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For Petitioner California Sportfishing Protection Alliance

BEFORE THE STATE WATER RESOURCES CONTROL BOARD

In the Matter of Waste Discharge Requirements For City of Galt Wastewater Treatment Plant; California Regional Water Quality Control Board Central Valley Region Order No. R5-2010-0099; – NPDES No. CA0081434	)	**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.

CA0081434) for City of Galt Wastewater Treatment Plant, on 23 September 2010. See Order No. R5-2010-0099. 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. R5-2010-0099, Waste Discharge Requirements (NPDES No. CA0081434) for the City of Galt 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:

23 September 2010

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

CSPA submitted a detailed comment letter on 8 August 2010. That letter 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 Permit fails to contain mass-based effluent limits for Bis (2-ethylhexyl) phthalate, Carbon Tetrachloride, Chlorodibromomethane, Copper, Cyanide, Dichlorobromomethane, Lead, Nitrate plus Nitrite as required by Federal Regulations 40 CFR 122.45(b).

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. Mass limits are critically important to assure that the facility is properly designed and capable of removing individual pollutants and to assure that the treatment facilities are not overloaded with the individual pollutant. The Regional Board's approach to priority pollutants is that treatment plants are designed to remove BOD, TSS and pathogens and that the removal of other priority pollutants is incidental; hence their removal of mass limitations from permits. This approach may have been generally successful prior to adoption of the National and California Toxics Rules which established stringent numerical limitations for priority pollutants. It is easy to recognize the failure of relying on conventional treatment plant design for addressing priority pollutants by the number of Time Schedule Orders and Cease and Desist Orders for noncompliant treatment systems regulated by the Central Valley Regional Board. This is also evidenced by the number of NTR and CTR noncompliant wastewater treatment plants in California's Central Valley. The design flow for priority pollutants is different for each individual pollutant and is different again from the conventional design flow for BOD and TSS. The treatment plant design flow for BOD and TSS removal is not the design flow rate for individual priority pollutants and toxic constituents such as ammonia and aluminum. A prime example of the requirements for individual pollutant removal is ammonia removal or nitrification; the design of activated sludge systems has been modified from simply being designed for BOD removal to achieve nitrification in many cases by providing extended aeration. This is likely why the Permit contains mass limits for ammonia. Failure to include mass limits and design flows for priority pollutants maintains the incidental nature of past compliance and will not reliably achieve compliance with water quality standards for priority pollutants. For Bis (2-ethylhexyl) phthalate, Carbon Tetrachloride, Chlorodibromomethane, Copper, Cyanide, Dichlorobromomethane, Lead and Nitrate plus Nitrite the Permit does not specify the design flow and does therefore not comply with the requirements of 40 CFR 122.45(b).

Section 5.7.1 of U.S. EPA's *Technical 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:

For pH, temperature, radiation or other pollutants which cannot be expressed by mass;
When applicable standards and limitations are expressed in terms of other units of measurement; or
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."

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.

It should be noted that the Regional Board does a great disservice to the Dischargers it regulates when they allow new or expanded treatment system to be built that are in immediate noncompliance with discharge limitations; this can be remedied by requiring the submittal of

individual pollutant design parameters be submitted by the design engineers. The Permit must be amended to include mass limitations for Bis (2-ethylhexyl) phthalate, Carbon Tetrachloride, Chlorodibromomethane, Copper, Cyanide, Dichlorobromomethane, Lead, Nitrate plus Nitrite. The design flow for each of the listed pollutants should be individually specified in the Permit to confirm compliance with 40 CFR 122.45(b). Failure to include mass limitations for these pollutants will result in another inadequately designed treatment plant that will be noncompliant for the listed pollutants.

B. Effluent Limitations for Aluminum, Arsenic, Iron and Manganese 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 Aluminum, Arsenic, Iron and Manganese as an annual average contrary to the cited Federal Regulation. Establishing the Effluent Limitations for EC, iron and manganese in accordance with the Federal Regulation is not impracticable. Proof of impracticability is properly a steep slope and the Regional Board has not presented any evidence that properly and legally limiting Aluminum, Arsenic, Iron and Manganese is impracticable.

C. The Permit fails to utilize the latest EPA recommended criteria for copper and instead utilized an outdated water quality standard and water effects ration in developing and effluent limitation for copper contrary to Section 122.44(d) of 40 CFR which 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.

EPA has issued revised national recommended freshwater aquatic life criteria for copper (*Aquatic Life Ambient Freshwater Quality Criteria—Copper 2007 Revision*). In adopting the copper criteria EPA stated that:

> "Copper is an abundant naturally occurring trace element found in the earth's crust that is also found in surface waters. Copper is a micronutrient at low concentrations and is essential to virtually all plants and animals. At higher concentrations copper can become toxic to aquatic life. Mining, leather and leather products, fabricated metal products, and electric equipment are a few of the industries with copper-bearing discharges that contribute to manmade discharges of copper into surface waters. Municipal effluents may also contribute additional copper loadings to surface waters.

> Since EPA published the hardness-based recommendation for copper criteria in 1984, new data have become available on copper toxicity and its effects on aquatic life. The Biotic Ligand Model (BLM) – a metal bioavailability model that uses receiving water body characteristics to develop site-specific water quality criteria – utilizes the best available science and serves as the basis for the new national recommended criteria.
>
> The BLM requires ten input parameters to calculate a freshwater copper criterion (a saltwater BLM is not yet available): temperature, pH, dissolved organic carbon (DOC), calcium, magnesium, sodium, potassium, sulfate, chloride, and alkalinity. The BLM is used to derive the criteria rather than as a post-derivation adjustment as was the case with the hardness-based criteria. This allows the BLM-based criteria to be customized to the particular water under consideration.
>
> 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. We expect that application of this model will result in more appropriate criteria and eliminate the need for costly, time-consuming site-specific modifications using the water effect ratio."

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).

On Page 13 (C) and repeated on pages 216 and 232 of the biological opinion it is required that:

> "By June of 2003, EPA, in cooperation with the Services, will develop a revised criteria calculation model based on best available science for deriving aquatic life criteria on the basis of hardness (calcium and magnesium), pH, alkalinity, and dissolved organic carbon (DOC) for metals."

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.

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 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 i n 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.

Hardness as a predictor of copper toxicity: Lauren and McDonald (1986) varied pH, alkalinity, and hardness independently at a constant sodium ion concentration, while measuring net sodium loss and mortality in rainbow trout exposed to copper. Sodium loss was an endpoint investigated because mechanisms of short-term copper toxicity in fish are related to disruption of gill ionoregulatory function. Their results indicated that alkalinity was an important factor reducing copper toxicity, most notably in natural waters of low calcium hardness and alkalinity. Meador (1991) found that both pH and dissolved organic carbon were important in controlling copper toxicity to *Daphnia magna*. Welsh *et al*. (1993) demonstrated the importance of dissolved organic carbon in affecting the toxicity of copper to fathead minnows and suggested that water quality

> criteria be reviewed to consider the toxicity of copper in waters of low alkalinity, moderately acidic pH, and low dissolved organic carbon concentrations. Applications of gill models to copper binding consider complexation by dissolved organic carbon, speciation and competitive effects of pH, and competition by calcium ions, not merely water hardness (Playle *et al*. 1992; Playle *et al*. 1993a; Playle *et al*. 1993b). Erickson *et al*. (1996) varied several test water qualities independently and found that pH, hardness, sodium, dissolved organic matter, and suspended solids have important roles in determining copper toxicity. They also suggested that it may difficult to sort out the effects of hardness based on simple toxicity experiments. It is clear that these studies question the use of site calcium + magnesium hardness only as input to a formula to derive a criterion for copper because pH, alkalinity, and dissolved organic carbon concentrations are key water quality variables that also modulate toxicity. In waters of moderately acidic pH, low alkalinity, and low dissolved organic carbon, the use of hardness regressions may be most inaccurate. Also, it is not clear that the dissolved organic carbon in most or all waters render metals unavailable. This is because dissolved organic carbon from different sources may vary in both binding capacity and stability (Playle 1998)."

As was required in the biological opinion, EPA has updated the water quality criteria for copper as cited above. Failure to utilize the updated criteria for copper in the Permit conflicts with the requirements of Section 122.44(d) of 40 CFR which 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. Both EPA, in adopting the new criteria for copper, and the "Services" in issuing their biological opinion cite that the use of translators and the old hardness based standard for copper is likely not protective of the aquatic life beneficial use.

D. The Permit misapplies a technical report in developing hardness based effluent limitations for metals; therefore, the effluent limitations developed utilizing this procedure are not protective of water quality and the beneficial uses of the receiving stream as required by 40 CFR 122.44.

The Permit cites a technical report (page F-19, footnote No. 3, 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.) as justification for utilizing a hardness other than the upstream ambient hardness in equations for developing effluent limitations for metals. The cited report states that:

> "PROPOSED IMPLEMENTATION, It is proposed to develop water quality criteria for use in conducting "reasonable potential" analyses for the assignment of effluent

limitations based on the following methodology. It has been demonstrated that the following methodology for setting fixed effluent limitations for hardness dependent metals will always be protective under all flow and mixing conditions (i.e., is independent of 1Q10 and 7Q10 design flows). In situations where maximum receiving water contaminant concentrations are less than water quality objectives or if effluent will never make up 100 percent of the stream flow, these same methodologies can be modified easily to set protective, fixed effluent limitations based on the maximum receiving water contaminant concentration or maximum percentage of effluent that will be present in the receiving water." (Emphasis added)

The Permit states that:

Page F-26: "c. Assimilative Capacity/Mixing Zone**. "Laguna Creek is an ephemeral stream with little or no flow at times, therefore, no receiving water dilution is available. Dilution credits have not been allowed in this Order.**"

Page F-20: "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."

Page F-20: "The effluent hardness ranged from 52 mg/L to 85.1 mg/L (as CaCO3), based on 30 samples from April 2004 to March 2008. The upstream receiving water hardness varied from 30 mg/L to 117 mg/L (as CaCO3), based on 41samples from April 2004 to February 2008. Using a hardness of 52 mg/L (as CaCO3) 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…"

Page F-21: "Using these reasonable worst-case conditions, the discharge can be mixed with the receiving water and a resulting downstream mixed hardness (or metals concentration) can be calculated for all discharge and mixing conditions (e.g., 0% effluent to 100% effluent) based on a simple mass balance as shown in Equation 3, below."

Page F-21: "As demonstrated in Table F-4, using a hardness of 52 mg/L (as CaCO3) to calculate the ECA for chronic cadmium, chromium III, and nickel ensures the discharge is protective under all discharge and mixing conditions.

> Page F-22: "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 4, below)."
>
> Page F-24: "Using Equation 4 to calculate the ECA for acute cadmium and acute silver 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-5 and F-6, for acute cadmium."

The effluent hardness ranged from 52 mg/L to 85.1 mg/L (as CaCO3), based on 30 samples from April 2004 to March 2008. The upstream receiving water hardness varied from 30 mg/L to 117 mg/L (as CaCO3), based on 41samples from April 2004 to February 2008. Metals exhibit greater toxicity in lower hardness water. Effluent imitations based on the lowest observed upstream "ambient" hardness is fully protective of the aquatic life beneficial uses of the receiving stream. The use of a higher hardness can only be utilized if mixing conditions are considered (ie, as the effluent mixes with the receiving stream). The Permit utilizes assimilative capacity within the receiving waters to develop Effluent Limitations for hardness dependant metals despite very clear Findings that the receiving water provides NO assimilative capacity.

E. The Central Valley Regional Water Board (Region 5) NPDES Permits establish Effluent Limitations for metals based on the hardness of the effluent and/or the downstream water and rarely use the ambient upstream receiving water hardness as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).

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 definition of *ambient* is "in the surrounding area", "encompassing on all sides". It has been the Region 5, Sacramento, NPDES Section, in referring to Basin Plan objectives for temperature, to define *ambient* as meaning upstream. 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 Permit, page F-20 details that: "The effluent hardness ranged from 52 mg/L to 85.1 mg/L (as CaCO3), based on 30 samples from April 2004 to March 2008. The upstream receiving water hardness varied from 30 mg/L to 117 mg/L (as CaCO3), based on 41samples from April 2004 to February 2008.

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.

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 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.

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 carbon, calcium, sodium, chloride, etc.). Clearly, it is inappropriate to use downstream</u>

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 i n

> 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.

SWRCB prescidential 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)

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. 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 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.

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.

F. The Permit does not comply with the requirements of California Code of Regulations (CCR) Title 27 for the disposal of wastewater and sludge and has possibly degraded groundwater quality contrary to the Antidegradation Policy, Resolution 68-16.

Groundwater concentrations for TDS, nitrate, and arsenic near the wastewater treatment facility exceed water quality objectives. Wastewater and sludge from the facility contain TDS, nitrate and arsenic. There is no assimilative capacity to allow any degradation for these constituents in accordance with the Antidegradation Policy since objectives are being exceeded. Since arsenic is naturally high in the City of Galt's water supply, the average concentrations of arsenic in the Facility's influent is 13 µg/L and in the effluent is 12.1 µg/L, which is above the water quality objective of 10 µg/L. The Permit establishes groundwater limitations for arsenic, TDS and nitrate but fails to recognize that any increase in applied load will result in continued groundwater degradation.

Sludge is pumped from the sludge lagoons and injected 8 to 18 inches below the surface on the Discharger's agriculture reuse area, or are mechanically dewatered and hauled offsite by a contract company. While domestic wastewater may be exempted from Title 27, under certain circumstances, sludge is not exempt. CCR Title 27, Table 2.1, requires undewatered sewage sludge to be disposed at a Class II surface impoundment and dewatered sludge to be disposed at a Class III landfill. Obviously, unlined storage beds and direct disposal areas, where groundwater has already been degraded by these practices, do not meet the requirements of Title 27.

The Board's Antidegradation Policy, Resolution 68-16, requires the application of best practicable treatment and control (BPTC) of the discharge. The disposal and storage of sludge to unlined drying beds has degraded groundwater. The wastewater industry standard is to mechanically dewater sludge with immediate removal to a proper disposal area, typically a landfill. Dewatering sludge with removal to a landfill is BPTC.

The Permit does not comply with CCR Title 27 and the Antidegradation Policy for the disposal of sludge and must be amended accordingly.

The Regional Board's citation of Title 27 Section 20090(h) for exempting wastewater disposal is also incorrect: as detailed by the State Water Resources Control Board in their Lodi WQ Order this section clearly does not address wastewater disposal.

Wastewater disposal may be exempted if groundwater quality has not been degraded. **Title 27 §20090. SWRCB - Exemptions.** (C15: §2511): The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed: (a) **Sewage—**Discharges of domestic sewage or treated effluent which are regulated by WDRs issued pursuant to Chapter 9, Division 3, Title 23 of this code, or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludges or solid waste from wastewater treatment

facilities shall be discharged only in accordance with the applicable SWRCB-promulgated provisions of this division. (b) **Wastewater—**Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met: (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance; (2) the discharge is in compliance with the applicable water quality control plan; and (3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

Region 5's Basin Plan

WATER QUALITY OBJECTIVES FOR GROUND WATERS

The following objectives apply to all ground waters of the Sacramento and San Joaquin River Basins, as the objectives are relevant to the protection of designated beneficial uses. These objectives do not require improvement over naturally occurring background concentrations. The ground water objectives contained in this plan are not required by the federal Clean Water Act.

Bacteria

In ground waters used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 ml.

Chemical Constituents

Ground waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, ground waters 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. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain lead in excess of 0.015 mg/l. To protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

> *Groundwater concentrations for TDS, nitrate, and arsenic near the wastewater treatment facility exceed water quality objectives.*

Tastes and Odors

Ground waters shall not contain taste- or odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

Toxicity
Ground waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial use(s). This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.

G. The Permit fails to contain an Effluent Limitation for aluminum in accordance with Federal Regulations 40 CFR 122.44, US EPA's interpretation of the regulation, and California Water Code, Section 13377.

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." The Basin Plan contains a narrative water quality objective for toxicity that states in part that "[a]*ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). 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. U.S. EPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum to prevent toxicity to freshwater aquatic life. The recommended ambient criteria four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 μg/*l* and 750 μg/*l*, respectively.

Aluminum in the effluent has been measured as high as 318 μg/l. Freshwater Aquatic habitat is a beneficial use of the receiving stream.

US EPA's 87 ug/l chronic criterion was developed using low pH and hardness testing. California Central Valley waters, the Sacramento River, at the Valley floor, have been sampled to have hardnesses as low as 39 mg/l $CaCO_3$ by the USGS in February 1996 for the *National Water Quality Assessment Program.* Contributory streams, especially foothill streams, have also been sampled and shown to contain even lower hardness levels. US EPA recognized in their ambient criteria development document, (Ambient Water Quality Criteria for Aluminum, EPA 440/5-86-008) that the pH was in the range 6.5 to 6.6 and that the hardness was below 20 mg/l. Typical values for pH and hardness in the Central Valley alone warrant use of the chronic ambient criteria for aluminum. Despite the hardness and pH values used in the development of the criteria; U.S. EPA's conclusions in their *Ambient Criteria for the Protection of Freshwater*

Aquatic Life recommends that application of the ambient criteria as necessary to be protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria.

The Regional Board and their Permit cites US EPA's *Ambient Criteria for the Protection of Freshwater Aquatic Life for Aluminum* (criteria) as not being representative or necessary because the chronic criteria were based on a low hardness and low pH. The Regional Board cites one section of the criteria development document but ignores the final recommendation to use the recommended criteria absent a site-specific objective for aluminum. The Regional Board then defaults to the US EPA recommended acute criteria of 750 ug/l. The Regional Board's citation of the criteria development document is incomplete its review, for example the *criteria* development document (EPA 440/5-86-008) also cites that:

> 169 ug/l of aluminum caused a 24% reduction in the growth of young brook trout.
> 174 ug/l of aluminum killed 58% of the exposed striped bass.
> Bioaccumulation factors ranged from 50 to 231 for young brook trout exposed to aluminum for 15 days.
> Aluminum at 169 ug/l caused a 24% reduction in the weight of young brook trout.

US EPA recommends that understanding the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* is necessary in order to understand the text, tables and calculations of a criteria document. The Regional Board's assessment of the use of low hardness and low pH clearly shows they did not heed EPA's advice in reviewing the criteria development procedures for water quality criteria or the final recommendations. The Regional Board occasionally cites individual aluminum toxicity testing at Yuba City; again individual testing is not a valid replacement for developing fully protective criteria. A prime example of a state utilizing good water quality standards development techniques for developing a site specific standard for aluminum is the state of Indiana where a final chronic criterion of 174 ug/l was established in 1997. In 2003, Canada adopted pH dependant freshwater aquatic life criteria for aluminum that ranges from 84 ug/l to 252 ug/l. Ignoring the final recommendation of the criteria misses the protective intermediate measures to protect against mortality and reductions to growth and reproduction. The Regional Board's single use of the acute criteria for aluminum is not protective of the beneficial uses of the receiving stream.

The drinking water maximum contaminant level (MCL), which is included as a Basin Plan Water Quality Chemical Constituents Objective, for aluminum is 1,000 as a primary MCL and 200 µg/l as a secondary MCL.

The effluent data has exceeded EPA's chronic ambient criteria and the drinking water MCL.

Based on information included in analytical laboratory reports submitted by the Discharger, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life, and, therefore to violate the Basin Plan's narrative toxicity objective and the drinking water MCL.

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." 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 valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not be arbitrarily discarded or ignored." 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. A water quality standard for Failure to include an effluent limitation for aluminum in the Permit violates 40 CFR 122.44 and CWC 13377.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Certified Mail No. 7008 3230 0000 3862 9328
Return Receipt Requested

JUN 2 4 2010

Pamela Creedon
Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

Re: Water Quality Criteria for Aluminum and the Placer County Sewer Maintenance District 1 WWTP (NPDES Permit No. CA0079316)

Dear Ms. Creedon:

We have reviewed Placer County Department of Facility Services' request, dated June 14, 2010, to relax the aluminum effluent limitations in the proposed NPDES permit. Relaxing the effluent limitations may degrade water quality, adversely affect beneficial uses, and conflict with federal anti-backsliding and/or anti-degradation requirements. These concerns need to be addressed to ensure the permit effectively protects water quality and complies with NPDES permitting requirements.

At its May 27, 2010 meeting, the Central Valley Regional Water Quality Control Board considered a proposed renewal of the NPDES permit for the Placer County Sewer Maintenance District 1 wastewater treatment plant. During the meeting, the discharger contested the applicability of EPA's National Recommended Water Quality Criteria for aluminum in determining reasonable potential for the discharge to exceed water quality standards and establishing effluent limitations. The discharger contested the use of the chronic aluminum criterion for protection of aquatic life since the criterion is based on a lower hardness than observed in the receiving waters. The 87 µg/l chronic aluminum criterion is based on a toxicity test with striped bass in water at pH between 6.5 and 6.6 standard units and hardness less than 10 mg/l.

The aluminum effluent limitations in the proposed permit were calculated by applying EPA-recommended aluminum criteria as an interpretation of the narrative toxicity standard in the Basin Plan. The effluent limitations were calculated in accordance with procedures described in the State Implementation Policy. The EPA criteria for aluminum were also applied to the existing permit for this facility to establish the average monthly and maximum daily effluent limitations.

We understand that the existing maximum daily effluent limitation has been met (with one exception) and the 30-day average effluent limitation has been met approximately 16 months out of 25 from 2006 to 2009. The discharger currently manipulates hardness in the effluent by adding magnesium hydroxide to provide

alkalinity for the nitrification process. Based on data the discharger provided, the upstream receiving water hardness in Rock Creek ranges from 20 to 98 mg/l, but the lowest observed effluent hardness is 141 mg/l. We understand that the reported lowest ambient hardness values (20 mg/l) may actually be a detection limit as that specific value was reported in six consecutive samples taken in 2007. If future modification to the treatment process discontinues or reduces the use of magnesium hydroxide, the effluent hardness may be significantly reduced.

EPA has not formally changed its recommended aluminum criteria; the appropriate aluminum criteria values for higher hardness situations remain uncertain. The existing EPA-recommended chronic aluminum criterion of 87 µg/l is clearly protective of aquatic life and is appropriate for use in evaluating reasonable potential and establishing effluent limitations. As EPA's Charles Delos notes in his 2002 and 2010 letters, it may be reasonable to apply a higher criterion value if the ambient hardness levels are substantially and consistently higher than the values used in deriving the existing chronic criterion value. When considering whether to apply a higher criterion value, the Regional Board should carefully consider whether the high ambient and effluent hardness values asserted by the discharger are accurate and likely to continue in the future.

The Regional Board has discretion in interpreting the Basin Plan narrative toxicity standard and it may be possible to make a different reasonable potential conclusion or derive less stringent effluent limitations than provided in the existing permit. However, a decision to apply a higher criterion and relax or eliminate the effluent limitations imposed by the previous permit would have to be supported by thorough anti-degradation and anti-backsliding analyses. Recent data show that effluent concentrations of aluminum ranged between 12 and 162 µg/l. A decision to eliminate or raise the aluminum effluent limitations above current performance levels would trigger serious anti-degradation and anti-backsliding concerns as that action would, in effect, authorize aluminum discharges above current discharge and ambient levels. The information from Mr. Delos provided by the discharger does not constitute "new information" that provides a basis for backsliding from existing permit limitations as we understand that information was initially provided to Regional Board staff in 2002, prior to issuance of the existing permit.

Given the uncertainty about appropriate aluminum criteria levels for this situation and the need to carefully evaluate anti-degradation and anti-backsliding implications of removing or relaxing the aluminum limitations, EPA Region IX recommends the conservative approach of retaining the existing effluent limitations in the new permit.

If you wish to discuss our recommendations, please contact Elizabeth Sablad of my staff at (415) 972-3044.

Sincerely,

Alexis Strauss 24 June 2010

Alexis Strauss, Director
Water Division

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

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." The Water Quality Standard for antimony is 6.0 µg/l. The wastewater discharge maximum observed effluent concentration was 6.7 ug/l. Clearly the discharge exceeds the water quality objective. The proposed Order fails to establish an effluent limitation for antimony.

The Regional Board in the Permit discards the high data point for antimony as an outlier without any justification. The term outlier has no regulatory meaning.

Federal Regulations, 40 CFR 122.44(d), requires that limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality standards. 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 valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not be arbitrarily discarded or ignored." The Regional Board has failed to use valid, reliable and representative data in developing limitations, contrary to the cited Federal Regulation.

The *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries Of California* (SIP), Section 1.2 requires that: "When implementing the provisions of this Policy, the RWQCB shall use all available, valid, relevant, representative data and information, as determined by the RWQCB. The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy. Instances where such consideration is warranted include, but are not limited to, the following: evidence that a sample has been erroneously reported or is not representative of effluent or ambient receiving water quality; questionable quality control/quality assurance practices; and varying seasonal conditions." The Regional Board does not submit any laboratory QA/QC results in support of their action to discard valid data points.

Statistical procedures are valid tools for assessing trends and analyzing data. It must be recognized however that statistical procedures are not scientific laws. In wastewater engineering it is common place for individual data points to be peaks or depressions far from the statistical norm. This is could be attributed to slug load discharges, discharge practices from local industries, or simply the infrequency of sampling wastewater effluents. Wastewater effluent is generally not sampled continuously. It must also be recognized that wastewater treatment personnel tend to perform their daily functions as a matter of routine, such as sampling the effluent at the same time every day. The likely hood of data peaks being "real" absent erroneously reporting, questionable quality control/quality assurance practices or varying seasonal or daily conditions is more defensible than the data being an "outlier", hence the EPA and SIP requirement that data may not be arbitrarily discarded or ignored.

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. In accordance with 40 CFR 122.4 (a), (d) and (g) the Permit may not be adopted for failing to include protective limitations based on valid, reliable and representative data.

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 Chromium VI as required by Federal Regulations 40 CFR 122.44 and the permit should not be adopted in accordance with California Water Code Section 13377.

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." The Water Quality Standard for chromium VI is 16.0 µg/l. The wastewater discharge maximum observed effluent concentration was 27 ug/l. Clearly the discharge exceeds the water quality objective. The proposed Order fails to establish an effluent limitation for chromium VI.

The Regional Board in the Permit discards the high data point for chromium VI as an outlier without any justification. The term outlier has no regulatory meaning.

Federal Regulations, 40 CFR 122.44(d), requires that limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality standards. 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 valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not be arbitrarily discarded or ignored." The Regional Board has failed to use valid, reliable and representative data in developing limitations, contrary to the cited Federal Regulation.

The *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries Of California* (SIP), Section 1.2 requires that: "When implementing the provisions of this Policy, the RWQCB shall use all available, valid, relevant, representative data and information, as determined by the RWQCB. The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy. Instances where such consideration is warranted include, but are not limited to, the following: evidence that a sample has been erroneously reported or is not representative of effluent or ambient receiving water quality; questionable quality control/quality assurance practices; and varying seasonal conditions." The Regional Board does not submit any laboratory QA/QC results in support of their action to discard valid data points.

Statistical procedures are valid tools for assessing trends and analyzing data. It must be recognized however that statistical procedures are not scientific laws. In wastewater engineering it is common place for individual data points to be peaks or depressions far from the statistical norm. This is could be attributed to slug load discharges, discharge practices from local industries, or simply the infrequency of sampling wastewater effluents. Wastewater effluent is generally not sampled continuously. It must also be recognized that wastewater treatment personnel tend to perform their daily functions as a matter of routine, such as sampling the effluent at the same time every day. The likely hood of data peaks being "real" absent erroneously reporting, questionable quality control/quality assurance practices or varying seasonal or daily conditions is more defensible than the data being an "outlier", hence the EPA and SIP requirement that data may not be arbitrarily discarded or ignored.

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. In accordance with 40 CFR 122.4 (a), (d) and (g) the Permit may not be adopted for failing to include protective limitations based on valid, reliable and representative data.

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."

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

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." The Water Quality Standard for fluoride is 2,000 µg/l. The wastewater discharge maximum observed effluent concentration for fluoride was 4,520 ug/l. Clearly the discharge exceeds the water quality objective. The proposed Order fails to establish an effluent limitation for fluoride.

The Regional Board in the Permit discards the high data point for fluoride as an outlier without any justification. The term outlier has no regulatory meaning.

Federal Regulations, 40 CFR 122.44(d), requires that limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality standards. 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 valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits

derivation calculations. Data may not be arbitrarily discarded or ignored." The Regional Board has failed to use valid, reliable and representative data in developing limitations, contrary to the cited Federal Regulation.

The *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries Of California* (SIP), Section 1.2 requires that: "When implementing the provisions of this Policy, the RWQCB shall use all available, valid, relevant, representative data and information, as determined by the RWQCB. The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy. Instances where such consideration is warranted include, but are not limited to, the following: evidence that a sample has been erroneously reported or is not representative of effluent or ambient receiving water quality; questionable quality control/quality assurance practices; and varying seasonal conditions." The Regional Board does not submit any laboratory QA/QC results in support of their action to discard valid data points.

Statistical procedures are valid tools for assessing trends and analyzing data. It must be recognized however that statistical procedures are not scientific laws. In wastewater engineering it is common place for individual data points to be peaks or depressions far from the statistical norm. This is could be attributed to slug load discharges, discharge practices from local industries, or simply the infrequency of sampling wastewater effluents. Wastewater effluent is generally not sampled continuously. It must also be recognized that wastewater treatment personnel tend to perform their daily functions as a matter of routine, such as sampling the effluent at the same time every day. The likely hood of data peaks being "real" absent erroneously reporting, questionable quality control/quality assurance practices or varying seasonal or daily conditions is more defensible than the data being an "outlier", hence the EPA and SIP requirement that data may not be arbitrarily discarded or ignored.

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. In accordance with 40 CFR 122.4 (a), (d) and (g) the Permit may not be adopted for failing to include protective limitations based on valid, reliable and representative data.

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."

J. The Permit contains no Effluent Limitations for settleable solids (SS) which are present in the existing NPDES Permit contrary to the Antibacksliding and Antidegradation requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).

There is no Antidegradation Policy discussion with regard to the removal of suspended solids limitations or discussion of the instream levels of suspended solids.

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 existing NPDES permit (R5-200-) for this facility contains Effluent Limitations for settleable solids (SS). The most important physical characteristic of wastewater is its total solids content. SS are an approximate measure of the quantity of sludge that will be removed by sedimentation. Low, medium and high strength wastewaters will generally contain 5 ml/l, 10 ml/l and 20 ml/l of SS, respectively. Knowledge of SS parameters is critical for proper

wastewater treatment plant design, evaluating sludge quantities, operation and troubleshooting. Excessive SS in the effluent discharge are typically indicative of process upset or overloading of the system. Failure to limit and monitor for SS limits the regulators ability to assess facility operations and determine compliance. Settleable matter is a water quality objective in the Basin Plan. Failure to include an Effluent Limitations for SS threatens to allow violation of the settleable matter receiving water limitation. As such, there is a reasonable potential for settleable solids to exceed the Basin Plan's water quality standard and Effluent Limitations are required in accordance with 40 CFR 122.44. We applaud the operators if indeed they did not violate the SS limitation during the life of the existing permit; this does not however remove the reasonable potential to cause exceedances in the future during system upsets or overloading; this also does not constitute "new" information as is required under the antibacksliding regulations.

K. 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.

Any antidegradation analysis must comport with implementation requirements in State Board Water Quality Order 86-17, State Antidegradation Guidance, APU 90-004 and Region IX Guidance. The conclusory, unsupported, undocumented statements in the Permit are no substitute for a defensible antidegradation analysis.

The antidegradation review process is especially important in the context of waters protected by Tier 2. See EPA, Office of Water Quality Regulations and Standards, *Water Quality Standards Handbook*, 2nd ed. Chapter 4 (2nd ed. Aug. 1994). Whenever a person proposes an activity that may degrade a water protected by Tier 2, the antidegradation regulation requires a state to: (1) determine whether the degradation is "necessary to accommodate important economic or social development in the area in which the waters are located"; (2) consider less-degrading alternatives; (3) ensure that the best available pollution control measures are used to limit degradation; and (4) guarantee that, if water quality is lowered, existing uses will be fully protected. 40 CFR § 131.12(a)(2); EPA, Office of Water Quality Regulations and Standards, Water Quality Standards Handbook, 2nd ed. 4-1, 4-7 (2nd ed. Aug. 1994). These activity-specific determinations necessarily require that each activity be considered individually.

For example, the APU 90-004 states:

> "Factors that should be considered when determining whether the discharge is necessary to accommodate social or economic development and is consistent with maximum public benefit include: a) past, present, and probably beneficial uses of the water, b) economic and social costs, tangible and intangible, of the proposed discharge compared to benefits. The economic impacts to be considered are those

> incurred in order to maintain existing water quality. The financial impact analysis should focus on the ability of the facility to pay for the necessary treatment. The ability to pay depends on the facility's source of funds. In addition to demonstrating a financial impact on the publicly – or privately – owned facility, the analysis must show a significant adverse impact on the community. The long-term and short-term socioeconomic impacts of maintaining existing water quality must be considered. Examples of social and economic parameters that could be affected are employment, housing, community services, income, tax revenues and land value. To accurately assess the impact of the proposed project, the projected baseline socioeconomic profile of the affected community without the project should be compared to the projected profile with the project…EPA's Water Quality Standards Handbook (Chapter 5) provides additional guidance in assessing financial and socioeconomic impacts"

There is nothing resembling an economic or socioeconomic analysis in the Permit. There are viable alternatives that have never been analyzed. The evaluation contains no comparative costs. As a rule-of-thumb, USEPA recommends that the cost of compliance should not be considered excessive until it consumes more than 2% of disposable household income in the region. This threshold is meant to suggest more of a floor than a ceiling when evaluating economic impact. In the Water Quality Standards Handbook, USEPA interprets the phrase "necessary to accommodate important economic or social development" with the phrase "substantial and widespread economic and social impact."

The antidegradation analysis must discuss the relative economic burden as an aggregate impact across the entire region using macroeconomics.

There is nothing in the Permit resembling an alternatives analysis evaluating less damaging and degrading alternatives. Unfortunately, the Permit fails to evaluate and discuss why there is no alternative other than discharging to surface waters. Other communities have successfully disposed of wastes without discharging additional pollutants to surface waters. A proper alternatives analysis would cost out various alternatives and compare each of the alternatives' impacts on beneficial uses.

There is almost no information or discussion on the composition and health of the identified beneficial uses. Any reasonably adequate antidegradation analysis must discuss the affected beneficial uses (i.e., numbers and health of the aquatic ecosystem; extent, composition and viability of agricultural production; people depending upon these waters for water supply; extent of recreational activity; etc.) and the probable effect the discharge will have on these uses.

Alternatively, Tier 1 requires that existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. By definition, any increase in the discharge of impairing pollutants to impaired waterways unreasonably degrades

beneficial uses and exceeds applicable water quality standards. Prohibition of additional mass loading of impairing pollutants is a necessary stabilization precursor to any successful effort in bringing an impaired waterbody into compliance.

The State Board has clearly articulated its position on increased mass loading of impairing pollutants. In Order WQ 90-05, the Board directed the San Francisco Regional Board on the appropriate method for establishing mass-based limits that comply with state and federal antidegradation policies. That 1990 order stated "[I]n order to comply with the federal antidegradation policy, the mass loading limits should also be revised, based on mean loading, concurrently with the adoption of revised effluent limits. The [mass] limits should be calculated by multiplying the [previous year's] annual mean effluent concentration by the [four previous year's] annual average flow (Order WQ 90-05, p. 78). USEPA points out, in its 12 November 1999 objection letter to the San Francisco Regional Board concerning Tosco's Avon refinery, that '[a]ny increase in loading of a pollutant to a water body that is impaired because of that pollutant would presumably degrade water quality in violation of the applicable antidegradation policy."

The Tentative Permit fails to properly implement the Basin Plan's Antidegradation Policy. The Permit, page F-53 states that: "In performing the assessments, the analysis focused on a steady state modeling (mass balance) at the appropriate low flow conditions (1Q10 for acute criteria, 7Q10 for chronic criteria, and the harmonic mean for human health criteria). The Permit fails to discuss that the receiving stream is ephemeral and the 7Q10 and 1Q10 values would therefore by zero and the harmonic mean flow rate in an ephemeral stream cannot be defined.

Nitrate and nitrite levels are discussed with regard to drinking water standards but are not discussed with regard to biostimulation. Biostimulatory substances are limited in the Basin Plan.

Salinity is discussed with regard to numeric limitation but not in terms of mass. Salts are conservative and the total mass will contribute to downstream waters.

The discharge contains numerous metals, which are limited in the Permit. Additive toxicity, an analysis is required by the Basin Plan, is not discussed.

Bis (2-ethylhexyl) phthalate, Carbon Tetrachloride, Chlorodibromomethane, Copper, Cyanide, Dichlorobromomethane, Lead, Nitrate plus Nitrite, and the failure of the Permit to limit these constituents for mass is not discussed. Bioaccumulative pollutants are not assessed. Compliance and treatability with the priority pollutants, and the ongoing failure of common tertiary systems to achieve compliance with such constituents, is not addressed.

The Permit, page F-58 states that an increased flow rate is necessary to accommodate important economic or social development in the area. Other than commercial facilities, schools and local government, the City of Galt's web site identifies local employers as:

Cardinal Glass	151	Manufacturing / Flat Glass
Carson's Coatings	71	Manufacturing / Concrete Products
Consolidated Fabricators	46	Manufacturing / Metal Stamping
Calstone Company	32	Manufacturing / Concrete Products
Spaan's Cookie Company	21	Manufacturing / Food Products

It can be assumed, based on the demographics, that Galt is generally a commuter community. Good community planning would eliminate "sprawl" -- a short word for a long list of afflictions, including rapid consumption of open space, prime farmland, forests, historic sites, and scenic landscapes; traffic-clogged highways; urban divestment; and loss of community and quality of life. While the Permit talks about "important economic growth and social development" there is no discussion of "good planning" methodologies to verify that growth in this area and the resulting degradation of water quality is an actual benefit to the people of California.

The Permit, page F-56, states that: "The Facility will discharge Title 22 tertiary treated effluent that will result in minimal water quality degradation, and meet or exceed the highest statutory and regulatory requirements which meets or exceeds best practical treatment or control (BPTC)." However there is no BPTC analysis just this conclusory statement. The discussion does not state how a common tertiary WWTP will comply with limitations for Bis (2-ethylhexyl) phthalate, Carbon Tetrachloride, Chlorodibromomethane, Copper, Cyanide, Dichlorobromomethane and Lead. There is also no mention of treatability of antimony, fluoride and chromium VI.

The Permit's Antidegradation Policy discussion does not contain any discussion of the individual beneficial uses of the receiving stream, other than an unsupported conclusory statement that they are protected.

The Permit's Antidegradation Policy discussion does not contain any discussion of the fact that groundwater underlying the site exceeds water quality standards for TDS, nitrate and arsenic and the permit allows for the continued disposal of sludge to land. What are the concentrations of TDS, nitrogen and arsenic in sludge? How will continued migration of pollutants be prevented? Why, if dewatering and hauling to a landfill, is considered BPTC for sludge, is such not being required?

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. R5-2010-0099 (NPDES No. CA0081434) 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 8 August 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. Gregg Halladay, Public Works Director, City of Galt, 495 Industrial Drive, Galt, CA 95632.

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 an 8 August 2010 comment letter that was 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. R5-2010-0099

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. R5-2010-0099
NPDES NO. CA0081434

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF GALT CITY OF GALT WASTEWATER TREATMENT PLANT AND RECLAMATION FACILITY SACRAMENTO COUNTY

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

Table 1. Discharger Information

Discharger	City of Galt
Name of Facility	City of Galt Wastewater Treatment Plant and Reclamation Facility
Facility Address	10059 Twin Cities Road
	Galt, CA 95632
	Sacramento County
The U.S. Environmental Protection Agency (USEPA) and the Central Valley Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the City of Galt 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 WWTP Effluent	38º 18' 14.88" N	121º19'55.87" W	Skunk Creek
002	Treated WWTP Effluent	38º 17' 55" N	121º 19' 48" W	Groundwater (Land Application)

Table 3. Administrative Information

This Order was adopted by the Central Valley Water Quality Control Board on:	**23 September 2010**
This Order shall become effective on:	**12 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 the Order expiration date**

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 **23 September 2010.**

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

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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 Galt
Name of Facility	City of Galt Wastewater Treatment Plant and Reclamation Facility
Facility Address	10059 Twin Cities Road
	Galt, CA 95632
	Sacramento County
Facility Contact, Title, and Phone	Gregg Halladay, Public Works Director, (209) 366-7260
Mailing Address	495 Industrial Drive, Galt, CA 95632
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	4.5 million gallons per day (MGD)

II. FINDINGS

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

A. Background. The City of Galt (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2004-0001 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081434. The Discharger submitted a Report of Waste Discharge, dated 1 July 2008, and applied for a NPDES permit renewal to discharge up to 4.5 MGD of treated wastewater from City of Galt Wastewater Treatment Plant and Reclamation Facility, hereinafter 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. Facility Description. The Discharger owns and operates a Publicly-Owned Treatment Works servicing a population of approximately 24,000. The treatment system consists of coarse bar screening, activated sludge extended aeration in two oxidation ditches, two secondary clarifiers, chlorine gas disinfection, and dechlorination using sulfur dioxide. The Facility also includes an Effluent Storage Reservoir with a capacity of 70 million gallons.

Waste activated sludge removed from the secondary clarifiers is stabilized in two polyethylene membrane-lined earthen sludge lagoons. Before and after the irrigation season, treated biosolids are pumped from the sludge lagoons and injected 8 to 18 inches below the surface on the Discharger's agriculture reuse area, or are

mechanically dewatered and hauled offsite by a contract biosolids removal company. The Facility produces Class B biosolids.

During 1 November through 30 April, the Discharger currently discharges disinfected secondary treated wastewater at the head of Skunk Creek through an outfall at Discharge Point No. 001 (see table on cover page). From Discharge Point No. 001, the effluent is channeled approximately 3500 feet northwesterly to terminus of Skunk Creek at Laguna Creek, a water of the United States, and a tributary to the Cosumnes River within the Cosumnes River Watershed. During the remainder of the year, treated effluent is pumped from the Effluent Storage Reservoir and applied to approximately 186 acres of City-owned agricultural fields and 160 acres of land south of the treatment plant that is leased from the Roman Catholic Bishop (RCB) of Sacramento (hereinafter Reuse Area) (see Attachment C). The Reuse Area is used to grow fodder, fiber, or feed crops that are not directly used for human consumption. Flows from the Effluent Storage Reservoir may also be directed to four onsite, unlined ponds for storage prior to being returned to the Effluent Storage Reservoir and then applied to the Reuse Area.

The City has completed/initiated a number of projects to upgrade the Facility and eventually expand the Facility's treatment and discharge volume. In November 2009, the Discharger completed a discharge pipeline to allow direct discharge of effluent to Skunk Creek from the Facility. Prior to this project, treated effluent was discharged from the Effluent Storage Reservoir, which was causing compliance issues with some of the effluent limitations (e.g., total suspended solids). Other planned projects (Phase I) include providing tertiary level treatment, ultraviolet light disinfection, and construction of a biosolids dewatering facility. The Phase 1 projects are anticipated to be complete by 1 May 2011.

Upon completion of the Phase 1 project, Class B biosolids pumped from the sludge lagoons will be dewatered and temporarily stored onsite until they can be land applied. The location of biosolids reuse will typically be on city-owned fields, but dewatered biosolids may also be hauled offsite for disposal by a contract biosolids removal company.

Later projects (Phase II) are projected to include additional Facility upgrades and an expansion of the Facility to an average dry weather flow (ADWF) of 4.5 MGD from the current ADWF of 3.0 MGD. In addition, nitrification and denitrification will be included in the future upgrade projects to remove ammonia and nitrate.

Attachment B of this Order provides a location map of the Facility. Attachment C provides a flow schematic of the Facility and a map of the Discharger's Reuse Area. The Facility description in Section II of Attachment F of this Order, contains further details about the Facility's treatment processes.

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 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 Water Code (commencing with section 13260).

D. Background and Rationale for Requirements. The Central Valley 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. This Order includes technology-based effluent limitations based on tertiary treatment or equivalent requirements that meet both the technology-based tertiary treatment standards for POTWs and protect the beneficial uses of the receiving waters. 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 Central Valley 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.

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 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

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

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 Central Valley Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2007), 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 Laguna Creek, but does identify present and potential uses for Cosumnes River, from the source to the Delta, to which Laguna Creek, is tributary. These beneficial uses are as follows: municipal and domestic supply; agricultural supply, including stock watering; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm migration of aquatic organisms; cold migration of aquatic organisms; warm spawning, reproduction, and/or early development; cold 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. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Laguna Creek and Cosumnes River are as follows:

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Laguna Creek via Skunk Creek, a tributary to Cosumnes River	Existing: Municipal and domestic water supply (MUN). Agricultural supply (AGR); Contact (REC-1) and non-contact (REC-2) water recreation; Warm and cold freshwater habitat (WARM)(COLD); Warm and cold migration of aquatic organisms (MIGR); Warm and cold spawning, reproduction, and /or early development (SPWN) ; Wildlife habitat (WILD).
002	Underlying Groundwater	Municipal and domestic supply (MUN), agricultural supply and stock watering (AGR), industrial process water supply (PROC), and industrial service supply (IND).

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 the USEPA through the NTR and to the priority pollutant objectives established by the Central Valley 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'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 Central Valley Water Board, however, is not required to include a compliance schedule, 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 Central Valley 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 that 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 schedule(s) and interim effluent limitation(s) 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 (WQS) become effective for CWA purposes. (40 C.F.R. § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 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 March 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 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS). The WQBELs consist of restrictions on arsenic, manganese, lead, chlorodibromomethane, dichlorobromomethane, bis (2-ethylhexyl) phthalate, aluminum, ammonia, copper, iron, nitrate plus nitrite, pH, carbon tetrachloride, chlorine residual, cyanide, and pathogens. 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, TSS, and pathogens to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in the Fact Sheet.

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 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. 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 Central Valley 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. All effluent limitations in this Order are at least as stringent as the effluent limitations in Order No. R5-2004-001.

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. Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Central Valley 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.

R. 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 Central Valley 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.

S. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, V.B, VI.A.2.v, and VI.C.4.a 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 Central Valley 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.

U. Consideration of Public Comment. The Central Valley 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.

IT IS HEREBY ORDERED, that Order No. R5-2004-0001 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.

III. DISCHARGE PROHIBITIONS

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

B. The application of biosolids on the RCB Property is prohibited.

C. The discharge of treated wastewater to surface waters or surface water drainage courses is prohibited from 1 May through 31 October, unless the discharge is, at a minimum, Title 22, or equivalent, tertiary-level treated wastewater as defined in Provision VI.C.6.a of this Order.

D. 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).

E. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

F. 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 Point No. 001

1. Final Effluent Limitations

Unless otherwise specified, the following effluent limitations for the discharge are **effective immediately**. The Discharger shall maintain compliance with the following effluent limitations, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6:

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	375	560	750	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	375	560	750	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.7	--	3.3	--	--
	lbs/day[1]	64	--	124	--	--
Arsenic	mg/L	10	--	--		
Bis (2-ethylhexyl) phthalate	µg/L	1.8	--	3.6	--	--
Carbon Tetrachloride	µg/L	0.25	--	0.5	--	--
Chlorodibromomethane	µg/L	0.41	--	0.83	--	--
Copper, Total Recoverable	µg/L	3.1	--	4.3	--	--
Cyanide, Total (as CN)	µg/L	3.4	--	9.6	--	--
Dichlorobromomethane	µg/L	0.56	--	1.3	--	--
Lead, Total Recoverable	µg/L	0.6	--	1.0	--	--
Nitrate plus Nitrite, Total (as N)	mg/L	10	--	--	--	--
pH	standard units	--	--	--	6.5	8.2

[1] Based on a design average dry weather flow of 4.5 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. **Total Residual Chlorine.** 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.

e. **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; and
ii. 23 MPN/100 mL, more than once in any 30-day period, and
iii. 240 MPN/100 mL, at any time.

f. **Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 4.5 mgd.

g. **Aluminum.** For a calendar year, the annual average effluent total recoverable aluminum concentrations shall not exceed 200 µg/L.

h. **Iron.** For a calendar year, the annual average effluent total recoverable iron concentrations shall not exceed 300 µg/L.

i. **Manganese.** For a calendar year, the annual average effluent total recoverable manganese concentrations shall not exceed 50 µg/L.

2. Interim Effluent Limitations

a. **Mercury. Effective immediately** the total annual mass discharge of total mercury shall not exceed 0.05 pounds per calendar year. This interim performance-based limitation shall be in effect until the Central Valley Water Board establishes final effluent limitations after adoption of a Methylmercury TMDL for the Cosumnes River.

b. **Effective immediately and ending on 1 September 2015**, the Discharger shall maintain compliance with the ammonia maximum daily effluent limitations (MDEL) listed in Table 7 with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program. These interim effluent limitations shall apply in lieu of all final ammonia effluent limitations specified in previous section IV.A.1. Table 6 during the time period indicated in this provision:

Table 7. Interim Effluent Limit for Ammonia

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Ammonia Nitrogen, Total (as N)	mg/L		14		

c. **Effective immediately and ending upon compliance with Special Provision VI.C.6.b.** the Discharger shall maintain compliance with the average dry weather flow limit of 3.0 MGD, as defined in Section VII.D. of this Order. This interim effluent limitation shall apply in lieu of the corresponding final effluent limitation, IV.A.1.g. Average Dry Weather Flow, during the time period indicated in this provision.

d. **Effective immediately and ending on 1 May 2011**, the Discharger shall maintain compliance with the following interim effluent limitations, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP. During the time period indicated in this provision these interim

effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters in previous section IV.A.1.:

i. The Discharger shall maintain compliance with the interim effluent limitations specified in Table 8 during the time period indicated in this provision:

Table 8. Interim Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	60	--	--
	lbs/day[1]	750	1100	1500	--	--
Total Suspended Solids	mg/L	30	45	60	--	--
	lbs/day[1]	750	1100	1500	--	--

[1] Based on a design average dry weather flow of 3.0 MGD.

ii. **Effluent Total Coliform Organisms** shall not exceed:
   a) 23 MPN/100 mL, as a 7-day median; and
   b) 240 MPN/100 mL, more than once in any 30-day period.

e. **Effective 1 May 2011 and ending upon compliance with Special Provision VI.C.6.b.**, the Discharger shall maintain compliance with all parameters listed in Table 9 below, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP. During the time period indicated in this provision these interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters in previous section IV.A.1.

Table 9. Interim Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	250	375	500	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	250	375	500	--	--

[1] Based on a design average dry weather flow of 3.0 MGD.

B. Land Discharge Specifications – Discharge Point 002

The Discharger shall maintain compliance with the following land discharge specifications at Discharge Point 002. Compliance shall be measured at Monitoring Location LND-001 for Land Discharge Specifications 1 – 2.a, and at Monitoring Location BIO-001 for Land Discharge Specifications 2.b. – 4, as described in the Monitoring and Reporting Program. Loading calculations shall be performed as specified in the attached MRP (Attachment E), Section X.B.6.

1. **Hydraulic Loading.** The hydraulic loading to any individual Reuse Area (Fields 1-19 and Fields A-D) shall be at reasonable agronomic rates designed to minimize percolation of wastewater constituents below the evaporative and root zone (i.e., deep percolation).

2. **Total Nitrogen.** The total nitrogen loading to any individual Reuse Area (Fields 1-19 and Fields A-D) shall not exceed the agronomic rate for plant available nitrogen (PAN) for the type of crop to be grown, as specified in the most recent edition of the Western Fertilizer Handbook.

3. **Biosolids:**

   a. For biosolids application rates, the Discharger must calculate the PAN using the procedure, volatilization factors, and mineralization rates described in the USEPA's *Guide for [Biosolids] Land Appliers* (EPA/831-B-03-002b).

   b. Application of biosolids at rates in excess of the nitrogen requirements of the vegetation (e.g. PAN) or at rates that would degrade the groundwater is prohibited.

   c. Discharge of biosolids with pollutant concentrations greater than those shown in Table 10 below is prohibited:

Table 10. Biosolids Limitations

Parameter	Ceiling Concentration (mg/kg) [1]
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Nickel	420
Molybdenum	75
Selenium	100
Zinc	7,500

[1] Dry weights.

   d. Cumulative metal loading rates shall not exceed the risk-based cumulative loading rates (adjusted to account for background metals concentrations) as defined below:

   BC=CR-1.8(BS), where:
   BC = Background-Adjusted Cumulative Loading Rate (lbs/ac)
   CR = 40 CFR Part 50. Cumulative Pollutant Loading Rate (lb/ac)
   BS = Site Background Soil concentration (mg/Kg)

   The values for CR for each metal are given in Table 11 below:

Table 11. Biosolids Loading Rates

Parameter	kg/hectare	lbs/acre
Arsenic	41	36
Cadmium	39	34
Copper	1,500	1,336
Lead	300	267
Mercury	17	15
Molybdenum	18	16
Nickel	420	374
Selenium	100	89
Zinc	2,800	2,494

C. Reclamation Specifications

1. Reclaimed water shall be used in compliance with Title 22, Division 4, Chapter 3, Article 3, *Uses of Recycled* Water and this Order.

2. Use of reclaimed water shall be limited to surface irrigation of fodder, fiber, or seed crops. Irrigated crops shall not be used for human consumption (either direct or indirect). Additional reclamation uses may be approved by the Executive Officer.

3. **For Undisinfected Secondary Treated Effluent (**Title 22, Division 4, Chapter 3, Article 1, §60301.900) discharged to the agricultural Reuse Area**,** the Discharger shall maintain compliance with the Reclamation Discharge effluent limitations specified in Table 12 below, with compliance measured at Monitoring Locations LND-001 as described in the attached MRP (Attachment E).

Table 12. Reclamation Discharge Effluent Limitations

Parameter	Units	Effluent Limitations	
		Average Monthly	Maximum Daily
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45
Total Suspended Solids	mg/L	30	45
Settleable Matter	ml/l	0.2	0.5

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 Laguna 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 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;
    f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in California Code of Regulations, 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. Compliance to be determined based on the difference in temperature at RSW-001 and RSW-002.

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-001 and RSW-002.

B. Groundwater Limitations

1. Effective immediately, the discharge shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than the groundwater water quality objectives as specified below in Table 13 or background water quality, whichever is greater.

Table 13. Groundwater Limitations

Constituent	Units	Limitation
Arsenic, Total Recoverable	µg/L	10
Total Nitrogen	mg/L	10
Nitrate (as N)	mg/L	10
pH	standard units	6.5 to 8.5
Total Coliform Organisms	MPN/100 mL	<2.2
Total Dissolved Solids	mg/L	450

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all (federal NPDES standard conditions from 40 CFR Part 122) 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 Central Valley Water Board may review and revise this Order at any time upon application of any affected person or the Central Valley 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 Central Valley 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, and adequate public notification to downstream water agencies or others whose contact is reasonably foreseeable with the non-complying discharge.

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 Central Valley 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 Central Valley Water Board.

   iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley 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 Central Valley Water Board, become a condition of this Order.

k. The Discharger, upon written request of the Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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 Central Valley 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

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. **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. 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.

c. 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.

d. **Salinity Evaluation and Minimization Plan.** This Order requires that the Discharger prepare and implement a salinity evaluation and minimization plan to address sources of salinity from the municipal wastewater treatment system. Based on a review of the results of implementation of the salinity evaluation and minimization plan this Order may be reopened for addition and/or modification of effluent limitations and requirements for salinity.

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. **Mercury.** If a TMDL program for the Cosumnes River is adopted for mercury, or methylmercury, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley 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.

g. **Facility Upgrades.** This Order requires the Discharger to upgrade the Facility to adequately treat and disinfect to Title 22 standards, or equivalent. Based on the monitoring results obtained after completion of the Facility's tertiary treatment and UV disinfection systems, the monitoring results for several constituents may be revaluated, and based upon the results of the Reasonable Potential Analysis, this Order may be reopened to add, modify, or revoke final effluent limitations for applicable constituents, as appropriate.

h. **Central Valley Drinking Water Policy**. If water quality objectives are adopted for organic carbon and/or pathogens to protect drinking water supplies in the Central Valley Region, this Order may be reopened for addition and/or modification of effluent limitations and requirements, as appropriate, to require compliance with the applicable water quality objectives.

i. **Nutrient Numeric Endpoint Process**. If water quality objectives are adopted for nutrients to protect drinking water supplies and other beneficial uses in the Central Valley Region, this Order may be reopened for addition and/or modification of effluent limitations and requirements, as appropriate, to require compliance with the applicable water quality objectives.

j. **CV-SALTS**. If water quality objectives are adopted for salinity to protect drinking water supplies and other beneficial uses in the Central Valley Region, this Order may be reopened for addition and/or modification of effluent limitations and requirements, as appropriate, to require compliance with the applicable water quality objectives.

k. **Ammonia Studies**. The ammonia effluent limitations in this Order are based on USEPA's recommended National Ambient Water Quality Criteria for protection of freshwater aquatic life. However, studies are ongoing to evaluate the effect of ammonia and nutrient ratios on phytoplankton productivity and species composition, as well as, studies to evaluate the sensitivity of delta smelt and other aquatic species to ammonia toxicity. In addition, USEPA has drafted new ammonia criteria in response to findings that several freshwater mussel species are significantly more sensitive to ammonia than the organisms evaluated for the

existing criteria. The Nature Conservancy and U.S. Forest Service have conducted a survey and found freshwater mussels in several areas of California, including the Sacramento River. Based on the result of these or other studies, and based on whether the draft USEPA ammonia criteria are adopted, this Order may be reopened to modify the ammonia effluent limitations, as appropriate.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity.** To determine 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. **Initial Investigative 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 an Initial Investigative TRE Work Plan for approval by the Executive Officer. This should be a one to two page document including, at a minimum:

a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;

b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and

c) A discussion of who will conduct the Toxicity Identification Evaluation, if necessary (i.e., an in-house expert or outside contractor).

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:

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 (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 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 Central Valley 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.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Central Valley Water Board a detailed 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[2].

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 shall be completed and submitted to the Central Valley Water Board **within 9 months following the adoption of this Order** for the approval by the Executive Officer, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E section X.D.1.).

b. Pollution Prevention Plan for Mercury. The Discharger shall develop and implement a pollution prevention plan (PPP) for mercury in accordance with CWC section 13263.3(d)(1)(D). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet (Attachment F section VII.B.3.a). The Discharger shall submit the pollution prevention plan to the Regional Water Board **within 9 months following the adoption of this Order**.

4. Construction, Operation and Maintenance Specifications

a. **Treatment Pond Operating Requirements.**

i. 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.

ii. Freeboard shall never be less than 2 feet (measured vertically to the lowest point of overflow).

iii. Objectionable odors originating at this Facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

iv. 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.

[2] 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.

v. As a means of discerning compliance with Pond Operating Requirements VI.C.4.a.iii, the dissolved oxygen content in the upper zone (1 foot) of wastewater in the ponds shall not be less than 1.0 mg/L.

vi. Ponds shall not have a pH less than 6.5 or greater than 9.0.

b. **Turbidity Operational Requirements. Effective 1 May 2011 or upon compliance with Section VI.C.6.a (tertiary filtration requirements), whichever is sooner,** the Discharger shall operate the treatment system to ensure that the turbidity measured at EFF-001, as described in the MRP (Attachment E), shall not exceed:

i. 2 NTU as a daily average, and
ii. 5 NTU more than 5 percent of the time within a 24-hour period, and
iii. 10 NTU, at any time.

c. **Ultraviolet (UV) Disinfection System Operating Requirements. Effective 1 May 2011 or upon compliance with Section VI.C.6.a (tertiary filtration requirements), whichever is sooner,**, the Discharger shall operate the UV disinfection system to provide a minimum UV dose of 100 millijoules per square centimeter (mJ/cm2) at peak daily flow, unless otherwise approved by the California Department of Public Health.

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

ii. The Discharger shall operate the treatment system to insure that turbidity prior to disinfection shall not exceed specifications in Provision VI.C.4.b. of this Order

iii. 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.

iv. The quartz sleeve 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 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. Sludge/Biosolids Treatment or Discharge Specifications

Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment plant. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities as specified under 40 CFR Part 503.

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 (i.e., 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.

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 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 CFR 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 503 whether or not they have been incorporated into this Order.

b. **Biosolids Use/Disposal Requirements**

i. 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.

ii. **Each year, by 1 February,** the Discharger shall submit a biosolids use/ disposal report describing the annual volume of biosolids generated by the plant and specifying the disposal practices.

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

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

v. Discharge of waste classified as hazardous, as defined in Section 2521(a), of Title 23, CCR, Division 3,Chapter 15, Section 2510, et seq. (hereafter Chapter 15) or 'designated', as defined in Section 13173 of the California Water Code, is prohibited.

vi. Discharge of biosolids to surface waters or surface water drainage course is prohibited.

vii. Discharge of biosolids except as allowed for authorized biosolids storage, staging, and application is prohibited.

viii. Land application of biosolids to any area without adequate runoff control is prohibited.

ix. The storage, transport, or application of biosolids shall not cause a condition of pollution or nuisance as defined by California Water Code, Section 13050.

x. All biosolids shall comply with the applicable pathogen reduction standards listed in 40 CFR 503.32..

xi. All biosolids shall comply with one of the vector attraction reduction requirements specified in 40 CFR 503.33.

xii. If biosolids are applied to a site that tilled, biosolids shall be incorporated into the soil within 24 hours after application. If the vector attraction reduction option defined in 40 CFR 503.33(b)(10)(i) is selected, biosolids must be incorporated in the ground within six hours of application.

xiii. Application of any material that results in a violation of the Safe Drinking Water and Toxic Enforcement Act (Health and Safety Code section 25249.5) is prohibited.

xiv. Application of biosolids to saturated ground or during rainfall events is prohibited.

xv. Application of Class B biosolids exhibiting a moisture content less than 50 percent is prohibited.

xvi. Biosolids with a moisture content less that 75 percent shall not be applied during periods when the surface wind speed exceed 25 miles per hour.

xvii. Objectionable odors originating from the staging, storage, or application of biosolids shall not be perceivable beyond the limits of the property owned or controlled by the Discharger.

xviii. Staging areas and biosolids application shall be at least:

a) 10 feet from property lines;
b) 500 feet from domestic water supply wells;
c) 100 feet from non-domestic water supply wells;
d) 50 feet from public roads and occupied onsite residences;;
e) 100 feet from ordinary high water line of surface waters and natural or man-made drainage courses, including wetlands and vernal pools; and;
f) 500 feet from occupied non-agricultural buildings and off-site residences unless the property owner agrees in writing to a reduced setback distance. In no case shall the setback be less than 100 feet.

xix After application of biosolids distinguished as "Class B" in 40 CFR Part 503, the Discharger shall ensure the following:

a) For at least 30 days, food, feed, and fiber crops are not harvested.

b) For at least 60 days, domestic animals shall not be grazed if average daily (daytime) air temperatures exceed 50ºF.

c) For at least 90 days, domestic animals shall not be grazed if average daily (daytime) air temperatures are less than 50ºF.

d) For at least 12 months:
   i) Public access to the site is restricted for sites with a high potential for public exposure;
   ii) Turf is not harvested if the harvested turf is placed on land with a high potential for contact by public as defined in 40 CFR Part 503.11; and
   iii) Grazing of milking animals used for producing unpasteurized milk for human consumption is prevented if the field is used as pasture.

e) For at least 14 months:
   i) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface are not harvested.

xx. Each field that receives biosolids shall be planted with a crop such that the crop can reasonably be expected to germinate and grow within eight months of biosolids application.

c. **Biosolids Storage Requirements**

Biosolids shall be considered to be "stored" if they are placed on the ground or in non-mobile containers (i.e., not in a truck or trailer) at the application site or an intermediate storage location away from the generator/processing for more than 48 hours. Biosolids shall be considered to be "staged" if placed on the ground for brief periods solely to facilitate transfer of the biosolids between transportation and application vehicles.

i. Biosolids shall not be stored directly on the ground at any location for more than seven consecutive days.

ii. Biosolids staged or stored on-site for more than 24 hours shall be covered.

iii. Biosolids containing free liquids shall not be placed on the ground prior to application.

iv. Areas used for short-term storage of Class B biosolids shall not be accessible to the public.

v. All staging and storage areas shall be designed, constructed, operated, and maintained to prevent washout or inundation due to floods at return frequency of 100 years.

vi. Biosolids storage facilities shall be designed, maintained, and operated to minimize erosion and leachate generation.

vii. The Discharger shall operate and maintain any biosolids storage areas in accordance with an approved biosolids storage plan.

viii. No waste constituents shall be released or discharged, or placed where it will be released or discharged, in a mass or concentration that causes violation of Groundwater Limitations V.B.

ix. All biosolids shall be transported in covered vehicles capable of containing the designated load.

x. All biosolids capable of generating free liquids shall be transported in leak proof vehicles.

xi. Each biosolids transport driver shall be trained as to the nature of its load and the proper response to accidents or spill events and shall carry a copy of an approved spill response plan.

d. **The Agricultural Reuse Area Specifications**

i. To the extent practicable, the Discharger shall optimize reclamation and reuse of wastewater to land before discharging to surface water.

ii. Public contact with effluent reclaimed water shall be precluded through such means as fences, signs, and other acceptable alternatives. Perimeter warning signs indicating that reclaimed water is in use shall be posted at least every 500 feet along the property boundary and at each access road entrance to the properties. The contents of these signs shall be as described in Section 60310 of Title 22. Each sign shall be in English and Spanish languages.

iii. All reclaimed water equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities, and these shall be of a type, or secured in a manner, that permits operation by authorized personnel only.

iv. Land discharge of effluent shall comply with the following setback requirements:

Setback Definition[1]	Minimum Irrigation Setback (feet)
Edge of land application area to property boundary	50
Edge of land application area to a public road	50
Edge of land application area to an irrigation well	100
Edge of land application area to a domestic well	100
Edge of land application area to a manmade or natural surface water drainage course [2] or spring	50

[1] As defined by the wetted area produced during irrigation.
[2] Excluding ditches used exclusively for tailwater return.

v. Discharges to the irrigation fields shall be managed to minimize erosion and runoff. Discharge of treated wastewater, including runoff, spray or droplets from the irrigation system, shall not occur outside the boundaries of the land application area (Reuse Area, Fields 1-19 and Fields A-D).

vi. The discharge shall be distributed uniformly on adequate acreage in compliance with Sections IV.B. and IV.C. of this Order.

vii. The Discharger may not discharge process wastewater to the land application areas when soils are saturated. Wastewater distribution to the land application area shall be optimized to allow saturated fields, either from

the last wastewater application or a previous precipitation event, to dry before the next wastewater application.

viii. Areas irrigated with effluent reclaimed water shall be managed to prevent breeding of mosquitoes. More specifically:
  a) All applied irrigation water must infiltrate completely within 24 hours.
  b) Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.

ix. Low-pressure and un-pressurized pipelines and ditches, which are accessible to mosquitoes, shall not be used to store reclaimed water.

e. **Collection System.** On May 2, 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.

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)].

6. Other Special Provisions

a. **Effective 1 May 2011**, wastewater discharged to Skunk Creek shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the California Department of Public Health (DPH) reclamation criteria, Title 22 CCR, Division 4, Chapter 3, (Title 22) or equivalent. The Discharger shall notify the Executive Officer of its compliance with this provision. Until final compliance, the Discharger shall submit progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.

b. **Permitted Discharge Increase (4.5 MGD).** The Discharger has requested to be permitted to discharge up to 4.5 MGD average dry weather flow year round to Skunk Creek upon completion of the Phase 1 and Phase 2 Facility upgrades. The permitted Average Dry Weather Flow at Discharge Point 001 may increase to 4.5 MGD upon compliance with the following conditions:

i. **Facility Improvements.** The Discharger shall have completed construction and startup of the Phase 1 and Phase 2 Facility improvements, as identified in section II.E of the Fact Sheet in this Order.

ii. **Effluent Limitation and Receiving Water Compliance.** The discharge shall consistently comply with Final Effluent Limitations IV.A.1, Interim Effluent

Limitations IV.A.2.a and b., and Receiving Water Limitations V.A. The Discharger shall provide evidence, certified by a licensed professional engineer, that the plant is operating properly.

iii. **Request for Increase.** The Discharger shall notify the Executive Officer of its compliance with item i and ii. above. The increase in permitted average dry weather flow to 4.5 MGD shall not be effective until the Executive Officer verifies compliance with Special Provisions VI.C.6.b.

c. 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 Central Valley 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 Central Valley 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. **Compliance Schedules 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 ammonia effluent limitations:

Task	Date Due
i. Submit Method of Compliance Workplan/Schedule	**Within 6 months after adoption of this Order**
ii. Submit and implement a Pollution Prevention Plan (PPP) for ammonia pursuant to CWC section 13263.3 as required in section IV.C.3.b. of this Order	**Within 9 months of adoption of this Order**
iii. Annual Progress Reports[1]	**1 December, annually, after approval of work plan until final compliance**
iv. Full Compliance	**1 September 2015**

[1] 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.

VII. COMPLIANCE DETERMINATION

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

A. **BOD_5 and TSS Effluent Limitations**. Compliance with the final effluent limitations for BOD_5 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 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. **Aluminum Effluent Limitations**. 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 US EPA'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 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 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.

D. **Average Dry Weather Flow Effluent Limitations (Section IV.A.1.f. and IV.A.2.f.).** 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 (e.g., July, August, and September).

E. **Mass Effluent Limitations**. The mass effluent limitations contained in Final Effluent Limitations IV.A.1.a and Interim Effluent Limitations IV.A.2.a and d. are based on the permitted average dry weather flow and calculated as follows:

Mass (lbs/day) = Flow (MGD) x Concentration (mg/L) x 8.34 (conversion factor)

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a and Interim Effluent Limitations IV.A.2.a and d. shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

F. **Total Residual Chlorine Effluent Limitations.** Continuous monitoring analyzers for chlorine residual or for dechlorin**a**tion 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.

G. Total Mercury Mass Loading Effluent Limitations (Section IV.A.2.a). 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. The total annual mass loading shall be the sum of the individual calendar months.

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.

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.

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

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 U.S. EPA 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 include~~d~~, 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 July 3, 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 Central Valley 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.

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 Central Valley 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 Central Valley 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 is 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 is any water designated as municipal or domestic supply (MUN) in a Central Valley Water Board Basin Plan.

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

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

where:

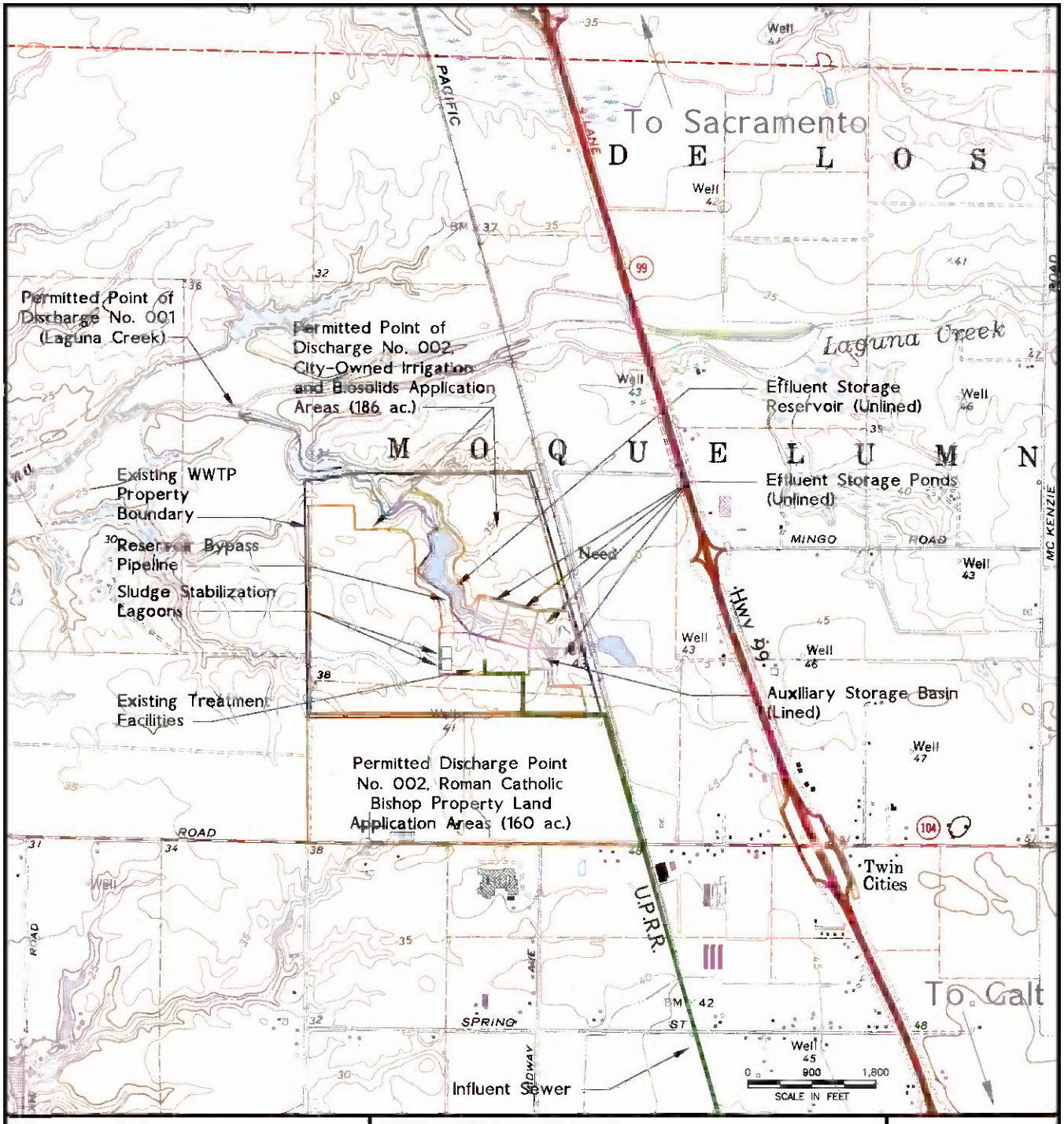
x is the observed value;

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.)

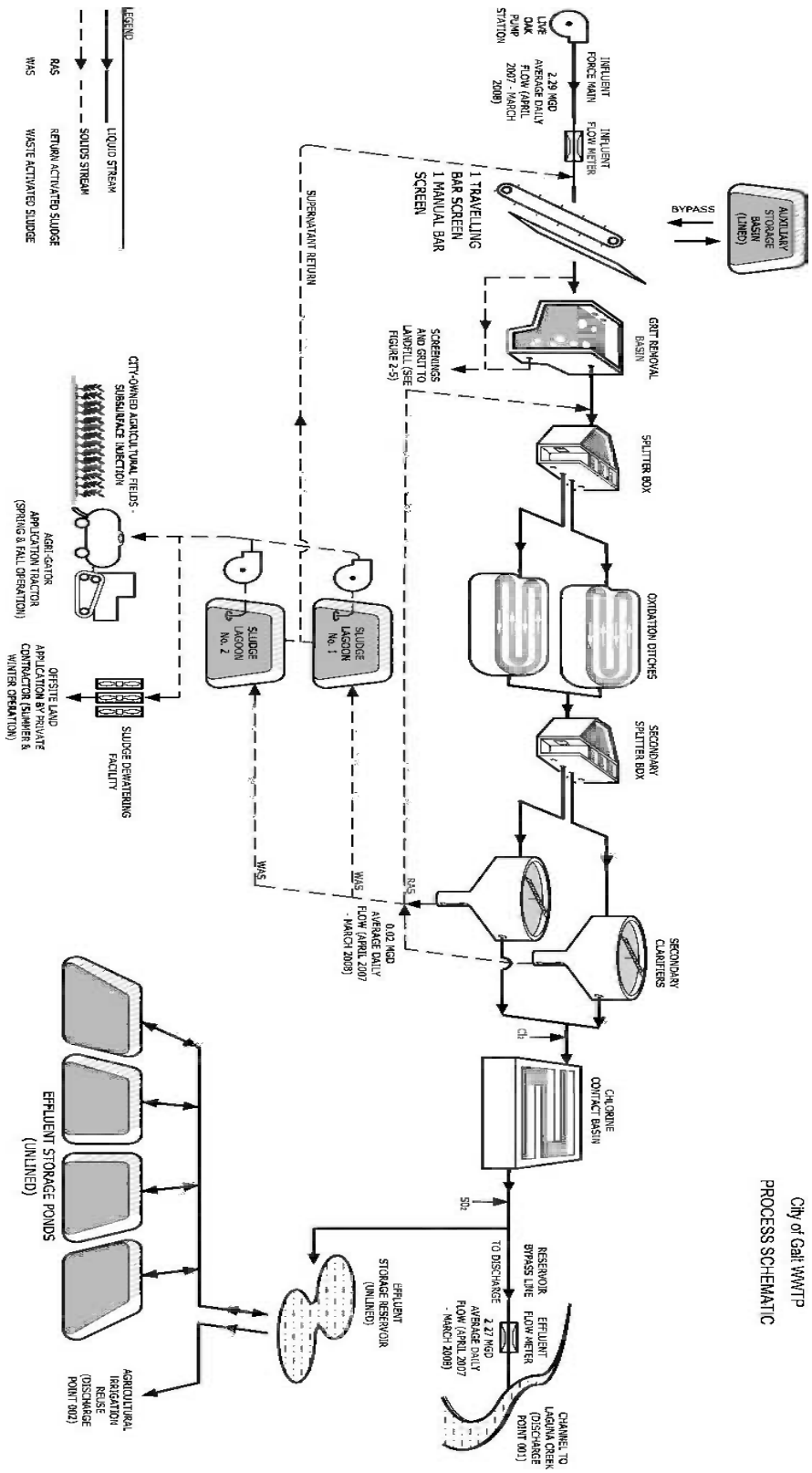
ATTACHMENT B – MAP



Drawing Reference: GALT U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *Topographic Map*	SITE LOCATION MAP CITY OF GALT CITY OF GALT WASTEWATER TREATMENT PLANT SACRAMENTO COUNTY	


PERMITTED POINT OF DISCHARGE NO. 001 (LAGUNA CREEK)
LAGUNA CREEK
EFFLUENT STORAGE LAGOON
MW-5
(-23.02)
HWY-99
MW-4R
MW-3
CITY-OWNED WATER SUPPLY WELL
MW-2
(-19.81)
EXISTING TREATMENT FACILITIES
U.P.R.R.
-21.00
-22.00
-23.00
MW-6
(-23.21)
EXISTING IRRIGATION AREA- SOUTHERN SITE (180 AC.)
TWIN CITIES ROAD

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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(n)(3)):

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

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 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 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

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

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.22(b)(2)); and

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(l)(6)(i).)

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

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

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R.§ 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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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 (Central Valley 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 the Central Valley Water Board.

B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. 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 Central Valley Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.

C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services. 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 entering the headworks
001	EFF-001	Location where a representative sample of the facility's effluent can be obtained prior to discharge into the receiving water.
--	RSW-001	Approximately 300 feet upstream from Discharge Point No. 001
--	RSW-002	Approximately 100 feet downstream from Discharge Point No. 001
--	MW-001	Located at the southwest corner of the auxiliary basin
--	MW-002	Located at the southwest corner of the sludge lagoons
--	MW-003	Located along roadway on western edge of Section 5 in the Reuse Area
--	MW-004R	Located at the southwest edge of Section 18 in the northern Reuse Area
--	MW-005	Located east of the Facility adjacent to Highway 99
--	MW-006	Located in the west-central portion area of the Roman Catholic Bishop of Sacramento site
--	MW-007	Approximately 1.5 miles north of the Facility site, on the frontage road west of State Highway 99
--	MW-008	Approximately 3.0 miles north of the Facility site on Arno Road
002	LND-001	Location where a representative sample of the effluent being discharged to land can be obtained prior to the Effluent Storage Reservoir or the Reuse Area.
--	BIO-001	Location where a representative sample of the biosolids applied to the Reuse Area can be obtained.
--	UVS-001	A location where a representative sample of the effluent from the ultraviolet disinfection system can be obtained.
--	SPL-001	Municipal Water Supply
--	PND-001 through PND-004, and RES-001	At a point in each pond and in the Storage Reservoir, at which all waste tributary to the pond or reservoir is present and representative.

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	[2]
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite[1]	1/Week	[2]
Total Suspended Solids	mg/L	24-hr Composite[1]	1/Week	[2]

[1] 24-hour flow proportional composite.

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest MLs specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by the Central Valley Water Board or the State Water Board.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treatment plant effluent at EFF-001 as follows. Sampling is not required during periods when no effluent is discharged to the receiving water; however, the Discharger must clearly state in the monthly self-monitoring report to the Regional Water Board that there was no discharge to the receiving water during the specified period. 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
Flow	MGD	Meter	Continuous	[1]
Total Residual Chlorine [2,9]	mg/L	Meter	Continuous	[1]
Turbidity[3]	NTU	Meter	Continuous	[1]
pH	standard units	Grab[5]	1/Week	[1]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[1]
Temperature	°F	Grab[5]	1/Week	[1]
Total Coliform Organisms	MPN/100 mL	Grab	2/Week	[1]
Ammonia, Total (as N) [4,5]	mg/L	Grab	1/Week	[1]
	lbs/day	Calculate	1/Week	--
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite [6]	1/Week	[1]
	lbs/day	Calculate	1/Week	--
Total Suspended Solids	mg/L	24-hr Composite [6]	1/Week	[1]
	lbs/day	Calculate	1/Week	--
Total Dissolved Solids	mg/L	Grab	1/Week	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Settleable Solids	ml/L	Grab	1/Month	[1]
Aluminum, Total Recoverable	µg/L	24-hr Composite [6]	1/Month	[1]
Arsenic, Total Recoverable	µg/L	24-hr Composite [6]	1/Month	[1]
Bis (2-exylhexyl) Phthalate	µg/L	Grab	1/Month	[1,8]
Carbon Tetrachloride	µg/L	Grab	1/Month	[1]
Mercury, Total Recoverable	ng/L	Grab	1/Month	[10]
	lbs/month	Calculate	1/Month	[10]
Mercury (methyl)	ng/L	Grab	1/Month	[10]
Chlorodibromomethane	µg/L	Grab	1/Month	[1]
Copper, Total Recoverable	µg/L	24-hr Composite [6]	1/Month	[1]
Cyanide, Total (as CN)	µg/L	24-hr Composite [6]	1/Month	[1]
Dichlorobromomethane	µg/L	Grab	1/Month	[1]
Iron, Total Recoverable	µg/L	24-hr Composite [6]	1/Quarter	[1]
Manganese, Total Recoverable	µg/L	24-hr Composite [6]	1/Quarter	[1]
Lead, Total Recoverable	µg/L	24-hr Composite [6]	1/Month	[1]
Nitrate, Total (as N)	mg/L	24-hr Composite [6]	1/Week	[1]
Nitrite, Total (as N)	mg/L	24-hr Composite [6]	1/Week	[1]
Hardness (as $CaCO_3$)[7]	mg/L	24-hr Composite [6]	1/Month	[1]
Priority Pollutants (and other constituents of concern)	µg/L	Grab	[11]	[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. 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 Discharger shall monitor for all pollutants/constituents listed in Attachment H of this Order. Detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP. Where no methods are specified for a given pollutant, the methods and lowest ML must be approved by the Executive Officer.

[2] 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.

[3] Turbidity shall be monitored beginning 1 May 2011 or when filtration is added to the treatment process, whichever is sooner. Upon completion of the UV disinfection system, turbidity monitoring shall be conducted prior to the UV system.

[4] Concurrent with biotoxicity monitoring.

[5] Temperature and pH data shall be collected on the same date and at the same time as the ammonia sample.

[6] 24-hour flow proportioned composite.

[7] Hardness samples to be taken concurrently with metals samples.

[8] 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 contaminant.

[9] Upon certification by the Discharger that chlorine is no longer used in the disinfection process, monitoring as a daily grab sample is only required when chlorine is used in any processes or maintenance activity.

[10] Unfiltered methyl mercury and total mercury samples shall be taken using clean hands/dirty hands procedures, as described in U.S. EPA method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, for collection of equipment blanks (section 9.4.4.2), and shall be analyzed by U.S. EPA 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.

[11] As required by Other Monitoring Requirements IX.D. in Attachment E (Monitoring and Reporting Program) of this Order, and concurrent with receiving water sampling.

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. Monitoring is required if effluent was discharged to the receiving water during any part of the calendar quarter.

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 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. 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. Monitoring is required if effluent was discharged to the receiving water during any part of the calendar quarter.

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 specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, 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* – For regular and accelerated chronic toxicity testing it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and two controls. For TRE monitoring, the chronic toxicity testing shall be

performed using the dilution series identified in Table E-4, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

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 Special Provisions VI. 2.a.iii.)

Table E-4. 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

C. **WET Testing Notification Requirements**. The Discharger shall notify the Central Valley 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 Central Valley 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. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Locations PND-001 through PND-004, and RES-001

1. At a minimum, the Discharger shall monitor wastewater impounded in each Facility pond(s) at PND-001 through PND-004, and the Storage Reservoir at RES-001 as required in Table E-5, below. Samples shall be collected from each pond during the specified sampling frequency.

Table E-5. Pond Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Freeboard	Feet[1] (±0.1)	Grab	1/Month	--
pH	standard units	Grab	1/Month	[2]
Electrical Conductivity @ 25°C	µmhos/cm	Composite[3]	1/Month	[2]
Dissolved Oxygen	mg/L	Grab	1/Month	[2]
Total Dissolved Solids	mg/L	Composite[3]	1/Month	[2]
Ammonia Nitrogen, Total (as N)	mg/L	Composite	1/Month	[2]
Nitrate, Total (as N)	mg/L	Composite[3]	1/Month	[2]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Nitrite, Total (as N)	mg/L	Composite[3]	1/Month	[2]
Odors	--	Observation	1/Month	--
Levee Condition	--	Observation	1/Month	--

[1] To be measured vertically to the lowest point of overflow.

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

[3] Grab samples shall be collected from the storage reservoir and each pond during the specified sampling frequency and combined to create one composite sample.

VII. RECLAMATION MONITORING REQUIREMENTS

A. Monitoring Locations LND-001

1. The Discharger shall monitor the wastewaters applied to the agricultural reuse area (Reuse Area) at LND-001 during the period from 1 May through 31 October and the results shall be included in the monthly monitoring report. Sampling is not required during periods when no wastewater, or biosolids, are discharged to the Reuse Area; in such cases, the monitoring report shall clearly state that there was no discharge to the Reuse Area. Monitoring shall include the following:

Table E-6. Reclamation Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency[4]	Required Analytical Test Method
Flow[1, 2]	gallons	Calculated	1/Day	--
Rainfall	inches	Measurement	1/Day	--
Acreage Applied[1, 2]	acres	Calculated	1/Day	--
Application Rate[1, 2]	gal/acre.day	Calculated	1/Day	--
Biochemical Oxygen Demand[1, 2]	mg/L	Grab	1/week/event	[3]
Total Suspended Solids	mg/L	Grab	1/week/event	[3]
Total Nitrogen[1,2]	mg/L & lbs/acre.month	Grab & Calculated	1/week/event	[3]
Nitrate (as N)[1,2]	mg/L & lbs/acre.month	Grab & Calculated	1/week/event	[3]
Ammonia, Total (as N) [1,2]	mg/L	Grab	1/week/event	[3]
Total Dissolved Solids [1, 2]	mg/L & lbs/acre.month	Grab & Calculated	1/week/event	[3]
Total Sodium[1, 2]	mg/L & lbs/acre.month	Grab & Calculated	1/week/event	[3]
Electrical Conductivity[1,2]	µmhos/cm	Grab	1/week/event	[3]

Parameter	Units	Sample Type	Minimum Sampling Frequency[4]	Required Analytical Test Method

[1] For each land application area. Flows shall be reported as cumulative daily flows and calculated based on pump curves and run times, unless an alternative method is proposed and approved by the Executive Officer.

[2] Land application areas shall be identified.

[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest MLs specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by the Central Valley Water Board or the State Water Board.

[4] The minimum required sampling frequency is once per event. The maximum required sampling frequency is once per sampling period (i.e. week or month). For example, once per week (1/week) is the maximum amount of sampling required for the sampling frequency '*1/week/event*' regardless of the number of events that occur during that week (A week is from Sunday through Saturday).

B. The Agricultural Field Inspections

1. The Discharger shall inspect the land application areas at least once daily during irrigation events, and observations from those inspections shall be documented for inclusion in the monthly self-monitoring reports. The following items shall be documented for each field to be irrigated on that day.

a. Evidence of erosion;
a. Evidence of berm damage or erosion;
b. Evidence of damage to standpipes and flow control valve (if applicable);
c. Evidence of improper use of valves;
d. Condition of head ditch;
e. Soil saturation;
f. Ponding;
g. Evidence of damage to tailwater ditches and evidence of potential and actual runoff to off-site areas;
h. Evidence of potential and actual discharge to surface water;
i. Accumulation of organic solids in ditches and at soil surface;
j. Soil clogging;
k. Odors that have the potential to be objectionable at or beyond the property boundary; and
l. Evidence of fly and/or mosquito breeding.
m. Temperature, wind direction and relative strength; and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made, including fresh water flushing of the force main and head ditches. A copy of entries made in the log during each month shall be submitted as part of the monthly self-monitoring report.

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor Laguna Creek at **RSW-001 and at RSW-002** as follows:

Table E-7. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Week	[1, 2]
	% saturation	Calculate	1/Week	[1, 2]
pH[3]	standard units	Grab	1/Week	[1, 2]
Turbidity	NTU	Grab	1/Week	[2]
Temperature[3]	°F	Grab	1/Week	[1, 2]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	[1, 2]
Ammonia[8]	mg/L	Grab	1/Week	[2]
Total Dissolved Solids	mg/L	Grab	1/Week	[1, 2]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Week	[2]
Priority Pollutants (and other constituents of concern)[4]	µg/L	Grab	[5]	[2,6,7]

[1] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

[2] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest MLs specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by the Central Valley Water Board or the State Water Board.

[3] pH and temperature shall be determined at the time of sample collection for effluent ammonia.

[4] Monitoring only required at Monitoring Location RSW-001

[5] As required by Other Monitoring Requirements IX.D. in Attachment E (Monitoring and Reporting Program) of this Order, and concurrent with effluent sampling.

[6] TCDD-Dioxin Congener Equivalents shall include all 17 of the 2,3,7,8 TCDD dioxin congeners as listed in section 3 of the SIP.

[7] 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 contaminant.

[8] Monitoring only required at Monitoring Location RSW-002

C. Groundwater Monitoring Locations

1. Monitoring Locations MW-001 – MW-008

a. Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for Executive Officer's approval. Once installed, all new wells shall be added to the monitoring network (which currently consists of groundwater monitoring wells MW-001, MW-002, MW-003, MW-004R, MW-005, MW-006, MW-007, and MW-008), and shall be sampled and analyzed according to the schedule below. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

   Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until, temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected and analyzed using standard USEPA methods. Groundwater monitoring shall include, at minimum the following:

Table E-9. Groundwater Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Depth to groundwater[1]	0.01 feet	Measurement	1/Quarter	--
Groundwater elevation[1]	0.01 feet	Calculated	1/Quarter	--
Gradient magnitude	feet/feet	Calculated	1/Quarter	--
Gradient direction	degrees	Calculated	1/Quarter	--
pH[2]	standard units	Grab	1/Quarter	[3]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[3]
Fixed Dissolved Solids	mg/L	Grab	1/Quarter	[3]
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Quarter	[3]
Arsenic	µg/L	Grab	1/Quarter	[3]
Boron	mg/L	Grab	1/Quarter	[3]
Chloride	mg/L	Grab	1/Quarter	[3]
Iron	mg/L	Grab	1/Quarter	[3]
Manganese	mg/L	Grab	1/Quarter	[3]
Sodium	mg/L	Grab	1/Quarter	[3]
Total Kjeldahl Nitrogen (as N)	mg/L	Grab	1/Quarter	[3]
Nitrate as Nitrogen	mg/L	Grab	1/Quarter	[3]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation. Elevations shall be measured to the nearest one-hundredth of a foot from mean sea level.

[2] A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the WWTP.

[3] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest MLs specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by the Central Valley Water Board or the State Water Board.

b. Results of monitoring shall be reported in compliance with the Reporting Section X.B.6.i. The groundwater monitoring report shall include a statement concerning compliance with groundwater limitations.

IX. OTHER MONITORING REQUIREMENTS

A. Biosolids

1. Monitoring Location BIO-001

a. Sampling records shall be retained for a minimum of **5 years**. A log shall be kept of sludge quantities generated and of handling and disposal activities. The log should be complete enough to serve as a basis for part of the annual report.

Table E-10. Biosolids Monitoring Requirements

Parameter	Units	Sample Type[1]	Minimum Sampling Frequency	Required Analytical Test Method
Quantity	dry tons	--	1/application	--
Solids Content	percentage	--	1/application	--
Disposal Location	--	--	1/application	--
Arsenic	mg/kg	Composite	1/application	
Cadmium	mg/kg	Composite	1/application	
Chromium	mg/kg	Composite	1/application	
Copper	mg/kg	Composite	1/application	
Lead	mg/kg	Composite	1/application	
Mercury	mg/kg	Composite	1/application	
Molybdenum	mg/kg	Composite	1/application	
Nickel	mg/kg	Composite	1/application	
Selenium	mg/kg	Composite	1/application	
Zinc	mg/kg	Composite	1/application	
PCB arochlors	mg/kg	Composite	2/year	SW 846 Method 8080
Aldrin and dieldrin	mg/kg	Composite	2/year	SW 846 Method 8080

Parameter	Units	Sample Type[1]	Minimum Sampling Frequency	Required Analytical Test Method
Semi-volatile organics	mg/kg	Composite	2/year	EPA Method 8270
Total Nitrogen	mg/kg (dry)	Composite	1/application	
Ammonia nitrogen	mg/kg (dry)	Composite	1/application	
Nitrate nitrogen	mg/kg (dry)	Composite	1/application	
Total phosphorus	mg/kg (dry)	Composite	1/application	
Total potassium	mg/kg (dry)	Composite	1/application	

1. A composite sample of biosolids shall be collected hourly during the hours of biosolids wasting over a 24-hour period and in accordance with U.S. EPA's POTW Biosolids Sampling and Analysis Guidance Document, August 1989, (or most recent edition).

b. Results of monitoring shall be reported in compliance with the Reporting Section X.B.6. and D.5. The biosolids monitoring report shall include a statement concerning compliance with biosolids use/disposal restrictions.

B. 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-11. Municipal Water Supply Monitoring Requirements

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

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

[2] 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.

C. Ultraviolet Disinfection System

1. Monitoring Location UVS-001

1. **Effective 1 May 2011 or upon compliance with Section VI.C.6.a of the Limitations and Discharge Specifications (tertiary filtration requirements), whichever is sooner,** the Discharger shall monitor UVS-001 as follows:

Table E-12. Ultraviolet Disinfection System Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow rate[1]	MGD	Meter	Continuous

Turbidity[1,2]	Nephelometric Turbidity Units	Meter	Continuous
Number of UV banks in operation	Number	Meter	Continuous
UV Transmittance[3,4]	Percent (%)	Meter	Continuous
UV Power Setting	Percent (%)	Meter	Continuous
UV Dose[5]	mJ/cm^2	Calculated	Continuous

1. To be monitored at EFF-001
2. Report daily average and daily maximum turbidity.
3. The Discharger shall report documented routine meter maintenance activities, including date, time of day, duration, in which the UV Transmittance analyzer(s) is not in operation to record monitoring information.
4. The UV Transmittance analyzer can be out of service for calibration no more than 2 hours. One UV Transmittance sample shall be grabbed and analyzed. Grab sample results will then be entered into UV control system as the value used for UV dose calculation.
5. 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, power settings, 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 Skunk Creek, report the duration and dose calculation variables with each incident.

D. Effluent and Receiving Water Characterization Study. An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third or fourth year of this permit term, the Discharger shall conduct monitoring every other month (e.g. for a total of six samples per constituent during the year) of the effluent at EFF-001 and of the receiving water at RSW-001 for all priority pollutants and other constituents of concern as described in Attachment H. Dioxin and Furan sampling shall be performed only twice during the year, as described in Attachment I. The report shall be completed in conformance with the following schedule.

Task	Compliance Date
i. Submit Work Plan and Time Schedule	No later than 18 months from adoption of this Order
ii. Conduct monitoring every other month[1]	During third or fourth year of permit term
iii. Submit Final Report	6 months following completion of final monitoring event

[1] Dioxin and Furan sampling shall be performed only twice during the year.

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 Central Valley 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 Central Valley 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 Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Central Valley 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 Central Valley 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 Central Valley Water Board by the **first day** of the second month following sample collection. Quarterly 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 and monthly and weekly averages 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" (aluminum, iron, and manganese) 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.G. of the Limitations and Discharge Requirements.

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 Discharger Requirements.

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 Requirements.

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.C. of the Limitations and Discharge Requirements.

g. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall calculate and report monthly in the self-monitoring report i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95^{th} percentile dissolved oxygen concentration.

h. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.17.a-d. of the Limitations and Discharge Requirements.

i. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at RSW-001 and RSW-002.

4. Unless otherwise specified, 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. For reporting the land discharge specifications and applicable limitations of this Order, at a minimum, the self-monitoring report shall be submitted monthly, and the report shall include:

   a. The required monitoring results in this MRP for the ponds and Storage Reservoir (Section VI), groundwater (Section VIII.C), and all land application area monitoring (Section VII). Data shall be presented in tabular format.

   b. Daily precipitation data in tabular form accompanied by starting and ending dates of irrigation for each field.

   c. Daily field inspection reports, during periods when land application operations are conducted, including records of the date and time.

   d. A comparison of monitoring data to the discharge specifications and applicable limitations and an explanation of any violation of those requirements.

   e. Daily discharge volumes and acres irrigated shall be tabulated. The report shall include discharge volumes and irrigation practices used (water source, method of application, application period/duration, drying times, etc.) for each field or group of fields utilized during the month. Hydraulic loading rates (inches/acre/month) shall be calculated.

   f. **Total nitrogen** (lbs/acre/month) shall be calculated for each irrigation field on monthly basis using the daily applied volume of wastewater, daily application area, and the most recent monitoring results, which shall also be reported along with supporting calculations.

   g. **Nitrogen loading rates** for other sources (i.e., fertilizers) shall be calculated for each irrigation field on a monthly basis using the daily applied load and the estimated daily application area.

   h. **Cumulative nitrogen** for each irrigation field for the calendar year to date shall be calculated as a running total of monthly loadings to date from all sources.

   i. **Groundwater Monitoring Reports.** As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Professional Geologist and signed by the registered professional.

      The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Board by the **1st day of the second month after the quarter** (i.e. the January-March quarterly report is due by May 1st) and shall include the following:

      i) Results of groundwater monitoring;

ii) A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

iii) Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;

iv) A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);

v) A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;

vi) Summary data tables of historical and current water table elevations and analytical results;

vii) A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and

viii) Copies of laboratory analytical report(s) for groundwater monitoring.

7. 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.

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

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

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

Table E-13. 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	Submit with monthly SMR
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
1/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 permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February
2/Year	Closest of 1 January or 1 July following 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 permit effective date	1 January through 31 December	1 February

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 or Central Valley 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.** 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-14. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Salinity Evaluation and Minimization Plan (Special Provisions VI.C.3.a)	1 December, annually, after approval of the work plan
Biosolids Disposal Report (Special Provisions for Municipal Facilities VI.C.5.b.ii.)	1 February, annually

2. **Analytical Methods Report. 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 Central Valley 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. **Nutrient Management Plan.** An Annual Report shall be prepared and shall include all monitoring data required in the monitoring schedule applicable land applications, including pond and groundwater monitoring. The Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

   a. Tabular and graphical summaries of historical monthly total loading rates for water (hydraulic loading in gallons and inches), BOD, total nitrogen, fixed dissolved solids, and total dissolved solids (TDS).

   b. The flow-weighted average TDS concentration shall be calculated based on flow, effluent, and supplemental irrigation water monitoring results for the year.

   c. A mass balance relative to constituents of concern and hydraulic loading along with supporting data and calculations. The report shall describe the types of crops planted and dates of planting and harvest for each crop.

   d. For each violation of the Discharge Specifications, applicable Prohibitions, and Groundwater Limitations of this Order, the report shall describe in detail the nature of the violation, date(s) of occurrence, cause(s), mitigation or control measures taken to prevent or stop the violation, and additional operational or facility modifications that will be made to ensure that the violation does not occur in the following year.

   e. A comprehensive evaluation of the effectiveness of the past year's wastewater application operation in terms of odor control, including consideration of application management practices (i.e. waste constituent and hydraulic loadings, application cycles, drying times, and cropping practices), and groundwater monitoring data.

f. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the land application discharge, or groundwater limits, into full compliance with the requirements in this Order.

g. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

h. Based on this information, the Discharger shall develop and include a Nutrient Management Plan for the following season.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

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

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	5B340101001
Discharger	City of Galt
Name of Facility	City of Galt Wastewater Treatment Plant and Reclamation Facility
Facility Address	10059 Twin Cities Road Galt, CA 95632 Sacramento County
Facility Contact, Title and Phone	Gregg Halladay, Public Works Director, (209) 366-7260
Authorized Person to Sign and Submit Reports	Gregg Halladay, Public Works Director, (209) 366-7260
Mailing Address	495 Industrial Drive, Galt, CA 95632
Billing Address	495 Industrial Drive, Galt, CA 95632
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	N
Reclamation Requirements	Producer
Facility Permitted Flow	4.5 million gallons per day (MGD)
Facility Design Flow	Currently 3.0 MGD, upgrading Facility to 4.5 MGD
Watershed	Cosumnes River
Receiving Water	Laguna Creek, via Skunk Creek
Receiving Water Type	Inland surface water

A. The City of Galt (City) is the owner and operator of City of Galt Wastewater Treatment Plant and Reclamation Facility, a Domestic Wastewater Publicly-Owned Treatment Works. Effective 20 March 2003, the City entered into a lease agreement with the Roman Catholic Bishop of Sacramento (RCB) for the use of approximately 180 acres

(160 acres of which are irrigable) of RCB land south of the treatment plant for additional reclamation usage. The City is responsible for maintaining compliance with this Order. The RCB is not responsible for the wastewater treatment plant operations, the discharge to surface waters, or the discharge to City-owned lands. The RCB is also not responsible for the reclamation operations on the parcels it owns; however, is ultimately responsible if enforcement actions against the City are ineffective or would be futile, or if enforcement is necessary to protect public health or the environment. The lease of the RCB Property expires 30 April 2011.

The City of Galt is hereinafter referred to as Discharger. 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 disinfected secondary treated wastewater through the remnant Skunk Creek channel to Laguna Creek, a water of the United States. Laguna Creek is tributary to the Cosumnes River, which then joins the Mokelumne River, which then enters the Sacramento-San Joaquin Delta. The Facility is currently regulated by Order No. R5-2004-0001, which was adopted on 29 January 2004, and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0081434. The terms and conditions of Order No. R5-2004-0001 have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and NPDES permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 1 July 2008.

II. FACILITY DESCRIPTION

The Discharger provides sewerage service for the community of City of Galt and serves a population of approximately 24,000. The Facility design daily average flow capacity is currently 3.0 MGD.

A. Description of Wastewater and Biosolids Treatment or Controls

The major treatment facilities consist of coarse bar screening, activated sludge extended aeration in two oxidation ditches, solids settling in two secondary clarifiers, chlorine gas disinfection in chlorine contact chambers, dechlorination using sulfur dioxide, and solids stabilization in two polyethylene membrane-lined earthen sludge lagoons. Within the last 2 years, the Discharger has constructed a grit removal system and installed new influent and effluent flow meters.

Currently, during 1 November through 30 April, disinfected secondary treated effluent is discharged through an outfall located at the head of Skunk Creek at Discharge Point 001. The effluent is channeled approximately 3500 feet northwesterly to the terminus of Skunk Creek at Laguna Creek. During the remainder of the year, treated effluent is pumped from the Effluent Storage Reservoir and applied to approximately 186 acres of

Discharger-owned agricultural fields and 160 acres of the RCB property. The combination of the Discharger-owned property and RCB Property, makeup the 346 acre Reuse Area (see Attachment C) and is used for both water reclamation and biosolids application.

The sludge treatment process currently used at the Facility produces Class B biosolids. Solids processing begins within the oxidation ditches to stabilize the wastewater solids. A portion of the stabilized sludge is removed from the process on a daily basis to maintain the desired mixed liquor solids concentration in the oxidation ditches. This portion of the solids stream is called waste activated sludge (WAS) and is pumped into the two existing lined-storage lagoons. When one sludge storage lagoon is full, plant operators begin pumping WAS into the second lagoon. This provides an opportunity for the solids in the first lagoon to settle and thicken. After a period of settling, the lagoons are emptied through a combination of removing supernatant and by pumping the settled sludge. Supernatant is decanted from the lagoon by opening a series of sluice gates at various elevations within the lagoon. Supernatant flows through the sluice gate, into a decant structure and is then returned to the oxidation ditches for further treatment. Settled sludge is removed by pumping sludge from the center of the lagoon. Once removed, the solids are injected below the surface on the Reuse Area during the spring and fall, or a private contractor mechanically dewaters the sludge and then hauls the biosolids to an offsite land application area. Approximately 24 to 33 acres within the Reuse Area receive biosolids on an annual basis. The designated biosolids application area is rotated annually throughout the Reuse Area. Following the biosolids injection season, the fields are rehabilitated. The Reuse Area is used to grow fodder, fiber, or feed crops that are not directly used for human consumption. The tailwater and stormwater from the Reuse Area are captured and returned to the Facility's Effluent Storage Reservoir. Flows from the Effluent Storage Reservoir may also be directed to four onsite unlined ponds that provide additional storage. Currently, there is a network of eight groundwater monitoring wells within the Reuse Area as well as the treatment plant.

In November 2009, the Discharger completed a discharge pipeline to allow direct discharge of treated effluent to Laguna Creek via Skunk Creek from the Facility. Prior to this project, treated effluent was discharged from the Effluent Storage Reservoir, which was causing compliance issues with some of the effluent limitations (e.g. total suspended solids). Other planned projects (Phase I) include providing tertiary level treatment, ultraviolet light disinfection, and construction of a biosolids dewatering facility. The Phase 1 projects are anticipated to be complete by 1 May 2011. Later projects (Phase II) are projected to include additional Facility upgrades and an expansion of the Facility to an average dry weather flow (ADWF) of 4.5 MGD from the current ADWF of 3.0 MGD. In addition, nitrification and denitrification will be included in the future upgrade projects to remove ammonia and nitrate. This Order allows year round discharge of up to 4.5 MGD of undisinfected, nitrified-denitrifed, tertiary-level treated effluent to Laguna Creek provided the Discharger complies with the provisions and limits contained in this Order.

The Discharger is not required to implement a federally mandated Pretreatment Program. Order No. R5-2004-0001 required the Discharger to evaluate the impact of industrial discharges on the Facility's effluent quality. As part of the preparation of the Pollution Prevention Plan (PPP), the Discharger conducted a study of industrial wastewater discharges in June 2005 to assess the need for pretreatment. In early 2006, the determination was made that pre-treatment was not necessary. The results of these investigations were included in the final PPP submitted to the Central Valley Water Board on 3 July 2008 along with the report of waste discharge. Per the PPP, industrial discharges are not considered to be a significant source of any constituent.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 9, T5N, R6E, MDB&M, as shown in Attachment B, a part of this Order.

2. Disinfected secondary treated wastewater is discharged at the head of Skunk Creek through an outfall at a point Latitude 38° 18' 14.88" N and longitude 121° 19' 55.87" W (Discharge Point No. 001). From Discharge Point No. 001, the effluent is channeled approximately 3500 feet northwesterly to the terminus of Skunk Creek at Laguna Creek a water of the United States and a tributary to the Cosumnes River.

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

Effluent limitations contained in Order No. R5-2004-0001 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2004-0001 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation				Monitoring Data (January 2004 – April 2008)
		Average Monthly	Average Weekly	Monthly Median	Maximum Daily	Highest Daily Discharge
Flow	MGD	3.0	--	--	--	2.95
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45		60	9.1
	lbs/day[1]	750	1125		1500	
Total Suspended Solids	mg/L	30	45		60	590
	lbs/day[1]	750	1125		1500	
Total Coliform Organisms	MPN/ 100 mL	23[2]			230	2,400
Settleable Solids	ml/L	0.1	--	--	0.2	2.2
Oil and Grease	mg/L	10	--	--	15	ND
	lbs/day[1]	250	--	--	375	
Chlorine Residual	mg/L	0.01	0.02	--	0.38	

[1] Based on a design flow of 3.0 MGD.

[2] Applied as a monthly median effluent limitation.

D. Compliance Summary

The Discharger received Administrative Civil Liability Complaint No. R5-2008-0586 from the Central Valley Water Board dated 9 October 2008. The Discharger was assessed an $108,000 penalty for violations of effluent limitations contained in Order Nos. 97-111 and R5-2004-0001.

The Discharger received a Notice of Violation from the Central Valley Water Board dated 19 June 2008. The report of an inspection conducted on 15 May 2008 by the Central Valley Water Board staff included violations and areas of improvement to comply with Order No. R5-2004-0001. The Discharger was not in compliance with its sewer system management plant (SSMP), industrial pretreatment requirements, and housekeeping. New monitoring and reporting requirements were included for dechlorination chemicals.

E. Planned Changes

A number of wastewater treatment facilities improvements will be constructed over the next 5 years. These include:

1. Tertiary Treatment Facilities, Phase 1.

Tertiary Filtration

Tertiary filtration will be required to achieve anticipated discharge requirements for 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), turbidity, total coliform organisms and possibly one or more metals. A filter pilot study was conducted from February through September 2007 to evaluate filtration alternatives and test the effectiveness of tertiary filtration at removing trace metals and other constituents. During the pilot tests, the cloth media filter demonstrated reliable and consistent removals of conventional pollutants to below the anticipated discharge limits.

UV Disinfection

The Discharger is converting from chlorine disinfection to ultraviolet light (UV) disinfection to meet effluent limitations for disinfection by-products.

Filter Feed Pump Station

The Filter Feed Pump Station will function to:

a. Control the rate of flow through the filtration and UV processes.

b. Lift the secondary effluent to an elevation that will allow the water to flow by gravity through the filters, UV facilities and final effluent pipeline to the discharge channel.

Electrical and Control Building

A new Electrical and Control Building will be needed to house the controls, electrical equipment, storage and other functions related to the filters and UV equipment.

Storage of Recycled Water and Diverted Water in Existing Basins

The existing Effluent Storage Reservoir and Effluent Storage Ponds will continue to be used for storage of recycled water for irrigation, including undisinfected secondary effluent that has been diverted from the tertiary treatment process. Diversions of either undisinfected secondary effluent or final effluent will occur under the following "abnormal" operating conditions:

a. When the secondary effluent flow rate exceeds the capacity of the tertiary treatment system.

b. When final effluent quality does not meet permits limits and cannot be discharged into Laguna Creek. The entire effluent flow will typically be diverted to storage under this condition.

Water that is diverted into storage will not be discharged to Laguna Creek because it may not meet effluent water quality requirements for surface water discharge. Stored water not capable of meeting water quality requirements for onsite irrigation will be pumped back into the Facility for treatment. Return of stored water may also be necessary to maintain adequate available storage volume during the winter. To accomplish these returns, a new pipe will be installed to connect the existing irrigation system with the Headworks Splitter Box and the existing Irrigation Pumps will be used to pump the water through this new pipe back into the Facility.

2. Nitrification/denitrification and Expansion, Phase 2.

Major improvements to the secondary facilities are needed to ensure reliable compliance with the applicable, non-CTR water quality criteria for ammonia and nitrate. Flows to the Facility are also nearing the current capacity of these secondary facilities. Therefore, the Discharger plans to complete a single facilities improvement project that will allow for enhanced nitrification/denitrification and will expand the treatment plant such that the treatment capacity will be greater than 3 MGD to accommodate anticipated future growth.

3. Solid Handling Facilities

The Discharger is also planning to construct new biosolids dewatering facilities that rapidly dewaters and dries biosolids. The Discharger has determined that the

preferred long-term biosolids handling option will be to continue to apply Class B biosolids on the existing Discharger-owned property surrounding the Facility.

4. Effluent Reservoir Bypass Pipeline

In November 2009 the Discharger completed construction of a pipeline that allows the treated effluent to bypass the Effluent Storage Reservoir, thereby improving water quality for a number of parameters of concern, such as TSS, settleable solids, and some metals.

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

1. **Water Quality Control Plans**. The Central Valley Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2007), 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 Central Valley Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the Cosumnes River downstream of the discharge are municipal and domestic supply; agricultural irrigation, including agricultural stock watering; water contact recreation, including canoeing and rafting; other non-contact water recreation, including aesthetic enjoyment; warm freshwater aquatic habitat; cold freshwater aquatic habitat; warm fish migration habitat; cold fish migration habitat; warm spawning habitat; cold spawning habitat; 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 November 28, 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 Central Valley Water Board has considered the factors listed in CWC section 13241 in establishing these requirements, as discussed in more detail in the Fact Sheet, Attachment F, Section IV.

2. **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 Central Valley 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.

3. **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.

4. **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 Central Valley Water Board has adopted a numeric receiving water objective for aluminum, ammonia, arsenic, bis(2-exylhexyl)phthalate, carbon tetrachloride, chlorodibromomethane, copper, cyanide, chromium VI, dichlorobromomethane, lead, iron, nitrate plus nitrite, and silver in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan). As detailed elsewhere in this Permit, available effluent quality data indicate that effluent concentrations of aluminum, ammonia, arsenic, bis(2-exylhexyl)phthalate, carbon tetrachloride, chlorodibromomethane, cyanide, chromium VI, dichlorobromomethane, lead, iron, nitrate, and silver have a reasonable potential to cause or contribute to an excursion above numeric water quality objectives for these constituents included within the Basin Plan.

5. **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.

6. **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.

D. Impaired Water Bodies on CWA 303(d) List – Not Applicable

E. Other Plans, Polices and Regulations

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 contains storage facilities and agricultural reuse fields where a determination has been made by the Central Valley Water Board whether the facilities meet the exemptions from Title 27. The Central Valley Water Board's findings regarding Title 27 exemptions are discussed below.

1. **Effluent Storage Reservoir and four Effluent Storage Ponds.** The storage reservoir is used to store, during the agricultural season (1 May through 31 October), at least secondary-level treated municipal wastewater for agricultural reuse. Treated wastewater may be directed from the reservoir to the four storage ponds, and then redirected to the reservoir when needed for agricultural reuse. The treated wastewater does not need to be managed as hazardous waste. However, the reservoir and four ponds are unlined; therefore, the treated wastewater potentially percolates to the underlying groundwater. Groundwater analytical monitoring results obtained within the vicinity of the reservoir and four ponds (MW-4R, MW-1, and MW-2) indicate that constituents comply with the applicable water quality control plan. Thus, during this period, the storage reservoir and four storage ponds are exempt from requirements of Title 27 CCR, pursuant to Title 27 CCR section 20090(b).

   During the remainder of the year (1 November through 30 April), tertiary treated effluent that does not meet permit limits may be diverted into the storage reservoir and then returned to the Facility treatment system for further tertiary level treatment before discharging to Laguna Creek. Since the reservoir is used as a necessary part of the Facility's wastewater treatment system, the reservoir during this period is exempt from the requirements of Title 27 CCR, pursuant to Title 27 CCR section 20090(a).

2. **Land Application.** During the agricultural season, the Discharger reuses treated municipal wastewater to irrigate approximately 186 acres of Discharger-owned agricultural fields and 160 acres of land south of the treatment plant that is leased from the Roman Catholic Bishop of Sacramento. The reuse of treated wastewater on the agricultural fields is exempt from Title 27 pursuant to Section 20090(h).

3. **Biosolids**. Settled sludge is removed by pumping sludge from the center of the lined lagoon. Once removed, the solids are currently injected below the surface on the designated Reuse Area during the spring and fall, or a private contractor mechanically dewaters the sludge and then hauls the biosolids to an offsite land application area. Approximately 24 to 33 acres within the Reuse Area receive biosolids on an annual basis.

   Groundwater is generally encountered at approximately 57 to 80 feet below the ground surface. The Facility's groundwater monitoring system consists of 8 monitoring wells, including 2 background wells. Based on groundwater monitoring results from March 2005 through June 2010, constituent concentrations in the compliance monitoring wells comply with the Basin Plan water quality objectives (see section V.B.3 of this Fact Sheet for more information). Therefore, the groundwater quality associated with the Facility's disposal of sludge in compliance with the Basin Plan, and therefore, meets the preconditions to qualify for exemption from Title 27.

   Nevertheless, the Discharger is constructing a new biosolids dewatering facility that will produce biosolid cakes. The biosolids cakes will be tilled into the soil within the designated Reuse Area, which replaces the current practice of injecting sludge into

the soil. The biosolids cakes contain significantly less moisture then the sludge, and therefore, percolation to underlying groundwater is not diminished; as a result, any potentially negative effect of current sludge injection operations would decrease.

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 Central Valley Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives" that specifies that the Central Valley 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 Central Valley 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 Central Valley 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. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

1. **Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on CWC Section 13260 that requires filing of a report of waste discharge (ROWD) before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.

2. **Prohibition III.B (Biosolids must not be applied to the 160 acres of land south of the Facility that is leased from the Roman Catholic Bishop of Sacramento (RCB Property)).** This prohibition is based on 40 CFR Part 503 et seq. that requires land management, treatment, and operation criteria for protection of groundwater and surface waters.

3. **Prohibition III.C (Effluent discharges to surface water between 1 May through 31 October is allowed <u>only</u> when the wastewater is treated to at least Title 22 tertiary-level treatment (or equivalent).** This prohibition is based on DPH reclamation criteria in CCR, Title 22, Division 4, Chapter 3 (Title 22) for level of treatment necessary to protect downstream beneficial uses, and is appropriate because there is little to no dilution during this period and the receiving water is used for irrigation of agricultural land and for contact recreation purposes.

4. **Prohibition III.D (No bypasses or overflow of untreated wastewater, except under the conditions at CFR Part 122.41(m)(4)).** 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 Central Valley 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.

5. **Prohibition III.E (No controllable condition shall create a nuisance).** This prohibition is based on CWC Section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance.

6. **Prohibition III.F (No inclusion of pollutant free wastewater shall cause improper operation of the Facility's systems).** This prohibition is based on CFR Part 122.41 et seq. that requires the proper design and operation of treatment facilities.

B. Technology-Based Effluent Limitations

1. Scope and Authority

Regulations promulgated in section 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 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 BOD_5, 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.** When the Facility's upgrades and expansion projects to provide a tertiary level of treatment up to a design flow of 4.5 MGD are complete and the Discharger complies with the conditions set forth in Provisions VI.C.6.a., this Order allows an increased average dry weather discharge effluent flow limit of 4.5 MGD. This Order contains an interim Average Daily Discharge Flow effluent limit of 3.0 MGD until the Discharger demonstrates compliance with Special Provision VI.C.6.a. and upon Executive Officer approval (see section IV.E.1. of this Fact sheet for detailed discussion).

Summary of Technology-based Effluent Limitations
Discharge Point No. 001

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	--	--	4.5	--	--
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	--	--	--
	lbs/day[1]	1126	1689	--	--	--
	% Removal	85	--	--	--	--
Total Suspended Solids	mg/L	30	45	--	--	--
	lbs/day[1]	1126	1689	--	--	--
	% Removal	85	--	--	--	--
pH[2]	standard units	--	--	--	6.0	8.2

[1] Based on a design flow of 4.5 MGD.

[2] This Order requires more stringent water quality based effluent limits for pH. The pH is required to be maintained between 6.5 and 8.2 for protection of beneficial uses.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 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.** Laguna Creek is a tributary to Cosumnes River within the Cosumnes River Hydrologic Unit. Refer to Section III for beneficial uses.

b. **Hardness.** 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[1], the CTR[2] 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. 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 Central Valley 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-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.

[1] 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.

[2] 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.

(a) 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-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 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.

ii. Calculation of Water Quality-Based Effluent Limitations. The remaining discussion in this section relates to the development of water quality-based effluent limits when it has been determined that the discharge has reasonable potential to cause or contribute to an exceedance of the CTR hardness-dependent metals criteria in the receiving water.

A 2006 Study[3] developed procedures for calculating the effluent concentration allowance (ECA)[4] 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 (WQBELs).

The equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \quad \text{(Equation 1)}$$

Where:

[3] 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.

[4] The ECA is defined in Appendix 1 of the SIP (page Apendix 1-2). The ECA is used to calculate water quality-based effluent limitations in accordance with Section 1.4 of the SIP

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:

$$ECA = C \quad (\text{when } C \leq B)^5 \qquad \text{(Equation 2)}$$

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 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

[5] The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e. C ≤ B)

receiving water). This is applicable whether the effluent hardness is less than or greater than the ambient background receiving water hardness.

These procedures are applicable to calculate the CTR criteria for chronic cadmium, chromium III, nickel, and zinc. However, the receiving water has been shown to exceed the CTR criteria for the Concave Down Metal copper, based on paired hardness and metals receiving water data from February 2002 through March 2008. This is not consistent with the assumptions of the 2006 Study, therefore, these procedures for calculating the ECA for Concave Down Metals is not applicable for copper. The procedure for selecting the appropriate hardness for copper is discussed below.

The effluent hardness ranged from 52 mg/L to 85.1 mg/L (as $CaCO_3$), based on 30 samples from April 2004 to March 2008. The upstream receiving water hardness varied from 30 mg/L to 117 mg/L (as $CaCO_3$), based on 41samples from April 2004 to February 2008. Using a hardness of 52 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 nickel shown in Table F-4, 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., 30 mg/L as $CaCO_3$)
- Upstream receiving water nickel concentration always at the CTR criteria (i.e., no assimilative capacity). Based on available data, the receiving water never exceeded the CTR criteria for cadmium, chromium III, nickel, and silver.

Using these reasonable worst-case conditions, the discharge can be mixed with the receiving water and a resulting downstream mixed hardness (or metals concentration) can be calculated for all discharge and mixing conditions (e.g., 0% effluent to 100% effluent) based on a simple mass balance as shown in Equation 3, below. By evaluating all discharge conditions the reasonable worst-case downstream hardness can be determined for adjusting the CTR criteria.

$$C_{MIX} = C_{RW} \times (1-EF) + C_{Eff} \times (EF) \qquad \text{(Equation 3)}$$

Where:

C_{MIX} = Mixed concentration (e.g. metals or hardness)
C_{RW} = Upstream receiving water concentration
C_{Eff} = Effluent concentration
EF = Effluent Fraction

As demonstrated in Table F-4, using a hardness of 52 mg/L (as $CaCO_3$) to calculate the ECA for chronic cadmium, chromium III, and nickel 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 chronic cadmium, chromium III, nickel, and zinc have been calculated using Equation 1 with a hardness of 52 mg/L (as $CaCO_3$).

Table F-4. Nickel ECA Evaluation

Minimum Observed Effluent Hardness	**52 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness	**30 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Nickel Concentration	**19 µg/L[1]**
Nickel $ECA_{chronic}$[2]	**30 µg/L**

Effluent Fraction	Mixed Downstream Ambient Concentration		
	Hardness[3] (mg/L) (as $CaCO_3$)	**CTR Criteria[4] (µg/L)**	**Nickel[5] (µg/L)**
1%	30.22	19.0	18.9
5%	31.1	19.4	19.4
15%	33.3	20.6	20.5
25%	35.5	21.7	21.6
50%	41	24.5	24.4
75%	46.5	27.3	27.2
100%	52	30.0	30.0

1 Maximum assumed upstream receiving water nickel concentration calculated using Equation 1 for chronic criterion at a hardness of 30 **mg/L (as $CaCO_3$)**.

2 ECA calculated using Equation 1 for chronic criterion at a hardness of 52 **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 nickel concentration is the mixture of the receiving water and effluent nickel concentrations at the applicable effluent fraction.

As discussed above, the receiving water at times exceeds the criteria for copper, which does not satisfy one of the assumptions for the procedures for calculating the ECA for Concave Down Metals. Therefore, for copper, a more stringent ECA must be calculated using the minimum observed upstream receiving water hardness of 30 mg/L (as $CaCO_3$) to ensure the discharge is protective (For more information refer to sections IV.C.3.m. below).

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 4, below). The ECA, as calculated using Equation 4, 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 4 below is defined by the term H_{rw}.

$$ECA_{conc} = \left(\frac{m(H_e - H_{rw})\left(e^{m\{\ln(H_{rw})\}+b}\right)}{H_{rw}} \right) + e^{m\{\ln(H_{rw})\}+b} \qquad \text{(Equation 4)}$$

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 ($H_{rw} > H_e$)[6]

These procedures are applicable to calculate the CTR criteria for the Concave Up Metals acute cadmium and silver. However, the receiving water has been shown to exceed the CTR criteria for lead, based on paired hardness and metals receiving water data from February 2002 through March 2008. This is not consistent with the assumptions of the 2006 Study,

[6] When the minimum effluent hardness falls within the range of observed receiving water hardness concentrations, Equation 4 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.

therefore, these procedures for calculating the ECA for the Concave Up Metals are not applicable for lead. The procedure for selecting the appropriate hardness for lead is discussed below.

A similar example as was done for the Concave Down Metals is shown for acute cadmium, Concave Up Metals, in Tables F-5 and F-6, below. As previously mentioned, the minimum effluent hardness is 52 mg/L (as $CaCO_3$), while the upstream receiving water hardness ranged from 30 mg/L to 117 mg/L (as $CaCO_3$). In this case, the minimum effluent concentration is within the range of observed upstream receiving water hardness concentrations. Therefore, Equation 4 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 4, the lowest ECA results from using the maximum upstream receiving water hardness, the minimum effluent hardness, and assuming no receiving water capacity for cadmium (i.e., ambient background cadmium concentration is at the CTR acute criterion). However, based on paired ambient hardness and metals data, the receiving water exceeded the CTR criteria for lead. Therefore, a different hardness must be used for lead to ensure protective WQBELs are calculated, as discussed below.

Using Equation 4 to calculate the ECA for acute cadmium and acute silver 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-5 and F-6, for acute cadmium. 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 4 has been used to calculate the ECA for acute cadmium and acute silver in this Order. For lead, the minimum observed upstream receiving water hardness of 30 mg/L (as $CaCO_3$) is required to calculate the ECA to ensure the discharge is protective (for more information see section IV.C.3.s below).

Table F-5. Acute Cadmium ECA Evaluation

Minimum Observed Effluent Hardness	**52 mg/L (as $CaCO_3$)**
Minimum Observed Upstream Receiving Water Hardness	**30 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Cadmium Concentration	**1.2 µg/L[1]**
Cadmium ECA_{acute}[2]	**2.1 µg/L**

Effluent Fraction	Mixed Downstream Ambient Concentration		
	Hardness[3] (mg/L) (as $CaCO_3$)	CTR Criteria[4] (µg/L)	Cadmium[5] (µg/L)
1%	30.2	1.2	0.9
5%	31.1	1.2	0.9
15%	33.3	1.3	1.0
25%	35.5	1.4	1.2
50%	41.0	1.7	1.5
75%	46.5	1.9	1.8
100%	52.0	2.2	2.1

1 Minimum assumed upstream receiving water cadmium concentration calculated using Equation 1 for acute criterion at a hardness of 30 **mg/L (as $CaCO_3$)**.

2 ECA calculated using Equation 4 for acute criteria.

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 4.

4 Mixed downstream ambient criteria are the acute criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient cadmium concentration is the mixture of the receiving water and effluent cadmium concentrations at the applicable effluent fraction.

Table F-6. Acute Cadmium ECA Evaluation

Minimum Observed Effluent Hardness	**52 mg/L (as $CaCO_3$)**
Maximum Observed Upstream Receiving Water Hardness	**117 mg/L (as $CaCO_3$)**
Maximum Assumed Upstream Receiving Water Cadmium Concentration	**5.4 µg/L[1]**
Cadmium ECA_{acute}[2]	**2.0 µg/L**

Effluent Fraction	Mixed Downstream Ambient Concentration		
	Hardness[3] (mg/L) (as $CaCO_3$)	CTR Criteria[4] (µg/L)	Cadmium[5] (µg/L)
1%	116.4	5.4	5.4
5%	113.8	5.2	5.2
15%	107.3	4.9	4.9
25%	100.8	4.6	4.5
50%	84.5	3.7	3.7
75%	68.3	2.9	2.9
100%	52	2.2	2.0

1 Maximum assumed upstream receiving water cadmium concentration calculated using Equation 1 for acute criterion at a hardness of 117 **mg/L (as $CaCO_3$)**.

2 ECA calculated using Equation 4 for acute criteria.

3 Mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 4.

4 Mixed downstream ambient criteria are the acute criteria calculated using Equation 1 at the mixed hardness.

5 Mixed downstream ambient cadmium concentration is the mixture of the receiving water and effluent cadmium concentrations at the applicable effluent fraction using Equation 4.

c. **Assimilative Capacity/Mixing Zone.** Laguna Creek is an ephemeral stream with little or no natural flow at times, therefore, no credit for receiving water dilution is available. Dilution credits have not been allowed in this Order. The Central Valley Board finds that based on the available information and on the Discharger's application, that Laguna Creek, absent this and other NPDES discharges, is an ephemeral stream. The ephemeral nature of Laguna Creek means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within Laguna Creek help support the aquatic life. Both conditions may exist within a short time span, where Laguna Creek would be dry without the discharge or other NPDES discharges, and periods when sufficient background flows provide hydraulic continuity with the Cosumnes River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water

standards, agricultural water quality goals, and aquatic life. Significant dilution may occur during and immediately following high rainfall events.

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 Central Valley 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 Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, arsenic, bis (2-ethylhexyl) phthalate, carbon tetrachloride, chlorine residual, chlorodibromomethane, cyanide, dichlorobromomethane, lead, iron, nitrate plus nitrite, pathogens, pH, and salinity.. WQBELs for these constituents are included in this Order. The Discharger has indicated that they wish to possibly discontinue seasonal discharge if they increase wastewater discharge volumes. Therefore, monitoring data collected during periods of land application as well as when discharge to receiving waters occurred was used in conducting the RPA (where appropriate, some permit conditions differ depending on the discharge location). In November 2009, the Discharger constructed an effluent pipeline that bypasses the storage reservoir, which improves water quality for some constituents. Therefore, data was collected upstream of the storage reservoir to be representative of effluent quality for the current Facilities. This data was compared to the remaining effluent data and utilized in the RPA for

aluminum, arsenic, copper, iron, lead, zinc, silver, chromium (total and hexavalent), and cyanide.

c. The Central Valley 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 Central Valley Water Board may use the SIP as guidance for water quality-based toxics control.[7] 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.*"

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 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. The Secondary Maximum Contaminant Level - Consumer Acceptance Limit for aluminum is 200 µg/L.

Footnote L to the National Recommended Ambient Water Quality Criteria Correction (1999) summary table for aluminum indicates that the chronic aquatic life criterion is based on studies conducted under specific receiving water conditions with a low pH (6.5 to 6.6 pH units) and low hardness (<10 mg/L as $CaCO_3$). USEPA advises that a water effects ratio may be more appropriate to better reflect the actual toxicity of aluminum to aquatic organisms. Monitoring data demonstrates that these conditions are not similar to those in Laguna Creek, which consistently has an upstream hardness concentrations ranging from 30 to 117 mg/L and the pH ranging from 6.5 to 9.9 s.u. Thus, it is unlikely that application of the chronic criterion of 87 µg/L is necessary to protect aquatic life in Laguna Creek. For similar reasons, the Utah Department of Environmental Quality (Department) only applies the 87 µg/L chronic criterion for aluminum where the pH is less than 7.0 and the hardness is less than 50 mg/L as $CaCO_3$ the receiving water after mixing. For conditions where the pH equals or exceeds 7.0 and the hardness is equal to or exceeds 50 mg/L as $CaCO_3$, the Department regulates aluminum based on the 750 µg/L acute criterion. In the case of Laguna Creek the available data indicates that the pH ranges from 6.4 to 9.5 standard units with the median at 7.5 standard units, and the downstream hardness ranges from 39 to 132 mg/L with a median of 58 mg/L as $CaCO_3$. It is likely that application of the stringent chronic criteria (87µg/L) is overly protective.

In the absence of an applicable chronic aquatic life criterion, the most stringent water quality criterion is the Secondary MCL - Consumer Acceptance Limit for aluminum of 200 µg/L. Based on input from the California Department of Public Health (DPH) and the fact that secondary MCLs are designed to protect

[7] See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City)

consumer acceptance, effluent limitations based on secondary MCLs are to be applied as an annual average concentration. Therefore, this Order contains new WQBELs for aluminum as an annual average effluent limitation of 200 µg/L. The MEC for aluminum was 318 µg/L and the mean was 120 µg/L, based on 12 samples collected during the Discharger's effluent and receiving water special study conducted from April 2007 through March 2008. Based on these sample results in the effluent, it appears the Discharger can meet this new limitation.

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 currently uses two Carrousel oxidation ditches to partially nitrify the waste stream (i.e. remove ammonia). 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) standards based on pH and chronic (30-day average, criteria continuous concentration) standards based on pH and temperature. It also recommends a maximum 4-day average concentration of 2.5 times the criteria continuous concentration (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. USEPA's recommended criteria are shown 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 maximum permitted effluent pH is 8.2 s.u. In order to protect against the worst-case short-term exposure of an organism, the acute criterion was calculated using the CMC equation and a pH value of 8.2. The resulting acute criterion is 3.8 mg/L.

The 30-day average chronic criterion (or CCC) was evaluated for the receiving

water based on monitoring data obtained during the discharge season from the period of January 2004 through December 2009. The chronic criterion values were calculated using the CCC equation and the rolling 30-day average pH and temperature of the receiving water. 130 data values for the receiving water CCC were calculated. The 1/10th percentile (i.e. lowest 99.9th percentile) of each data set was selected as the most stringent criteria, which is consistent with the 1-in-3 year average frequency for criteria excursions recommended by the USEPA. As a result, the receiving water CCC was 1.37 mg/L ammonia as N. The same evaluation was conducted using effluent data for the same time period, and the effluent CCC was 2.3 mg/L ammonia as N. Therefore the receiving water CCC is the most stringent criterion and was used for development of water quality-based effluent limitations for ammonia.

The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on a 30-day CCC of 1.37 mg/L (as N), the 4-day average concentration that should not be exceeded is 3.42 mg/L (as N).

The MEC for ammonia was 4.4 mg/L. Therefore, ammonia in the discharge 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.

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 chronic criteria. 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 chronic criteria was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day, and 30-day chronic criteria is then selected for deriving the AMEL and the MDEL, which in this case is the 30-day chronic criterion. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures.

This Order contains new WQBELs for ammonia as an AMEL and MDEL of 1.7 mg/L and 3.3 mg/L, respectively, based on USEPA's National Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life and to assure the treatment process adequately nitrifies the waste stream to protect the aquatic habitat beneficial uses (see Table F-8 below for WQBEL calculations.). Analysis of the effluent data shows that the MEC of 4.4 mg/L is greater than the applicable WQBEL, and therefore, appears to put the Discharger in immediate non-compliance with the ammonia final effluent limitations. 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 Discharger submitted an infeasibility

analysis on 28 June 2010. As discussed in section IV.E of this Fact Sheet, a compliance schedule has been included in this Order.

g. **Antimony**. The California Department of Public Health (DPH) has adopted a Primary Maximum Contaminant Level (MCL) for antimony of 6.0 µg/L. The maximum observed upstream receiving water concentration was 0.12 µg/L (DNQ). Based on 15 samples from 2002 through 2008, the MEC was 6.7 µg/L based on one high result on 8 November 2005. However, it appears that the 8 November 2005 sample result is an outlier. The next highest effluent sample was a DNQ value of 0.23 µg/L. Excluding the one high sample, the average effluent concentration is 0.10 µg/L with a standard deviation of 0.09 µg/L. The high 8 November 2005 effluent sample is clearly an outlier and inappropriate to use in the reasonable potential analysis as allowed in Section 1.2 of the SIP. The maximum background receiving water antimony concentration and MEC do not exceed the applicable water quality objectives, therefore, the discharge does not have reasonable potential for antimony.

h. **Arsenic.** The CTR includes maximum 1-hour average and 4-day average criteria for arsenic of 340 µg/L and 150 µg/L, respectively, for the protection of freshwater aquatic life. The criteria for arsenic are presented in dissolved concentrations. The USEPA Primary Maximum Contaminant Level (MCL) is 10 µg/L for arsenic. However, pursuant to the Safe Drinking Water Act, DPH must revise the arsenic MCL in Title 22 CCR to be as low or lower than the USEPA MCL. Applying the Basin Plan's "Policy for Application of Water Quality Objectives", to protect future municipal and domestic water use, it is therefore reasonable to apply the USEPA MCL for arsenic to the receiving stream.

The MEC for total arsenic was 12.4 µg/L and the MEC for dissolved arsenic was 12.3 µg/L during the Discharger's effluent and receiving water special study conducted from April 2007 through March 2008, and the mean for total arsenic was 11.6 µg/L based on the 12 samples obtained during this special study. The maximum observed upstream receiving water total arsenic concentration was 14.1 µg/L. The discharge demonstrates a reasonable potential to cause or contribute to an in-stream excursion above the USEPA Primary MCL.

Title 40 CFR 122.45 (d) requires, in part, average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. Arsenic is a CTR constituent. Therefore, this Order contains new WQBELS for arsenic as a monthly average effluent limitation of 10 µg/L, based on the USEPA MCL for arsenic and implementing the Basin Plan's narrative chemical constituents objective. As previously stated, the monitoring data shows that the post upgrade MEC and mean data is greater than the applicable WQBEL, and thus, appears to put the Discharger in immediate non-compliance with the arsenic final effluent limitation. Therefore, a compliance time schedule for compliance with the effluent limit is established in TSO No. R5-2010-0100 in accordance with CWC section 13300. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

i. **Bis (2-ethylhexyl) phthalate.** Bis (2-ethylhexyl) 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 State MCL for bis (2-ethylhexyl) phthalate is 4 µg/L and the USEPA MCL is 6 µg/L. The NTR criterion for human health protection for consumption of water and aquatic organisms is 1.8 µg/L and for consumption of aquatic organisms only is 5.9 µg/L.

As previously stated, the Discharger conducted an effluent and receiving water special study between April 2007 through March 2008 to best represent the effluent discharge water quality post the Facility upgrade to bypass the Storage Reservoir and discharge directly to Laguna Creek. The Discharger completed construction of the pipeline in November 2009; thus, the data collected during the special study is more representative of the effluent quality. During the Discharger's effluent and receiving water special study, the MEC for bis (2 ethylhexyl) phthalate was 1.9 µg/L, while the maximum observed upstream receiving water bis (2-ethylhexyl) phthalate concentration was 5.2 µg/L. Therefore, the discharge demonstrates a reasonable potential to cause or contribute to an in-stream excursion above the NTR criterion for bis (2-ethylhexyl) phthalate for human health protection for consumption of water and aquatic organisms.

Two sampling events were found to not be representative of the effluent and were not used in the RPA, as allowed by the SIP. Laboratory QA/QC results show detections of bis (2-ethylhexyl) phthalate in the field blank for the 4 January 2008 and 5 April 2007 samples, which indicates sampling contamination. Based on the lab QA/QC results for these two samples, the Regional Water Board finds that this data is suspect and therefore is not valid to use in determining reasonable potential.

No dilution is allowed, therefore, this Order contains new WQBELs for bis (2-ethylhexyl) phthalate as an AMEL and MDEL of 1.8 µg/L and 3.6 µg/L, respectively, based on the NTR criterion for the protection of human health. Based on the sample results in the effluent, it appears the Discharger can meet this new limitation.

j. **Carbon Tetrachloride.** The CTR includes standards for the protection of human health based on a one-in-a-million cancer risk for carbon tetrachloride. Municipal and domestic supply is a beneficial use of the receiving stream. The standard for waters from which both water and organisms are consumed is 0.25 µg/L.

The maximum observed upstream receiving water concentration was not detect (method detection level of 0.3 µg/L), and the MEC was 2.4 µg/L, based on 14

samples collected from 6 November 2006 through 3 December 2009. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the criterion for carbon tetrachloride. This Order contains new WQBELs for carbon tetrachloride as an AMEL and MDEL for carbon tetrachloride of 0.25 µg/L and 0.50 µg/L, respectively, based on the CTR criterion for the protection of human health (see Table F-11 for WQBEL calculations).

Analysis of the effluent data shows that the MEC of 2.4 µg/L is greater than the applicable WQBELs, and therefore, appears to put the Discharger in immediate non-compliance with the carbon tetrachloride final effluent limitations. 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. Therefore, a compliance time schedule for compliance with the effluent limit is established in TSO No. R5-2010-0100 in accordance with CWC section 13300. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

k. **Chlorine Residual.** The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. The Discharger uses sulfur dioxide to dechlorinate the effluent prior to discharge to Laguna 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 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 (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. Average 1-hour and 4-day limitations for chlorine of 0.02 mg/L and 0.01 mg/L, respectively, are included in this Order.

l. **Chromium VI (Hexavalent Chromium).** The CTR includes maximum 1-hour average and 4-day average dissolved chromium VI concentrations of 16 µg/L and 11 µg/L, respectively, for the protection of freshwater aquatic life. The MEC for chromium VI was 1.5 µg/L, based on 12 samples collected during the Discharger's effluent and receiving water special study conducted from April 2007 through March 2008. On 28 February 2003 the Discharger submitted background receiving water monitoring results for priority pollutants as required by the Executive Officer's 10 September 2001 CWC Section 13267 letter. The 11 analytical samples for Chromium VI resulted in 10 non-detects (<0.3 µg/L) and one detected concentration on 13 November 2002 at 27 µg/L. Lab QA/QC reports were not submitted with analytical results; however, as allowed by

Section 1.2 of the SIP, the Central Valley Water Board considered this as an outlier and inappropriate to use in determining reasonable potential as allowed by Section 1.2 of the SIP. The Discharger, being concerned that more of the data obtained during the 13267 sampling event may be unreliable due to sample contamination and/or lack of precision associated with high detection limits used for analyses, conducted a special receiving water study from April 2007 through March 2008. The 11 analytical samples collected during the special receiving water study resulted in 10 non-detects (ranging from <2.5 µg/L to <1 µg/L) and one detected concentration on 3 May 2007 at 1.1 µg/L. Based on these 22 receiving water samples collected from February 2002 through March 2008 (20 non-detects, one detection at 1.1 µg/L and one detection at 27 µg/L), the 27 µg/L analytical result of the sample collected on 13 November 2002 is an outlier. Based on the 21 other samples, the mean was 1.9 µg/L and the standard deviation was 0.7 µg/L. The high result is more than four standard deviations from the mean. Therefore, based on this information, as allowed by Section 1.2 of the SIP, the Central Valley Water Board considered this outlier inappropriate for use in the reasonable potential analysis. Based on all representative data, the maximum observed upstream receiving water Chromium VI concentration was 1.1 µg/L. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria.

m. **Copper.** The CTR includes hardness-dependent 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 concentrations to total concentrations. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. Using the lowest observed receiving water hardness (30 mg/L as $CaCO_3$), as discussed in Section IV.C.2.b., above, and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum 4-day average concentration) is 3.3 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is 4.5 µg/L, as total recoverable.

The MEC for total copper was 3.85 µg/L, based on samples collected during the Discharger's effluent and receiving water special study conducted from April 2007 through March 2008. The maximum observed upstream receiving water total copper concentration was 4.8 µg/L. The discharge demonstrates reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria. .

This Order contains new WQBELs for copper as an AMEL and MDEL of 3.1 µg/L and 4.3 µg/L, respectively (see Table F-12 for WQBEL calculations). Analysis of the effluent data shows that the maximum monthly average effluent concentration of 3.5 µg/L is greater than the applicable WQBELs, and therefore, appears to put the Discharger in immediate non-compliance with the copper final effluent limitations. 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. Therefore, a compliance time schedule for compliance with the effluent limit is established in TSO No. R5-2010-0100 in accordance with CWC section 13300. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

n. **Cyanide.** The CTR includes maximum 1-hour average and 4-day average cyanide criteria of 22 µg/L and 5.2 µg/L, respectively, for the protection of freshwater aquatic life.

The MEC for cyanide was 5.3 µg/L, based 9 samples collected during the Discharger's effluent and receiving water special study conducted from April 2007 through March 2008. The maximum observed upstream receiving water cyanide concentration during this same period was 1.3 µg/L, and the upstream receiving water monitoring samples obtained during the 13267 sampling event (January 2003 through February 2002) indicated concentrations ranged from <2 µg/L to 45 µg/L. Therefore, the discharge 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 flow in the receiving water. This Order contains new WQBELs for cyanide as an AMEL and MDEL of 3.4 µg/L and 9.6 µg/L (see Table F-12 below), respectively, based on CTR criteria for the protection of freshwater aquatic life.

Analysis of the effluent data shows that the maximum monthly average effluent concentration of 5.3 µg/L is greater than the applicable WQBELs, and therefore, appears to put the Discharger in immediate non-compliance with the cyanide final effluent limitations. 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. Therefore, a compliance time schedule for compliance with the effluent limit is established in TSO No. R5-2010-0100 in accordance with CWC section 13300. The TSO also requires preparation and implementation of a pollution prevention

o. **Chlorodibromomethane.** The CTR includes a chlorodibromomethane criterion of 0.41 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The maximum observed upstream receiving water chlorodibromomethane concentration was not detected at a method detection level of <0.1 µg/L. The MEC for chlorodibromomethane was 1.5 µg/L, based on 34 samples collected from April 2004 through December 2009 . Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for chlorodibromomethane.

Calculating the WQBELs in accordance with section 1.4 of the SIP, this Order contains new WQBELs for chlorodibromomethane as an AMEL and MDEL of 0.41 µg/L and 0.83 µg/L (see Table F-13 below), respectively, based on the CTR criterion for the protection of human health. Analysis of the effluent data shows

that the MEC of 1.5 µg/L is greater than the applicable WQBELs, and therefore, appears to put the Discharger in immediate non-compliance with the final effluent limitations. 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. Therefore, a compliance time schedule for compliance with the effluent limit is established in TSO No. R5-2010-0100 in accordance with CWC section 13300. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

p. **Dichlorobromomethane.** The CTR includes a dichlorobromomethane criterion of 0.56 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The maximum observed upstream receiving water dichlorobromomethane concentration was not detected at a method detection level of <0.1 µg/L. The MEC for dichlorobromomethane was 11 µg/L, based on 34 samples collected from April 2004 through December 2009. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dichlorobromomethane.

Calculating the WQBELs in accordance with section 1.4 of the SIP, this Order contains new WQBELs for dichlorobromomethane as an AMEL and MDEL of 0.56 µg/L and 1.3 µg/L (see Table F-14 below), respectively, based on the CTR criterion for the protection of human health. Analysis of the effluent data shows that the MEC of 11 µg/L is greater than the applicable WQBELs, and therefore, appears to put the Discharger in immediate non-compliance with the final effluent limitations. 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. Therefore, a compliance time schedule for compliance with the effluent limit is established in TSO No. R5-2010-0100 in accordance with CWC section 13300. The TSO also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

q. **Electrical Conductivity. (see Subsection y. Salinity)**

r. **Fluoride.** California DPH has adopted a Primary MCL for fluoride of 2000 µg/L. On 28 February 2003 the Discharger submitted background receiving water monitoring results for priority pollutants and other constituents of concern as required by the Executive Officer's 10 September 2001 CWC Section 13267 letter. The 12 analytical samples for fluoride resulted in 4 non-detects (<50 µg/L), 5 samples with fluoride concentrations observed between 50 µg/L and 90 µg/L, and one sample with concentrations observed at 4520 µg/L (collected on 8 July 2002). Analysis of this data demonstrates that the sample collected on 8 July 2002 is clearly an outlier since the 11 valid sample maximum value was at 90 µg/L, median was 64 µg/L, standard deviation was 17 µg/L, and the statistically maximum value was 120 µg/L. As allowed by Section 1.2 of the SIP,

the Central Valley Water Board considers this outlier inappropriate to use in determining reasonable potential, and thus, based on the valid 11 receiving water analytical sample results, the maximum observed upstream receiving water fluoride concentration was 90 µg/L. The MEC out of the two samples analyzed for fluoride was 180 µg/L. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria.

s. **Iron.** The Secondary MCL - Consumer Acceptance Limit for iron (dissolved) is 300 µg/L. The MEC for iron (total recoverable) was 410 µg/L and iron (dissolved) was 60.5 µg/L, based on samples collected during the Discharger's effluent and receiving water special study conducted from April 2007 through March 2008. The maximum observed upstream receiving water concentration for iron (total recoverable) was 3410 µg/L; the Discharger did not submit analytical results for dissolved iron in the receiving water. The discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for iron. Based on input from DPH and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations based on secondary MCLs are to applied as an annual average concentration. An annual average of 300 µg/L for iron 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 the Discharger can meet this new limitation.

t. **Lead**. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for lead. The criteria for metals are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for lead in freshwater are 1.46203-[0.145712 X ln(hardness)] for both the acute and the chronic criteria. Using the receiving water minimum hardness (30 mg/L as $CaCO_3$), as discussed in previous Section VI.C.2.b., the applicable chronic criterion (maximum 4-day average concentration) is 0.69 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is 18 µg/L, as total recoverable.

The maximum observed upstream receiving water total lead concentration was 1.5 µg/L based on data collected from January 2003 through March 2008. The MEC for total lead was 0.384 µg/L, based on samples collected during the Discharger's effluent and receiving water special study conducted from April 2007 through March 2008. As specified in the SIP, if the maximum background receiving water concentration exceeds the criteria for a CTR pollutant and the constituent is also detected in the effluent, then the discharge demonstrates reasonable potential and effluent limitations are to be established. Therefore, this Order contains a final AMEL and MDEL for lead of 0.60 µg/L and 1.0 µg/L (See Table F-15 below), respectively, based on the CTR criteria for the protection of freshwater aquatic life. Based on the sample results in the effluent, it appears the Discharger can meet this new limitation.

u. **Manganese**. The Secondary MCL - Consumer Acceptance Limit for manganese (dissolved) is 50 µg/L. The maximum observed upstream receiving water total manganese concentration was 209 µg/L and the annual average was 77 µg/L based on eleven monitoring samples collected from February 2002 through January 2003. The MEC for total manganese was 0.1 µg/L, based on four samples collected from December 2008 through December 2009; no other monitoring results were obtained during the term of previous Order No. R5-2004-0001. As specified in the SIP, if the maximum background receiving water concentration exceeds the applicable criteria and the constituent is also detected in the effluent, then the discharge demonstrates reasonable potential and effluent limitations are to be established. Therefore, this Order contains an annual average of 50 µg/L for total recoverable manganese based on the secondary MCL. Based on the sample results in the effluent, it appears the Discharger can meet this new limitation.

v. **Nitrate plus Nitrite.** 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. Nitrate and nitrite are known to cause adverse health effects in humans. The California DPH has adopted Primary MCLs at Title 22 of the California Code of Regulations (CCR), Table 64431-A, 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. Title 22 CCR, Table 64431-A, also includes a primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen. Recent toxicity studies have indicated a possibility that nitrate is also toxic to aquatic organisms.

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. Analysis of 26 effluent monitoring samples obtained from January 2009 through December 2009 shows that the MEC for nitrate (as N) of 26 mg/L; the Discharger did not monitor for nitrite (as N) in the effluent. Nitrate in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the primary MCL of nitrate plus nitrite. Therefore, this Order contains an AMEL for nitrate plus nitrite of 10 mg/L, based on the Basin Plan's narrative chemical constituents' objective and to assure the treatment process adequately nitrifies and denitrifies the waste stream.

The MEC of 26 mg/L for nitrate (as N) exceeds the WQBEL, and therefore, appears to put the Discharger in immediate non-compliance with the final effluent limitations. 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. A

compliance time schedule for compliance with the effluent limit is established in TSO No. R5-2010-0100 in accordance with CWC section 13300.

w. **Pathogens**. The beneficial uses of Laguna Creek include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley 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.

The 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.

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 Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by 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. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH.

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 limitations, turbidity specifications have 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 specification 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. Thus, monitoring turbidity is a good operational check to ensure the treatment system was functioning properly and could meet the limits for total coliform organisms. Therefore, to ensure compliance with DPH recommended Title 22 disinfection criteria, this Order contains operational turbidity specifications to be met prior to disinfection (See Special Provisions VI.C.4.b Turbidity Operational Requirements in the Limitations and Discharge Requirements section of this Order). To be consistent with current DPH guidance the operational requirements for turbidity have been established as 2 NTU as a daily average, an instantaneous maximum of 10 NTU, and shall not exceed 5 NTU more than 5 percent of the time.

Additionally, 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 also requires average monthly and average weekly effluent limitations for BOD_5 and TSS of 10 mg/L and 15 mg/L, respectively, 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 of 25 mg/L 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 and a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Central Valley Water Board has previously considered the factors in CWC section 13241 in establishing these requirements.

x. **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.* Due to periods of no flow in the receiving water, at minimum, instantaneous minimum and maximum effluent limits of 6.5 and 8.5, respectively,

are necessary to comply with 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 8.2 to allow less stringent ammonia limits, which are based on pH-dependent ammonia criteria.

The Discharger monitored weekly pH levels in the effluent leaving the Facility's chlorine contact chamber, which was before it entered the Storage Reservoir. Since the Discharger has recently upgraded the Facility by constructing a pipeline to the outfall, which now bypasses the Storage Reservoir and allows direct discharge from the treatment system to Laguna Creek, the Central Valley Water Board finds that this dataset is more representative of the pH levels in the effluent discharge post the Facility upgrade. Thus, based on 133 weekly monitoring pH values obtained from January 2007 through April 2010, the minimum pH level in the effluent leaving the chlorine contact chamber was 6.53 standard units (s.u.), the maximum pH level was 7.75, and the average value was 6.78 s.u. Therefore, it is reasonable to require the more stringent instantaneous maximum pH limit of 8.2 s.u. and allow corresponding less stringent ammonia effluent limits, which will allow 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 8.2, respectively, are included in this Order based on the Basin Plan objectives for pH and Facility performance.

y. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, 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. The Basin Plan contains a chemical constituent objective that incorporates state maximum contaminant levels (MCL), contains a narrative objective, and contains numeric water quality objectives for EC, TDS, sulfate, and chloride.

Table F-7. Salinity Water Quality Criteria/Objectives

Parameter	RPA Screening Levels	Effluent		Receiving Water Range (Count)
		Maximum Annual Average	Effluent Range (Count)	
EC (µmhos/cm)	700[1]	465	143-653 (138)	109 – 327 (11)
TDS (mg/L)	450[1]	400	170-520 (132)	80 – 229 (11)
Sulfate (mg/L)	250[2]	36	8.5-58 (28)	4 – 17 (10)
Chloride (mg/L)	106[1]	68	16-100 (28)	6 – 23 (11)

[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] Secondary MCLs.

i. **Chloride**. The secondary MCL for chloride is 250 mg/L, as 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 is used as a screening level, 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. USEPA's National Ambient Water Quality Criteria for Chloride for the Proteciton of Freshwater Aquatic Life includes recommended criteria of 230 mg/L (chronic 4-day average) and 860 mg/L (acute 1-hour average).

   Chloride concentrations in the effluent ranged from 16 mg/L to 100 mg/L, with a maximum annual average of 68 mg/L, for 28 samples collected by the Discharger from November 2004 through December 2009. The background receiving water data ranged from 6 mg/L to 23 mg/L, based on 11 samples collected by the Discharger from February 2002 through March 2003. These levels in the effluent and in the background receiving water do not exceed USEPA's recommended criteria, the Secondary MCL, or the agricultural screening level for chloride. Therefore, the discharge does not have reasonable potential for chloride.

ii. **Electrical Conductivity (EC)**. 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 is used as a screening level, 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.

   A review of the Discharger's monitoring reports from April 2004 through December 2009 shows a maximum annual average effluent EC of 465 µmhos/cm, with a range from 143 µmhos/cm to 653 µmhos/cm for 138 samples. The background receiving water EC ranged from 109 µmhos/cm to 327 µmhos/cm, based on the 11 samples obtained by the Discharger from February 2002 through March 2003. These levels in the

effluent and in the background receiving water do not exceed the Secondary MCL or the agricultural screening level. Therefore, the discharge does not have reasonable potential for EC.

iii. **Sulfate**. The secondary MCL for sulfate is 250 mg/L as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the effluent ranged from 9 mg/L to 58 mg/L, with a maximum annual average of 36 mg/L, based on the 28 samples collected by the Discharger from April 2004 through December 2009. The background receiving water ranged from 4 mg/L to 17 mg/L, based on the 10 samples obtained by the Discharger from February 2002 through March 2003. These levels in the effluent and receiving water do not exceed the secondary MCL. Therefore, the discharge does not have reasonable potential for sulfate.

iv. **Total Dissolved Solids (TDS)**. 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, that is used as a screening level, 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.

TDS concentrations in the effluent ranged from 170 mg/L to 520 mg/L, with a maximum annual average of 400 mg/L, based on 132 samples collected by the Discharger from April 2004 through December 2009. The background receiving water ranged from 80 mg/L to 229 mg/L, based on the 11 samples obtained by the Discharger from February 2002 through March 2003. These levels in the effluent and receiving water do not exceed the secondary MCL. Therefore, the discharge does not have reasonable potential for TDS.

v. **WQBELs.** Based on the low reported salinity, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion of the applicable water quality objectives for salinity, therefore, WQBELs are not required. However, due to the concern of salinity in the Central Valley Region, particularly the Sacramento-San Joaquin Delta, this Order requires the Discharger develop a salinity evaluation and minimization plan in order to control the discharge of salinity. This Order also requires effluent and water supply monitoring of EC. At this time there is insufficient

year-round effluent EC data to calculate a performance-based effluent limit to cap the discharge of salinity. Therefore, this Order does not contain a performance-based EC effluent limitation at this time, but may be reopened for the addition of a performance-based effluent limit when sufficient data is available.

z. **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. R5-2004-0001 requires that the effluent comply with a daily maximum effluent limitation of 0.2 ml/L and a monthly average effluent limit of 0.1 ml/L for settleable solids to implement the Basin Plan's narrative objectives. However, previously the Facility directed effluent through the Effluent Storage Reservoir prior to sampling, and thus, the settleable solids detected in the effluent was suspected as being attributed to the Effluent Storage Reservoir. In November 2009, the Discharger constructed an effluent pipeline that bypasses the Effluent Storage Reservoir, which improved water quality for many constituent including settleable solids. 26 monitoring samples obtained post this Facility upgrade indicated that settleable solids was not detected (less than 0.1 ml/L) in the effluent, which confirmed suspicions regarding the Storage Reservoir directly attributing to settleable solids in the effluent. Based on the availability of new information, and the procedures established in Section 1.3 of the SIP for determining reasonable potential, the discharge no longer demonstrates reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative objective for Settleable Material. This Order does not contain effluent limits for Settleable Solids. However, this Order requires effluent monitoring and contains a receiving water limitation for Settleable Substances to prevent deposition of material that causes nuisance or adversely affects beneficial uses.

aa. **Toxicity.** See Section IV.C.5. of the Fact Sheet regarding whole effluent toxicity.

4. WQBEL Calculations

a. Effluent limitations for ammonia, bis (2-ethylhexyl) phthalate, carbon tetrachloride, chromium VI, cyanide, chlorodibromomethane, dichlorobromomethane, and lead 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 were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. 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

WQBELs were calculated for ammonia, bis (2-ethylhexyl) phthalate, carbon tetrachloride, chromium VI, cyanide, chlorodibromomethane, dichlorobromomethane, and lead as follows in Tables F-8 through F-15, below.

Table F-8. WQBEL Calculations for Ammonia

	Acute	30-day Chronic	4-day Chronic
pH (1)	8.2	8.4	N/A
Temperature °C (2)	N/A	10.9	N/A
Criteria (mg/L) (3)	3.83	1.37	3.42
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	3.83	1.37	3.42
ECA Multiplier	0.32	0.78	0.53
LTA (4)	1.23	1.07	1.8
AMEL Multiplier (95th%)	(5)	1.55	(5)
AMEL (mg/L)	**(5)**	**1.7**	**(5)**
MDEL Multiplier (99th%)	(5)	3.11	(5)
MDEL (mg/L)	**(5)**	**3.3**	**(5)**

(1) Maximum permitted effluent pH
(2) Temperature = 99th percentile 30-day average effluent temperature
(3) USEPA Ambient Water Quality Criteria
(4) Calculated based on the TSD modification presented in the 22 December 1999 Federal Register notice where $\sigma^2 = \ln(CV^2/30 + 1)$.
(5) Limitations based on 30-day Chronic LTA ($LTA_{chronic} < LTA_{cacute}$)

Table F-9. WQBEL Calculations for Bis (2-ethylhexyl) Phthalate

	Human Health
Criteria (µg/L)	1.8
Dilution Credit	No Dilution
ECA (µg/L)	1.8
AMEL (µg/L) (1)	**1.8**
MDEL/AMEL Multiplier(2)	2.01
MDEL (µg/L)	**3.6**

(1) AMEL = ECA per section 1.4.B, Step 6 of SIP
(2) Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier from Table 2 of SIP.

Table F-10. WQBEL Calculations for Carbon Tetrachloride

	Human Health
Criteria	0.25
Dilution Credit	No Dilution
ECA (µg/L)	0.25
AMEL (µg/L) (1)	**0.25**
MDEL/AMEL Multiplier(2)	2.01
MDEL (µg/L)	**0.50**

(1) AMEL = ECA per section 1.4.B, Step 6 of SIP
(2) Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier from Table 2 of SIP.

Table F-11. WQBEL Calculations for Copper

	Acute	Chronic
ECA	4.5	3.33
ECA Multiplier [1]	0.58	0.76
LTA	2.62	2.51
AMEL Multiplier (95th%) [2]		1.22
AMEL (µg/L) [3]	[5]	**3.1**
MDEL Multiplier (99th%) [7]	**[5]**	1.72
MDEL (µg/L) [4]	[5]	**4.3**

[1] 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.
[2] Assumes sampling frequency n=>4.
[3] The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
[4] The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
[5] Limitations based on chronic LTA (Chronic LTA < Acute LTA)

Table F-12. WQBEL Calculations for Cyanide

	Acute	Chronic
ECA	22	5.2
ECA Multiplier	0.15	0.28
LTA	3.4	1.48
AMEL Multiplier (95th%)	[1]	2.3
AMEL (µg/L)	**[1]**	**3.4**
MDEL Multiplier (99th%)	[1]	6.47
MDEL (µg/L)	**[1]**	**9.6**

[1] Limitations based on chronic LTA (Chronic LTA < Acute LTA)

Table F-13. WQBEL Calculations for Chlorodibromomethane

	Human Health
Criteria (mg/L)	0.41
Dilution Credit	No Dilution
ECA	0.41
AMEL (mg/L) [1]	**0.41**
MDEL/AMEL Multiplier[2]	2.03
MDEL (mg/L)	**0.83**

[1] AMEL = ECA per section 1.4.B, Step 6 of SIP
[2] Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier from Table 2 of SIP.

Table F-14. WQBEL Calculations for Dichlorobromomethane

	Human Health
Criteria (mg/L)	0.56
Dilution Credit	No Dilution
ECA	0.56
AMEL (mg/L) [1]	**0.56**
MDEL/AMEL Multiplier[2]	2.38
MDEL (mg/L)	**1.3**

(1) AMEL = ECA per section 1.4.B, Step 6 of SIP
(2) Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier from Table 2 of SIP.

Table F-15. WQBEL Calculations for Lead

	Acute	Chronic
Criteria, dissolved (µg/L) [1]	17.04	0.66
Translator [2]	0.966	0.966
ECA, total recoverable	17.63	.69
ECA Multiplier	0.44	0.64
LTA	7.72	0.44
AMEL Multiplier (95th%)	[3]	1.36
AMEL (µg/L)	**[3]**	**0.60**
MDEL Multiplier (99th%)	[3]	2.28
MDEL (µg/L)	**[3]**	**1.0**

(1) CTR aquatic life criteria, based on a hardness of 30 mg/L as $CaCO_3$.
(2) EPA Translator used as default..
(3) Limitations based on chronic LTA (Chronic LTA < Acute LTA)

Summary of Water Quality-based Effluent Limitations
Discharge Point No. 001

Table F-16. Summary of Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Ammonia, Total (as N)	mg/L	1.7	--	3.3	--	--
Bis (2-ethylhexyl) phthalate	µg/L	1.8	--	3.6	--	--
Carbon Tetrachloride	µg/L	0.25	--	0.5	--	--
Chlorodibromomethane	µg/L	0.41	--	0.83	--	--
Copper, Total Recoverable	µg/L	3.1	--	4.3	--	--
Cyanide	µg/L	3.4	--	9.6	--	--
Dichlorobromomethane	µg/L	0.56	--	1.3	--	--
Lead, Total Recoverable	µg/L	0.6	--	1.0	--	--
Nitrate plus Nitrite, Total (as N)	mg/L	10	--	--	--	--
pH	standard units	--	--	--	6.5	8.2
Total Residual Chlorine[1]	mg/L					
Total Coliform Organisms[2]	MPN/100 ml					240
Total Aluminum	µg/L		200[3]			
Total Arsenic	µg/L	10				
Total Iron	µg/L		300[3]			
Total Manganese	µg/L		50[3]			

1. 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.
2. Effluent total coliform also shall not exceed i.) 2.2 MPN/100ml, as a 7-day median; and ii). 23 MPN/100ml, more than once in any 30-day period
3. Annual Average

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. **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 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."* Accordingly, 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 bioassays ---------- | 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 III-8.00) Based on nine chronic WET tests performed by the Discharger from February 2005 through December 2007, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Therefore, a chronic toxicity effluent limitation is not included in this Order. Attachment E of this Order, however, requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, Special Provision VI.C.2.a. requires the Discharger to submit to the Central Valley Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity is 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 daily discharge flow allowed in Sections IV.A.1. of the Limitations and Discharge Requirements.

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 ammonia, bis (2-ethylhexyl) phthalate, carbon tetrachloride, chlorine residual[8], dichlorobromomethane, chlorodibromomethane, copper, cyanide, lead, and nitrate plus nitrite 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, TSS, pH, and coliform, 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 Attachment F, Sections IV.B. and C.3., above.

3. Satisfaction of Anti-Backsliding Requirements.

Previous Order No. R5-2004-0001 contained effluent limitations for aluminum, ammonia, bis (2-ethylhexyl) phthalate, carbon tetrachloride, chromium VI, copper, cyanide, dibromochloromethane, dichlorobromomethane, nitrate, and turbidity. However, the Order was petitioned by the Discharger on 1 March 2004. On the 20 January 2005 the State Water Board remanded the Order to the Central Valley Water Board (WQO 2005-003), in part, to vacate these limits contained in Order No. R5-2004-0001. Therefore, all effluent limitations in this Order are at least as stringent as the effluent limitations in the existing Order.

[8] This Order applies the USEPA National Ambient Water Quality Criteria for chlorine directly as effluent limitations (1-hour average, acute, and 4-day average, chronic). See Section IV.C.3., above, for rationale regarding the chlorine residual effluent limitations.

4. Satisfaction of Antidegradation Requirements.

This Order allows the existing seasonal discharge to expand to a year-round discharge and allows a 1.5 MGD increase in the discharge flow rate (an increase in discharge from 3.0 MGD to 4.5 MGD) conditional on compliance with permit limitations and completion of the Facility upgrade and expansion projects (see Provision VI.6.a. of the Limitations and Discharge Requirements of this Order). The Discharger submitted a report titled, *Antidegradation Analysis for the City of Galt Wastewater Treatment Plant Expansion Project*, August 2009, (prepared by Robertson-Bryan, Inc. under contract to West Yost Associates on behalf of the City of Galt). The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with this Order will result in the use of best practicable treatment or control of the discharge and the impact on existing water quality will be insignificant. The complete antidegradation analysis is detailed below.

a. **Surface Water.** The Antidegradation Analysis developed by the Discharger provides a complete antidegradation analysis following the guidance provided by State Water Board Administrative Procedures Update (APU) 90-004. The Antidegradation Analysis assesses impacts upon initiation of summer discharge when there currently is no effluent discharge, and the impacts of increasing the discharge flow from 3.0 MGD to 4.5 MGD. Pursuant to federal and state guidelines, the analysis (1) assesses the nature and degree to which changes in water quality resulting from the Discharger's proposed surface water discharge operations would result in lowering of the receiving water's water quality, (2) determines whether resultant conditions would be protective of beneficial uses, and (3) determines whether allowing any potential incremental degradation would be consistent with the maximum benefit to the people of the state, given the economic and social benefits of the project, any potential water quality impacts, and the cost and feasibility of alternatives that could prevent or minimize any potential water quality impacts.

   i. **Water quality impacts of year-round discharge and of an increased discharge flow from 3.0 mgd to 4.5 mgd.** This Order does not adversely impact beneficial uses of the receiving water or downstream receiving waters. The Facility discharges treated wastewater via an outfall at the head of a remnant channel of Skunk Creek. The upper watershed of Skunk Creek is disconnected from the remnant channel because of the location of the Facility. Aquatic habitat in this low-gradient channel is maintained entirely by the effluent discharges and seasonal rainfall. Effluent discharges from the Facility enter Laguna Creek, via Skunk Creek, approximately 3500 feet northwesterly of the discharge point.

   Flow in Laguna Creek is seasonal, with little or no natural flow outside the precipitation season. Upstream flows are diverted for irrigation during this time such that little to no flow goes past the Facility during the summer period. Aquatic habitat in the lower reaches of Laguna Creek is typical of Central

Valley low gradient creeks, but is suitable for supporting a warmwater fish community when sufficient water is present. Therefore continuous year-round discharges from the Facility would likely support a warmwater fish community throughout the year. Laguna and Skunk creeks do not support annual runs or populations of anadromous fishes since the creeks lack suitable habitat for spawning, egg incubation, and early rearing. Therefore, Chinook salmon or steelhead, which are not natal to the Cosumnes River, are unlikely to be adversely affected by the localized effects of the proposed discharges to Laguna Creek via Skunk Creek (Aquatic Life Analysis in the *Antidegradation Analysis,* Prepared by Roberston-Bryan, Inc, August 2009).

Once the upgrade and expansion projects are complete, it is expected that water quality will improve or remain the same downstream of the Facility. This Order provides for an increase in the volume and mass of pollutants discharged directly to the receiving water upon completion of the upgrade and expansion projects. Code of Federal Regulations 40 section131.12 (40 CFR 131.12) defines the following tier designation 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 Antidegradation Analysis assessed three potential conditions to the receiving water: (1) commencement of year-round discharges, (2) increasing the discharge flow and constituent volume, and (3) cumulative impacts of conditions (1) and (2). The following discusses the potential effect on water quality parameters regulated in this Order, as was assessed in the Antidegradation Analysis.

- **Salinity.** The year-round discharge of chloride, total dissolved solids, and specific conductance (EC) to Laguna Creek and the accumulative use of assimilative capacity will lower the water quality.

- **Nitrate plus Nitrite.** The maximum nitrate concentration in Laguna Creek is 0.67 mg/L with an average concentration of 0.14 mg/L; thus, there is assimilative capacity. Effluent is currently not discharged during the summer. As a result, year-round discharge to Laguna Creek will lower the water quality until completion of Phase II when the nitrification-denitrification facilities are completeAfter completion of Phase II upgrades, the nitrate levels in the discharge will be reduced to levels below the MCL, and thus water quality will likely not to be degraded. But the accumulative use of assimilative capacity for nitrate plus nitrite is still projected to increase, since discharges have not previously occurred.

- **All other constituents** would either improve the water quality in Skunk Creek and Laguna Creek, or have little to no change in the receiving water concentrations downstream of the effluent discharge.

In summary, the water quality of Laguna Creek will be: 1) minimally affected by the discharge in the winter discharge season (November through April); and 2) affected by the proposed summer discharge for a limited number of constituents; however, no beneficial uses will be adversely affected upon completion of the Facility's upgrades. Laguna Creek, and ephemeral creek is supported by agricultural runoff,

ii. **Scientific Rationale for Determining Potential Lowering of Water Quality.** The rationale used in the Antidegradation Analysis is based 40 CFR 131.12, State Water Board Resolution No. 68-16, an Administrative Procedures Update (APU 90-004) issued by the State Water Board to the Regional Water Quality Control Boards, the Basin Plan, and the CTR. The scientific rationale used in the Antidegradation Analysis evaluates the different scenarios with the commencement of year-round discharge and tracks the cumulative use of assimilative capacity during both the existing winter discharge season and the proposed summer discharge under both phases of the project. The three scenarios include: 1) discharge during the summer months (May through October) at the currently permitted discharge of 3.0 MGD (Phase I); 2) examination of the summer discharge (May through October) at the increased flow rate of 4.5 MGD (Phase II); and 3) the current discharge season (November through April) at the increased flow rate of 4.5 MGD (Phase II). In performing the assessments, the analysis focused on a steady state modeling (mass balance) at the appropriate low flow conditions (1Q10 for acute criteria, 7Q10 for chronic criteria, and the harmonic mean for human health criteria). In addition, the report examined the effects of the different scenarios on a mass loading basis. Data collected during a special study was utilized for both effluent and receiving water. This data is more representative of conditions that will be occurring once Phase I is completed since it did not

include effluent from the storage reservoir. The results of the assessments were used to examine any incremental changes in the water quality of the receiving water, Laguna Creek via Skunk Creek, and any effects on beneficial uses of the receiving water. This approach is consistent with recent USEPA guidance and addresses a key objective of the Antidegradation Analysis, which is to "[c]ompare receiving water quality to the water quality objectives established to protect designated beneficial uses" (APU 90-004). The Antidegradation Analysis evaluated each selected pollutant detected in the effluent and receiving water to determine if the proposed discharge increase of 1.5 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. Details on the scientific rationale are discussed in the Antidegradation Analysis. This includes a detailed discussion on calculating water quality effects associated with a continuous discharge. The Central Valley Water Board concurs with this scientific approach.

- **Salinity.** As shown in previous Table F-8, the measured levels of chloride, total dissolved solids, and specific conductance (EC) in the effluent are below the screening levels that the Central Valley Water Board uses to interpret the narrative objectives in the Basin Plan to protect beneficial uses, including agriculture. Therefore, the proposed discharge should not adversely affect the receiving water beneficial uses.

- **Nitrate plus Nitrite.** The maximum nitrate concentration in Laguna Creek is 0.67 mg/L with an average concentration of 0.14 mg/L; thus, there is assimilative capacity for nitrate plus nitrite. Although this Order does not allow a dilution credit, there is sufficient flow and assimilative capacity during the discharge season to accommodate Phase I effluent nitrate levels. But, during the summer the Phase I effluent would cause an exceedance of the nitrate MCL in the receiving water. However, after completion and implementation of the Facility's nitrification-denitrification facilities (Phase II), the nitrate plus nitrite levels will be below the applicable MCL, and therefore, will not degrade water quality. Completion of the Phase II Facility upgrades will provide a higher-quality effluent year-round that will help support the natural flows of Laguna Creek, and therefore, support aquatic and wildlife beneficial use. Completion of the Facility upgrades also ensure protection of the MUN beneficial use. An enforcement order is proposed, TSO No. R5-2010-0100, to protect beneficial uses. TSO No. R5-2010-0100 contains interim performance-based effluent limitations for nitrate that maintains current discharge levels until the Facility upgrades are complete.

iii. **Alternative Control Measures.** APU 90-004 requires the consideration of "feasible alternative control measures" as part of the procedures for a complete antidegradation analysis. Early in the planning process the Discharger evaluated a number of alternative control measures (initially 17).

The Discharger conducted several studies as described in the following key planning documents: Biological Resources Review at the Potential Wastewater Treatment Plant Expansion Site, November 2003; City of Galt WWTP Land Needs Staff Report, April 2004; City of Galt Wastewater Treatment Plant Phase I Feasibility Study, January 2005; NPDES Permit Compliance Action Plan, City of Galt Wastewater Treatment Plant, December 2005; City of Galt Wastewater Treatment Plant Report of Waste Discharge & NPDES Permit Application, July 2008; and City of Galt Wastewater Treatment Plant Improvement and Expansion, November 2008. A feasibility screening was conducted on the alternatives and those that presented the potential for noncompliance or involved costs that were high or very high with marginally favorable noncompliance risk and/or marginal expansion potential were eliminated. The four alternatives that passed the initial feasibility screening are summarized below:

- Continued seasonal discharge to Laguna Creek with dry season irrigation.
- Year round discharge to Laguna Creek.
- Year round discharge to the Sacramento River via export pipeline.
- Zero-discharge with full reclamation of tertiary treated effluent.

Based on further analysis, the first two options were chosen for further consideration. The costs and infeasibility of obtaining additional land led to the preferred option being the year round discharge to Laguna Creek.

As part of the antidegradation analysis, the Discharger considered several alternatives that would reduce or eliminate the lowering of water quality resulting from the proposed 1.5 MGD discharge increase. The alternatives evaluated for the antidegradation analysis are:

(1) Enhanced level of treatment using microfiltration;
(2) Zero discharge (100%) recycling of additional plant capacity;
(3) Regionalization;
(4) Pollutant source minimization; and,
(5) Change in drinking water source.

Each alternative was assessed for feasibility in implementation and effectiveness in improving water quality and are summarized below:

- **Enhanced Level of Treatment.** Microfiltration was considered to assess the feasibility of using advanced filtration technologies (i.e., microfiltration, ultrafiltration, reverse osmosis) to reduce the water quality impacts of plant expansion. It was estimated that a plant sized for the Discharger would have a construction cost of $37 million and engineering and administration costs of $7.4 million for a total estimated cost of $44.4 million. The annual operation and maintenance cost were estimated to be $2.26 million in 2007 dollars. These costs would be in addition to the proposed project costs. The Antidegradation Analysis states that additionally there has

been no historical summer discharge, therefore, there is no technically feasible treatment train to completely reduce the summer water quality impacts of the discharge and mimic the low-flow, summer Laguna Creek water quality for all constituents.

- **Zero Summer Discharge.** The Antidegradation Analysis states that zero summer discharge through 100% recycling of the proposed 4.5 MGD discharge would require increased demand for recycled water, increased storage capacity, and increased land available for storage and reclamation. The Discharger is under the dual constraints of losing access to leased land owned by the RCB and the unwillingness of neighboring parcel owners to sell land to the Discharger for reclamation. Thus, while 100% recycling in the summer would eliminate any potential lowering of summer water quality in Laguna Creek, obtaining sufficient land is infeasible. The total additional reclamation acres needed to accommodate irrigation with 4.5 MGD ADWF effluent generated from May through October is 434 acres. In addition, 400 acre-ft of additional storage would be needed to provide effluent storage between irrigation events. This would require the construction of a 53 acre storage basin with a filled water depth of 7.5 feet. Construction of such a reservoir and the land needed to build the storage basin berms and accommodate the necessary setbacks and slope ratios would total 64 acres. Thus, an additional 500-525 acres of land would be needed to fully accommodate 100% recycling of the effluent. It was stated that the lack of available land prevents expanding or even maintaining existing reclamation capacity, and the proposed year-round discharge necessitates tertiary treatment to protect Laguna Creek beneficial uses. This should result in effluent that is better suited for future recycled water uses than an expanded secondary plant which would be only suitable for certain forms of land reclamation.

- **Regionalization.** Export of the Discharger's wastewater to Sacramento Regional County Sanitation District (SRCSD) collection system or the SRCSD wastewater treatment plant would have the ability to eliminate any potential lowering of water quality in Laguna Creek. Furthermore, the addition of 4.5 MGD ADWF flow to the SRCSD discharge, currently at 141 MGD ADWF, would result in negligible lowering of water quality in the Sacramento River at the SRCSD discharge site. It was mentioned in the Antidegradation Analysis that the Central Valley Water Board has recently issued resolution R5-2009-0028 entitled "In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plants" which expands upon the Basin Plan's previous requirement to maximize water reuse. Some of the potential benefits from regionalization are an ability to pool economic resources to improve the technical and economic feasibility of a higher level of wastewater treatment. In the Antidegradation Analysis, it was estimated that the capital cost of building an export pipeline for 3.0 MGD ADWF to the SRCSD collection system or the SRCSD WWTP was estimated in 2005 to be at least twice the cost of

the proposed project upgrades for the same 3.0 MGD ADWF capacity and would double the annual operation and maintenance costs. The pipeline would also have marginal favorability for future expansion (considered for flows up to 6.0 MGD ADWF). The analysis states that treating the wastewater to tertiary standards at the existing facility keeps this potential reusable resource local to the community rather than transporting the raw wastewater to SRCSD where treatment standards are currently at secondary treatment. Additionally, it was mentioned that if SRCSD treated its wastewater to meet tertiary standards it would be prohibitively expensive to pipe recycled water back to the City of Galt for any local reuse.

- **Pollutant Source Minimization.** The influent flow is primarily residential and monitoring data has indicated elevated levels of some metals amenable to remove by tertiary filtration as they are predominantly in the suspended form (i.e., elevated copper and lead). In addition, there are four categorical industrial users (CIU) and one significant industrial user (SIU) in the City of Galt. The Discharger states that the industrial users occasionally have elevated levels of constituents, and relative to influent loadings, the resulting loadings from all industries were less than one percent of the influent loading to the WWTP. Thus, no pollutant source minimization activities, other than wellhead treatment for arsenic, have been identified that would be feasible in substantially improving influent, and thus effluent quality. The Discharger states that since pollutant minimization activities are an ongoing activity, the Discharger will continually seek feasible opportunities for pollutant source minimization.

- **Change in Source Water Supply.** The City of Galt's current municipal water supply is from groundwater wells located throughout the city. The source water quality is good with the exception of arsenic levels. As discussed in the Antidegradation Analysis, the Discharger has already commenced installation of wellhead treatment to remove arsenic. Otherwise, it is not feasible or necessary to change water sources because doing so would not result in substantial improvements to effluent quality.

None of the alternatives evaluated would substantially reduce or eliminate significant water quality impacts of the proposed action, because the proposed action would not significantly degrade water quality. Some of the alternatives may result in water quality effects elsewhere, or other environmental or economic impacts, that are worse than those identified for the proposed action. The proposed action provides a high quality of treated wastewater that will improve the quality of the receiving water from November 1st through April 30th. From May 1st through October 31st, the effluent discharge will improve the receiving water quality for all constituents except for salinity and nitrate plus nitrite. However, the discharge during May through October will support Laguna Creek flows, and subsequently support

beneficial uses. In contrast, the alternatives (i.e. Zero Summer Discharge or Regionalization) would deplete flows in Laguna Creek during this period. Therefore, the Central Valley Water Board determines that any potential incremental degradation would be consistent with the maximum benefit to the people of the state.

iv. **Socioeconomic Evaluation.** The objective of the socioeconomic analysis was to determine if the lowering of Laguna Creek water quality is in the maximum interest of the people of the state. The socioeconomic evaluation within the Antidegradation Analysis provides an in-depth analysis of: 1) socio-economic considerations; 2) socio-economic impacts of alternatives for maintaining existing water quality; and 3) balance of environmental benefits and socio-economic considerations. The plant upgrades to tertiary level treatment, UV disinfection, nitrification-denitrification, and expansion of 1.5 MGD along with increased surface water discharge would accommodate planned and approved growth in the area. Should the incremental changes be disallowed, such action would force future developments in the Discharger's service area to find alternative methods for disposing of wastewater and prohibit planned and approved development within and adjacent to the Discharger's service area. On balance, allowing the minor degradation of water quality for relatively few constituents is in the best interest of the people of the area and the state, compared to these other options; and is necessary to accommodate important economic or social development in the area.

v. **Justification for Allowing Degradation.** Potential degradation identified in the Antidegradation Analysis and due to this Order is justified by the following considerations:

- The increase in permitted discharge capacity is necessary to accommodate important economic and social development in the City of Galt, and is consistent with the Discharger's General Plan. Failure to approve the increase, or alternatively requiring the Discharger to implement control measures that would maintain existing water quality and mass emissions in Laguna Creek, would have significant adverse economic and social impacts on the City of Galt and surrounding communities and their citizens and businesses.

- The Facility will discharge Title 22 tertiary treated effluent that will result in minimal water quality degradation, and meet or exceed the highest statutory and regulatory requirements which meets or exceeds best practical treatment or control (BPTC).

- The Order is fully protective of the beneficial uses of Laguna Creek. The increase in flow volume and discharge of effluent year round is not permissible until all conditions set forth in the permit are completed. The anticipated water quality changes in Laguna Creek will not reduce or

impair its designated beneficial uses and is consistent with State and federal antidegradation policies.

- The increased discharge, while causing slight increases in downstream water quality concentrations for some constituents, will produce slight decreases in downstream concentrations for others.

- The benefits of maintaining existing water quality and mass emissions for the constituents analyzed are not commensurate with the costs of additional treatment, as previously discussed in section IV.D.4.a.ii of this Fact Sheet. Therefore, no feasible alternatives currently exist to reduce the impacts.

- The Discharger has fully satisfied the requirements of the intergovernmental coordination and public participation provisions of the State's continuing planning process concurrent with the public participation period of this Order.

b. **Groundwater.** The Discharger's proposed projects and changes in operations do not involve an increase in the amount of effluent applied to land. There will be no additional irrigation to land, and thus, there would be no change to the potential groundwater quality effects of the project related to irrigation reuse. Therefore, an antidegradation analysis with respect to groundwater is not necessary and has not been done.

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 BOD_5, TSS, and pH. The WQBELs consist of restrictions on pathogens, ammonia, and nitrate-plus-nitrite. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes new effluent limitations for aluminum, bis(2-ethylhexyl)phthalate, carbon tetrachloride, chlorodibromomethane, copper, cyanide, dichlorobromomethane, lead, toxicity, total residual chlorine, iron, arsenic, and manganese 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 CWC section 13241 in establishing these requirements.

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-17. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	20	--	--
	lbs/day[1]	375	560	750	--	--
	% Removal	85	--	--	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
	lbs/day[1]	375	560	750	--	--
	% Removal	85	--	--	--	--
Ammonia Nitrogen, Total (as N)	mg/L	1.7	--	3.3	--	--
	lbs/day[1]	64	--	124	--	--
Bis (2-ethylhexyl) phthalate	µg/L	1.8	--	3.6	--	--
Carbon Tetrachloride	µg/L	0.25	--	0.5	--	--
Chloro dibromomethane	µg/L	0.41	--	0.83	--	--
Copper, Total Recoverable	µg/L	3.1	--	4.3	--	--
Cyanide, Total (as CN)	µg/L	3.4	--	9.6	--	--
Dichloro bromomethane	µg/L	0.56	--	1.3	--	--
Lead, Total Recoverable	µg/L	0.6	--	1.0	--	--
Nitrate plus Nitrite, Total (as N)	mg/L	10	--	--	--	--
pH	standard units	--	--	--	6.5	8.2
Total Coliform Organisms[3]	MPN/100 mL	--	--	--	--	240
Total Residual Chlorine[2]	mg/L					
Total Aluminum	µg/L		200[4]			
Arsenic	µg/L	10				
Total Iron	µg/L		300[4]			
Total Manganese	µg/L		50[4]			
Acute Toxicity[5]						

1 Based on a design flow of 4.5 MGD.

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.

3. Effluent total coliform also shall not exceed i.) 2.2 MPN/100ml, as a 7-day median; and ii). 23 MPN/100ml, more than once in any 30-day period.

4. Annual Average

5. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
70%, minimum for any one bioassay; and
90%, median for any three consecutive bioassays.

E. Interim Effluent Limitations

1. **Mercury.** This Order contains an interim performance-based mass effluent limitation of 0.05 pounds per calendar year for mercury for the effluent discharged to the receiving water. This limitation is based on maintaining the mercury loading at the current level until the Central Valley Water Board establishes final effluent limitations after adoption of a Methylmercury TMDL for the Cosumnes River. If USEPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

   The maximum observed effluent mercury concentration of 0.0056 µg/L, which equates to 0.05 pounds per calendar year (Calculated as: [Effluent concentration (mg/L)] * [Design average daily flow rate of 3.0 MGD] * [8.34 (conversion factor)] * [365 days] = lbs/year) is less than the applicable limitation. The Central Valley Water Board concludes, therefore, that immediate compliance with this interim effluent limitation is feasible

2. **Ammonia.** Based on the sample results for the effluent, it appears that the Discharger may be in immediate non-compliance with effluent limitations for ammonia 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 WQBELs 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 effluent limitations for ammonia is established in the Order.

   An interim performance-based MDEL has been established in this Order. The interim limitation was determined as described in section IV.E.2., below, and is in effect until the final effluent 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.

   Interim Limitations for Ammonia. The Compliance Schedule Policy requires the Central Valley Water Board to establish interim requirements and dates for their achievement in the NPDES permit. Interim numeri 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 limitation for ammonia in this Order is based on the current treatment plant performance. 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).

When there are less than 10 sampling data points available, or at least 80% of the data were reported as non-detected values, the EPA *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 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).

The Central Valley 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. 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:

Table F-18. Interim Effluent Limitation Calculation Summary

Parameter	Units	Maximum Effluent Concentration	Mean	Standard Deviation	Number of Samples	Interim Limitation
Ammonia	mg/L	4.4	n/a	n/a	151[1]	14

1. 81% of the data was reported as non-detected values.

3. **Flow.** An interim average daily discharge flow limit of 3.0 MGD based on the Facilities' current design flow has been established in this permit, and is in effect until the Discharger demonstrates compliance with Special Provision VI.C.6.a., consistently complies with the final effluent limitations contained in this Order, and upon the Executive Officer's approval of the increase discharge flow up to 4.5 MGD.

4. **Title 22 (or equivalent) Tertiary Requirements (BOD_5, TSS, and Total Coliform Organisms).** A compliance schedule is provided for compliance with the Title 22 (or equivalent) tertiary requirements until 1 November 2011. Interim effluent limitations have been established in this Order for BOD_5 and TSS that are based on federal regulations 40 CFR Part 133 that establish, in part, the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD_5 and TSS. Interim effluent limitations for total coliform organisms are also provided, based on a secondary level disinfection. The Discharger proposes to construct and implement a Title 22 (or equivalent) tertiary filtration system and ultraviolet disinfection facilities that is projected to be completed and implemented by 1 November 2011.

5. **Tertiary BOD_5 and TSS Mass Limits,** Interim mass-based limits for BOD_5 and TSS based on an design average dry weather flow of 3.0 MGD have been established in this Order, and are in effect from 1 November 2011 and until the discharge is allowed to increase to 4.5 MGD (i.e. until compliance with Special Provision VI.C.6.a). These interim mass-based limits for BOD_5 and TSS apply in lieu of the final effluent limitations specified in Table 6 of the Limitations and Discharge Specifications.

F. Land Discharge Specifications

1. The Land Discharge Specifications are necessary to protect the beneficial uses of the groundwater.

2. **Hydraulic, and Nitrogen Loading.** Because waste applications must be balanced to provide adequate plant nutrients and water while minimizing nuisance potential and percolation of waste constituents to the water table, this Order requires hydraulic and Total Nitrogen loadings at reasonable agronomic rates.

3. **Biosolids Limitations and Loading Rates,** Biosolids may contain pathogens and heavy metals, and are a significant source of nitrogen and decomposable organic matter. Discharge of pathogens, metals, and organic matter to surface waters can affect water quality. Additionally, biosolids land application can create odor and insect nuisances. Therefore, it is appropriate to impose biosolids application requirements that ensure timely incorporation into the soil and to control field runoff.

   Most of the nitrogen present in biosolids is in organic form, which must be mineralized to ammonia and then nitrate, which is the form of nitrogen that plants utilize. Organic nitrogen from biosolids typically does not completely mineralize during the first year after it is applied, and some may remain present in the soil as humus indefinitely. Therefore, it is common for land applications of biosolids to exceed the total nitrogen requirements of the crop in order to ensure that sufficient plant available nitrogen (PAN) is applied each year. In order to prevent nitrogen over application, biosolids application rates should be based on consideration of the nitrogen content of the biosolids to be applied, nitrogen mineralization from previous

years' biosolids applications, and all supplemental nutrient sources (including livestock waste). Appendix E of the US Environmental Protection Agency's *Guide for [Biosolids] Land Appliers* (EPA/831-B-93-002b) describes appropriate procedures for determining PAN for fresh biosolids based on the total nitrogen content and residual PAN from previous years' applications. It is therefore also appropriate to require that the Dischargers calculate PAN using the procedure, volatilization factors, and mineralization rates described that document.

The United States Environmental Protection Agency (USEPA) has promulgated biosolids reuse regulations in 40 CFR 503 that establish criteria for water quality protection, limits for heavy metals loading rates, and stabilization and disinfection criteria. The Central Valley Water Board is using 40 CFR 503 as a guideline for developing this Order. However, the Central Valley Water Board is not the implementing authority for 40 CFR 503, and the Dischargers and generators of biosolids that are land applied pursuant to this Order may have separate and/or additional compliance, reporting, and permitting responsibilities to the USEPA that are not addressed by this Order.

G. Reclamation Specifications

Reclaimed water is required to meet the criteria contained in Title 22, Division 4, CCR (section 60301, et seq.). This Order retains the reclamation requirements contained in the previous Order to reduce public health concerns and comply with the requirements of Title 22 California Code of Regulations.

Treated wastewater discharged for reclamation purposes not specified in this Order must be approved by the Executive Officer, or regulated under separate waste discharge requirements, and must meet the requirements of CCR, Title 22.

Section 60323(a) of Title 22 states that no person shall produce or supply recycled water for direct reuse from a proposed reclamation plant unless an engineering report is submitted for review and approval by Department of Public Health (DPH). A Title 22 Engineering Report dated 12 January 2005 was submitted to DPH. DPH reviewed the report and did not provide any comments.

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 Central Valley 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.

B. Groundwater

1. **Basin Plan, Beneficial Uses, and Regulatory Conditions.** The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

   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 total 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.

Ground water limitations are required to protect the beneficial uses of the underlying groundwater.

2. **Discharge Locations.** The Discharger utilizes one lined auxiliary storage basin located within the primary treatment facility, two polyethylene membrane-lined earthen sludge lagoons located within the secondary treatment facility, an unlined effluent storage reservoir, and four unlined effluent storage ponds. Treated wastewater is also reclaimed on the Discharger's reclamation area. Domestic wastewater contains constituents of concern such as TDS, specific conductivity (EC), pathogens, nitrates, organics, metals, and oxygen demanding substances (BOD).

3. Groundwater Quality.

a. **Background Conditions.** The Facility is located south of Laguna Creek in the southern portion of Sacramento County. Land use surrounding the Facility is predominantly agricultural. *"Subsurface statigraphic formation information for the WWTP was lmited to driller's logs for supply wells. One of the supply wells (DWR number 05N06E09) is located at the WWTP, approximately 1,000 feet northeast of the control building. The driller's logs generally show a sequence of brownish gravels, sands and clays from near land surface to depths ranging from approximately 125 to 155 feet below land surface (bls). Blue, green, gray or black gravels, sands and clays were encountered below this depth range from 250 feet bls, the maximum depths to which the water supply wells were typically drilled."* (West Yost & Associates January 2003)

"Regional groundwater flow is generally southwestward. Extensive groundwater production has resulted in two groundwater cones of depression to the north-northwest and east of the WWTP. These cones of depression very likely influence groundwater flow directions at the WWTP. The easterly cone of depression may result in easterly groundwater flow beneath the WWTP. Groundwater elevations measured in proudction wells in the vicinity of the WWTP typically fluctuate more than 10 feet annually in response to seasonal variations in groundwater production and precipitation. The lowest gorundwater elevations occur near the end of the irrigation season (approximately April through October), and the highest elevations occur near the end of the non-irrigation season (approximately November through March). Virtually all the precipitation occurs during the non-irrigation season." (West Yost & Associates 2008)

"Groundwater recharge from irrigation, Laguna Creek and its tributaries, and the WWTP effluent ponds may influence depth to groundwater and groundwater gradients beneath the WWTP. Based on the Sacramento County Department of

Water Resources groundwater elevation contour maps…the depth of groundwater in the vicinity of the WWTP, as measured in the supply wells, ranged from approximately 75 to 85 feet below level of surface." (West Yost & Associates January 2003)

By definition background groundwater conditions are those pollutants that are present in the groundwater that are not attributable to the Facility's activities. Rather, these conditions are outside the influence of the Facility, and may be caused by local geophysical, hydrological, and meteorological processes, and wildlife and outside anthropogenic activities. The Discharger installed two background monitoring wells, MW-7, and MW-8. MW-7 and MW-8 were installed approximately 1.5 miles north on the frontage road west of Highway 99, and 3.0 miles northeast of the Facility, on Arno Road, respectively, in June 2004. These two background monitoring wells are located north of Laguna Creek.

b. **Downgradient Conditions.** Three monitoring wells (MW-1, MW-3, and MW-4) were installed within the Facility property in November 2002. Two more wells (MW-2, MW-5 and MW-6) were installed in June 2003. In October 2005, monitoring well MW-4 was destroyed and well MW-4R was installed nearby as a replacement. Groundwater flows towards the south and southeast regardless of season.

Monitoring well MW-1 is located near the southwestern corner of the auxiliary storage basin. Monitoring well MW-2 is located near the southwestern corner of Sludge Stabilization Pond #1. Monitoring well MW-3 is installed along the roadway bounding the west edge of the existing irrigation area No. 5. Monitoring well MW-4R is located near the southwestern edge of the current biosolids application area in section area #19. Monitoring well MW-5 is east of the Facility adjacent to Highway 99 and south of Laguna Creek, and was installed in June 2003. Monitoring well MW-6 is located southwest of the WWTP in the west central portion of the RCB site.

Although some monitored constituents in groundwater near the Facility exceed water quality objectives (e.g., TDS, nitrate, and arsenic) the results are not statistically greater than background. Tables F-19 through F-20 below summarize the groundwater data from the period of June 2003 through March 2008 for TDS and nitrate, and Tables F-21 below summarizes the groundwater data from the period of March 2005 through June 2010..

Table F-19. Summary of TDS in Groundwater

Parameter	Water Quality Objective	Wells	Background		MW-1	MW-2	MW-3	MW-4R	MW-6	MW-5
			MW-7	MW-8						
TDS (mg/L)	450[1]	No. of Samples	16	16	22	20	22	10	18	20
		Mean	519	405	585	476	407	439	397	338
		Standard Deviation	104	38	40	59	41	23	116	36
		Maximum	870	531	650	540	460	480	510	400
		95th%	726	480	--	--	--	--	--	
		99th%	861	481	--	--	--	--	--	

[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). Agricultural water quality goals listed provide no restrictions on crop type or irrigation methods for maximum crop yield. Higher concentrations may require special irrigation methods to maintain crop yields or may restrict types of crops grown.

Table F-20. Summary of Nitrate in Groundwater

Parameter	Water Quality Objective	Wells	Background		MW-1	MW-2	MW-3	MW-4R	MW-5	MW-6
			MW-7	MW-8						
Nitrate as N (mg/L)	10	No. of Samples	16	16	22	20	22	10	20	18
		Mean	6.1	5.3	3	7	7	1	5	8
		Standard Deviation	1.2	0.9	1	1	2	1	1	3
		Maximum	10	8	6	10	15	2	7	12
		95th%	8	7	--	--	--	--	--	--
		99th%	9	7	--	--	--	--	--	--

[1] USEPA Drinking Water Standards (Primary Maximum Contaminant Level)

Table F-21. Summary of Arsenic in Groundwater

Parameter	Water Quality Objective	Wells	Background		MW-1	MW-2	MW-3	MW-4R	MW-5	MW-6
			MW-7	MW-8						
Arsenic (µg/L)	10	No. of Samples	22	22	22	22	22	19	21	20
		Mean	5.0	3.5	6.2	5.2	5.8	6.4	4.2	7.4
		Standard Deviation	4.5	1.4	3.0	0.8	0.7	1.5	1.5	1.6
		Maximum	20	6.1	14	7.3	7.6	9.9	8.8	10
		95th%	15.6	5.9	11	5.8	6.9	9.1	7.7	9.4
		99th%	19.2	6.1	13	7.0	7.5	9.7	8.6	9.9

4. **Groundwater Limits.** In allowing a discharge, the Central Valley Water Board must comply with CWC Section 13263 in setting appropriate conditions. The Central Valley Water Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Central Valley Water Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

   Since arsenic is naturally high in the City of Galt's water supply, the average concentrations of arsenic in the Facility's influent is 13 µg/L and in the effluent is 12.1 µg/L, which is above the water quality objective of 10 µg/L. The City of Galt uses filters to reduce arsenic in the drinking water supply to achieve compliance with the federal Arsenic Rule. The water treatment filters are periodically backwashed to remove accumulated solids. The backwash water is discharged to the sanitary sewer system and ends up at the Facility. A numeric groundwater limit of 10 µg/L for arsenic, based on USEPA's primary MCL, is included in this Order to protect the beneficial uses of the groundwater. This Order also includes numeric groundwater limitations for TDS, nitrate, nitrite, total coliform, pH to ensure compliance with the Basin Plan and protect the beneficial uses of the groundwater. This Order contains a reopener to add or modify groundwater limitations as necessary.

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 authorizes the Central Valley 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).

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. 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 listed constituents 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.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 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 Central Valley 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 waste at the facility subject to this Order.

b. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with the waste discharge requirements and to fully characterize:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment or control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degree of degradation below water quality objectives.

c. 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

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 Central Valley 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. For additional information see previous Section V.B of this Fact Sheet.

E. Other Monitoring Requirements

1. **Land Discharge Monitoring.** Disposal pond monitoring is required to evaluate compliance with Land Discharge Specifications contained in Section VI.A.

2. **Reclamation Monitoring.** Reclaimed wastewater monitoring is required to evaluate compliance with Reclamation Discharge Specifications contained in Section VII.A.

3. **Biosolids Monitoring.** Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.5.v.). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

4. **Water Supply Monitoring.** Water supply monitoring is required to evaluate the source of constituents in the wastewater.

5. **Effluent and Receiving Water Characterization Study.** An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the third or fourth year of this permit term, the Discharger is required to conduct monthly monitoring of the effluent at EFF-001 and of the receiving water at RSW-001 for all priority pollutants and other constituents of concern as described in Attachment H. Dioxin and furan sampling shall be performed once during the wet weather and once during the dry weather.

6. **Ultraviolet (UV) Disinfection System Monitoring.** UV System monitoring and reporting are required to ensure that adequate UV dosage is applied to wastewater to inactivate pathogens (e.g. viruses in the wastewater). UV Disinfection system monitoring is imposed pursuant to requirements established by the California Department of Public Health (DPH), and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation's (AWWRF) guidelines (NWRI/AWWRF'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 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. **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 site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

b. **Salinity Evaluation and Minimization Plan.** This Order requires the Discharger to evaluate and reduce the sources of salinity to the wastewater treatment plant. This Order may be reopened to modify the effluent limitations and requirements for salinity.

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. **Mercury.** If a TMDL program for the Cosumnes River is adopted for mercury, or methylmercury, this Order may be reopened to modify the interim effluent limit or to impose a final mercury effluent limitation.

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). Attachment E of this Order requires quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective. Chronic Toxicity tests on samples collected from the years 2005 through 2007 indicated that the test species did not exhibit toxic effects, that is the analyses resulted in toxicity units equal to 1 (TU_c = 1). Therefore, the discharge does not demonstrate reasonable potential to cause toxicity to aquatic life in the receiving water.

In addition to WET monitoring, this provision requires the Discharger to submit to the Central Valley Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity is demonstrated. An Initial Investigative TRE Work Plan is required in lieu of a detailed TRE Work Plan, because the discharge has not demonstrated chronic toxicity at the time this Order was adopted. If effluent toxicity is encountered, this Order requires the Discharger develop a detailed TRE workplan in accordance with USEPA guidance (see below).

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

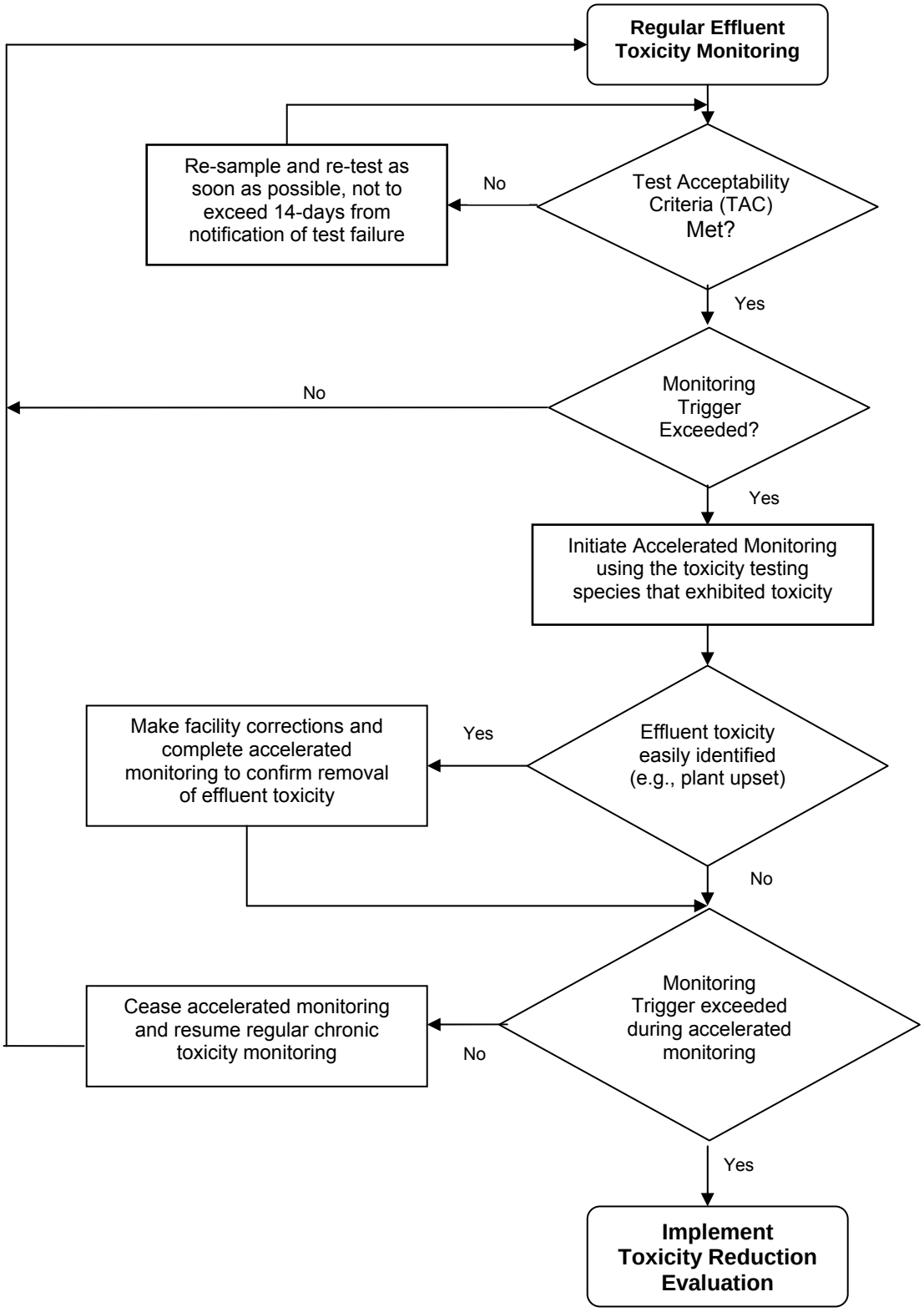
levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e., toxicity present exceeding the monitoring trigger more 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-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 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-1
WET Accelerated Monitoring Flow Chart



3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** In accordance with 40 CFR §122.44(k), the Discharger is required to implement best management practices to reduce the discharge of salinity to Laguna Creek. Particularly an Evaluation and Minimization Plan for salinity is required in this Order to ensure adequate measures are developed and implemented by the Discharger.

b. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans for ammonia and mercury 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 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.

4. Construction, Operation, and Maintenance Specifications

a. **Treatment Pond Operating Requirements.** Section 13050 of California Water Code (CWC) prohibits wastewater, either discharged or impounded, to create a nuisance. Anaerobic conditions (lacking oxygen) within ponds tend to produce aesthetically undesirable odors, and impounded waters improperly managed can breed mosquitoes. Furthermore, as previously disclosed, all ponds (except the auxiliary storage basin and sludge lagoons) at the Facility are unlined, so impounded wastewater may percolate to the underlying groundwater. Low pH values cause metals to dissolve, allowing them to percolate into the groundwater. Many metals are priority toxic pollutants, and when transported into groundwater, could elevate concentration levels and violate the Basin Plan's groundwater toxicity objective. Therefore, this provision is necessary to comply with CWC Section 13050.

b. **Turbidity Operational Requirements.** Turbidity specifications have been included in this Order as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. 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. These operational turbidity specifications are necessary to assess compliance with the DPH recommended Title 22 disinfection criteria.

d. **Ultraviolet (UV) Disinfection System Operating Specifications.** UV System specifications 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 system. Monitoring and reporting of these parameters is necessary to determine compliance with minimum dosage requirements established by the California Department of Public Health (DPH) and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation NWRI/AWWRF'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 Central Valley Board executive offices recommended that provisions be included in permits to water recycling treatment plants employing UV disinfection requiring Dischargers to establish fixed cleaning frequency if quartz sleeves as well as include provisions that specify minimum delivered UV dose that must be maintained (as recommended by the NWRI/AWWRF UV Disinfection Guidelines). Minimum UV dosage and operating criteria are necessary to ensure that adequate disinfection of wastewater is achieved to protect beneficial uses.

5. Special Provisions for Municipal Facilities (POTWs Only)

a-c Sludge/Biosolids Specifications.

The sludge/biosolids provisions are required to ensure compliance with State disposal requirements (Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq) and USEPA sludge/biosolids use and disposal requirements at 40 CFR Part 503. Site specific requirements are included to protect beneficial uses (e.g. Biosolids shall not be applied to soil with a pH of less than 6.5 to prevent metals from mobilizing to the underlying groundwater).

d. Agricultural Reuse Area Specifications.

i. Previous Order No. R5-2004-0001 prohibited discharges to surface water during the 1 May to 31 October. However, the Facility experienced storage capacity issues especially during the shoulder months of the crop irrigation season (e.g. May and October), and thus, the Discharger requested year-round discharge to surface water to eliminate potentially overtopping the storage pond. Therefore, this Order allows the discharge of tertiary-treated effluent to surface water year-round; and this specification is to ensure that the Discharger optimizes land application before discharging to surface water to ensure compliance with the Basin Plan's Wastewater Reuse Policy.

ii.-ix. These specifications are required to ensure compliance with Section 60310 of Title 22.

e. Collection System.

These provisions are included to ensure compliance with the requirements in the 2 May 2006, the State Water Board adopted State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems.

6. Other Special Provisions

a. **Tertiary Treatment of Year-round Discharge**. To protect public health and safety, the Discharger is to comply with DHS reclamation criteria, CCR Title 22, Division 4, Chapter 3, or equivalent.

b. **Permitted Discharge Increase (4.5 MGD), Phase 1 and Phase 2**. The Discharger has requested a total expansion of allowable flows to be discharged up to 4.5 mgd year round to Skunk Creek. These provisions are necessary to comply with the Antidegradation Policy; thus, the Discharger must comply with each provision before the permitted flow may be increased in each applicable phase

c. **Ownership Change.** To maintain the accountability of the operation of the Facility, the Discharger is required to notify the succeeding owner or operator of the existence of this Order by letter if, and when, there is any change in control or

ownership of land or waste discharge facilities presently owned or controlled by the Discharger.

7. Compliance Schedules

This Order includes a compliance schedule for final effluent limitations for ammonia, and requires full compliance by **1 September 2015**. On 28 June 2010, the Discharger submitted a request and justification, *City of Galt Compliance Schedule Justification Statement,* for this compliance schedule for ammonia. The Discharger's submittal included: (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; and (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades) with projected time schedules to achieve compliance with final effluent limitations. The Discharger indicated that the proposed schedule is as short as practicable. The Discharger's justification is consistent with the State Water Board's Resolution No. 2008-0025, *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits.* The Discharger's submittal is detailed:

The Discharger plans a number of Facility improvements during the term of this Order, which are projected to be completed in two phases. In Phase II of the proposed Facility improvements, the Discharger plans to upgrade the secondary treatment facilities to provide enhanced nitrification/denitrification and to increase the capacity from 3 million gallons per day (mgd) to 4.5 mgd. The nitrification/denitrification facilities are expected to be completed in five years. The Discharger indicated that the proposed schedule is as short as possible.

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.

- **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.** The Discharger has demonstrated that the Facility cannot immediately comply with the new effluent limitations for ammonia. The Discharger states in its infeasibility analysis, dated June 2010, that it is planning a secondary treatment upgrade to provide nitrification for ammonia removal The requested compliance schedule is driven primarily by the need to construct treatment plant upgrades.

- **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.** Ammonia is known to be a major constituent of

municipal wastewater and ammonia is not generated with the Facility. The main source of ammonia is the residential influent waste stream.

- **Source control efforts are currently underway or completed, including compliance with any pollution prevention programs that have been established.** A pollution prevention plan has not been developed for ammonia. Therefore, this Order requires the Discharger develop and implement a pollution prevention plan for ammonia.

- **A proposed schedule for additional source control measures or waste treatment.** Table 7.1 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 construction and start up by June 2015. Full compliance with the final ammonia effluent limitations is required by 1 September 2015.

- **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.** Interim effluent limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. The ammonia effluent limitations are new limitations, so there are no existing effluent limits. Therefore, the interim effluent limitations are based on performance of the Facility.

- **The highest discharge quality that can reasonably be achieved until final compliance is attained.** Compliance with the interim effluent limitations will ensure that the Discharger maintains the discharge at levels not to exceed current Facility performance.

- The proposed compliance schedule is as short as possible, given the type of facilities being constructed, and industry experience with the time typically required to construct similar facilities. 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 7.1 of the Infeasibility Report.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for City of Galt Wastewater Treatment Plant. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDRs. The Central Valley Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Central Valley 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's website and publication in The Galt Herald on 14 July 2010.

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 Central Valley Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, written comments should be received at the Central Valley Water Board office by 5:00 p.m. on 9 August 2010.

C. Public Hearing

The Central Valley 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: 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 Central Valley 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 Central Valley Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Central Valley 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 Central Valley 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 Central Valley 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 James Marshall at 916-464-4772 or jdmarshall@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
Priority Pollutants											
Arsenic	µg/L	12.4	14.1	10	340	150	None	None	10	50	Yes
Copper	µg/L	3.9	4.8	3.3	4.5	3.3	None	None	10	10	Yes
Lead	µg/L	0.4	1.5	0.7	[2]	[2]	None	None	15	15	Yes
Cyanide	µg/L	5.3	45	5.2	22	5.2	700	220000	10	150	Yes
Carbon Tetrachloride	µg/L	2.4	<0.3	0.25	None	None	0.25	4.4	Narrative	0.5	Yes
Chlorodibromomethane	µg/L	1.5	<0.1	0.41	None	None	0.41	34	Narrative	80	Yes
Dichlorobromomethane	µg/L	11	<0.1	0.56	None	None	0.56	46	Narrative	80	Yes
Bis(2-Ethylhexyl)Phthalate	µg/L	1.9	5.2	1.8	None	None	1.8	5.9	Narrative	4	Yes
Non-Conventional Pollutants											
Aluminum	µg/L	318	2940	200	750	87	None	None	Narrative	200	Yes
Ammonia	µg/L	4.4	--	0.9	5.6	1.4	None	None	Narrative	None	Yes
Iron	µg/L	410	3410	300	None	None	None	None	300	None	Yes
Manganese	µg/L	0.1	209	50	None	None	None	None	50	50	Yes
Nitrate plus Nitrite	mg/L	26	--	10	None	None	None	None	Narrative	10	Yes

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

Footnotes:
(1) NAWQQC – Water & Fish
(2) Refer to Section IV.C.2.b of Attachment F in this Order

ATTACHMENT H – 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 Central Valley 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.

D. Dioxin and furan sampling. Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment J. Pursuant to Section 13267 of the California Water Code, this Order includes a requirement for the Discharger to submit monitoring data for the effluent and receiving water as described in Attachment J.

II. Monitoring Requirements.

A. Monthly Monitoring. Monthly 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. Monthly monitoring shall be conducted for 1 year (12 consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Central Valley Water Board, during the fourth year of the permit term. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. Semi-annual Monitoring (dioxins and furans only). Semi-annual monitoring is required for dioxins and furans, as specified in Attachment J. The results of dioxin and furan monitoring shall be submitted to the Central Valley Water Board with the quarterly priority data at the completion of the Effluent and Receiving Water Characterization Study, and during the fourth year of the permit term.

C. Concurrent Sampling. Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

D. 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

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]		
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
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

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]		
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
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						

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]		
	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
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

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]		
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
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

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]		
	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
	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. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code 13176 and must include quality assurance/quality control data with their reports (ELAP certified).

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 May 14, 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.