CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

FACT SHEET
APPLICATION FOR
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
AND
WASTE DISCHARGE REQUIREMENTS
TO DISCHARGE TO STATE WATERS

Permitee Name:	City of Calexico WWTP	Public Notice No.: 7-04-02
NPDES Permit Number:	CA7000009	Board Order No.: R7-2004-0009
Mailing Address:	City of Calexico WWTP 608 Heber Avenue Calexico, CA 92231	
Location:	298 East Anza Road Calexico, CA 92231	
Contact Person:	Luis Estrada	
Telephone:	(760) 768-2167	

I. Status of Permit

The City of Calexico, owner/operator (hereinafter referred to as the discharger), of the City of Calexico's WWTP submitted an application to update its Waste Discharge Requirements and to renew its permit to discharge wastewater under the National Pollutant Discharge Elimination System (NPDES). The application is for the wastewater treatment facility located at the address mentioned above.

II. Facility Description

The facility provides secondary treatment through activated sludge and aerated lagoon treatment systems. The activated sludge and aerated lagoon treatment systems have design capacities of 2.5 MGD and 1.8 MGD, respectively. The overall design capacity for the treatment plant is 4.3 MGD.

Wastewater is passed through preliminary, primary, and secondary treatment systems before being disinfected and discharged to the New River. The preliminary treatment systems consist of a mechanical bar screen, manual bypass bar screen, and aerated grit chamber. The primary treatment system removes settleable solids and floating materials and consists of two primary clarifiers operated in parallel. Preliminary and primary treated wastewater is stabilized in either the activated sludge treatment system consisting of three aeration basins operated in parallel or the aerated lagoon treatment system consisting of four lagoons operated in series. Effluent wastewater from the activated sludge plant is passed through three secondary clarifiers operated in parallel before being combined with effluent wastewater from the aerated lagoon treatment system. The combined stabilized flows from the activated sludge plant and aerated lagoon plant are disinfected by an ultraviolet (UV) disinfection system before being discharged to the New River. Primary sludge generated from the primary clarifiers is pumped to two anaerobic digesters for stabilization. Secondary sludge generated from two of the three secondary clarifiers is also pumped to the anaerobic digesters for stabilization. Secondary sludge from the third secondary clarifier is pumped to a dissolved air thickener before being pumped to the anaerobic digesters for stabilization. Stabilized

primary and secondary sludge is discharged from the two anaerobic digesters to fifteen sludge-drying beds.

The discharger owns and operates the wastewater collection system. The collection system provides conveyance of raw wastewater to the treatment facility through both separate and combined sewer lines.

III. Description of Discharge

All wastewater discharged at this facility is discharged through Outfall 001 to the New River. The discharge consists of disinfected secondary treated domestic wastewater.

IV. Receiving Water

The receiving water for Outfall OO1 is the New River. Water discharged from the facility flows through the New River and ultimately to the Salton Sea.

1. The designated beneficial uses of waters of the New River are:

    a. Fresh Water Replenishment of Salton Sea (FRSH)
    b. Industrial Service Supply (IND)[1]
    c. Water Contact Recreation (REC I)[2]
    d. Non-Contact Water Recreation (REC II)
    e. Warm Water Habitat (WARM)
    f. Wildlife Habitat (WILD)
    g. Preservation of Rare, Threatened, or Endangered Species (RARE)[3]

V. Proposed Technology-Based Effluent Limitations

Regulations promulgated in 40 CFR §125.3(a)(1) require technology-based effluent limits for municipal dischargers to be placed in NPDES permits based on 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 Environmental Protection Agency (EPA) administrator.

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

Following publication of the secondary treatment regulations, legislative history indicates that Congress was concerned that EPA had not "sanctioned" the use of certain biological treatment

[1] Potential use
[2] Although some fishing occurs in the downstream reaches, the presently contaminated water in the river makes it unfit for any recreational use. An advisory has been issued by the Imperial County Health Department warning against the consumption of any fish caught from the river and the river has been posted with advisories against any body contact with the water.
[3] Rare, endangered, or threatened wildlife exists in or utilizes some of these waterway(s). If the RARE beneficial use may be affected by a water quality control decision, responsibility for substantiation of the existence of rare, endangered, or threatened species on a case-by-case basis upon the California Department of Fish and Game on its own initiative and/or at the request of the Regional Board; and such substantiation must be provided within a reasonable time frame as approved by the Regional Board.

techniques that were effective in achieving significant reductions in BOD_5 and SS for secondary treatment. Therefore to prevent unnecessary construction of costly new facilities, Congress included language in the 1981 amendment to the Construction Grants statues [Section 23 of Pub. L. 97-147] that required EPA to provide allowance for alternative biological treatment technologies such as trickling filters or waste stabilization ponds. In response to this requirement, definition of secondary treatment was modified on September 20, 1984 and June 3, 1985, and published in the revised secondary treatment regulations contained in 40 CFR Section 133.105. These regulations allow alternative limits for facilities using trickling filter and waste stabilization ponds that meet the requirements for "equivalent to secondary treatment." These "equivalent to secondary treatment" limits are 45 mg/L (monthly average) and 65 mg/L (weekly average) for BOD_5 and SS.

Therefore, POTWs that use waste stabilization ponds, identified in 40 CFR Section 133.103, as the principal process for secondary treatment and whose operation and maintenance data indicate that the SS values specified in the equivalent-to-secondary regulations cannot be achieved, can qualify to have their minimum SS levels adjusted upwards.

Furthermore, in order to address the variations in facility performance due to geographic, climatic, or seasonal conditions in different States, the ASR provision contained in 40 CFR Section 133.105(d) was written. ASR allows States the flexibility to set permit limits above the maximum levels of 45 mg/L (monthly average) and 65 mg/L (weekly average) for SS from lagoons. However, before ASR limitations for suspended solids can be set, the effluent must meet the BOD limitations as prescribed by 40 CFR 133.102(a). Presently, the maximum SS value set by the State of California for lagoon effluent is 95 mg/L. This value corresponds to a thirty-day consecutive average or an average over duration of less than thirty days.

In order to be eligible for equivalent-to-secondary limitations, a POTW must meet all of the following criteria [40 CFR 133.101(g)]:

- The principal treatment process must be either a trickling filter or waste stabilization pond.
- The effluent quality consistently achieved, despite proper operations and maintenance, is in excess of 30 mg/L BOD_5 and SS.
- Water quality is not adversely affected by the discharge.
- The treatment works as a whole provides significant biological treatment such that a minimum 65 percent reduction of BOD_5 is consistently attained (30-day average).

1. Secondary and equivalent to secondary technology-based effluent limits for municipal dischargers:

Technology-Based Requirements for Municipal Dischargers Secondary Treatment (40 CFR Part 133)			
Constituents	Units	30-Day [4] Arithmetic Mean Discharge Rate	7-Day [5] Arithmetic Mean Discharge Rate
20° C BOD_5 [6]	mg/L	30	45
5-day CBOD	mg/L	25	40
TSS	mg/L	30	45
pH	pH units	6 - 9	-----
Removal Efficiency for BOD and TSS	%	85	-----

Technology-Based Requirements for Municipal Dischargers Equivalent to Secondary Treatment (40 CFR Part 133)			
Constituents	Units	30-Day Arithmetic Mean Discharge Rate	7-Day Arithmetic Mean Discharge Rate
20° C BOD_5	mg/L	45	65
5-day CBOD	mg/L	40	60
TSS	mg/L	45	65

[4] 30 Day Mean- Arithmetic average of all samples collected during the calendar month
[5] 7 Day Mean- Arithmetic average of all samples collected during a calendar week (Sunday through Saturday)
[6] Biochemical Oxygen Demand

Constituents	Basis for Limitations
Biochemical Oxygen Demand (BOD)	Discharges to waters that support aquatic life, that is dependent on oxygen. Organic matter in the discharge may consume oxygen as it breaks down.
Total Suspended Solids (TSS)	High levels of suspended solids can adversely impact aquatic habitat. Untreated or improperly treated wastewater can contain high amounts of suspended solids.
Hydrogen Ion (pH)	Hydrogen Ion (pH) is a measure of Hydrogen Ion concentration in the water. A range specified between 6 to 9 ensures suitability of biological life. This limitation has been adopted in the Basin Plan of the Region.

2. 40 CFR Part 133 establishes minimum treatment requirements for biochemical oxygen demand (BOD), total suspended solids (TSS), and pH. The proposed effluent pH and BOD_5 limitations are the same as contained in Order No. 99-001. 40 CFR Part 122.44(l) specifies that effluent limitations, standards, or conditions in reissued permits shall be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit. Order No. 99-001 adopted on January 13, 1999, specified that the final effluent BOD_5 concentration from the combined discharge from the activated sludge and the aerated lagoon plants shall comply with the secondary treatment standards, 40 CFR Part 133.102. Based on the foregoing, the effluent BOD_5 limitations for the combined discharge from the activated sludge and aerated lagoon plants are appropriate for the discharge. The effluent TSS limitation is developed based on the design mass treatment capacity of the activated sludge and aerated lagoon plants and the secondary and equivalent to secondary treatment standards. The 30-day and 7-day maximum effluent TSS limitations were calculated as follows:

   30-day: [(2.5 MGD)(30 mg/L) + (1.8 MGD)(45 mg/L)]/(2.5 MGD + 1.8 MGD) = 36 mg/L

   7-day: [(2.5 MGD)(45 mg/L) + (1.8 MGD)(65 mg/L)]/(2.5 MGD + 1.8 MGD) = 53 mg/L

   Where the design capacities of the activated sludge and aerated lagoon treatment plants are 2.5 MGD and 1.8 MGD, respectively. Where the 30-day TSS secondary treatment standard for the activated sludge plant is 30 mg/L and the equivalent to secondary 30-day TSS treatment standard is 45-mg/L. Where the 7-day TSS secondary treatment standard for the activated sludge plant is 45-mg/L and the equivalent to secondary 7-day TSS treatment standard is 65-mg/L.

The proposed technology-based effluent limitations for the discharger is summarized as follows:

Proposed Technology-Based Effluent Limitations			
Constituents	Units	30-Day [4] Arithmetic Mean Discharge Rate	7-Day [5] Arithmetic Mean Discharge Rate
20° C BOD_5 [6]	mg/L	30	45
TSS	mg/L	36	53
pH	pH units	6 - 9	-----
Removal Efficiency for BOD and TSS	%	85	-----

VI. Proposed Water Quality-Based Effluent Limitations

Effluent discharged from this facility could contain pollutants in sufficient quantities to affect receiving water quality. Pursuant to Section 13263, Article 4, Chapter 4 of the Porter Cologne Water Quality Control Act, the Regional Boards are required to issue Waste Discharge Requirements for discharges that could affect the quality of the State's waters. Furthermore, Federal Regulation 40 CFR 122.1 requires the issuance of NPDES permits for pollutants discharged from a point source to the waters of the United States. The draft discharge requirements contain specific discharge limitations for selected pollutants.

Constituents	Basis for Limitations
Total Dissolved Solids	High levels of TDS can adversely impact aquatic life. The TDS limit is from the Basin Plan of the Region.
Toxicity	Toxicity testing ensures that the effluent does not contain metals, chemicals, pesticides or other constituents in concentrations toxic to aquatic life.
Escherichia Coli (E. coli)	These limits are required by the Basin Plan for waters designated for water contact recreation (RECI) or noncontact water recreation (RECII).

The U.S. Environmental Protection Agency published the adopted California Toxics Rule (CTR) (40 CFR §131.38). The CTR promulgates new criteria for both human health protection and protection of aquatic life. New numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants are listed. In addition, the CTR contains a compliance schedule

[4] 30 Day Mean- Arithmetic average of all samples collected during the calendar month
[5] 7 Day Mean- Arithmetic average of all samples collected during a calendar week (Sunday through Saturday)
[6] Biochemical Oxygen Demand

provision, which authorizes the State to issue schedules of compliance for new or revised NPDES permit limits based on the federal criteria when certain conditions are met.

The following water quality based effluent limits (final) are based on monitoring results and using the California Toxic Rule and the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (The calculations are shown in Attachment "A"):

Copper	Average Monthly Effluent Limit (µg/L) =2.39 Maximum Daily Effluent Limit (µg/L) = 4.80
Mercury	Average Monthly Effluent Limit (µg/L) =0.051 Maximum Daily Effluent Limit (µg/L) = 0.102

The discharger is not able to consistently comply with the new effluent limitations for Copper and Mercury. Therefore, interim limits have been set as follows:

The governing Water Quality Objective (WQO) for Copper is 3.10 *u*g/L, the saltwater aquatic life criteria contained in the CTR. As noted in Finding 21 of WDR No. R7-2004-0009, Copper has reasonable potential to exceed water quality objectives, and final Water Quality Based Effluent Limitations (WQBELs) are required. The WQBELs calculated pursuant to State Implementation Policy (SIP) procedures are 2.39 µg/L monthly average and 4.80 µg/L daily maximum. The Discharger indicated in its July 18, 2003, Feasibility Study that it is infeasible to comply immediately with the WQBELs. Therefore, pursuant to the provisions of the SIP, an interim effluent limit for Copper is required. The previous permit did not contain an effluent limit for copper, and it is not possible to statistically determine current plant performance based on only four data points for Copper. Therefore, the interim effluent limit is the Maximum Effluent Concentration (MEC), 7.90 µg/L. This interim effluent limit is based on the best professional judgment of Regional Board staff.

The governing Water Quality Objective (WQO) for Mercury is 0.051 *u*g/L, the human health criteria contained in the CTR. As noted in Finding 21 of WDR No. R7-2004-0009, Mercury has reasonable potential to exceed water quality objectives, and final Water Quality Based Effluent Limitations (WQBELs) are required. The WQBELs calculated pursuant to State Implementation Policy (SIP) procedures are 0.051 µg/L monthly average and 0.102 µg/L daily maximum. The Discharger indicated in its July 18, 2003, Feasibility Study that it is infeasible to comply immediately with the WQBELs. Therefore, pursuant to the provisions of the SIP, an interim effluent limit for Mercury is required. The previous permit did not contain an effluent limit for Mercury, and it is not possible to statistically determine current plant performance based on only two data points for Mercury. The Maximum Effluent Concentration (MEC) was 0.080 µg/L. Therefore, the interim effluent limit is the Maximum Daily Effluent Limit (MDEL), 0.102 µg/L. This interim effluent limit is based on the best professional judgment of Regional Board staff.

Constituents	Unit	Date Effluent Limit Becomes Effective	Average Monthly Effluent Limit[4]	Maximum Daily Effluent Limit[9]
Copper (interim)	µg/L	January 25, 2004	7.90	7.90
Copper (final)	µg/L	January 14, 2009	2.39	4.80
Mercury (interim)	*u*g/L	January 25, 2004	0.102	0.102
Mercury (final)	*u*g/L	January 14, 2009	0.051	0.102

VII. Proposed Effluent Limitations

Table 1, contained later in this Fact Sheet, summarizes the proposed effluent limitations for Outfall 001. Proposed effluent limitations are based on secondary and equivalent to secondary treatment standards, California Toxics Rule and Colorado River Basin Plan Water Quality Standards. The proposed effluent limitations are as stringent or more stringent than those of the previous permit in accordance with anti-backsliding policies.

VIII. Monitoring Requirements

Monitoring for those pollutants expected to be present in the Outfall OO1 will be required as shown on the proposed monitoring and reporting program and as required in the "*Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*" adopted March 2, 2000.

IX. Information Sources

While developing effluent limitations and receiving water limitations, monitoring requirements, and special conditions for the draft permit, the following information sources were used:

(1) EPA NPDES Application Forms 1, 2A and 2S dated July 18, 2003.
(2) State of California, Regional Water Quality Control Board, Application/Report of Waste Discharge - Form 200
(3) Code of Federal Regulations – Title 40
(4) Water Quality Control Plan (Colorado River Basin – Region 7) as amended to date.
(5) Regional Board files related to City of Calexico WWTP NPDES permit CA7000009.
(6) Porter-Cologne Water Quality Control Act with additions and amendments effective January 1, 2000.
(7) Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California adopted March 2, 2000.
(8) California Toxics Rule, published May 18, 2000 by U.S. EPA.
(9) National Toxics Rule (NTR), adopted by U.S. EPA on February 5, 1993.

[4] Compliance with the Average Monthly Effluent Limit and Maximum Daily Effluent Limit shall be determined as described in Section 2.4.5 Compliance Determination (Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California)

X. Written Comments

Interested parties and agencies are invited to submit written comments on the proposed Waste Discharge Requirements and the Regional Board's Executive Officer's proposed determinations. Comments should be submitted in writing not later than December 27, 2003 to:

Executive Officer
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

The application number shall appear on the first page of any submitted comments. All comments received by the above date will be considered in the formulation of the final determinations.

XI. Public Hearing

The Waste Discharge Requirements will be considered by the Regional Board at a public hearing to be held at the City of La Quinta City Council Chambers, 78495 Calle Tampico, La Quinta on January 14, 2004.

XII. Waste Discharge Requirements Appeals

Any person may petition the State Board to review the decision of the Regional Board regarding Waste Discharge Requirements. A petition must be made within 30 days of the Regional Board's hearing.

XIII. Additional Information

Persons wishing further information may write to the following address:

California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

or call the Regional Board at (760) 346-7491.

TABLE 1
PROPOSED EFFLUENT AND RECEIVING WATER LIMITATIONS
NPDES PERMIT NO. CA7000009
BOARD ORDER NO. R7-2004-0009
CITY OF CALEXICO WWTP

EFFLUENT LIMITATIONS

1. Representative samples of wastewater discharged to the New River from the treatment systems shall not contain constituents in excess of the limits indicated below.

Constituent	Unit	30-Day Arithmetic Mean Discharge Rate[7]	7-Day Arithmetic Mean Discharge Rate[8]
20^{o} C BOD_5[5]	mg/L[6]	30	45
	lb/day[7]	1,100[8]	1,600
Total Suspended Solids	mg/L	36	53
	lb/day	1,300	1,900
Total Dissolved Solids	mg/L	4000	4500
	lb/day	140,000	160,000

2. The 30-day monthly average percent removal of the pollutant parameter BOD_5 and Total Suspended Solids shall not be less than 85 percent.

3. The hydrogen ion (pH) of the effluent shall be maintained within the limits of 6.0 to 9.0.

4. Wastewater effluent discharged to the New River shall not have a geometric mean *Escherichia coli* (E. coli) concentration in excess of 126 Most Probable Number (MPN) per 100 milliliters (based on a minimum of not less than five (5) samples for any 30-day period) nor shall any sample exceed 400 MPN per 100 milliliters. The compliance point for this effluent limitation shall be at a location acceptable to the Regional Board's Executive Officer or his designee.

5. There shall be no acute or chronic toxicity in the treatment plant effluent nor shall the treatment plant effluent cause any acute or chronic toxicity in the receiving water. All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or indigenous aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, or bioassays of appropriate duration or other appropriate methods specified by the Regional Board.

6. Based on the Reasonable Potential Analysis, numeric Water Quality Based Effluent Limits are required for these constituents.

[7] 30 Day Mean- Monthly arithmetic mean sample concentration
[8] 7 Day Mean- Weekly arithmetic mean samples concentration
[5] BOD_5 - Biochemical Oxygen Demand
[6] mg/L - milligrams per Liter
[7] lb/day - pounds per day (Calculated as flow rate (MGD) x 8.34 x Concentration (mg/L))
[8] Based on a design treatment capacity of 4.3 MGD

Constituents	Unit	Date Effluent Limit Becomes Effective	Average Monthly Effluent Limit[9]	Maximum Daily Effluent Limit[9]
Copper (interim)	µg/L	January 25, 2004	7.9	7.9
Copper (final)	µg/L	January 14, 2009	2.39	4.80
Mercury (interim)	*u*g/L	January 25, 2004	0.102	0.102
Mercury (final)	*u*g/L	January 14, 2009	0.051	0.102

RECEIVING WATER LIMITATIONS

1. Receiving water limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. The discharge shall not cause the following in the New River:

    a. Depress the concentration of dissolved oxygen to fall below 5.0 mg/L. When dissolved oxygen in the receiving water is already below 5.0 mg/L, the discharge shall not cause any further depression.

    b. The presence of oil, grease, floating material (liquids, solids, foam and scum) or suspended material in amounts that create a nuisance or adversely affect beneficial uses.

    c. Result in the deposition of pesticides or combination of pesticides to be detected in concentrations that adversely affect beneficial uses.

    d. Aesthetically undesirable discoloration or odors in the receiving water.

    e. A significant increase in fungi, slime, or other objectionable growth.

    f. Increase turbidity that results in affecting beneficial uses.

    g. The normal ambient pH to fall below 6.0 or exceed 9.0 units.

    h. Impact the receiving water temperature, resulting in adversely affecting beneficial uses.

    i. Result in the deposition of material that causes nuisance or adversely affects beneficial uses.

    j. The chemical constituents to exceed concentrations that adversely affect beneficial uses or create nuisance.

    k. Toxic pollutants to be present in the water column, sediments or biota in concentrations that adversely affect beneficial uses or that produce detrimental physiological responses in human, plant, animal, or aquatic life.

    l. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause or otherwise adversely affect beneficial uses.

2. This discharge shall not cause a violation of any applicable water quality standard for receiving

[9] Compliance with the Average Monthly Effluent Limit and Maximum Daily Effluent Limit shall be determined as described in Section 2.4.5 Compliance Determination (Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California)

waters adopted by the Regional Board or the State Water Resources Control Board as required by the Federal Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Regional Board will revise and modify this Permit in accordance with such more stringent standards.