Central Valley Regional Water Quality Control Board
25/26 October 2007 Board Meeting

STAFF REPORT

CITY OF YUBA CITY

WASTEWATER TREATMENT FACILITY
SUTTER COUNTY

The Regional Water Quality Control Board, Central Valley Region, (Regional Water Board) is considering renewal of an NPDES Permit for the City of Yuba City Wastewater Treatment Facility, a major permit, at its meeting scheduled for 25-26 October 2007.

BACKGROUND

The City of Yuba City (hereinafter Discharger) is currently discharging pursuant to Waste Discharge Requirements Order No. R5-2003-0085 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0079260 (Order No. R5-2003-0085). The Discharger petitioned the State Water Board to review Order No. R5-2003-0085 and the associated Cease and Desist Order (CDO) (Order No. R5-2003-0086). To address the petition, the State Water Resources Control Board (State Water Board) adopted Order WQO 2004-0013 on 22 July 2004, remanding the Order and the CDO to the Regional Water Board for modifications (State Water Board Order).

Order No. R5-2003-0085 expires on 1 June 2008. The Regional Water Board is considering renewing Order No. R5-2003-0085 prior to the expiration date due to the State Water Board Order, and the request by the Discharger to expand operations at the Wastewater Treatment Facility (hereinafter Facility).

As part of the new Report of Waste Discharge, the Discharger provided a capacity evaluation for expansion of its existing Facility (with a dry weather design flow of 7.0 million gallons per day or mgd) to provide wastewater treatment for an average dry weather flow of 10.5 mgd. The Discharger provided an antidegradation analysis as part of its application to demonstrate that the increased Facility capacity is consistent with federal and State antidegradation requirements.

FACILITY DESCRIPTION

The Discharger's treatment system consists of bar screens, aerated grit removal, primary sedimentation, pure oxygen aeration, secondary sedimentation, chlorine disinfection, dechlorination, and pH adjustment. Wastewater from the Facility is then directed to one of two discharge points. Normally, treated wastewater from the Facility is discharged from Discharge Point No. 001 through a multi-port diffuser to the Feather River, a water of the United States, within the Sacramento River Watershed. Alternatively, effluent from the Facility can be directed to one or more of six disposal

(percolation) ponds located between the two main east and west levee banks within the Feather River flood plain (above the physical ordinary high water elevation). According to the Discharger, the disposal ponds are used "…during planned maintenance of process units such as the chlorine contact basin". Effluent directed to the disposal ponds at Discharge Point No. 002 either percolates into the groundwater under the ponds, evaporates, or discharges to the Feather River when inundated during high Feather River flows.

The NPDES permit authorizes a major discharge. The proposed permit would authorize an increase in the discharge from the Facility to the Feather River from 7.0 mgd. to 10.5 mgd. The proposed permit also includes a significant number of new and more stringent effluent limitations, deletes some effluent limitations, and revises some effluent limitations.

PERMIT ISSUES

The following is a summary of the major issues regarding the proposed permit. Further detail is included in the Response to Comments.

1. Allowance for Mixing Zones and Dilution Credit: The California Sportfishing Protection Alliance (CSPA) objects to the mixing zone and dilution credits allowed in the proposed permit. The Facility discharges to the Feather River at Discharge Point No. 001 through a multi-port diffuser. The river is approximately 588 feet wide at the diffuser. At a distance ranging from 160 feet to 320 feet downstream of the diffuser is Shanghai Falls. The Regional Water Board acknowledges that the Feather River at Shanghai Bend upstream of Shanghai Falls and in the vicinity of the City of Yuba City outfall into the Feather River is critical habitat for many sensitive and important aquatic life species. The proposed permit finds, however, that the mixing zone for the City of Yuba City discharge into the Feather River will be protective of aquatic life in the vicinity of Shanghai Bend upstream of Shanghai Falls.

   In Order No. R5-2003-0085, the Regional Water Board granted a mixing zone and full and partial dilution credits for chronic aquatic life and human health criteria for several constituents for which assimilative capacity was available in the Feather River. For several constituents, the Regional Water Board did not grant dilution credits for chronic aquatic life and human health-based criteria based on lack of assimilative capacity. Mixing zones for acute aquatic life were not provided as the Regional Water Board determined, based on the information that it had at the time of adoption, that an adequate zone of passage for aquatic life was not available during critical low flows in the Feather River.

   The Discharger challenged as part of its petition to the State Water Board the Regional Water Board's decisions regarding mixing zones and dilution credits in Order No. R5-2003-0085. The State Water Board, in WQO No. 2004-0013, found that an acute mixing zone should be allowed, but downsized from the one proposed by the City (66.4 to 1). Further, the State Water Board questioned the Regional

Water Board's restriction of dilution credits for chronic aquatic life and human health-based criteria based primarily on the lack of rationale provided by the Regional Water Board.

The proposed permit would allow a mixing zone and dilution credit consistent with the State Water Board Order and information now available. The revised mixing zone analyses and modeling provided by the Discharger for the proposed permit were based on conservative assumptions that made the mixing zone as small as practicable to ensure protection of aquatic life and human health (the mixing zone analyses are available for review in the public record). Further, based on its review of the Discharger's final analysis of mixing, the proposed permit finds that an adequate zone of passage for aquatic organisms exists and full initial dilution should be allowed for the acute aquatic life criterion applicable to the discharge from the Facility (note that the Regional Water Board in Order No. R5-2003-0085 had already determined that dilution can be provided for chronic aquatic life and human health protection criteria). As a result, the proposed permit applies, when appropriate (i.e., when assimilative capacity existed), the following dilution factors (D) when calculating WQBELs:

- D = 11 for acute aquatic life criteria
- D = 12 for chronic aquatic life criteria
- D = 221 for human health criteria

As described above, the Discharger notified the Regional Water Board that it anticipates adoption of the Lower Yuba River Accord (LYRA) by the State Water Board. When adopted, LYRA will increase the 1Q10 and 7Q10 critical low flows by 500 cfs, i.e., up to 1500 cfs. The dilution factors described above are based on 1Q10 and 7Q10 critical low flows of 1,000 cfs. Because the LYRA adoption is anticipated within the term of this proposed permit, WQBELs will also be calculated based on dilutions corresponding to critical low flows of 1,500 cfs. The resulting WQBELs will be effective subsequent to State Water Board approval of the LYRA. The corresponding dilution factors that were used, when appropriate, to reflect increases in the critical low flows are provided below:

- D = 16 for acute aquatic life criteria
- D = 17 for chronic aquatic life criteria
- D = 221 for human health criteria

It should be noted that in the State Water Board Order, it was determined that the dilution associated with an acute mixing zone would be 12.2 to 1, based on use of the lower design flow (7.0 mgd) from the Facility and assuming assimilative capacity exists. These revised dilution factors are consistent with the State Water Board Order.

2. Assimilative Capacity: CSPA asserts that the proposed permit over estimates assimilative capacity when developing water quality-based effluent limitations

(WQBELs). The estimated assimilative capacity was based on receiving water characteristics upstream of the discharge point for the City of Yuba City discharge. The proposed permit finds that the available assimilative capacity was not overestimated based on a number of factors. First, the effluent limitations in the proposed are based on worst-case assumptions (e.g., use of the highest background concentration and use of the critical low flows). Second, no dilution is provided for discharges from the Linda County Water District, resulting in the application of water quality objectives at the end-of-pipe. In order to ensure compliance with the end-of-pipe objectives, the Linda County Water District will have to operate their wastewater treatment plant such that they are discharging at concentrations below the water quality objectives. In addition, the Regional Water Board staff expects that the actual discharge from the Linda County Water District will be at the lower end of the permitted range (1.8 million gallons per day) for several years. Therefore, the relative contribution from the Linda County Water District is not expected to cause, in conjunction with the City of Yuba City discharge, exceedances of applicable water quality objectives for the Feather River. Third, the proposed Order requires monitoring in the Feather River upstream of the City of Yuba City discharge point. If this data indicates that pollutant concentrations are higher than those used to derive effluent limitations, the Regional Water Board will need to reassess the assimilative capacity of the Feather River in the vicinity of the discharge and the relative contributions from all dischargers in the watershed, and reopen Orders as appropriate to ensure that water quality objectives are not exceeded.

Although the Regional Water Board staff acknowledges that there is the possibility that Discharges through Discharge Point Nos. 001 and 002 may occur simultaneously, this occurrence is highly unlikely, and would only occur at extremely high river flows (greater than 60,000 cfs, which represents a 4- to 5-year storm frequency). In addition, the proposed permit contains effluent limitations that are applied to the discharge into the ponds that are based on achieving water quality objectives, as well as a number of provisions to ensure proper operation of the ponds. Evaluation of discharge data indicates, consistent with the pond operational plans of the Discharger, that discharges to the ponds occur primarily during summer and early fall when river flows are low. The Discharger's operational plan also requires that the ponds be empty prior to the rainy season when high river flows are expected. This operation of the ponds by the Discharger minimizes the probability that concurrent discharges from Discharge Point Nos. 001 and 002 would occur.

Concern was also raised in Order No. R5-2003-0085 that discharges to the disposal ponds may result in magnified concentrations of pollutants via evaporation that when discharged could affect Feather River water quality. As a result, and in addition to the effluent limitations proposed in the Order, Order No. R5-2003-0085 required a study and report to determine whether discharges from the disposal ponds are adversely affecting water quality. If it was determined that discharges from the pond result in an exceedance of water quality objectives, then the Discharger was required to report on means to comply, including if necessary, a pond closure plan.

Further, Order No. R5-2003-0085 included a provision that stated the..."treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency". The Discharger in its petition to the State Water Board contended that the ponds should be excluded from Provision H.1, as they have been located and operated under waste discharge requirements for many years. The State Water Board agreed with the Regional Water Board's concerns raised regarding discharges from the ponds, as well as the Discharger's concerns regarding prohibiting inundation and washout of the disposal ponds. The State Water Board concluded that the issue of location and operation of the ponds should be addressed again after completion of the study and report to determine whether discharges from the disposal ponds are adversely affecting water quality. This study is required in Section VI.C.2.b of the proposed permit.

3. Lack of Requirement for Installation of Best Practicable Treatment and Control (Tertiary Treatment): CSPA commented that treatment beyond secondary is necessary for protection of aquatic life and human health in the vicinity of the discharge to the Feather River. Examination of historic flows for the Feather River (1993 through 2005) above Discharge Point No. 001 indicates that the lowest recorded flows were no lower than 1,000 cfs (646 mgd). Even when the Discharger reaches the design capacity of the treatment system (10.5 mgd), at least 60:1 dilution is provided, which exceeds the Department of Public Health recommendations for meeting Title 22 requirements (reclamation criteria and the equivalent of tertiary treatment). It should also be noted that the Lower Yuba River Accord (LYRA), when adopted, will require that operating dam releases result in a minimum increase of 500 cfs in the Lower Yuba River in critical water years. The point of discharge from the Facility is downstream of the confluence between the Feather and Yuba Rivers, so the 1Q10 and 7Q10 critical low flows would increase by 500 cfs when the LYRA is officially adopted by the State Water Board (the 1Q10 and 7Q10 critical low flows would be 1,500 cfs) upstream of Discharge Point No. 001

4. Hardness-Based Criteria. Effluent limitations for a discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, "floating" effluent limitations that are reflective of actual hardness conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. Recent studies indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not protective of the receiving water under various mixing conditions.

   The issue of the appropriate hardness value to use for establishing hardness-based water quality objectives was raised as part of the petition of Order No. R5-2003-0085. Although the State Water Board Order ~~Order~~, agreed that the numeric value used for calculation of WQBELs was not reliable and should be replaced, it supported the use of a worst-case observed minimum hardness to protect the receiving water under varying hardness conditions. The Discharger requested the

use of hardness values within or at the boundary of mixing zones and at receiving water design flow conditions (i.e., at critical low flows). Considering the conclusions in the State Water Board Order regarding which hardness value to use, and the technical argument provided by the Discharger, the Regional Water Board used a reasonable worst case hardness value for calculating applicable effluent limitations. The Regional Water Board has used this approach in other adopted Orders (see for example Order No. R5-2002-0083). In particular, the Regional Water Board agreed with the Discharger that receiving water hardness is generally flow-related; lower receiving water flows yield higher hardness. Based on upstream receiving water data provided by the Discharger for the period January 2002 through January 2007, a reasonable worst case hardness value of 32 mg/L (as CaCO3) was used to derive applicable hardness-dependent effluent limitations. This value from 1 November 2005 represents the lowest reported hardness value in the Feather River upstream of the facility discharge during periods of flow less than the harmonic mean flow of 3,600 cubic feet per second (cfs).

5. Additivity: CSPA raised concerns that the effluent limitations do not account for additivity. The Regional Water Board staff acknowledges the potential impact to aquatic life and human health as a result of additive toxicity. This impact would particularly be expected when discharges of the pollutants of concern (e.g., all carcinogens) are discharged at the same time and at levels that exceed applicable water quality objectives during critical low flow times. An accurate evaluation of additivity would therefore require extensive data collection and analysis. Alternatively, the Regional Water Board uses several mechanisms within an Order to protect against toxic and carcinogenic effects. For this Discharger, the Regional Water Board establishes water quality-based effluent limitations using conservative assumptions (e.g., use of critical low flows) designed to be protective of receiving water quality (based on applicable water quality objectives established to protect against acute and chronic toxicity and human health carcinogenicity). In addition, the Regional Water Board requires whole effluent toxicity testing designed specifically to determine whether the combination of pollutants contained in a discharge result in toxic effects.

6. Implementation of the Basin Plan Narrative Objectives: A number of issues were raised regarding the implementation of the narrative objectives in the Basin Plan. The Discharger and the Central Valley Clean Water Association (CVCWA) both requested, based on the Discharger's Phase I Water-Effects Ratio (WER) Study results, that the Regional Water Board not base WQBELs for aluminum on the U.S. Environmental Protection Agency (USEPA) criterion for aquatic life protection. Although the Regional Water Board agrees that preliminary results from the Phase I study indicates that application of the USEPA criterion for aquatic life protection may be overly protective, until the Phase II studies are complete, it is not appropriate to revise the aluminum limits. The revised work plan provided by the Discharger on 1 February 2007 provides a WER study design that is consistent with the February 1994 USEPA *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals* (EPA-823-B-94-00) and, if executed properly, should yield a defensible WER

for aluminum in the Feather River in the vicinity of the Facility discharge. Because it is anticipated that the WER will be completed during the term of this proposed permit, the proposed permit includes a reopener provision to facilitate revising the WQBELs based on completion, review, and approval of the WER for aluminum.

CVCWA also questioned the basis used for the molybdenum WQBEL (United Nation's agricultural water quality goals), and asked for the limit to be removed until site-specific factors can be accounted for. CVCWA cites the State Water Board's City of Woodland decision (WQO 2004-0010) that precluded the use of agricultural water quality goals for electrical conductivity (EC) without first assessing site-specific considerations for that site. The Regional Water Board staff disagrees with CVCWA based on the fact that the toxicity of molybdenum is different than that of EC. In particular, the concern with EC is the toxicity to crops/plants, which lends itself to assessing site-specific considerations such as presence of the crops that could be affected. In animals, acutely toxic oral doses of molybdenum have been shown to have severe impacts, ranging from gastrointestinal irritation to death from cardiac failure. Although non-ruminant animals will develop symptoms of toxicity when fed high molybdenum diets, ruminants are much more sensitive. Molybdenum toxicity in animals is commonly referred to as molybdenosis. Therefore, the proposed permit includes effluent limitations based on agricultural water goals for molybdenum to protect animals.

7. 2,3,7,8-TCDD and Congeners or Equivalents: CSPA objected that the proposed permit contains no effluent limitation for dioxin and congeners. The California Toxics Rule (CTR) identifies only one dioxin, 2,3,7,8-TCDD, in the list of priority pollutants for which effluent limits are to be established. The CTR includes a criterion for 2,3,7,8-TCDD of 0.013 pg/L for the protection of human health based on a one-in-a-million cancer risk. Sixteen other dioxin compounds (congeners), produce similar toxicological responses as 2,3,7,8-TCDD, but have varying potencies. There are no formally promulgated numeric water quality criteria for these other "dioxin-like" congeners. Dioxin congeners appear to be ubiquitous (i.e., ever-present). They exist in the environment worldwide, particularly in the water, soils and sediment. Dioxins enter the atmosphere through aerial emissions and widely disperse through a number of processes, including erosion, runoff, and volatilization from land or water. According to rulemaking documents in development of the SIP, U.S. EPA staff indicated in a presentation to a public forum that air deposition is a major source of dioxins in soil, and soil erosion is a major source of dioxins in water.

   The State Water Board State Implementation Plan (SIP) requires collection of data for all 17 dioxin-like congeners and reporting of the data using the toxic equivalency factors (TEFs) listed in the SIP method for a three-year monitoring period. The SIP states: "The purpose of the monitoring is to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach." To date, this multi-media control strategy has not been developed.

The Discharger has not detected 2,3,7,8-TCDD in the effluent. The Discharger has detected non-CTR congeners in its effluent, but at levels which can be only be estimated and not quantified with confidence. There is currently no data indicating that the CTR and non-CTR forms of dioxin in the receiving water are at concentrations that may threaten beneficial uses. Regional Water Board staff believes that there is insufficient data to determine if a water-quality based effluent limitation is appropriate (i.e., feasible). The site specific studies required in the proposed permit are intended to gather additional information to (i) further investigate the frequency or significant detections of any congener, (ii) evaluate the threat to beneficial uses, and (iii) determine the appropriateness of effluent limitations. The proposed permit exceeds the SIP monitoring requirements by requiring quarterly monitoring of all seventeen dioxin congeners for eight consecutive quarters following the effective date of this proposed permit, then annual monitoring thereafter. The proposed permit also requires the Discharger to implement measures to evaluate and reduce detected dioxin congeners.

8. Salinity: CSPA objects to the revision to the effluent limitations for EC in the proposed permit. The applicable water quality objective for EC is the numeric objective for the Feather River contained in the Basin Plan. Order R5-2003-0085 has an effluent limit that states "The 30-day 90th percentile effluent electrical conductivity shall not exceed 830 µmhos/cm." The proposed permit contains an interim effluent limit that states: "The monthly average electrical conductivity (EC) of effluent discharged from Discharge Point No. 001 shall not exceed 1000 umhos/cm." The proposed permit states that the effluent limit shall be evaluated based on a 10 year rolling average, i.e., the EC shall not exceed 150 µmhos/cm (90 percentile) in well-mixed waters of the Feather River based on a 10-year rolling average). CSPA objects to the use of the 10 year rolling average. Regional Water Board staff recently reviewed the historical information about the EC objective for the Feather River contained in the Basin Plan. The Basin Plan is ambiguous with respect to the averaging period for application of the objective for the Feather River. The Basin Plan, however, includes EC objectives for a portion of the Sacramento River and this objective that includes an averaging period based on 10 years of records. The Feather River objective is placed in the same section of the Basin Plan as the Sacramento River objective. It appears from the record of the Basin Plan that the reference to 10 years was inadvertently omitted from the objective for the Feather River. It is reasonable, therefore, to apply a 10-year rolling average to the Feather River consistent with the Sacramento River EC objectives. . In addition, source water monitoring for salinity is included in the Order to provide the data necessary to evaluate BPTC. This Order includes an interim performance-based effluent limitation for EC but no final effluent limitation because sufficient information does not exist for the water supply for the Discharger. Final effluent limitations for salinity based on BPTC will be established subsequent to the collection and analysis by the Discharger of EC in the Discharger's water supply.

9. Mass Limits: Mass limitations for oxygen-demanding substances, bioaccumulative substances, and constituents with an associated 303(d) listing or total maximum

daily load, are included in the proposed permit. The proposed permit includes mass limitations for (1) biochemical oxygen demand and total suspended solids since these are oxygen-demanding substances, and (2) mercury since it is a bioaccumulative constituent and a TMDL is pending. Mass limitations for bis (2-ethylhexyl) phthalate, diethyl phthalate, iron, manganese, and molybdenum have been removed from the existing permit as the water quality impacts of these constituents in the Feather River and downstream waters are based upon the concentration of the constituents, not mass loading and the revision is consistent with other adopted NPDES permits. In addition, mass limitations were not established for pollutants with new effluent limitations (i.e., ones that were remanded by the State Water Board that now show reasonable potential).

10. Endangered Species: CSPA commented that the proposed permit violates State and federal Endangered Species Acts. The proposed permit contains numeric effluent limitations for acute toxicity, narrative limitations for chronic toxicity, and a receiving water limitation for toxicity that states the discharge shall not cause "Toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances." The proposed permit also contains WQBELs for a number of toxic and non-conventional pollutants based on applicable water quality objectives designed specifically to protect aquatic life. For clarity and notice to the Discharger, the proposed permit includes the following statement at the end of Section III.C.6 of the Fact Sheet:

    "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."

11. Antidegradation: CSPA asserts that the proposed permit violates the State and federal antidegradation policies. The Discharger prepared an antidegradation analysis by the Discharger. See 15 August 2007 "Antidegradation Analysis for Proposed Wastewater Treatment Facility Discharge Modification" report.

    As described in the Discharger's report, an analysis was provided that addresses potential degradation of the receiving water (in terms of loss of designated beneficial use or uses) due to the proposed increase in regulated discharge to the Feather River. Particularly the water quality impacts assessment evaluates the effects of increasing the Discharger's wastewater treatment facility's permitted discharge capacity, from 7 MGD to 10.5 MGD, on Feather River water quality downstream of the discharge. Water quality conditions were compared to existing water quality

objectives and recommended criteria when applicable. Water quality conditions were estimated at the end of the zone of initial dilution (ZID) and lip of the falls (LOF) for constituents with acute and chronic aquatic criteria, respectively. Water quality conditions were estimated downstream of the diffuser, at a distance of two river lengths, for constituents with non-aquatic life criteria. In both cases, upstream and effluent average concentrations are mixed at the respective critical dilutions to assessing long-term, chronic conditions in the river. Of the 15 constituents considered in the analysis, one constituent concentration (aluminum) will potentially decrease in the Feather River and one constituent concentration (iron) will be unaffected. Seven constituent concentrations (dissolved copper, total zinc, EC, dissolved manganese, mercury, methyl mercury, and molybdenum) will potentially increase in the Feather River, downstream of the discharge, by less than 2.5 percent on average (annual) with increased discharge. The other six constituents considered (ammonia, cadmium, dichlorobromomethane, MBAS, nitrite, and tetrachloroethylene) do not have sufficient ambient data to estimate the potential percent changes in loading. However, the Discharger expected that given sufficient data and assuming that these constituents are present to some degree in the Feather River, an analysis of these constituents would produce similar results to those documented in this report. Therefore, the increase in discharge is not expected to adversely affect any designated potential or existing beneficial uses of the Feather River.

The Discharger's evaluated two primary options to off-set an allowed increase in discharge: reclamation of the wastewater and treatment. Five different reclamation alternatives were presented, based on the regional Recycled Water Facilities Master Plan that addressed the needs of the City of Marysville, the Linda County Water District, and the City of Yuba City. Based on Region-wide benefit considerations, the preferred alternative and associated estimated project costs and annual operation and maintenance costs are summarized below:

- Marysville Wastewater Treatment Facility effluent to Linda County Water District Wastewater Treatment Facility with Linda County Water District Wastewater Treatment Facility improvements to disinfected tertiary treatment – Yuba City Wastewater Treatment Facility treatment upgrade and shared distribution piping between the Linda County Water District and Yuba City Wastewater Treatment Facilities – landscape and agricultural irrigation ($495.5 million; $6.6 million/year)

The advanced treatment options evaluated by the Discharger included biological nutrient removal, granulated activated carbon, and microfiltration/reverse osmosis (MF/RO). Based on the pollutants that would need to be removed, the MF/RO alternative was selected for further analysis. For the MF/RO alternative, the associated estimated project costs were $21.7 million and the annual operation and maintenance costs were estimated to be $2.06 million.

The socioeconomic impacts to the Discharger were evaluated in two ways; the impact of individual households due to sewer fee increases, and the impact on the community based. The following summarizes the estimated impact to sewer fees.

Option	Monthly Residential Fee	Annual Residential Fee	% Increase in Treatment Cost above Current Level
Current Treatment	$23.88	$286.56	--
Reclamation			
Existing Ratepayers	$24.66	$295.92	3.3
Future Ratepayers	$45.62	$547.44	91
MF/RO			
Existing Ratepayers	$27.88*	$334.56*	17
Future Ratepayers	$36.41*	$436.92*	52

* Does not include costs for brine disposal.

The Discharger also estimated the community impacts to the City of Yuba City using the economic impact model IMPLN (Impact Analysis for PLANning). Their analysis was based on the assumption that sewer fee increases to households in the City of Yuba City will reduce discretionary spending (disposable income). The loss of discretionary spending will reduce demand for local goods and services, which in turn will reduce demand for local labor, resulting in increased unemployment. Results of the model indicated that the low and middle income households would contribute the most towards financing either option (consuming more than 2 percent of disposable personal income). The economic impact projected is summarized below:

Option	Economic Indicators per Year			
	Labor Income Loss	Indirect Business Tax Loss	Employment Loss	Total Output Loss
Reclamation	$948,772	$213,238	32	$4,440,197
MF/RO	$834,919	$187,649	28	$3,907,374

It should be noted that according to data from 2003 through 2006, the unemployment rates in Yuba and Sutter Counties are almost double the average unemployment rate for California. Based on the water quality analysis results, the costs associated with reclamation or advanced treatment are unduly high compared to the benefits that would be gained by offsetting the potential incremental changes in water quality, which are incidental. If the Regional Water Board grants the increase in discharge but requires measures to offset water quality impacts, the Discharger will need to consider reclaiming or subject the incremental increase in the discharge to advanced treatment. An assessment of potential for reclaimed water results in considerable capital outlay for treatment and conveyance of the produced water. Advanced treatment is expensive, energy intensive and creates brine for which there are currently no readily available methods of disposal. Thus, advanced treatment would significantly impact the City's employment rate and the City's economic rating. The

following provides a comparison of the socio-economic impacts and environmental benefits and impacts of the evaluated options.

Alternative Control Measure	Environmental Benefits	Socio-Economic Costs	Concerns
Reclamation	Addresses all incremental changes in water quality.	$21.74 increase in monthly sewer service fee. Increase in unemployment (32 jobs)	Demand for reclaimed water may not be year-round. Impact local and regional economies. High cost.
MF/RO*	Addresses all incremental changes in water quality.	$12.53 increase in monthly sewer service fee. Increase in unemployment (28 jobs)	Impact local and regional economies. High cost. Creation of hazardous waste. High energy demands.

* Does not include ultimate brine disposal.

If adopted, the permit will authorize an expansion of the wastewater treatment facility, which may result in slight degradation of water quality. State and federal antidegradation policies, where applicable, do not prohibit any change in water quality, but requires that changes be justified. The proposed permit protects existing in-stream uses by requiring compliance with applicable federal technology-based standards and with effluent limitations for constituents having the reasonable potential to cause or contribute to an exceedance of water quality standards. The Order limits the discharge of CTR and non-CTR constituents, including aluminum, and does not allow the increased discharge of mercury or salinity despite expansion of the facility.

12. Anti-Backsliding for Remanded Pollutants: CSPA contends that several effluent limits were relaxed or removed in violation of the anti-backsliding requirements of the Clean Water Act. There were several limitations in Order No. R5-2003-0085 that did not go into effect during the previous permit term due to the State Water Board Order remand (e.g., nitrate-nitrite and nitrite). Based on new data and information provided by the Discharger during the previous permit term (e.g., dynamic model results), as well as direction provided in the State Water Board Order to address the technical issues in the Discharger's petition (e.g., mixing zones and dilution credit), the proposed permit: (1) includes revised effluent limitations for some pollutants that are less stringent than in Order No. R5-2003-0085 due primarily to the application of dilution credits as authorized under the SIP; (2) includes revised effluent limitations for aluminum that are more stringent than in Order No. R5-2003-0085; (3) does not include effluent limitations for some parameters that do not show reasonable potential in accordance with the SIP; and (4) includes effluent limitations for some parameters that were not previously regulated under Order No. R5-2003-0085.

13. Compliance Schedules: CSPA questioned the Regional Water Board's authority to issue compliance schedules for CTR constituents. The SIP is the governing policy in California for implementing the CTR and it allows compliance schedules. USEPA approved the section of the SIP concerning compliance schedules. Although the CTR provisions for compliance schedules expired, that does not preclude the State Water Board from establishing its own version of compliance schedules since the SIP is intended to implement the CTR. The SIP allows compliance schedules that are short as practicable but in no case (1) allows more than 5 years to come into compliance with CTR-based effluent limitations and (2) allows the compliance schedule to extend beyond 10 years from the effective date of the SIP (18 May 2000) to establish and comply with CTR-based effluent limitations. The proposed permit, therefore, includes a time schedule to comply with CTR-based effluent limitations by 18 May 2010 (i.e., 10 years from SIP effective date). In addition, the Discharger provided a justification for the compliance schedule in accordance with Section 2.1 of the SIP, and the proposed permit requires compliance with interim effluent limitations (as required by the SIP) and submission of quarterly progress reports.

    CSPA also questioned the placement of compliance schedules in the proposed Order for iron, organochlorine pesticides, and aluminum, as opposed to in a Time Schedule Order or a Cease and Desist Order. There are a number of Basin Plan narrative objectives that are the basis for numeric effluent limitations. The two most common narrative objectives impacting NPDES permits are the "narrative toxicity" objective, and the "taste and odor" objective. The Basin Plan allows the use of compliance schedules for water quality objectives adopted after 1995 and USEPA and the State Water Board have allowed such compliance schedules based on a "new interpretation" of an existing narrative objective. Compliance schedules may be included in permits for effluent limitations based upon "new interpretations" of narrative water quality objectives. An August 2005 Second District California Appeals Court Ruling [CBE v. SWRCB regarding the Avon Refinery (aka, Tosco Refinery)] clarified the scope of "new interpretation". Any effluent limitation based upon a narrative water quality objective is a "new interpretation" that will allow a compliance schedule to be placed in an NPDES permit when that effluent limitation is first applied to the Discharger.

    The compliance schedules that are included for aluminum and organochlorine pesticides are based on a new interpretation of narrative objectives. Further, because these parameters were vacated in accordance with Order WQO 2004-0013, this Order constitutes the first application of an effluent limitation applicable to the Discharger. For iron, the Regional Water Board agrees with CSPA, and will remove the compliance schedule from the Order and concurrently issue a Time Schedule Order that provides a schedule for complying with the final effluent limitations for iron.

The Discharger and CVCWA in their comments requested that the compliance/time schedule for aluminum and iron span the term (5 years) of the proposed permit. The proposed permit required compliance based on the same schedule allowed for CTR constituents. The Regional Water Board disagrees that additional time is required. According to the infeasibility analysis submitted by the Discharger, no more than 2 years after permit adoption was requested to complete proposed actions. Keeping the compliance date for non-CTR pollutants consistent with the date for CTR pollutants provides the Discharger the opportunity to evaluate and implement control options for all pollutants at the same time. The Regional Water Board is also under no obligation to provide the full duration of the proposed permit to comply with applicable effluent limitations. In fact, according to the NPDES regulations at 40 CFR 122.47 (a)(1) compliance schedules should require compliance as soon as possible.

SUMMARY

The proposed NPDES Permit Renewal (a major permit) authorizes the Discharger to increase the capacity of the City of Yuba City's wastewater treatment facility from 7.0 mgd to 10.5 mgd.

The proposed permit contains a significant number of new effluent limitations for parameters that were remanded by the State Water Board Order. Compliance schedules are proposed to provide time for the Discharger to meet new final effluent limitations for aluminum, diazinon, and gamma-BHC. A time schedule order is included for iron. Interim limitations are included for aluminum, diazinon, gamma-BHC, and iron.

The proposed permit also contains a number of special studies and monitoring requirements to evaluate the potential impact of discharges from the disposal ponds.