WWTP sludge and attributed waste haulers as one possible source. The Study stated that dioxins are "ubiquitous" in the environment and noted that out of ten effluent samples, only one effluent sample showed 2,3,7,8-CDDs and 2,3,7,8-CDFs.

Based on the limited data available, the lack of formally promulgated water quality criteria for congeners other than 2,3,7,8-TCDD, the fact that the Willow Slough Bypass, Conaway Ranch Toe Drain, and Yolo Bypass are not listed as impaired for dioxins and furans, and because the multi-media control strategy discussed in the SIP has not been developed, it is not appropriate to establish effluent limitations for other dioxin congeners at this time.

Due to the concerns of the potential impacts of dioxins and furans on the receiving water and in compliance with the SIP, this Order requires quarterly monitoring of dioxin and congeners for eight consecutive quarters following the effective date of this Order, then annual monitoring for the remainder of the effective term of this Order. This Order additionally includes a reopener to allow the Regional Water Board to consider adding effluent limits for dioxin congeners based on results of additional effluent monitoring, if the State Water Board develops the multi-media control strategy discussed in the SIP, or if the State Water Board provides other direction. This Order also requires the Discharger to identify the sources of detected dioxin congeners in its WWTP influent and effluent, and to implement measures to evaluate and reduce those detected dioxin congeners in its discharge to the receiving water. Special Provision VI.C.3.e of this Order requires the Discharger to prepare a 2,3,7,8-TCCD congeners source evaluation and minimization plan. Implementation measures to reduce detectable amounts of congeners may include source control and other effective means. Compliance with these requirements should result in the reduction of detectable amounts of dioxin congeners in the effluent discharged.

z. **Toxicity.** See Section IV.C.5 of the Fact Sheet regarding whole effluent toxicity.

4. WQBEL Calculations

a. Effluent limitations for aluminum, ammonia, cyanide, iron, and selenium, were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations.

b. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances (ECAs) are calculated as follows:

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, the ECA is calculated as follows:

$$ECA_{HH} = HH + D(HH - B)$$

where:

ECA_{acute} = effluent concentration allowance for acute (one-hour average) toxicity criterion

$ECA_{chronic}$ = effluent concentration allowance for chronic (four-day average) toxicity criterion

ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (one-hour average)

CCC = criteria continuous concentration (four-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

D = dilution credit

B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\underbrace{M_A ECA_{acute}}_{LTA_{acute}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where: $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting CMC to LTA
M_C = statistical multiplier converting CCC to LTA

Water quality-based effluent limitations were calculated for aluminum, ammonia, cyanide, iron, and selenium as follows in Tables F-6 through F-12, below.

Table F-11: WQBEL Calculations for Aluminium

	Discharge 001		Discharge 002	
	Acute	Chronic	Acute	Chronic
Criteria (µg/L) (1)	750	87	750	87
Dilution Credit	No Dilution	No Dilution	No Dilution	No Dilution
ECA	750	87	750	87
ECA Multiplier	0.321	0.527	0.319	0.526
LTA	241	45.9	240	45.7
AMEL Multiplier (95th%)	(2)	1.55	(2)	1.56
AMEL (µg/L)	(2)	**71**	(2)	**71**
MDEL Multiplier (99th%)	(2)	3.11	(2)	3.13
MDEL (µg/L)	(2)	**140**	(2)	**140**

1. USEPA Ambient Water Quality Criteria.
2. Limitations based on chronic LTA (Chronic LTA < Acute LTA).

Table F-12: WQBEL Calculations for Ammonia

	Discharge 001						Discharge 002					
	March 1 to October 31			November 1 to February 29			March 1 to October 31			November 1 to February 29		
	Acute[1]	4-day	Chronic[2]	Acute[1]	4-day	Chronic[2]	Acute[1]	4-day	Chronic[2]	Acute[1]	4-day	Chronic[2]
Criteria (mg/L)[3]	5.62	3.20	1.27	5.62	4.80	1.91	5.62	4.02	1.61	5.62	7.86	3.14
Dilution Credit	--	--	--	--	--	--	--	--	--	--	--	--
ECA	5.62	3.20	1.28	5.62	4.78	1.91	5.62	4.02	1.61	5.62	7.86	3.14
ECA Multiplier	0.24	0.43	0.71	0.50	0.69	0.87	0.23	0.42	0.70	0.34	0.55	0.80
LTA	1.34	1.36	0.91	2.79	3.30	1.66	1.31	1.68	1.13	1.93	4.34	2.50
AMEL Multiplier (95th%)	(6)	(6)	1.79	(6)	(6)	1.29	(6)	(6)	1.81	1.51	(5)	(5)
AMEL (mg/L)[4]	(6)	(6)	1.6	(6)	(6)	2.2	(6)	(6)	2.1	2.9	(5)	(5)
MDEL Multiplier (99th%)	(6)	(6)	4.18	(6)	(6)	2.01	(6)	(6)	4.29	2.90	(5)	(5)
MDEL (mg/L)	(6)	(6)	3.8	(6)	(6)	3.3	(6)	(6)	4.8	5.6	(5)	(5)

1. Acute design pH = permitted maximum allowed pH of 8.0.
2. Temperature corresponds to the lowest 99.9% CCC between the effluent and background receiving water.
3. USEPA Ambient Water Quality Criteria.
4. Monthly average limitations are set equal to the 30-day criteria.
5. Limitations based on acute LTA.
6. Limitations based on chronic LTA.

Table F-13: WQBEL Calculations For Copper – Discharge 002 only

	Acute	Chronic
Hardness (mg/L as $CaCO_3$)	260	260
Criteria (µg/L)[1]	33	20
Translator	0.960	0.960
Criteria (µg/L, total recoverable)	34	21
Dilution Credit	0	0
ECA[2]	34	21
ECA Multiplier[3]	0.28	0.48
LTA	9.6	10.1
AMEL Multiplier (95th%)[4]	1.7	[5]
AMEL (µg/L)	**16**	[5]
MDEL Multiplier (99th%)	3.6	[5]
MDEL (µg/L)	**34**	[5]

1. Metal's criteria are dissolved concentrations.
2. ECA calculated per Fact Sheet Section IC.C.2.b.
3. Acute and Chronic ECA Multiplier calculated at 99th percentile per Section 1.4.B, Step 3 of SIP or per Sections 5.4.1 and 5.5.4 of the TSD.
4. Assumes sampling frequency n = >4
5. Limitations based on 30-day acute LTA (Chronic LTA > Acute LTA)

Table F-14: WQBEL Calculations for Cyanide – Discharge 001 only

	Acute	Chronic
Criteria (µg/L) [(1)]	22	5.2
Dilution Credit	No Dilution	No Dilution
ECA	22	5.2
ECA Multiplier	0.211	0.384
LTA	4.64	1.99
AMEL Multiplier (95th%)	[(2)]	1.91
AMEL (µg/L)	[(2)]	**3.8**
MDEL Multiplier (99th%)	[(2)]	4.74
MDEL (µg/L)	[(2)]	**9.5**

1. CTR aquatic life criteria.
2. Limitations based on chronic LTA (Chronic LTA < Acute LTA).

Table F-15: WQBEL Calculations for Iron

	Discharge 001		Discharge 002	
	Acute	Chronic	Acute	Chronic
Criteria (mg/L) [(1)]	N/A	1	N/A	1
Dilution Credit	N/A	No Dilution	N/A	No Dilution
ECA	N/A	1	N/A	1
ECA Multiplier	N/A	0.527	N/A	0.527
LTA	N/A	0.527	N/A	0.527
AMEL Multiplier (95th%)	N/A	1.55	N/A	1.55
AMEL (mg/L)	N/A	**0.8**	N/A	**0.8**
MDEL Multiplier (99th%)	N/A	3.11	N/A	3.11
MDEL (mg/L)	N/A	**2**	N/A	**2**

1. USEPA Ambient Water Quality Criteria.

Table F-16: WQBEL Calculations for Selenium

	Discharge 001		Discharge 002	
	Acute	Chronic	Acute	Chronic
Criteria (µg/L) (1)	20	5	20	5
Dilution Credit	No Dilution	No Dilution	No Dilution	No Dilution
ECA	20	5	20	5
ECA Multiplier	0.472	0.671	0.456	0.657
LTA	9.44	3.35	9.11	3.29
AMEL Multiplier (95th%)	(2)	1.32	(2)	1.34
AMEL (µg/L)	(2)	**4.4**	(2)	**4.4**
MDEL Multiplier (99th%)	(2)	2.12	(2)	1.91
MDEL (µg/L)	(2)	**7.1**	(2)	**7.2**

1. CTR aquatic life criteria.
2. Limitations based on chronic LTA (Chronic LTA < Acute LTA).

Summary of Water Quality-based Effluent Limitations Discharge Point 001

Table F-17. Summary of Water Quality-based Effluent Limitations (EFF-001)

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C	mg/L	10	15	20		
	lbs/day[1]	630	940	1300		
Total Suspended Solids	mg/L	10	15	20		
	lbs/day[1]	630	940	1300		
pH	standard units				6.5	8.0
Settleable Solids	mL/L	0.1		0.2		
Turbidity	NTU					10
Total Coliform Organisms	MPN/100 mL					240
Aluminum	ug/L	71		140		
Ammonia (1 March – 31 October)	mg/L	1.6		3.8		
	lbs/day[1]	100		240		
Ammonia (1 November– 29 February)	mg/L	2.2		3.3		
	lbs/day[1]	140		210		
Cyanide	ug/L	3.8		9.5		
Iron	mg/L	0.8		2		
Selenium	ug/L	4.4		7.1		
	lbs/day[1]	0.28		0.44		

1. Based on an average dry weather discharge flow of 7.5 mgd.

Summary of Water Quality-based Effluent Limitations
Discharge Point 002

Table F-18. Summary of Water Quality-based Effluent Limitations (EFF-002)

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C	mg/L	10	15	20		
	lbs/day[1]	630	940	1300		
Total Suspended Solids	mg/L	10	15	20		
	lbs/day[1]	630	940	1300		
pH	standard units				6.5	8.0
Settleable Solids	mL/L	0.1		0.2		
Turbidity	NTU					10
Total Coliform Organisms	MPN/100 mL					240
Aluminum	ug/L	71		140		
Ammonia (1 March – 31 October)	mg/L	2.1		4.8		
	lbs/day[1]	130		300		
Ammonia (1 November– 29 February)	mg/L	2.9		5.6		
	lbs/day[1]	180		350		
Copper, Total Recoverable	ug/L	16		34		
Iron	mg/L	0.8		2		
Selenium	ug/L	4.4		7.2		
	lbs/day[1]	0.28		0.45		

1. Based on an average dry weather discharge flow of 7.5 mgd.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

A review of the Report of Waste Discharge indicates toxicity in the effluent. The percent survival of Ceriodaphnia dubia from the chronic toxicity test was 60 % in both June 2003 and May 2005. The chronic test for larval fathead minnow growth showed impacts from the effluent in August 2002 and October 2002. The chronic test for Ceriodaphnia dubia reproduction showed impacts from the effluent in August 2002, October 2002, February 2003, June 2003, August 2004, October 2004. The 4-day algal growth test showed impacts from the effluent on May 2002, June 2002, February 2003, June 2003, June 2004, and June 2005. Algal growth tended to be significantly greater than the control in Discharge 001 and significantly less than the control in Discharge 002. The toxicity tests conducted up to date have used 100 % effluent from the wastewater treatment plant. With a low available dilution and whole effluent testing results showing impacts to aquatic life, it is concluded that discharges from the WWTP have caused adverse effects on aquatic organisms. This Order requires the Discharger to initiate a TRE to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity if toxicity is observed during accelerated monitoring.

a. **Acute Aquatic Toxicity.** The Basin Plan states that "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate*…". Effluent limitations for acute toxicity have been included in this Order.

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at III-8.00) Based on quarterly whole effluent chronic toxicity testing performed by the Discharger from May 2002 through May 2005, the discharge has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

   No dilution has been granted for the chronic condition. Therefore, chronic toxicity results exceeding 1 chronic toxicity units (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. Therefore, in accordance with State Water Board Order WQO 2003-0012 for the Los Coyotes and Long Beach Wastewater Reclamation Plant and WQO 2008-0008 for the City of Davis Wastewater Plant, this Order includes a narrative effluent limitation for chronic whole effluent toxicity.

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, Special Provisions VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE work plan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

Title 40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g. CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations were calculated based upon the permitted average dry weather discharge flow allowed in Section IV.A.1.j. and Section IV.A.2.j of the Limitations and Discharge Requirements. Mass limitations are included for BOD, TSS, ammonia, mercury, and selenium.

2. Averaging Periods for Effluent Limitations

Title 40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, the USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. "*First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed.*" (TSD, pg. 96) This Order utilizes maximum daily effluent limitations in lieu of average weekly effluent limitations for aluminum, ammonia, cyanide, iron, selenium, and settleable solids as recommended by the TSD for the achievement of water quality standards and for the protection of

the beneficial uses of the receiving stream. Furthermore, for BOD and TSS, weekly average effluent limitations have been supplemented with maximum daily effluent limitations. This Order utilizes only monthly limitations for mercury. In lieu of weekly and monthly effluent limitations, this Order utilizes instantaneous minimum and/or maximum limitations for pH. Temperature, total coliform organisms, turbidity, acute toxicity, total residual chlorine, and average flow limitations are based on other periods. The rationale for using other periods for these constituents is discussed in Attachment F, Section IV.C.3., above.

3. Satisfaction of Anti-Backsliding Requirements

Some effluent limitations in this Order are less stringent that those in the previous Order. As discussed below this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. **Stayed Limitations.** Order No. 5-01-067 contained effluent limitations for BOD, TSS, turbidity, settleable solids, chlorine residual, ammonia, organochlorine pesticides, copper, dioxin and congeners, PAH's, selenium, and total coliform organisms that were stayed by an 8 May 2003 State Water Board Stipulation for Order Resolving Petition for Review OCC File A-1374 (Stipulation). The Stipulation required that the Regional Water Board "develop the permit on remand in light of the current record and new information developed on remand."

This Order includes effluent limitations for all the constituents stayed by the Stipulation except for copper, total dioxins and congeners, polycyclic aromatic hydrocarbons (PAH's) and organochlorine pesticides for both Discharge 001 and Discharge 002. A review of the effluent monitoring data from May 2002 through May 2005 shows PAH's and organochlorine pesticides have not been detected in recent effluent samples. Therefore, this Order does not include effluent limitations for PAH's and organochlorine pesticides for both Discharge 001 and Discharge 002. A review of the effluent monitoring data from May 2002 through May 2005 shows the effluent does not have reasonable potential to exceed the CTR copper criteria. This Order does not contain an effluent limitation for dioxin and congeners since 2,3,7,8-TCDD (the only CTR dioxin congener) was not detected in the effluent from May 2002 through May 2005.

This Order contains effluent limitations for BOD, TSS, turbidity, chlorine residual, ammonia, and selenium that are different from the stayed effluent limitations. Order No. 5-01-067 contained daily maximum, weekly average, and monthly average mass-based effluent BOD and TSS limitations of 1252 lb/day, 939 lb/day, and 625 lb/day, respectively; this Order contains these mass-based effluent BOD and TSS limitations rounded to two significant digits. Order No. 5-01-067 contained a daily maximum effluent turbidity limit of 5 NTU; this Order requires that effluent turbidity not exceed 5 NTU more than 5% of the time within a 24-hour period and contains an additional instantaneous maximum limitation of 10 NTU. The previous permit had (stayed) mass limits for chlorine residual. The floating (stayed) effluent limitations for ammonia in the previous permit have been replaced with fixed effluent limitations. The previous permit

had 1-hour average and 4-day average (stayed) limits for selenium. These have been revised to average monthly and maximum daily limits.

b. **Converted Limitations and Monitoring.** Order No. 5-01-067 contained daily maximum chlorine residual and weekly average selenium effluent limitations that were not stayed by the Stipulation. This Order contains effluent limitations for chlorine residual and selenium that have been revised to have different averaging periods, as described in the Fact Sheet, Section IV.D.2. This Order includes daily and monthly effluent selenium limitations that are based off of the criteria of 5.0 ug/L are as stringent as the stayed limitations and more stringent than the weekly effluent selenium limitations.

The previous Order's Monitoring and Reporting Program (MRP) required the Discharger calculate and record daily effluent limitations for ammonia, and quarterly effluent limitations for ammonia and copper. This was necessary in the previous Order since the ammonia and copper effluent limitations were floating limitations. This Order contains fixed ammonia effluent limitations and copper effluent limitations for Discharge 002, therefore, it does not include the previous MRP requirement to calculate and record daily effluent limitations for ammonia and copper.

c. **Biosolids.** Order No. 5-01-067 required that every April, the Discharger shall submit a biosolids disposal plan describing the annual volume of biosolids generated by the plant, specifying the disposal practices, and demonstrating how the sludge meets Class B or higher. Order No. 5-01-067 also contained biosolids application limitations that are not included in this Order. This Order prohibits the application of biosolids to the overland flow fields and wetlands effective 1 December 2008 and requires the Discharger to develop a Sludge Management Plan and submit a complete application (i.e., Report of Waste Discharge or Notice of Intent) for any proposed biosolids application. Because this Order does not allow the Discharger to apply biosolids, the existing requirement for biosolids application limitations and an annual biosolids disposal plan have been removed.

4. Satisfaction of Antidegradation Policy

a. **Surface Water.** The permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. This Order does not allow an increase in flow from the previous permit. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

The Regional Water Board finds that this Order, as amended by Order No. R5-2010-0097 to revise the ammonia effluent limitations is in the maximum benefit to the people of the State. The increase in ammonia loading does not increase the toxicity due to the revised and more stringent instantaneous maximum pH effluent limitation. The amendment does not allow for an increase in toxicity, allows for an immeasurable impact on the dissolved oxygen level, and

complies with the Basin Plan. Therefore, the resulting degradation will be an insignificant increase in ammonia mass loading and does not unreasonably affect present and anticipated beneficial uses. Therefore, the amendment is in accordance with federal and State antidegradation provisions.

b. **Groundwater.** The Discharger utilizes oxidation ponds, unlined sludge lagoons, overland flow fields, and wetlands. Domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD). Percolation from the ponds, sludge lagoons, overland flows fields, and wetlands may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:

   i. the degradation is limited in extent;

   ii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;

   iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and

   iv. the degradation does not result in water quality less than that prescribed in the Basin Plan.

   Groundwater monitoring results indicates that electrical conductivity may have degraded groundwater quality when compared to background. This Order requires the Discharger to evaluate the background groundwater quality to establish effluent limitations for groundwater. This Order also requires the implementation of BPTC measures to minimize impacts to groundwater.

E. Interim Effluent Limitations

1. **Aluminum, ammonia, cyanide, electrical conductivity, iron, and selenium.** The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water 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. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents. Therefore, the SIP requirement for interim effluent limitations has been applied to both CTR and non-CTR constituents

in this Order.

The interim limitations for aluminum, ammonia, cyanide, electrical conductivity, iron, and selenium 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 in this Order are established as the mean plus 3.3 standard deviations of the available data.

When there are less than ten sampling data points available, the *Technical Support Document for Water Quality- Based Toxics Control* ((EPA/505/2-90-001), 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 effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

Even though there fewer than 10 data points for the EC yearly average, the statistical approach was used to develop interim EC limitations based on best professional judgment. The resulting interim effluent limitations are more reasonable using the statistical approach.

The Regional Water 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 effluent limitations cannot be achieved by 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. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

Tables F-19, F-20, and F-21 summarize the calculations of the interim effluent limitations for aluminum, ammonia, cyanide, electrical conductivity, iron, and selenium:

Table F-19. Interim Effluent Limitation Calculation Summary –Discharge 001

Parameter	Units	Maximum Concentration	Mean	Std. Dev.	# of Samples	Interim Limitation
Aluminum	ug/L	700	470	170	8	2200
Ammonia	mg/L	19.5	4.9	4.7	410	20.5
Cyanide	ug/L	6	2.3	2.2	10	9.6
Iron	mg/L	1.3	1.1	0.26	4	4.0
Selenium	ug/L	5.6	2.6	0.93	22	7.1[1]

1. Using the equations to determine interim limitations, the interim limitation for selenium would be 5.6 ug/L. However, the final effluent limitations for selenium are 7.1 ug/L as a daily maximum and 4.4 as a monthly average. Since the daily maximum final effluent limitation for selenium is higher than the calculated interim effluent limitation, the interim limitation for selenium is set equal to 7.1 as a daily maximum (with no monthly average limitation).

Table F-20. Interim Effluent Limitation Calculation Summary –Discharge 002

Parameter	Units	Maximum Concentration	Mean	Std. Dev.	# of Samples	Interim Limitation
Aluminum	ug/L	3200	2200	1300	10	6500
Ammonia	mg/L	11.0	2.84	3.14	366	13.2
Iron	mg/L	4.6	3.9	0.95	4	14
Selenium	ug/L	4	2.4	.91	23	7.2 [1]

1. Using the equations to determine interim limitations, the interim limitation for selenium would be 5.4 ug/L. However, the final effluent limitations for selenium are 7.2 ug/L as a daily maximum and 4.4 as a monthly average. Since the daily maximum final effluent limitation for selenium is higher than the calculated interim effluent limitation, the interim limitation for selenium is set equal to 7.2 as a daily maximum (with no monthly average limitation).

Table F-21. Interim Effluent Limitation Calculation Summary –Discharge 001 & 002

Parameter	Units	Maximum Concentration	Mean	Std. Dev.	# of Samples	Interim Limitation
Electrical Conductivity	umhos/cm	1960	1920	38	3[1,2]	2050[3]

1. Although there were less than 10 samples, the interim limitations are established as the mean plus 3.3 standard deviations of the available data.
2. Three sets of annual averages used.
3. As an annual average. Although there are only three sets of annual averages, the interim limit was established based on the mean plus 3.3 times the standard deviation.

2. **BOD, TSS, Total Coliform Organisms, and Turbidity.** The establishment of tertiary limitations has not been previously required for this discharge; therefore, a schedule for compliance with the tertiary treatment requirements is included as a Provision in this Order. This Order provides interim effluent limitations for BOD, TSS, and total coliform based on the existing effluent limitations required by Order No. 96-104, which the Discharger is currently capable of meeting. Full compliance with the final effluent limitations for BOD, TSS, total coliform, and turbidity are not required by this Order until 25 October 2017.

F. Land Discharge Specifications

1. The Land Discharge Specifications are necessary to protect the beneficial uses of the groundwater and to prevent nuisance.

G. Reclamation Specifications – NOT APPLICABLE

H. Wetlands Specifications

1. The Wetlands Specifications are necessary to protect the aquatic life and wildlife in contact with the wetlands and to prevent nuisance.

I. Biosolids Specifications

1. The Biosolids Specifications are necessary to protect the beneficial uses of surface and groundwater and to prevent nuisance. This Order prohibits discharge of biosolids to the wetlands and overland flow fields since this practice does not represent best practicable treatment or control.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use and that groundwater shall not exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect beneficial uses.

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "*[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses*." The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and

grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rationale for these narrative and numeric receiving surface water limitations are as follows:

a. **Bacteria.** The Basin Plan includes a water quality objective that "*[I]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml*." Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective.

b. **Biostimulatory Substances.** The Basin Plan includes a water quality objective that "*[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.

c. **Chemical Constituents.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses."* Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.

d. **Color.** The Basin Plan includes a water quality objective that "*[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.

e. **Dissolved Oxygen.** The Yolo Bypass, to which the Willow Slough Bypass and Conaway Ranch Toe Drain are tributary, has been designated as having the beneficial use of potential cold freshwater aquatic habitat (COLD). The *Habitat Improvement for Native Fish in the Yolo Bypass*, states that "considering the four runs of salmon present, adult migration may occur in any month," which indicates the presence of cold freshwater fish in the Yolo Bypass year-round. For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial uses of the Yolo Bypass apply to the Willow Slough Bypass and Conaway Ranch Toe Drain, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

   For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that "…*the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of*

saturation." This objective was included as a receiving water limitation in this Order.

f. **Floating Material.** The Basin Plan includes a water quality objective that *"[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.

g. **Oil and Grease.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.

h. **pH.** The Basin Plan includes water quality objective that *"[T]he pH shall not be depressed below 6.5 nor raised above 8.5.*" This Order includes receiving water limitations for pHrange, based on these objectives.

i. **Pesticides.** The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.

j. **Radioactivity.** The Basin Plan includes a water quality objective that *"[R]adionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor 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."* The Basin Plan states further that *"[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of section 64443 of Title 22 of the California Code of Regulations…"* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.

k. **Suspended Sediments.** The Basin Plan includes a water quality objective that *"[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses"* Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.

l. **Settleable Substances.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.

m. **Suspended Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.

n. **Taste and Odors.** The Basin Plan includes a water quality objective that *"[W]ater shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.

o. **Temperature.** The Willow Slough Bypass and Conaway Ranch Toe Drain have the beneficial uses of both potential COLD and existing WARM. The Basin Plan includes the objective that "[a]*t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5ºF above natural receiving water temperature*." This Order includes a receiving water limitation based on this objective. Compliance is to be determined based on the difference in temperature at RSW-001U and RSW-001D and/or RSW-002U and RSW-002D.

p. **Toxicity.** The Basin Plan includes a water quality objective that *"[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.

q. **Turbidity.** The Basin Plan includes a water quality objective that "*[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*

- *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
- *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
- *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent*."

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

Compliance is to be determined based on the difference in turbidity at RSW-001U and RSW-001D and/or RSW-002U and RSW-002D.

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 ml. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (*e.g.*, BOD and TSS reduction requirements). The previous permit contained influent monitoring for flow, hardness, electrical conductivity, pH, BOD, TSS, ammonia, and priority pollutants. This Order includes influent monitoring for flow, BOD, TSS, electrical conductivity, and pH.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater. To assess compliance with effluent limitations, this Order requires effluent monitoring for BOD, TSS, pH, settleable solids, turbidity, total coliform organisms, aluminum, ammonia, electrical conductivity (EC), iron, selenium, acute whole effluent toxicity, mercury, temperature, total residual chlorine, and flow for both Discharge 001 and Discharge 002; effluent monitoring for cyanide for Discharge 001; and effluent monitoring for copper for Discharge 002. Since the effluent hardness affects the toxicity of some of these constituents, this Order includes effluent monitoring for hardness.

2. Effluent monitoring for TDS, boron, sodium, and chloride is necessary to monitor the ratio of TDS, boron, sodium, and chloride to EC.

3. The SIP states that if "…*all reported detection limits of the pollutant in the effluent are greater than or equal to the C* [water quality criterion or objective] *value, the RWQCB* [Regional Water Board] *shall establish interim requirements…that require additional monitoring for the pollutant….*" All reported detection limits for the following priority pollutants: acrylonitrile, pentachlorophenol, benzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, 3,3'-dichlorobenzidine, hexachlorobenzene, and persistent chlorinated hydrocarbon pesticides are greater than or equal to corresponding applicable water quality criteria or objectives. Monitoring for these constituents has been included in this Order in accordance with the SIP.

4. Although the three-year period for the reasonable potential analysis (May 2002 through May 2005) did not include any copper data above the CTR criteria, more recent effluent data (May 2006, May 2007) shows Discharge 002 above the CTR criteria. Therefore, monthly copper monitoring is required for Discharge 002.

5. This Order includes monitoring of dioxin and congeners because the following dioxin congeners were detected in the effluent from May 2002 through May 2005: 1,2,3,4,6,7,8-HeptaCDD OCDD, Total HpCDD, Total HxCDF, Total PeCDF in both Discharge 001 and Discharge 002; Total TCDF and Total TCDD in Discharge 001; and Total HxCDD in Discharge 002.

6. The previous Order included effluent monitoring for flow, chlorine residual, turbidity, pH, temperature, electrical conductivity, total coliform organisms, ammonia, BOD, TSS, settleable solids, oil and grease, TDS, hardness, copper, bis(2-ethylhexyl)phthalate, nitrate, polycyclic aromatic hydrocarbons, selenium, organochlorine pesticides, aluminum, chromium VI, dioxin (2,3,7,8-TCDD) & congeners, acute bioassay, chronic biossay, and priority pollutants. In addition to the constituents discussed in VI B.1, B.2, B.3, B.4, and B.5, this Order includes monitoring for oil and grease, and priority pollutants. Monitoring requirements for

nitrate and polycyclic aromatic hydrocarbons have not been included in this Order since there is no reasonable potential for these constituents.

7. Tertiary treatment requirements and electrical conductivity requirements are established at EFF-A, after disinfection. The California Department of Public Health (DPH) 26 August 1983 *Uniform Guidelines for Sewage Disinfection* states "wastewater shall be considered to be adequately disinfected if at some point in the treatment process the median MPN of the total coliform organisms does not exceed 2.2/100 mL." Effluent monitoring point EFF-A was established to allow the Discharger to demonstrate the effluent meets tertiary treatment at that point in the treatment process, prior to discharge to the wetlands.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Monthly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Quarterly chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

2. Groundwater

a. Section 13267 of the California Water Code states, in part, *"(a) A Regional Water 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 Water 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 Water 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 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. In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program (Attachment E) is issued pursuant to California Water Code section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of

b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution 68-16 and the Basin Plan.

c. Beneficial uses of groundwater include municipal and domestic (MUN) and agricultural water supply. The Basin Plan states, on page III-9.0: “Groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” The recommended secondary MCL for electrical conductivity is 900 µmhos/cm. The agricultural water quality screening value is 700 µmhos/cm. Groundwater sampling results provided by the Discharger in the Report of Waste Discharge indicate that elevated level of electrical conductivity was detected in the down-gradient monitoring well MW-6 at a maximum level of 7240 µmhos/cm. Groundwater sampling results from May 2002 through May 2005 revealed that levels of electrical conductivity are higher in groundwater near the wetlands. It indicates that the discharge from the wastewater treatment plant has a reasonable potential for wastewater percolating to the groundwater to cause or contribute to cause elevated levels of electrical conductivity in the groundwater. However, background groundwater quality has not been established.

d. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Board plans and policies, including Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

E. Other Monitoring Requirements

1. Pond Monitoring

Pond Monitoring is required to assess compliance with the land discharge specifications. Land discharge specifications are imposed to prevent nuisance, protect the public health, and maintain the integrity of the treatment system.

2. Wetlands Monitoring

Wetlands monitoring is required to assess compliance with the wetlands specifications. Wetlands specifications are imposed to protect human, plant, animal, and aquatic life and to prevent nuisance.

3. Water Supply Monitoring

Water supply monitoring is required to evaluate the source of constituents in the wastewater.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Mercury.** This Order contains mass effluent limitations for mercury. This reopener provision allows the Regional Water Board to adjust the mercury limitations if mercury is found to be causing toxicity or if a TMDL program is adopted.

b. **Pollution Prevention.** This Order requires the Discharger to prepare and implement pollution prevention plans following CWC section 13263.3(d)(3) for cyanide, selenium, aluminum, and iron. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the pollution prevention plans. The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

c. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

d. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. If the Discharger performs studies to determine site-specific WERs and/or additional site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

e. **Constituent Study.** The reopener provisions allow the Regional Water Board to reopen this Order for addition of effluent limitations if it is determined that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective.

f. **Manganese.** The reopener provisions allow the Regional Water Board to reopen this Order for addition of final effluent limitations for manganese based on a review of the Manganese Study required by this Order.

g. **EC, Boron, Sodium, and Chloride Study.** The reopener provisions allow the Regional Water Board to reopen this Order for addition of final effluent limitations for EC, boron, sodium, and chloride based on a review of the EC, Boron, Sodium, and Chloride Study required by this Order.

h. **Reuse Feasibility Study.** The reopener provision allows the Regional Water Board to reopen this Order to include additional requirements and/or to amend compliance dates to implement reuse on the Conaway Ranch if the Discharger determines that reuse is feasible.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00.) Based on quarterly whole effluent chronic toxicity testing performed by the Discharger from May 2002 through May 2005, the discharge has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a Toxicity Reduction Evaluation (TRE) Work Plan in accordance with EPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity has been demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of > 1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

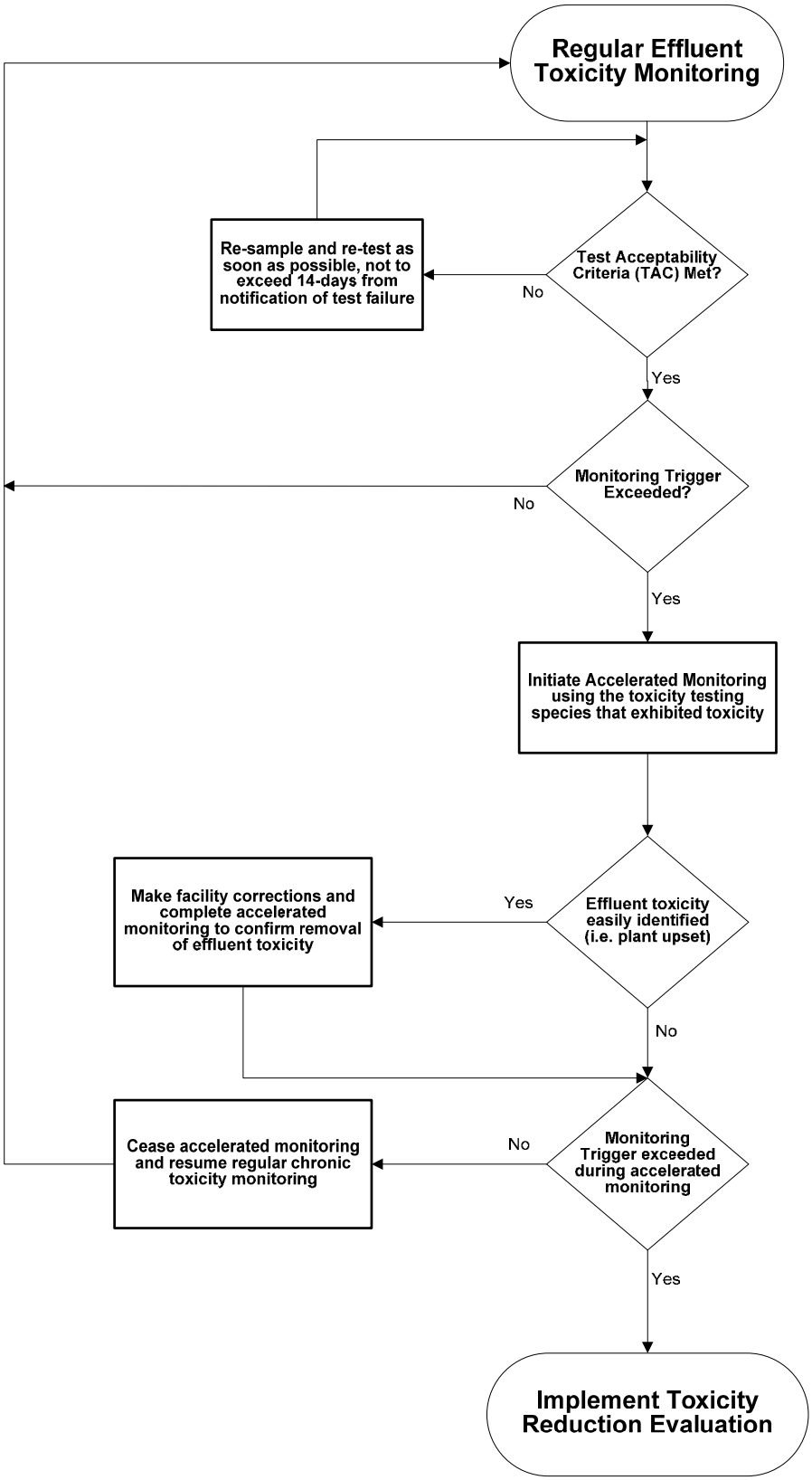
The provision requires accelerated monitoring consisting of four chronic toxicity tests every two weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991* (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-3), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Work Plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants,* (EPA/833B-99/002), August 1999.
- Generalized Methodology for Conducting Industrial TREs*, (EPA/600/2-88/070), April 1989.*
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures,* Second Edition, EPA 600/6-91/005F, February 1991.
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity,* Second Edition, EPA 600/R-92/080, September 1993.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.
- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.
- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.
- *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991*

Figure F-3
WET Accelerated Monitoring Flow Chart



b. **Constituent Study.** From May 2002 through May 2005, the maximum effluent concentrations of the following constituents were near, but below the criteria: fluoride and nickel in both Discharge 001 and Discharge 002; lead and oil and grease in Discharge 001; and acrolein and cyanide in Discharge 002. The maximum effluent concentrations of zinc and diethyl phthalate were detected above the criteria in March 2001 and June 2001, respectively, in Discharge 001. Dalapon (a persistent chlorinated hydrocarbon pesticide) was detected above the criteria in March 2002 in Discharge 002. This Order does not include effluent limitations for fluoride and nickel for both Discharge 001 and Discharge 002, lead, zinc, oil and grease, and diethyl phthalate for Discharge 001, and acrolein, cyanide, and persistent chlorinated hydrocarbon pesticides for Discharge 002. Instead, this Order requires a constituent Study of these constituents and includes a reopener that effluent limitations may be added for these constituents if additional data demonstrates reasonable potential.

c. **Manganese Study:** The Ayers and Westcot 1985 Study states that manganese is "[t]oxic to a number of crops at a few-tenths to a few mg/l, but usually only in acid soils." The Yolo Bypass soils are not generally acidic, which could affect manganese requirements in the bypass. This Order requires the Discharger to conduct a site-specific study that assesses the influence of soil chemistry on manganese requirements for irrigation waters downstream of the discharge.

d. **EC, Boron, Sodium, and Chloride Study:** The Ayers and Westcot 1985 Study indicates that site-specific factors, such as rainfall and flooding, should be considered in determining protective EC levels in irrigation water. Significant flooding occurs in the Yolo Bypass, which could affect EC requirements for irrigation waters used in the bypass. This Order requires the Discharger to conduct a site-specific study that assesses the influence of soil chemistry, climatic conditions, rainfall and flooding, and background water quality on EC/salinity requirements for irrigation waters downstream of the discharge. In lieu of conducting a site-specific study, if appropriate, the Discharger may submit a report showing it has implement EC study results from other dischargers in the area (e.g., City of Woodland).

e. **BPTC Evaluation Tasks.** The Discharger dewaters biosolids in unlined sludge lagoons. Because the sludge lagoons are unlined, leachate from the sludge has the potential to percolate through the underlying soil to groundwqater. Leachate from unlined sludge lagoons may degrade or pollute groundwater. Certain aspects of waste treatment or control practices can be improved and therefore cannot be justified as representative of BPTC (e.g., unlined sludge lagoons).

f. **Groundwater Monitoring (Special Provisions VI.C.2.d.).** To determine compliance with Groundwater Limitations V.B. and evaluate the feasibility of wastewater reuse, the Discharger is required to evaluate the adequacy of its groundwater monitoring network. This provision requires the Discharger to evaluate its groundwater monitoring network to ensure there are one or more

background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. Currently, there are no groundwater monitoring wells downgradient of the unlined sludge drying beds and lined aerated lagoons. The Discharger must install new groundwater monitoring wells, if necessary, collect two year of monitoring data, and submit a report evaluating the underlying groundwater by 1 September 2012. If the monitoring shows that any constituent concentrations are increased above background water quality, by the schedule described in Section VI.C.2.e of this Order, the Discharger shall submit a technical report describing the groundwater evaluation report results and critiquing each evaluated facility component with respect to BPTC, potential wastewater reuse and minimizing the discharge's impact on groundwater quality.

g. **Reuse Feasibility Study.** To determine the feasibility of reusing treated effluent at the Conaway Ranch and thereby eliminating its discharge to surface water, the Discharger shall evaluate the technical, logistical and economic feasibility of conveying treated effluent to the Conaway Ranch for agricultural reuse consistent with Title 22 of the California Code of Regulations. Studies to determine the feasibility of reuse should include, but are not limited to, water balance analysis, nutrient and salt balance (agronomic rates for crop types to be grown), potential groundwater impact evaluations, evaluation of current groundwater background quality at the Conaway Ranch site, evaluation of treatment needs, evaluation of impacts to receiving water if discharge removed, and economic impacts to the City. The Discharger shall comply with the time schedule identified in Section VI.C.2.g in conducting the studies to determine the feasibility of reuse at the Conaway Ranch. If the City fails to comply with the study requirements set forth below, this Order may be reopened and the compliance schedule for meeting final effluent limitations may be revised to eliminate the remaining time available to evaluate reuse.

h. **Priority Pollutant Metals Study.** This Order requires the Discharger to complete and submit a Metals Study. Based on a review of the results of the Study, this Order may be reopened to add or modify effluent limitations and requirements for any priority pollutant metal based on a review of the Metals Study.

3. Best Management Practices and Pollution Prevention

a. **Pollution Prevention Plan (PPP) for cyanide, selenium, aluminum, and iron.** A PPP for cyanide, selenium, aluminum, and iron is required in this Order per CWC section 13263.3(d)(1)(D). The PPP shall be developed in conformance with CWC section 13263.3(d)(3) as outlined in subsection b., below.

b. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans required for cyanide, selenium, aluminum, and iron shall, at minimum, meet the requirements outlined in CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:

i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.

ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.

iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.

iv. A plan for monitoring the results of the pollution prevention program.

v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.

vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.

vii. A description of the Discharger's existing pollution prevention programs.

viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.

ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

c. **Salinity Evaluation and Minimization Plan.** The WWTP effluent is high in salinity. To address sources of salinity from the wastewater treatment system, this Order requires the Discharger to prepare and implement a salinity evaluation and minimization plan.

d. **Salinity Reduction.** This Order requires the Discharger to provide annual progress reports demonstrating progress towards the reduction of salinity discharged to the receiving waters. The salinity of the discharge needs to be protective of the agricultural beneficial uses of the Willow Slough Bypass and Conaway Ranch Toe Drain and the agricultural and municipal beneficial uses of the underlying groundwater. The salinity in the discharge exceeds the agricultural screening value of 700 umhos/cm and the secondary Maximum Contaminant Level of 900 umhos/cm (for protection of the groundwater's municipal beneficial use). Groundwater monitoring results indicate degradation

of the groundwater due to salinity. To comply with the limitations in this Order, the Discharger will need to continue to evaluate measures to reduce salinity in its discharge.

e. **Dioxin Congeners Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for detected dioxin-like congeners is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of dioxin-like congeners to the receiving water.

4. Construction, Operation, and Maintenance Specifications

a. **Treatment Pond Operating Requirements**. This Order requires the Discharger to maintain the ponds to protect public health and prevent nuisance.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. **Pretreatment Requirements**

i. The Federal Clean Water Act, section 307(b), and Federal Regulations, 40 CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR Part 403.

ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board or the USEPA may take enforcement actions against the Discharger as authorized by the CWA.

6. Compliance Schedules

The use and location of compliances schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria.

a. The Discharger submitted a request and technical justification (dated 22 January 2006 and 30 January 2007) for time schedules to comply with cyanide and selenium effluent limitations. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. This Order establishes a compliance schedule for the new, final, water quality-based effluent limitations for cyanide, and selenium, and requires full compliance by 18 May 2010.

b. The Discharger submitted a request, and justification (dated 22 January 2007), for a compliance schedule for BOD, TSS, turbidity, coliform, aluminum, ammonia,

and iron. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. The Discharger submitted a subsequent request on 24 October 2008 to extend the compliance schedule by two years to allow for the development and consideration of studies to determine the feasibility of reusing treated effluent on the Conaway Ranch and eliminating its surface water discharge. The Discharger has provided documentation that indicates both the Discharger and the owners of the Conaway Ranch, Conaway Preservation Group, are committed to conducting necessary studies and negotiating necessary agreements to pursue the viability of reusing all of the Dischargers treated effluent for agricultural reuse on the Conaway Ranch property. At anytime during the two-year period, should the Discharger determine that reuse is not feasible, the Discharger must immediately continue its efforts to upgrade the existing treatment facility. This Order establishes a compliance schedule for the new, final, water quality-based effluent limitations for BOD, TSS, turbidity, coliform, aluminum, ammonia, and iron and requires full compliance by 25 October 2017.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the City of Davis. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through publication of a Notice of Public Hearing in a local newspaper and on the Central Valley Regional Water Board website.

B. Written Comments

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

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on 2 August 2010.

C. Public Hearing

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

Date: 22/23/24 September 2010
Time: 8:30 am
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

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

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/rwqcb5/ where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

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

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

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (916) 464-3291.

F. Register of Interested Persons

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

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Joshua Palmer at (916) 464-4674 or jpalmer@waterboards.ca.gov.