

# CHAPTER 4 - IMPLEMENTATION

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## I. INTRODUCTION

The Porter-Cologne Water Quality Control Act states that basin plans consist of Beneficial Uses, Water Quality Objectives and an Implementation Program for achieving the water quality objectives. The Implementation Program is required to include, but is not limited to:

- A description of the nature of actions which are necessary to achieve the water quality objectives, including any recommendations for appropriate action by any entity, public or private;
- A time schedule for actions to be taken;
- A description of surveillance to be undertaken to determine compliance with the objectives.

## A. REGIONAL BOARD GOALS AND MANAGEMENT PRINCIPLES

The regulatory activities of the Regional Boards are the primary mechanism for water quality control. In view of this, and in view of the limited water resources in the Colorado River Basin Region and their increasing use, the Regional Board directs its actions toward the following goals and management principles:

- Preserve and enhance the quality of waters, both ground and surface, fresh and saline, for present and anticipated beneficial uses, taking social and economic factors into consideration.
- Encourage reclamation of wastewaters, wherever feasible, in order to preserve freshwater supplies and to protect water quality to the maximum extent possible.
- Preserve the integrity of ground water basins, so that the basins remain capable of storing water for beneficial uses.
- Seek improvement in the quality of international and interstate waters entering the Region.
- Waste collection, treatment, and discharge systems in addition to their primary function, shall also be oriented towards optimization of the quality of state waters and the reclamation of wastewaters for beneficial use.
- The optimization of water quality, where feasible, will be considered in relation to environmental goals.
- Controllable water quality factors will be regulated to ensure preservation of the integrity of usable ground water basins.
- Source control and pretreatment of wastes will be required wherever necessary to minimize degradation of water quality.
- The transport of hazardous materials should be controlled to prevent spillage and leakage.
- Wastes which have a long-term capability of polluting water will be disposed of at approved sites, and in such a manner as to not enter usable waters of the State.
- The administration of grants and loans to public entities shall be in accordance with applicable rules and regulations, including determination of implementation of adequate source control and industrial waste control ordinances.
- Ground water recharge with water of adequate quality is encouraged, wherever feasible.
- Evaporative loss of reclaimable wastewater is to be minimized.

## B. GENERAL IMPLEMENTATION

The Regional Board will implement this Water Quality Control Plan by taking the following actions:

- Encourage water conservation and reuse of reclaimable water in situations where water quality and beneficial uses are not adversely impacted. The Regional Board considers that by proper management of reclaimable wastewater, possible adverse impacts on ground water quality as well as potential ground water overdraft

could be minimized. The Regional Board encourages local agencies responsible for water supply and/or wastewater treatment and disposal to investigate conservation measures, and to maximize utilization of reclaimed water for greenbelt irrigation where socially and economically feasible.

- Protect ground waters against land operations, particularly discharges of soluble minerals, toxicants, and taste-producing materials on permeable soils, so that beneficial uses will not be impaired. This is normally accomplished by prescription and enforcement of Waste Discharge Requirements.
- Review local ordinances relating to individual waste treatment and disposal systems and request that local agencies adopt ordinances which are compatible with State Board and Regional Board policies and guidelines for those systems.
- Eliminate discharges of wastes that threaten water quality or create nuisance conditions. This includes elimination of discharges from individual subsurface sewage disposal facilities, unless Regional Board policies and/or guidelines are followed.

## **II. POINT SOURCE CONTROLS**

Section 13263 of the California Code of Regulations (Porter-Cologne Act) requires that Waste Discharge Requirements be prescribed for any discharge or proposed discharge that could affect the quality of the waters of the state, other than into a community sewer system. All industrial discharges that meet this definition are regulated with Waste Discharge Requirements.

In addition to Waste Discharge Requirements (WDRs), a National Pollutant Discharge Elimination System (NPDES) permit may be required for the discharge. Section 122 of Title 40 of the Code of Federal Regulations (40 CFR) requires that NPDES permits be obtained for all point source discharges to "waters of the United States". Waters of the United States is defined in Section 122.2 and is generally interpreted to mean any surface water in the State, including lakes, rivers, streams, wetlands, mudflats, sandflats, sloughs, or playa lakes.

The NPDES program objective is to regulate the discharge of wastewaters and storm waters to surface waters of the State so that the beneficial uses of these waters are protected and enhanced. NPDES permits are federal permits, but California has been delegated authority by the USEPA to administer NPDES permits.

In order to implement the above stated objective, individual and general NPDES permits are developed and adopted by the Regional Board. The Regional Board has adopted a general NPDES permit to regulate the discharge of extracted and treated ground water resulting from the cleanup of ground water polluted by fuel and other related waste leaks. Also, the discharge of hydrostatic test water to surface waters is regulated through a general NPDES permit. The State Board adopted general NPDES permits to regulate the discharge of stormwater resulting from industrial and construction sites to surface waters. The issuance of general permits provide for more efficient and economical regulation of discharges of wastewaters that require the same type of control and monitoring, as opposed to issuing individual permits for each discharger.

In addition to regulating discharges of wastewater to surface waters, NPDES permits also require municipal sewage treatment systems to conduct pretreatment programs if their design capacity is greater than 5 million gallons-per-day. Smaller municipal treatment systems may be required to conduct pretreatment programs if there are significant industrial users of their systems. The pretreatment programs must comply with the federal regulations in 40 CFR 403.

The NPDES program involves the issuance of new permits, reissuance of expired permits, conducting compliance inspections, review of monitoring reports, and taking enforcement actions against dischargers who fail to comply with the conditions of their permit. Potential enforcement actions include letters of noncompliance, notices of violation, cleanup and abatement orders, cease and desist orders, imposition of administrative civil liabilities, and referral to the State Attorney General.

## A. GEOTHERMAL DISCHARGES

The Regional Board closely monitors the activities of those companies that are developing geothermal resources. The Regional Board issues waste discharge requirements that regulate the drilling of geothermal wells, the operations at the power plants, and the disposal of geothermal wastes produced during these operations. The Regional Board works closely with the California Division of Oil and Gas to regulate these facilities in accordance with the Memorandum of Agreement between the State Water Resources Control Board and the Department of Conservation, Division of Oil and Gas, as amended by State Board Resolution No. 88-61. This agreement generally requires the Division of Oil and Gas to issue permits to regulate subsurface discharges and requires the Regional Board to issue waste discharge requirements to regulate surface discharges.

## B. SLUDGE APPLICATION

The U.S. Environmental Protection Agency recently promulgated new regulations for sludge use and disposal. These regulations are applicable to land application, surface disposal, and incineration of municipal sludge. These regulations are contained in 40 CFR, Section 503.

There is increasing interest in the beneficial use of municipal wastewater treatment plant sludges as an agricultural soil amendment. State and Federal regulations establish heavy metals application rates for sludge used in the growing of crops. The new federal regulations establish heavy metals and pathogen limitations for "clean" sludge.

The Regional Board's primary concerns related to sludge are contamination of groundwater by sludge composting facilities and potential contamination of surface waters from tailwater discharges off fields where sludge has been applied. Sludge composting facilities are attracted to this Region because of the sunny climate, low cost of land, relatively low population density, and close proximity to major Southern California population centers.

Regional Board measures for regulating sludge use are as follows:

- Permits issued to domestic wastewater treatment facilities will be modified to incorporate the requirements of 40 CFR 503.
- Sludge composting facilities will be regulated through the prescription and enforcement of WDRs.
- Waste Discharge Requirements or waivers will be issued to land applicers of sludge on a case by case basis, although properly composted sludge may be exempted.

## C. MUNICIPAL WASTEWATER TREATMENT PLANTS

Regulating discharges from municipal wastewater treatment plants is done through either the issuance of National Pollutant Discharge Elimination System (NPDES) permits where the discharge is to surface water or through Waste Discharge Requirements (WDRs) where the discharge is to land. The discharge of wastewater effluent to surface water will meet the effluent limitations prescribed by the U.S. Environmental Protection Agency. The current USEPA effluent limitations for secondary treatment are as follows:

<u>Constituent</u>	<u>30-Day Arithmetic Mean Discharge Rate</u>	<u>7-Day Arithmetic Mean Discharge Rate</u>
20°C BOD <sub>5</sub>	30 mg/L	45 mg/L
Suspended Solids	30 mg/L	45 mg/L

pH - The effluent values for pH shall remain within the limits of 6.0 to 9.0

The arithmetic mean of the values for effluent samples collected for 20°C BOD<sub>5</sub> and Suspended Solids (SS) in a period of 30 consecutive days shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).

## **D. WASTEWATER RECLAMATION AND REUSE**

Wastewater reclamation and reuse is encouraged by this Regional Board. However, for wastewater reclamation and reuse facilities it is necessary to meet the water quality standards set by the Regional Board. Also, all state, federal, and local standards must be adhered to when reclaimed wastewater is used in this Region. Waste Discharge Requirements would be necessary where potential public and worker contact is high and where reclaimed water is used in large amounts. Currently, the primary use of reclaimed wastewater is golf course irrigation.

## **E. CONFINED ANIMAL FACILITIES**

The State and Regional Boards have adequate authority under federal regulations and under the California Water Code (in general), and regulations contained in Title 23, Chapter 15, Article 6 (in particular), to fully regulate waste disposal activities at confined animal facilities. Additional and/or more stringent measures may be required in those areas overlying threatened or impaired sources of drinking water.

There are three types of confined animal facilities operating in this Region: fish farms, dairies, and feedlots. City and county offices have been notified to provide information to the Regional Board about the location of facilities in this Region. All these facilities are required to submit a Report of Waste Discharge to the Regional Board. Facilities may request a waiver from Waste Discharge Requirements which may be granted as long as the discharge does not create pollution, contamination, or nuisance as described by Section 13050 of the California Water Code. Periodic inspections are conducted to observe the performance of the facilities under the program.

## **F. STORMWATER**

Federal regulations require National Pollutant Discharge Elimination System (NPDES) permits for discharges of stormwater associated with:

- municipalities with populations of 100,000 persons or more;
- construction activities that disturb one or more acres of land; and
- certain specified industrial activities.

California is a delegated NPDES state, and has authority to administer the NPDES program within its borders. Two general NPDES stormwater permits have been adopted by the State Water Resources Control Board to administer two parts of the stormwater program; one for industrial activity discharges and one for construction activity discharges. Discharges of stormwater from municipalities are regulated with individual NPDES permits.

Enforcement of the two general NPDES stormwater permits is the responsibility of the Regional Board. The number of facilities and projects applicable to these permits is expected to be large. The first priority of the Regional Board is to assure that all applicable industrial facilities and construction projects have filed for their respective general NPDES permits. The next priority is to assist the dischargers in achieving and maintaining compliance with the general NPDES permits. Emphasis will be placed on maintaining a cooperative approach with the dischargers.

The Municipal Storm Water Permitting Program regulates storm water discharges from Municipal Separate Storm Sewer Systems (MS4s). MS4 permits, as described in the State Water Resources Control Board's web site ([http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/municipal.shtml](http://www.waterboards.ca.gov/water_issues/programs/stormwater/municipal.shtml)), were issued in two phases.

Under Phase I, which started in 1990, the nine Regional Boards adopted NPDES storm water permits for medium municipalities with populations between 100,000 and 250,000 people, and for large municipalities with populations of 250,000 people or more. On March 14, 1991, the Executive Officer of the Colorado River Basin Regional Board designated the Whitewater River region as an area required to have a Phase I NPDES MS4 permit. The first MS4 permit (Order No. 96-015, NPDES No. CAS 617002) expired on May 22, 2001. The permit was renewed by Regional Board Order No. 01-077 (NPDES No. CAS617002) on September 5, 2001.

The County of Riverside and the Riverside County Flood Control and Water Conservation District, in cooperation with the Coachella Valley Water District and incorporated cities, including the cities of Banning, Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs and Rancho Mirage (permittees), jointly submitted an NPDES application on March 9, 2006. Along with the application, they submitted a report of waste discharge for re-issuance of the MS4 permit to carry out the activities, regional compliance programs, and responsibilities prescribed in the previously issued NPDES permit (Order No. 01-077). The most recent MS4 permit for permittees was adopted by the Regional Board (Order No. R7-2008-0001) on May 21, 2008.

As part of Phase II, the State Board adopted a general permit for the discharge of storm water from small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which are government facilities such as military bases, public school campuses, and prison and hospital complexes. In March 2009, the County of Imperial and the cities of El Centro, Imperial, Brawley, and Calexico enrolled in the Small MS4 program. Their permit can be viewed at: [http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/phase\\_ii\\_municipal.shtml/](http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml/).

Discharges of storm water runoff from lands owned by Caltrans are currently regulated under a separate NPDES permit (Order No. 99-06-DWQ: NPDES No. CAS 000003) issued by the State Board. The complete description of this program can be found at the following link: [http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/caltrans.shtml/](http://www.waterboards.ca.gov/water_issues/programs/stormwater/caltrans.shtml/).

## **G. BRINE DISCHARGES**

Discharges of water softener regeneration brine are prohibited to facilities which ultimately discharge in areas where such wastes can percolate to ground water usable for domestic and municipal purposes. The Regional Board requests that local agencies adopt ordinances to prohibit discharges of these brines to ground waters, surface waters, or into community sewers.

## **H. SEPTIC SYSTEMS**

### **1. STATEWIDE ONSITE WASTEWATER TREATMENT SYSTEM REQUIREMENTS**

Requirements for siting, design, operation, maintenance, and management of onsite wastewater systems are specified in the State Water Resources Control Board's Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy). The OWTS Policy sets forth a tiered implementation program with requirements based upon levels (tiers) of potential threat to water quality. The OWTS Policy includes a conditional waiver of waste discharge requirements for onsite systems that comply with the policy.

The OWTS Policy, including future revisions, is incorporated into this Basin Plan and shall be implemented according to the OWTS Policy's provisions.

### **2. PROHIBITIONS**

#### **A. Cathedral City Cove**

On and after January 1, 2012, the discharge of wastewater into the ground through the use of individual subsurface disposal systems in the Cove area of Cathedral City in Riverside County is prohibited. Cathedral City Cove is that area of the city bound to the south by Cathedral City city limits as of January 1, 2012, to the east by the East Cathedral Canyon Channel, to the west by the West Cathedral Canyon Channel, and to the north east by the extension of the West Cathedral Canyon Channel, as depicted in the USGS Cathedral City Quad Map photorevised in 1981.

### **Cathedral City Cove - Reports**

On October 17, 2002, the State Water Resources Control Board approved a \$2,809,000.00 grant to the city of Cathedral City for Cove area septic system elimination. Pursuant to Section 13225 of the Water Code, by May 21, 2004 the City of Cathedral City shall submit to the Regional Board a report describing an implementation plan to comply with the January 1, 2012 prohibition date. Thereafter, the city shall submit annual reports to the Regional Board regarding any actions taken by the city of Cathedral City or any other person or entity in order to achieve compliance by January 1, 2012.

### **B. Mission Creek or Desert Hot Springs Aquifers**

The following language implements Porter-Cologne Water Quality Control Act Section 13281.

Effective January 21, 2005:

- The discharge of waste from new or existing individual disposal systems on parcels of less than one-half acre that overlie the Mission Creek Aquifer or the Desert Hot Springs Aquifer in Riverside County is prohibited, if a sewer system is available.
- For parcels of one-half acre or greater that overlie the Mission Creek Aquifer or the Desert Hot Springs Aquifer in Riverside County, the maximum number of equivalent dwelling units with individual disposal systems shall be two per acre, if a sewer system is available. The discharge of waste from additional new or existing individual disposal systems is prohibited, if a sewer system is available. The term "equivalent dwelling unit" means a building designed to be used as a home by the owner of such building, which shall be the only dwelling located on a parcel of ground with the usual accessory buildings. This definition is from Section 221.0 of the 1997 edition of the Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials, and any authority interpreting that section shall be relevant in interpreting this prohibition.

If a sewer system becomes available after January 21, 2005, Prohibitions (1) and (2) in the preceding paragraph shall apply to discharges of waste from all new or existing individual disposal systems on all parcels to which the sewer system becomes available.

A sewer system is "available" if a sewer system, or a building connected to a sewer system, is within 200 feet of the existing or proposed dwelling unit, in accordance with Section 713.4 of the 1997 edition of the Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials.

State Water Resources Control Board awarded two grants to Mission Springs Water District for a total of \$2,800,000 for the elimination of disposal systems (septic tanks) on parcels less than one-half acre overlying the Desert Hot Springs and Mission Creek Aquifers if sewer is available. Pursuant to Section 13225 of the Water Code, by November 18, 2005, the Mission Springs Water District shall submit to the Regional Board a report describing actions taken to implement the subject prohibition.

### **C. Town of Yucca Valley**

Pursuant to Section 13280 of the California Water Code, the discharge of wastewater from new or existing individual disposal systems on parcels within Phase 1, Phase 2, and Phase 3 of the Hi-Desert Water District Sewer Master Plan (Final Report, January 2009) is prohibited with certain exceptions noted below.

### **Time Schedule for Implementation:**

The prohibition shall become effective for all parcels within Phase 1 of the Hi-Desert Water District Sewer Master Plan by May 19, 2016, or when a municipal sewage collection system becomes available, whichever occurs first.

The prohibition shall become effective on parcels within Phase 2 of the Hi-Desert Water Districts Sewer Master Plan by May 19, 2019, or when a municipal sewage collection system becomes available, whichever occurs first.

The prohibition shall become effective on parcels within Phase 3 of the Hi-Desert Water Districts Sewer Master Plan by May 19, 2022, or when a municipal sewage collection system becomes available, whichever occurs first. All three phases are shown in Figure 4-1.

A municipal sewage collection system is defined as “available” once the system is operational, and is located within 500 lineal feet of an existing or proposed new disposal system discharge.

### **Reporting**

Pursuant to Section 13225 of the California Water Code, by January 1, 2012, the Hi-Desert Water District (HDWD) shall submit to the Regional Water Board a report describing an implementation plan to comply with the May 19, 2016, the May 19, 2019, and the May 19, 2022 prohibition dates.

Thereafter, HDWD shall submit bi-annual reports to the Regional Water Board by January 1<sup>st</sup> and July 1<sup>st</sup> of each year regarding any actions taken by HDWD or any other person or entity in order to achieve compliance by the above deadlines.

HDWD will be contracting with USGS to study further the impact from septic system discharges in Phases 2 and 3. HDWD will be submitting the results of the study to the Regional Water Board for consideration of modification of the Prohibition.

### **Prohibition Exemptions**

Exemptions to this Prohibition shall be considered and may be granted by the Regional Water Board on a case-by-case basis pursuant to an application submitted to the Executive Officer by any person or entity that is subject to the Prohibition (Discharger). Such exemptions shall be based upon the weight of the evidence demonstrating the existence of unique conditions applicable to the Discharger, its discharge, and its property in question. These conditions include, but are not limited to, technical, environmental, or economic conditions that would make connection to the collection system or installation of an on-site advanced treatment and disposal system technically impracticable or economically excessively burdensome. To be considered for an exemption, the Discharger shall apply to the Executive Officer for relief in writing and document the conditions that would make connection to the collection system or installation of an advanced on-site treatment and disposal system technically impracticable or economically excessively burdensome. The application shall also include:

- Written quotes from three State licensed commercial contractors regarding the estimated cost to install, operate, and maintain the advanced on-site treatment and disposal system; and
- A financial statement regarding the applicant’s average income for the last five years, and the applicant’s most recent property value assessment.

The Regional Water Board shall give substantial consideration to applications accompanied by a letter of support for the exemption from HDWD.

The Executive Officer shall have thirty (30) days from receipt of the application to notify the Discharger in writing whether the application is complete. Following receipt of a complete application, the Executive Officer shall make a preliminary determination of whether the Discharger qualifies for an exemption and shall make a

recommendation to the Regional Water Board based on that determination whether the exemption should be granted or denied. The Executive Officer shall then notify the Discharger in writing regarding that recommendation and when the matter will be scheduled for the Regional Water Board's consideration at a public hearing.

### **Compliance Assurance and Enforcement**

It is the Regional Water Board's objective to work cooperatively with the Dischargers who are subject to this Prohibition to help them achieve compliance with the terms of the Prohibition. Consistent with this objective, the Executive Officer shall assist the Dischargers achieve compliance with the terms of this Basin Plan amendment. In this regard, the Executive Officer shall continue to assist the Town of Yucca Valley and HDWD obtain financial assistance and, within forty-five (45) days following approval of the amendment by the California Office of Administrative Law (OAL), shall notify in writing all Dischargers regarding:

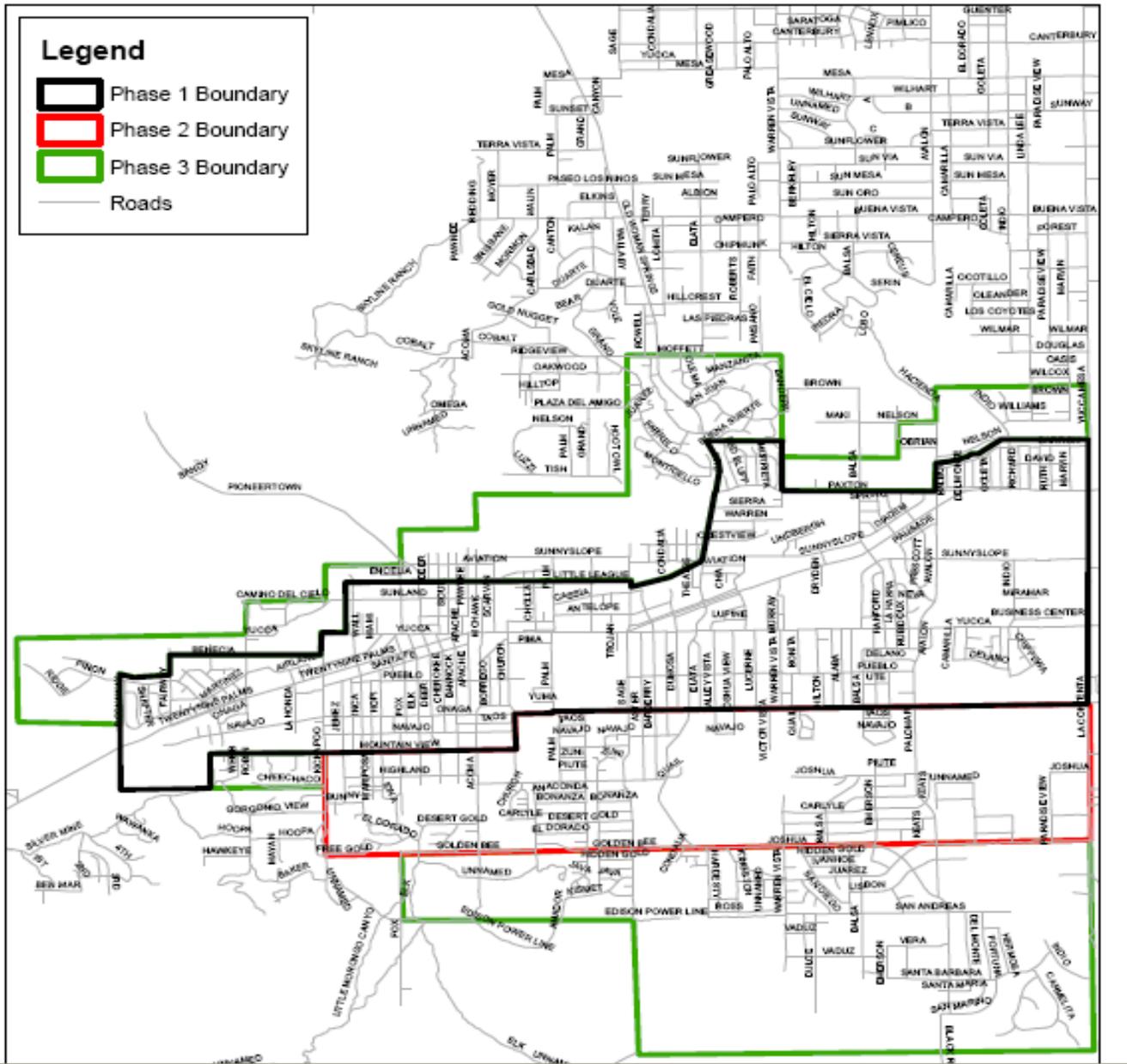
1. the key deadlines of this Prohibition,
2. options available to comply with the amendment, and
3. sources of potential financial and technical assistance.

The Regional Water Board recognizes that there may be circumstances where a Discharger is not responsive to staff compliance efforts. In these cases, the State Water Resources Control Board's Water Quality Enforcement Policy provides clear guidance on the options available to the Regional Water Board to bring the Discharger into compliance. In these circumstances, the Regional Water Board enforcement staff shall implement prompt, consistent, predictable, fair, and progressive enforcement to bring the Discharger into compliance at the earliest practicable date with the terms of this Prohibition. Towards this end, the Regional Water Board staff may take any combination of the following actions, as the circumstances of the case may warrant:

- Issue Notice of Non-Compliance letters;
- Issue an order pursuant to Section 13267 of the California Water Code to ensure that a Discharger submits, in a prompt and complete manner, a technical report to bring its discharge into compliance with this Prohibition;
- Issue a Cleanup and Abatement order pursuant to Section 13304 of the California Water Code against any Discharger who violates the Prohibition and/or threatens a condition of nuisance or pollution;
- Prepare for consideration of adoption by the Regional Water Board, a Cease and Desist order pursuant to Section 13301 of the California Water Code against any Discharger who violates the Prohibition;
- Issue Administrative Civil Liability Complaints, as provided for by the California Water Code, against any responsible party who fails to comply with Regional Water Board orders and/or the Prohibition.

The Executive Officer is hereby directed to provide the Regional Water Board an annual written report regarding overall progress to achieve compliance with the terms of this prohibition. The first annual report shall be due on May 23, 2012.

Figure 4-1 HDWD SEWER MASTER PLAN PHASES



### III. NONPOINT SOURCE CONTROLS

Despite California's significant achievements in controlling point source discharges, such as wastewater from municipal treatment plants and industrial facilities, many of the State's valuable water resources continue to be polluted by nonpoint sources (NPS). NPS water pollution is generally caused by poor land use practices and the collective effects of individual behavior. It is distinguished from point sources which discharge wastewater of predictable concentrations and volumes. NPS pollution is diffuse throughout a watershed, variable in nature, and most significant in its cumulative effects. Management of NPS water pollution is also distinguished from point source management because it requires an array of control techniques customized to local watershed conditions, rather than relying exclusively on waste discharge requirements as with individual point source facilities. Land uses associated with NPS water pollution include agriculture, forestry, urban development, grazing, water development, inactive mines, and boating and marinas.

Impacts from land uses to California's water resources continue. Unless these uses are managed in a way which will minimize NPS impacts, the resource values will diminish, lowering land values and discouraging future use. The challenge of nonpoint source pollution management is to implement economically achievable protections which will preserve the resources upon which California's quality of life and economic vitality depend.

The Federal Clean Water Act, as amended in 1987, includes Section 319 titled "Nonpoint Source Management Programs". Section 319 requires the States to develop assessment reports and management programs describing the States' nonpoint source problems and setting forth a program to address the problems. The State Water Resources Control Board (State Board) adopted its "Nonpoint Source Management Plan" in November 1988. The Plan was updated in December 1999 with adoption of the "Plan For California's Nonpoint Source Pollution Control Program," (hereafter referred to as "State NPS Program"), including "Volume I: Nonpoint Source Program Strategy and Implementation Plan for 1998-2013 (PROSIP)" and "Volume II: California Management Measures for Polluted Runoff (CAMMPR)" (adopted December 14, 1999, SWRCB Resolution No. 99-114). This Plan has an approach to NPS water quality control whereby the following are implemented as needed:

1. Self-determined implementation of Management Practices (MPs);
2. Regulatory-based encouragement of Management Practices; and
3. Effluent requirements.

Depending on water quality impacts and severity of NPS problem, the Regional Board may move directly to full regulatory and complementary enforcement actions. It is the preference of the Regional Board to regulate nonpoint sources of pollution using the least stringent methods possible, while attaining water quality standards.

The Porter-Cologne Water Quality Control Act is also used by the State Board and Regional Boards to direct nonpoint source pollution control activities. The Porter-Cologne Act is California's comprehensive water quality control program and applies to both ground waters and surface waters. Its principal means of implementing water quality controls is through issuance of waste discharge requirements which can be applied to both point source and nonpoint source discharges.

There is close cooperation between the State Board's Nonpoint Source Program and this Region's Nonpoint Source Program. Much of the funding for these programs comes from federal grants which are designed to assist in implementation of the federal Clean Water Act provisions on nonpoint source pollution control. Some of the important activities of these nonpoint source programs include development of water quality assessments, development and oversight of NPS pollution control demonstration projects, active cooperation with other affected state, local and federal agencies, identification, development and implementation of MPs, program development activities, public participation, and educational outreach activities.

The Regional Board adopted an updated Clean Water Act Section 303(d) list, which, in part, identifies the quality of the waters of the Salton Sea, Alamo River, New River, and Imperial Valley agricultural drains as being impaired by discharges of wastes from nonpoint sources, primarily of agricultural origin. The Alamo River and New River are the two largest drains in this Region that are significantly impaired by agricultural pollution. Nonpoint source pollution in this Region also originates from sources other than agriculture including abandoned mines, stormwater runoff, boating activities, alterations to land (e.g. urban development), and animal production activities. Storm water discharges have been discussed earlier in this chapter. Alterations to land are discussed

below under "State Water Quality Certification". The other sources of nonpoint source pollution will be investigated and appropriate actions taken pending the availability of funding.

Consistent with the 1999 State NPS Program, the Regional NPS Management Program includes:

- Implementation of the "Plan for California's Nonpoint Source Pollution Control Program"
- Implementation of this Basin Plan
- Implementation of other applicable statewide plans and policies
- Development and implementation of Total Maximum Daily loads for impaired and threatened surface waters
- Implementation of Regional planning and prioritization through the California Watershed Management Initiative
- Completion of annual workplans
- Public participation and coordination with stakeholders and cooperating agencies
- Coordination with local governments in the development of General Plans
- Formal agreements (Memoranda of Understanding and Management Agency Agreements)
- Implementation of the NPS Regulation
- Financial and technical assistance
- Water Quality Monitoring and Assessment and Regular Reporting, and
- Assessment of Management Measure Effectiveness

## **A. AGRICULTURE**

### **1. INTRODUCTION**

Agricultural wastewater discharges, primarily irrigation return flows, constitute the largest volume of pollution entering surface waters in this Region. The agricultural drains/drain systems in this Region support significant beneficial uses as identified in Chapter 2 of this Plan. In an effort to protect and enhance these uses, the Regional Board adopted the "Agricultural Drainage Management (ADM) Report for the Colorado River Basin Region" in March 1992. This report established priorities for dealing with the drain systems based on a watershed approach. Drainage entities (e.g. water districts), including Imperial Irrigation District, Coachella Valley Water District, and Palo Verde Irrigation District, were identified in each of four watersheds, and the Regional Board will work closely with these entities to implement agricultural pollution controls.

The preferred approach toward addressing nonpoint source pollution is to deal with the problem on a watershed basis. The Salton Sea Transboundary Watershed has been identified as this Region's highest priority for control of agricultural pollution, based mainly on its relatively large size, the beneficial uses of waters in the watershed, the volume of discharge, and the severity of water quality degradation. California's 1998 Unified Watershed Assessment identified the Salton Sea Transboundary Watershed as a Category 1 (impaired) watershed.

The effectiveness over time of agricultural pollution controls is much more likely if all involved parties (e.g. farmers, local officials, the public) are informed of these activities and play a role in their development and implementation. In recognition of this, the state and federal nonpoint source programs contain significant outreach and educational components. In addition to working with the identified drainage entities, the Regional Board will continue to work with local Resource Conservation Districts, the U.S. Natural Resource Conservation Service, the State Department of Pesticide Regulation, the State Department of Food and Agriculture, County Agricultural Commissioners, college and university agricultural extension services, local Farm Bureaus, and stakeholder groups. The Regional Board also has the responsibility of coordinating and overseeing implementation of federal and state grants and loans programs that provide resources to local entities for control of nonpoint source pollution. The Regional Board will provide technical and educational assistance on pollution control as requested by local groups and will collect and make available information on successful pollution control activities in other regions and other states.

## **2. CONDITIONAL DISCHARGE PROHIBITIONS FOR AGRICULTURE**

### **A. Imperial Valley Sedimentation/Siltation**

A prohibition of sediment/silt discharge is hereby established for the Imperial Valley, including the Alamo River, New River, all Imperial Valley Drains, and their tributaries. Specifically, beginning three months after USEPA approval, the direct or indirect discharge of sediment into the Imperial Valley is prohibited, unless

#### **The Discharger is:**

- In compliance with applicable Sedimentation/Siltation TMDL(s), including implementation provisions (e.g., Discharger is in good standing with the ICFB Watershed Program or has a Drain Water Quality Monitoring Plan (DWQMP) approved by the Executive Officer); or
- Has a monitoring and surveillance program approved by the Executive Officer that demonstrates that discharges of sediment/silt into the aforementioned waters do not violate or contribute to a violation of the TMDL(s), the anti-degradation policy (State Board Resolution No. 68-16), or water quality objectives; or
- Is covered by Waste Discharge Requirements (WDRs) or a Waiver of WDRs that applies to the discharge.

TMDL compliance groups have formed to address issues regarding wastewater discharge from irrigated lands to waters of the state. Individual Dischargers are not required by the Regional Board to join in TMDL compliance groups. Individual Dischargers who choose not to participate in TMDL compliance groups must file a Report of Waste Discharge for general or individual Waste Discharge Requirements. Compliance with the prohibition will be determined with respect to each individual Discharger, whether or not the Discharger is a member of a compliance group. The intent of this prohibition is to control to the degree practicable sediment/silt discharges from irrigated lands in amounts that violate or contribute to a violation of state water quality standards

### **B. STATE WATER QUALITY CERTIFICATION**

The Water Quality Certification program is authorized by Clean Water Act Section 401. Certification, or waiver of Certification is required for any activity which requires a federal permit or license and which may result in a discharge to waters of the United States. Issuance or waiver of Certification is based on a determination that state water quality standards will not be violated. Federal regulations define water quality standards as including a state's water quality objectives, designated beneficial uses, and anti-degradation policy, which requires that "existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected" (40 CFR 131). Section 13160 of the Porter-Cologne Water Quality Control Act designates the State Board as the state's water pollution control agency for all purposes stated in the Federal Clean Water Act (CWA) and any other federal act, including issuance of Certification. Section 13160.1 authorizes the state to establish a reasonable fee schedule to cover the cost of processing Certification requests.

Except for discharges associated with hydroelectric activities, the State Board has delegated to the Regional Board the authority to evaluate projects for Certification. The Regional Boards have been delegated the authority to determine whether or not to waive Certification, or to recommend that the State Board issue Certification, a denial of Certification, or a conditional Certification for the project. This delegated authority covers U.S. Army Corps of Engineers (ACOE) CWA 404 Permits which consist of Individual and General Permits covering dredge and fill operations to waters of the United States.

Implementation of the 401 Water Quality Certification Program in this Region starts with a review of the following documentation for each activity for which Certification is required:

- A formal request for CWA 401 Water Quality Certification for the project submitted by the applicant
- A copy of the final environmental document prepared in compliance with the California Environmental Quality Act (CEQA)
- A full description of the project
- A complete copy of the application for the federal permit or license
- A copy of the California Department of Fish and Game Streambed Alteration permit
- The filing fee specified in the California Code of Regulations

## **IV. SPECIFIC IMPLEMENTATION ACTIONS**

### **A. NEW RIVER POLLUTION BY MEXICO**

The New River rises in Mexico, flows northward across the International Boundary and through California's Imperial Valley before ultimately discharging into the Salton Sea. The River conveys agricultural drainage from the Imperial and Mexicali Valleys to the Salton Sea. The River also conveys community and industrial wastewaters. In Imperial Valley, waste discharge requirements are prescribed and enforced by this Regional Board for discharges of treated community and industrial wastewater. However, Mexico discharges raw and inadequately treated sewage, toxic industrial wastes, garbage and other solid wastes, animal wastes, and occasionally geothermal wastewaters from the Mexicali area into the United States via the New River. These discharges of raw and inadequately treated sewage and industrial wastes have continued for over 40 years. The resulting pollution of the New River at the International Boundary is such that sewage solids continue to be plainly visible in the River at the International Boundary. Also, toxic chemicals have been detected in the River water. Responsibility within the United States for dealing with Mexico on the New River pollution problem is with the United States Section of the International Boundary and Water Commission (IBWC) and the USEPA

The IBWC is a US-Mexican federal agency with roots in the "Treaty of Guadalupe Hidalgo of Peace, Limits and Settlement," which was signed by both Countries in February 1848. IBWC was established as the "International Boundary Commission" (IBC) in 1889 to deal with boundary issues. In 1944, the US and Mexico signed the Treaty entitled "Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande" (a.k.a. the "Mexican-American Water Treaty"), which was ratified by the US Congress in 1945. The Mexican-American Water Treaty changed the name of IBC to IBWC, and expanded their jurisdiction and responsibilities. The IBWC's jurisdiction extends along the boundary and into both countries where international projects have been constructed. The agencies responsibilities include the implementation of boundary and water treaties and mediating disputes that arise in their application. The treaty specifically charged the IBWC with solving border sanitation and water quality problems.

In August 1983, the Presidents of Mexico and the United States signed the La Paz Agreement to protect and improve the environment in the border area. The La Paz Agreement designates the USEPA as the US coordinator for pursuing practical, legal, institutional and technical measures necessary to protect the environment. The agreement originally named Mexican Secretaría de Desarrollo Urbano y Ecología (SEDUE) as the coordinator for Mexico. In 1992, Mexico transferred responsibility for border problems to the Secretaría de Desarrollo Social (SEDESOL). Currently, the Comisión Nacional del Agua (CNA) has primary responsibility for water quality problems along the border for Mexico.

For over 30 years, this Regional Board has been encouraging the United States Commissioner on the IBWC to obtain corrections of this gross problem. Since 1975, the Regional Board has monitored water pollution in the New River in an effort to identify the pollutants coming from Mexico. This information has been forwarded to the United States Commissioner and to others to aid and encourage Mexico in implementing corrective actions.

For sewage service purposes, the Mexicali metropolitan area is divided into the Mexicali I and Mexicali II areas. Mexicali I includes most of the old, well established neighborhoods to the west, the existing municipal sewage collection and treatment system (excluding the Gonzalez-Ortega lagoon system) and the Zaragoza lagoons. The Mexicali II service area includes the new residential and industrial development to the east of the Gonzalez-Ortega lagoons, and the proposed new 20-mgd WWTF. The City of Mexicali is undergoing unprecedented growth. In the year 2000, the "Instituto Nacional de Estadísticas Geografía e Informática" (INEGI) estimated the population within the Municipality of Mexicali to be 765,000 people, and projected a 2.6% annual growth rate. Based on this, the production of domestic and industrial wastewater is projected to increase to 58-67 mgd over the next 20 years. However, Mexicali lacks an adequate sewage collection, conveyance, and treatment system for current and projected flows. It is currently served by two stabilization lagoon systems, which lack disinfection facilities. The systems have a combined design capacity of about 20-25 mgd, however sewage flows calculated by CH2M Hill in 1997 ranged from 35 to 40 mgd.

The Regional Board staff has conducted investigations of the New River watershed in Mexico to determine the type(s) and extent of waste discharges into the New River and its tributaries so that possible corrective measures could be considered. The investigations have been successful in identifying the problems that must be addressed to obtain adequate corrections. These problems include the following:

- Breakdowns in Mexicali's sewer system from either occasional pump failure or line incapacity/collapse resulting in the discharge of raw sewage to the River
- Discharge of untreated industrial wastes to the River including highly toxic chemical wastes, many of which are on EPA's list of 129 priority pollutants and some of which are carcinogens
- Inadequate treatment of sewage and industrial wastes by the Mexicali lagoon systems
- Discharge of solid waste in or near the River and its tributaries
- Discharge of raw sewage to the River from adjacent unsewered residences
- Occasional discharge of wastes to the River by septic tank pumpers
- Periodic direct discharges of untreated wastes from a slaughterhouse, dairy, and hog farms
- Discharges from residential hog and cattle pens located adjacent to the River and its tributaries, and
- Occasional discharges of geothermal wastes to the River.

Described below is a summary of actions taken by various agencies (Federal and State) to correct the international pollution problems in the New River watershed.

In August 1980, Minute No. 264 to the Mexican-American Water Treaty was signed which specified time schedules for completing works that were to result in a full cleanup of the river. In addition, minimal water quality standards were specified for New River water quality at the International Boundary. Unfortunately, the specified schedules and standards of Minute No. 264 were not met and the need for further improvements to Mexicali's sewage work became evident.

In 1987, Montgomery Engineers Inc., was contracted by the Regional Board to investigate pollution abatement measures within the United States for the New and Alamo Rivers. A final report entitled New River Pollution Abatement Report - Recommended Projects, December 1987, recommended that a screening device and chlorination/aeration facility be constructed near the International Boundary. A proposed appropriation of \$1,525,000 for follow-up work including actual engineering designs was rejected by the Governor of California on July 8, 1988. The Administration's position was that pollution emanating from Mexico is a complex international problem which demands an international solution and that the Federal Government must address this issue rather than the State.

On April 15, 1987, Minute No. 274 to the Mexican-American Water Treaty was approved by the governments of Mexico and the United States. The Minute provided for a \$1,200,000 United States/Mexico jointly funded project to construct certain works in Mexico to reduce pollution in the New River. The project included construction of a major new pumping plant and sewer line, placement of standby pumps and rehabilitation of existing pumps at Pumping Plants No. 1 and 2, and purchase of sewer line cleaning equipment. Although efforts were made by the Government of Mexico to rehabilitate and expand the sewage system in Mexicali, the accelerated urban growth surpassed the capacity of these works and discharges of untreated industrial and domestic wastewaters into the New River continued.

Minute No. 288 was signed by the Commissioners in October of 1992 titled "Conceptual Plan for the Long Term Solution to the Border Sanitation Problem of the New River at Calexico, CA - Mexicali, Baja California". It was the result of a recommendation by the United States and Mexico at the IXth US/Mexico Binational Commission that priority attention should be given to the cleanup of the New River. Minute No. 288 established short and long-term solutions for the sanitation of the New River at the International Boundary. These short-term measures, known as "Quick Fixes," were designed to be compatible with the long-term solution, and were funded through a cost sharing agreement between both countries. The U.S. and Mexico funded 55% and 45% respectively, of the total \$7.5 million required for the Quick Fixes. The Binational Technical Advisory Committee (BTAC) implemented the quick fix and is comprised of representatives from IBWC, Mexican Section (CILA), State Public Services Commission of Mexicali (CESPM), National Water Commission (CAN) (, Secretary of Human Settlements and Public Works (SAHOPE), the Municipality of Mexicali for Mexico, the United States IBWC Section, US EPA, California State Water Resources Control Board, Regional Board, Imperial County, and the Imperial Irrigation District. The BTAC improved communication and technology transfer between the two countries. The Quick Fixes are summarized below:

- Improvements to the sewage collection system, either by lining or replacing existing sewer pipes and acquiring modern sewer line cleaning equipment;
- Rehabilitation and upgrading of pumping facilities that lift and deliver wastewater to treatment facilities; and

- Improvements to the existing lagoons at the Ignacio Zaragoza (Mexicali I) and Gonzalez-Ortega wastewater treatment facilities in Mexicali to increase their reliability and capacity.

As of May 2000, nearly 100% of the Quick Fixes were completed and operating successfully.

The long-term strategy consists of a series of sewage infrastructure projects for Mexicali I and Mexicali II service areas to address New River pollution. The Mexicali I projects consist of the replacement/rehabilitation of about 44,000 feet of sewage pipes, rehabilitation of sewage pump stations, and expansion of the Mexicali I wastewater treatment plant to 30 mgd. The Mexicali II projects entail the construction of a new 20-mgd wastewater treatment plant (a.k.a. Mexicali II WWTP), the sewage Pumping Plant No. 4 for the new WWTP, installation of telemetry equipment for the WWTP and pumping plants, construction of 31,170 feet of discharge forcemain<sup>1</sup> for Pumping Plant No. 4, construction/rehabilitation of about 96,000 feet of sewer lines, and rehabilitation of two sewage lift stations. In December 2003, the Border Environment Cooperation Commission (BECC) granted conditional certification for construction of the Mexicali II WWTP at a site known as "Las Arenitas," which is outside the Salton Sea Transboundary Watershed. Effluent from Las Arenitas is discharged to a tributary of the Rio Hardy in Mexico. In October 2006, Mexico completed installation of the 48inch force main for Las Arenitas WWTP, the modifications to Pumping Plant No. 4 to meet the new pumping requirements for Las Arenitas, and construction of the Las Arenitas WWTP. The WWTP was fully functional in December 2008. The cost for this project was approximately 26 million dollars.

Las Arenitas WWTP was designed to prevent any remaining untreated municipal sewage in Mexicali from discharging into the New River. As a result of Las Arenitas, 15-20 million gallons per day of raw sewage routinely present in the New River at the International Boundary (U.S. and Mexico) have been eliminated. Regional Board staff and USIBWC staff will continue to monitor the New River monthly, participate in bi-national technical committee meetings to address New River pollution from Mexico, and participate in bi-national tours to assess and enhance water quality improvements. Regional Board monitoring data (Table 4.1) indicate a 10-fold reduction in New River bacteria, and a reduction in volatile organic compounds to levels below detection as a result of Las Arenitas. The dissolved oxygen in the River at the International Boundary has also improved dramatically, eliminating the stench that characterized the New River at this location. Furthermore, the improvements and new WWTP have reduced nutrient loading into the Salton Sea by about twenty percent. Water quality impairments still occur at the International Boundary due to trash, and various non-point source pollution, such as pesticides from agricultural runoff, and nutrients and pathogens from confined animal feeding operations and slaughterhouses in Mexicali. The tables below compare New River water quality at the International Boundary before and after completion of the bi-national projects, including Las Arenitas.

**TABLE 4.1 COMPARISON OF MONITORING RESULTS BEFORE AND AFTER BI-NATIONAL PROJECTS**

<b>Issue</b>	<b>Pre Bi-national Projects</b>	<b>Post Bi-national Projects</b>
Fecal, E. Coli	> 1,000,000 MPN	~ 100 – 60,000 MPN
Dissolved Oxygen	< 1.0 mg/L	~ 5.0 mg/L
Nutrients (PO4)	40% of Load to Salton Sea	20% of Load to Salton Sea
VOCs	Some detected	Non-detect
Trash	> 150 cu yds/year	> 150 cu yds/year
Pesticides	Detected	Still a problem

<sup>1</sup> CNA is responsible for this project. As of December 1997, a CNA contractor had already installed approximately 1.5 miles of the force main, a 54-inch steel pipe. However, as of January 1998, the project has been on hold reportedly due to problems between CNA and its contractor.

The Regional Board will continue to work with State and Federal authorities in an effort to bring about a solution to this longstanding problem. However, the cooperation of Mexico is crucial in solving this problem. The Regional Board presently supports correction of the problem in Mexico as the most viable solution. The successful implementation of Minutes No. 264 and 288 to the Mexican American Water Treaty would represent an important step in progressing toward this goal.

Water quality sampling and analyses of the New River at the International Boundary by the Regional Board will continue as funding permits. However, the conditions and characteristics of the river at the International Boundary are a federal responsibility. Since the data is forwarded to all the agencies in Mexico and the United States that share responsibility for corrective action, it serves as a constant reminder that there is concern to keep the river clean, and that pressure will continue to be administered by the Regional Board. Monitoring results will be utilized as follows:

- Informing the United States Environmental Protection Agency and other appropriate agencies of pollution problems in the New River at the International Boundary requiring attention;
- Gauging the effectiveness of cleanup measures in Mexico;
- Evaluating Mexico's compliance with the standards set forth in Minute No. 264;
- Formulating plans for construction and operation of facilities needed to assure permanent correction of this New River pollution problem;
- Providing information on the appropriateness of New River water for specific beneficial uses;
- Alerting the State and local health authorities of health hazards associated with New River water; and
- Identifying new pollutants
- Determining compliance with the waste load and load allocation.

## **B. SALTON SEA**

At present the primary water quality problem facing Salton Sea is increasing salinity. Salinity and total dissolved solids are considered equivalent for this discussion. The salinity of the sea was approximately 44,000 mg/l in 1992. Most of the recreationally important species of fish inhabiting the sea were originally transplanted from the Gulf of California where the salinity level is approximately 35,000 mg/l. Previous tests have indicated that spawning of these transplanted fishes is adversely affected at salinity levels above 40,000 mg/l. When salinity increases above 45,000 mg/l it is very questionable if a viable fishery will continue to exist.

Because the Salton Sea is in a closed basin and is replenished primarily by agricultural drainage water containing approximately 3,000 mg/l total dissolved solids, the salinity will continue to rise at about 1-2% per year unless a means of salinity control is devised and implemented. Any reduction in inflows to the sea will cause the salinity to rise more rapidly. The volumes of flow contributed from Mexico and from stormwater runoff will also have a bearing on the rate of salinity increase in Salton Sea.

Another water quality issue facing Salton Sea is the significant input of selenium from agriculture return flows. Relatively elevated levels were first analyzed for and detected in Salton Sea fish during 1984, and have continued to be detected in similar concentrations through 1991 (the last year for which data is available). On May 6, 1986, the California Department of Health Services issued the following advisory on selenium:

- “1. Total consumption by adults of croaker, orangemouth corvina, sargo and tilapia from the Salton Sea should be limited to one 4-ounce portion per two weeks, or one 8-ounce portion per month.
2. Consumption of croaker, orangemouth corvina, sargo and tilapia from the Salton Sea should be avoided altogether by women of child-bearing age and by children under the age of 15 years.”

These recommendations were issued to guard against the effects of excessive selenium ingestion by humans which could include growth and developmental effects in children, and reproductive, neurologic, gastrointestinal, and dermatologic effects in adults. Selenium bioaccumulates in fish and wildlife and poses threats to many species including migratory birds, endangered species, and resident waterfowl and is a significant concern to the Salton Sea Wildlife Refuge and other adjacent parks and refuges.

Most of the selenium entering the Salton Sea comes originally from the Colorado River water which flows into the Salton Sea watershed via the All American Canal and via Mexican canals. The majority of this selenium becomes

concentrated by agricultural usage and is discharged from subsurface tile drains in the Imperial Valley into surface drains which eventually flow into Salton Sea.

## 1. Salinity Control

Many studies have been conducted over the last 25 years in an effort to identify methods to maintain the salinity of Salton Sea at a level that would sustain the Sea's fishery. The Regional Board has been involved with many of these studies and has been an active member of the Salton Sea Task Force. The Task Force was created to bring together local, state, and federal agencies that had an interest in maintaining and improving the environment of the Salton Sea. The Task Force was formed and operated with the assistance of the California Department of Fish and Game. A variety of strategies to control salinity levels in the Sea were reviewed by the Task Force. Three strategies received the most attention and are summarized as follows:

### a. Pumpout Options

Since approximately 4 million tons per year of salt are added to the Sea by its tributaries, removing an equal amount of salt from the Sea would be necessary to stabilize the salinity level of the Sea. This could be done by removing about 120,000 acre feet of salty water from the Sea per year. Removing additional salt would begin to lower the salinity to a desired level. One option for salt removal is to pump this salty water to the Gulf of California (or alternately Laguna Salada). Preliminary technical and cost estimates for this option have been developed by the U.S. Bureau of Reclamation. However, the Gulf of California is in Mexico and such a project would require an agreement with that country. Alternate locations for disposal of the salty water include the Pacific Ocean, underground injection, and pumping to other enclosed desert basins, although the technical difficulties and costs would be significantly higher.

Another option would pump Sea water into constructed ponds where an enhanced evaporation system would be utilized to concentrate salt. Theoretically these ponds could generate electricity through solar heat trapping. To stabilize the salinity levels in the Sea, at least 4-5 square miles would be needed for such ponds, in addition to disposal of up to 5 million tons of salt per year.

### b. In-Sea Impoundments

This option would divide the Sea into basins separated by dikes. Parts of the Sea would then be allowed to get very salty while other areas would receive most of the freshwater inflows and could maintain a favorable salinity. It would be very costly to construct and maintain the dikes. As with the solar pond option, salt disposal would have to be dealt with at some point.

The last meeting of the Salton Sea Task Force was in 1992. A recommendation was made at that time that in order to proceed with any large scale salinity control project, it would be necessary for appropriate local agencies to establish a single operating entity with the authority to manage such a project. In June of 1993 the Salton Sea Authority was formed for this purpose. The four member agencies of the Authority are Riverside County, Imperial County, Imperial Irrigation District, and Coachella Valley Water District. The Regional Board will support the Authority in its efforts to improve water quality in the Salton Sea.

## 2. Pollution Control

Investigations by the Regional Board, U.S. Geological Survey, U.S. Fish and Wildlife Service, California Department of Fish and Game, and others have identified pollutants from upstream sources which threaten the beneficial uses of the Sea. These pollutants include selenium, nutrients, pesticides, bacteria, and silt. Most of these pollutants are from agricultural runoff from farmlands in the Salton Sea Watershed. The largest contribution is from the Imperial Valley with smaller amounts coming from the Coachella and Mexicali Valleys. Controls on these pollutants are most effectively implemented at their source. The major control activity will be implementation of Management Practices (MPs) on farmlands which will be conducted in accordance with the State's Nonpoint Source Program as discussed in Chapter 4. The Regional Board will also work with the USEPA, U.S. Bureau of Reclamation, Colorado River Basin Salinity Control Forum, and upstream states to identify sources of pollutants, especially selenium, entering the Colorado River from locations upstream of California. Pending the availability of funding, the Regional Board will continue to monitor water quality at the Salton Sea and its tributaries as described in Chapter 6.

## **C. TOXICITY OBJECTIVE COMPLIANCE**

Compliance with the Regional Board's toxicity objective (see Chapter 3) will be determined through the use of bioassays utilizing standard/approved methodology. A three part biomonitoring program to determine compliance is described in Chapter 6 (Section II.B.). Compliance may also be determined by reviewing data generated by the Toxic Substances Monitoring Program (see Chapter 6, Section II.E.) and other water quality monitoring programs. Implementation measures to address violations of the toxicity objective will be conducted in compliance with applicable state and federal policies and regulations.

## **D. DISPOSAL OF WASTE TO INDIAN LAND**

In an effort to protect the Region's water quality it is proposed that resources be requested to undertake the following tasks:

- Identification of Indian Reservation land within the Region where disposal of wastes could threaten Regional surface and ground waters off the Reservation.
- Creation of a Regional Board liaison to communicate with the Bureau of Indian Affairs, USEPA, and appropriate tribal representatives pertaining to disposal of wastes on Indian land.
- In conjunction with the California Environmental Protection Agency cooperative agreements could be made with tribes to address water quality protection from construction and operation of hazardous waste and solid waste facilities on the Reservation. The agreements would provide for the regulation of the facility at a level that is functionally equivalent to that provided under State Law.
- Address other non-hazardous waste discharges on tribal land which may threaten the waters of the State, but for which State law presently does not apply for the purposes of entering into cooperative agreements.

## **V. TOTAL MAXIMUM DAILY LOADS (TMDLs) AND IMPLEMENTATION PLANS**

### **A. NEW RIVER PATHOGEN TMDL**

#### **1. TMDL Elements**

New River pathogen TMDL elements are shown on Table 4-2 below

**Table 4-2: NEW RIVER PATHOGEN TMDL ELEMENTS**

ELEMENT	DESCRIPTION												
<b>Problem Statement (impaired water quality standard)</b>	The New River headwaters start about 12-16 miles south of Calexico in the Mexicali Valley, Mexico. Bacteria, which are pathogen-indicator organisms, impair the entire segment of the New River in the United States. Pollution is severest at the International Boundary due to discharges of wastes from Mexico. The bacterial concentrations exceed the water quality objectives established to protect mainly the water contact and non-contact water recreational beneficial uses of the New River.												
<b>Numeric Target</b>	<p>The following are the in-stream numeric water quality targets for <b>this TMDL</b>:</p> <table border="1" data-bbox="381 514 1453 640"> <thead> <tr> <th><u>Indicator Parameters</u></th> <th><u>30-Day Geometric Mean<sup>a</sup></u></th> <th><u>Maximum<sup>c</sup></u></th> </tr> </thead> <tbody> <tr> <td>Fecal Coliforms</td> <td>200 MPN<sup>b</sup>/100 ml</td> <td></td> </tr> <tr> <td>E. Coli</td> <td>126 MPN/100 ml</td> <td>400 MPN/100 ml</td> </tr> <tr> <td>Enterococci</td> <td>33 MPN/100 ml</td> <td>100 MPN/100 ml</td> </tr> </tbody> </table> <p>a. Based on a minimum of no less than 5 samples equally spaced over a 30-day period  b. Most probable number, and  c. No more than 10% of total samples during any 30-day period shall exceed 400 MPN/100 ml.</p>	<u>Indicator Parameters</u>	<u>30-Day Geometric Mean<sup>a</sup></u>	<u>Maximum<sup>c</sup></u>	Fecal Coliforms	200 MPN <sup>b</sup> /100 ml		E. Coli	126 MPN/100 ml	400 MPN/100 ml	Enterococci	33 MPN/100 ml	100 MPN/100 ml
<u>Indicator Parameters</u>	<u>30-Day Geometric Mean<sup>a</sup></u>	<u>Maximum<sup>c</sup></u>											
Fecal Coliforms	200 MPN <sup>b</sup> /100 ml												
E. Coli	126 MPN/100 ml	400 MPN/100 ml											
Enterococci	33 MPN/100 ml	100 MPN/100 ml											
<b>Source Analysis</b>	The main sources of pathogens as indicated by fecal coliforms and E. coli bacteria in the New River are discharges of municipal wastes from the Mexicali Valley, Mexico and undisinfected but treated wastewater discharges from five domestic wastewater treatment plants in the Imperial Valley. Natural sources of pathogens appear to play a relatively insignificant role, but their actual contribution, and contributions from other nonpoint sources of pollution in general require proper characterization.												
<b>Allocations and Margin of Safety</b>	<p>Discharges from point sources and nonpoint sources of pollution shall not exceed the following waste load allocations (WLAs) and load allocations (LAs), respectively:</p> <table border="1" data-bbox="381 1092 1453 1218"> <thead> <tr> <th><u>Indicator Parameters</u></th> <th><u>30-Day Geometric Mean<sup>a</sup></u></th> <th><u>Maximum<sup>c</sup></u></th> </tr> </thead> <tbody> <tr> <td>Fecal Coliforms</td> <td>200 MPN<sup>b</sup>/100ml</td> <td></td> </tr> <tr> <td>E. coli</td> <td>126 MPN/100 ml</td> <td>400 MPN/100 ml</td> </tr> <tr> <td>Enterococci</td> <td>33 MPN/100 ml</td> <td>100 MPN/100 ml</td> </tr> </tbody> </table> <p>a. Based on a minimum of no less than 5 samples equally spaced over a 30-day period  b. Most probable number, and  c. No more than 10% of total samples during any 30-day period shall exceed 400 MPN/100 ml.</p> <p>The allocations are applicable throughout the entire stretch of the New River in the U.S. The numeric target concentrations are based on extensive epidemiological studies conducted by the USEPA and others. By setting the TMDL and each of the load and waste load allocations equal to the standards, the proposed TMDL approach results in very limited uncertainty about whether attainment of the TMDL and the individual allocations will result in attainment of the applicable numeric standards. Moreover, the TMDL analysis takes a conservative approach of providing load and wasteload allocations even for relatively minor loading sources, which helps to ensure that the selected source control approach will result in attainment of the numeric objectives. Finally, to help address uncertainty concerning the bacterial die-off and regrowth dynamics in the River, the TMDL provides implicit margin of safety by including a relatively aggressive monitoring and review plan which will help ensure that needed data are collected and that, if necessary, the TMDL will be revised in the relatively near future.</p>	<u>Indicator Parameters</u>	<u>30-Day Geometric Mean<sup>a</sup></u>	<u>Maximum<sup>c</sup></u>	Fecal Coliforms	200 MPN <sup>b</sup> /100ml		E. coli	126 MPN/100 ml	400 MPN/100 ml	Enterococci	33 MPN/100 ml	100 MPN/100 ml
<u>Indicator Parameters</u>	<u>30-Day Geometric Mean<sup>a</sup></u>	<u>Maximum<sup>c</sup></u>											
Fecal Coliforms	200 MPN <sup>b</sup> /100ml												
E. coli	126 MPN/100 ml	400 MPN/100 ml											
Enterococci	33 MPN/100 ml	100 MPN/100 ml											

## 2. Implementation Actions for Attainment of TMDL

The pathogen load allocations, waste load allocations, and water quality objectives shall be applicable to the New River for the protection of the REC-I and REC-II beneficial uses and shall be achieved within three years of USEPA approval of the TMDL. To this end, the following actions shall be implemented.

### 2.1 Wastewater Treatment Plants

All point source dischargers discharging, potentially discharging, or proposing to discharge waste with bacteria into the New River and/or surface waters tributary to the New River, at concentrations that violate or threaten to violate waste load allocations (WLAs), shall provide adequate disinfection to meet the WLAs specified in Table 4-2.

Currently, there are five (5) NPDES permitted facilities discharging undisinfecting municipal wastewater into the New River: the City of Brawley WWTP, Seeley County Water District (SCWD) WWTP; Date Gardens Mobile Home Park (DGMHP) WWTP; City of Westmorland WWTP, and McCabe Union School District (MCUSD) WWTP. Both the City of Westmorland and City of Brawley have been issued Time Schedule Orders (TSOs) requiring them to upgrade their WWTPs by January 2002 and March 2002, respectively. The City of Westmorland is already upgrading its WWTP and expects to complete the upgrade by 2002. The City of Brawley is securing financing from the North America Development Bank to upgrade its WWTP. The NPDES permit for the City of Brawley already prescribes effluent disinfection limits consistent with this TMDL. However, neither the TSO nor the NPDES permits for the City of Westmorland contains requirements for disinfection.

It is essential that the referenced facilities that are not disinfecting provide adequate effluent disinfection at the earliest possible date. Towards this end, the Executive Officer shall direct staff to draft revised NPDES permits for these facilities incorporating the WLAs prescribed in Table 4-2 and monitoring requirements for the WLAs. Draft revised permits shall be ready for Regional Board consideration in accordance with the following schedule (see Table 4-3) or sooner as resources allow.

**Table 4-3. SCHEDULE FOR DRAFT REVISED NPDES PERMITS**

Facility Name	NPDES Permit No.	Expiration Date	Revision Date
City of Westmorland WWTP	CA0105007	1/28/03	{Year 1}*
Seeley County Water District WWTP	CA0105023	6/25/02	{Year 1}*
Date Gardens Mobile Home Park WWTP	CA0104841	9/24/02	{Year 1}*
McCabe Union High School District WWTP	CA0104281	11/29/00	{Year 1}*

\*Year 1 refers to the effective date to revise the permits for these plants, which shall be 30 days after USEPA approval of the TMDL. (USEPA approval date: August 14, 2002)

Additionally, SCWD, DGMHP, and MCUSD shall each:

- a. By November 14, 2002 and pursuant to Section 13267 of the California Water Code, submit a technical report in the form of plans, specifications, and proposed measures to be taken to secure funds to comply with their WLAs by no later than May 14, 2005, and
- b. Submit quarterly reports to the Executive Officer describing their progress towards meeting their WLAs. Quarterly reports shall be due on the 15<sup>th</sup> day of the month following the reporting calendar quarter, and begin the first calendar quarter immediately following USEPA approval.

### 2.2 United States Government

Neither the existing lagoon systems nor the proposed wastewater treatment facilities for the Mexicali metropolitan area include disinfection. Also, there are a significant number of unregulated point and nonpoint sources of

bacteria which discharge directly into the New River watershed in Mexicali, and an unknown number of raw sewage bypasses, which are not addressed by the certified projects. Therefore, the projects by themselves will not result in attainment of the bacterial load allocations downstream of the International Boundary. Consequently, it is necessary for the U.S. Government to pursue additional steps to ensure this TMDL complies with the requirements of Section 303(d) of the Clean Water Act and ensure discharges of wastes from Mexico will not cause or contribute to a violation of this TMDL. Therefore, pursuant to Section 13225 of the California Water Code, the U.S. Section of the International Boundary and Water Commission and USEPA shall:

- a. By February 14, 2003, submit a technical report to the Regional Board with proposed measures (e.g., plans and specifications for disinfection facilities) to ensure that discharges of wastes from Mexico do not cause or contribute to a violation of this TMDL. The report shall specify the parties responsible for implementation of the measures and include a time schedule for implementation and completion of the measures within three years of USEPA approval of this TMDL.
- b. By May 14, 2003, submit a report identifying financial options for implementation of the measures discussed in Task No. "a," above.
- c. Submit semi-annual progress reports to the Regional Board regarding progress towards completion of the measures. The semi-annual reports shall be due by the 15th day of the month, and shall begin in the 6th month following submission of the technical report required in 2.2, a.

## **B. ALAMO RIVER SEDIMENTATION/SILTATION TMDL**

### **1. TMDL Elements**

#### **SUMMARY**

This TMDL was adopted by:

The California Regional Water Quality Control Board, Colorado River Basin Region on June 27, 2001.

The California State Water Resources Control Board on February 19, 2002.

The Office of Administrative Law on May 3, 2002.

The U.S. Environmental Protection Agency on June 28, 2002.

**Table 4-4: ALAMO RIVER SEDIMENTATION/SILTATION TMDL ELEMENTS<sup>1</sup>**

ELEMENT	DESCRIPTION												
<p><b>Problem Statement (impaired water quality standard)</b></p>	<p>Excess delivery of sediment to the Alamo River has resulted in degraded conditions that impair the following designated beneficial uses: warm freshwater habitat; wildlife habitat; preservation of threatened, rare, and endangered species habitat; contact- and non-contact recreation; freshwater replenishment. As the Alamo River discharges into the Salton Sea, sediment also threatens the same beneficial uses of the Salton Sea. Specifically, sediment serves as a carrier for DDT, DDT metabolites, and other insoluble pesticides including toxaphene, which pose a threat to aquatic and avian communities and people feeding on fish from the Alamo River; and suspended solids concentrations, sediment loads, and turbidity levels are in violation of water quality objectives. These current concentrations, loads, and levels are also forming objectionable bottom deposits, which are also adversely affecting the beneficial uses of Alamo River.</p>												
<p><b>Numeric Target</b></p>	<p>200 mg/L Total Suspended Solids (annual average)<sup>2</sup></p>												
<p><b>Source Analysis</b></p>	<table border="0"> <thead> <tr> <th data-bbox="574 827 1166 863"><u>Source</u></th> <th data-bbox="1166 827 1484 863"><u>tons/year</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="574 888 1166 924">Agricultural Drain Discharges:</td> <td data-bbox="1166 888 1484 924">322,493</td> </tr> <tr> <td data-bbox="574 949 1166 984">In-Stream Erosion &amp; Wind Deposition:</td> <td data-bbox="1166 949 1484 984">6,623</td> </tr> <tr> <td data-bbox="574 1010 1166 1045">NPDES Permitted Facilities:</td> <td data-bbox="1166 1010 1484 1045">215</td> </tr> <tr> <td data-bbox="574 1071 1166 1106">International Boundary</td> <td data-bbox="1166 1071 1484 1106">146</td> </tr> <tr> <td data-bbox="574 1131 1166 1167">Total:</td> <td data-bbox="1166 1131 1484 1167">329,477</td> </tr> </tbody> </table>	<u>Source</u>	<u>tons/year</u>	Agricultural Drain Discharges:	322,493	In-Stream Erosion & Wind Deposition:	6,623	NPDES Permitted Facilities:	215	International Boundary	146	Total:	329,477
<u>Source</u>	<u>tons/year</u>												
Agricultural Drain Discharges:	322,493												
In-Stream Erosion & Wind Deposition:	6,623												
NPDES Permitted Facilities:	215												
International Boundary	146												
Total:	329,477												
<p><b>Margin of Safety</b></p>	<p>8,737 tons/year, (corresponds to 10 mg/L)<sup>3</sup></p>												
<p><b>Seasonal Variations and Critical Conditions</b></p>	<p>Both the flow and sedimentation regimes within the Alamo River watershed are relatively stable, and the sediment and water sources within the watershed are relatively uniform and widespread; therefore, this TMDL does not include provisions other than the established load allocations and implementation plan for seasonal variations or critical conditions. Staff's analysis of potential water transfers out of the watershed indicate that the transfers are not likely to affect compliance with this TMDL, but could cause other water quality problems that will need to be addressed by the parties responsible for the transfers.</p>												
<p><b>Loading Capacity</b></p>	<p>177,247 tons/year<sup>4</sup></p>												

(This table is continued on the following page. Table footnotes are contained at the bottom of the Table.)

**Table 4-4: ALAMO RIVER SEDIMENTATION/SILTATION TMDL ELEMENTS<sup>1</sup> (continued)**

ELEMENT	DESCRIPTION			
<b>Load Allocations and Wasteload Allocations</b>	<b>Load Allocations:</b> <ul style="list-style-type: none"> <li>• Natural sources of sediment to the Alamo River, including erosion and wind deposition, are allocated 8,737 tons/year.</li> <li>• Waste discharges from nonpoint sources into the Alamo River shall not exceed the load allocations specified below:</li> </ul>			
	<b>River Reach</b>	<b># of IID Drains Identified within Reach</b>	<b>Sediment Load Allocation (tons/year)<sub>5,6</sub></b>	
	Alamo River immediately downstream of the International Boundary, at the IID gauging station just north of the All American Canal, a point identified hereafter at "AR-0"	None	146	
	Reach 1: Downstream from the International Boundary to a point approximately 100 feet downstream of the Ninth Street Drain outfall into the river, a point identified hereafter as "AR-1"	8	17,488	
	Reach 2: This reach encompasses the river from AR-1 to a point downstream of the Pomello Drain outfall into the river and upstream of the Graeser Drain outfall into the river, a point hereafter referred to as "AR-2".	7	25,255	
	Reach 3: This reach covers the river from AR-2 to a point downstream of the Holtville Main Drain outfall into the river and upstream of the Olive Drain outfall into the river, a point hereafter referred to as "AR-3";	8	24,501	
	Reach 4: This reach covers from AR-3 to a point downstream of the Wills Drain outfall into the river and upstream of the Moss Drain outfall into the river, a point hereafter referred to as "AR-4";	12	31,887	
	Reach 5: This reach covers the river from AR-4 to a point downstream of Rockwood Drain outfall into the river and upstream of the C Drain outfall into the river, a point hereafter referred to as "AR-5";	22	30,002	
	Reach 6: This reach covers the river from AR-5 to the point where it intersects the Garst Road, a point hereafter referred to as "AR-Outlet."	12	19,469	
	Tailwater outfalls discharging directly to the Alamo River.	a	7,830	
	Natural Sources		8,737	
	Waste Load Allocations: The discharge from point sources shall not exceed the total suspended limits specified under 40 CFR 122 et seq., and the corresponding mass loading rates.		N/A	3,196

Footnotes for Table No. 4-4:

1. For purposes of measuring compliance, all samples will be analyzed for volatile suspended solids at locations where organic loading represents a significant proportion of the total suspended solids or turbidity. The volatile suspended solids component will be subtracted for determining compliance.
2. The numeric target is a goal that translates current silt/sediment-related Basin Plan narrative objectives and shall not be used for enforcement purposes.
3. The margin of safety is roughly equal to the estimated load from natural sources to the Alamo River. This margin of safety allows for the loading of sediment from natural sources to the river to be double the natural source loading estimated in the Source Analysis without exceeding the Numeric Target.
4. Previously reported as 174,747 due to typographical error.
5. The sediment load allocation for any particular reach shall be distributed proportionately amongst the agricultural drains within that particular reach based on the relative flow contribution of each drain to the total flow contribution to the reach from the drains within the reach. The sediment load allocation will be reviewed every three years following TMDL implementation. The sediment load allocation will vary depending on drain flow.
6. The sediment load allocations herein have been calculated based on the estimated individual average drain flows within the reach for the 1994-1999 period. At lower or higher drain flows, the average annual load allocation for a particular reach shall not exceed the load given by:  
 $LAR = (180) * (QR) * (0.0013597)$ , where:  
 LAR = Load Allocation for any of the Alamo River reaches identified above (tons/yr).  
 QR = Reach Flow (ac-ft) = Total flow contribution to the reach from the drains within the reach (ac-ft)

<sup>a</sup> The number of outfalls has not been determined.

**Table 4-5<sup>1</sup> : WASTE LOAD ALLOCATIONS FOR POINT SOURCES IN THE ALAMO RIVER WATERSHED**

Facility	NPDES #	Discharge Location	NPDES Permit Limits as of 6-2001 <sup>2</sup> (tons of suspended solids per year)	Waste Load Allocation <sup>3</sup> (tons of suspended solids per year)
City of Calipatria WWTP	CA 0105015	G Drain	246.0	491.9
City of El Centro WWTP	CA 104426	Central Drain	365.5	731.1
City of Holtville WWTP	CA 0104361	Pear (Palmetto) Drain	38.8	77.7
City of Imperial MWTP	CA 0104400	Rose Drain	64.0	127.9
Heber Public Utilities District WWTP	CA 0104370	Central Drain	20.6	41.1
Imperial Community College District WWTP	CA 104299	Central Drain	4.6	9.1
Sunset Mutual Water Co	CA 104345	Central Drain	2.3	4.6
Country Life MHP	CA 0104264	Central Drain	5.7	11.4
Covanta Heber Geothermal	CA 0104965	Central Drain	195.6	391.1
El Centro Steam Plant	CA 104248	Central Drain	NA	95.0
New Charleston Power Plant	CA 101990	Rose Drain	6.9	13.7
IID Grass Carp Hatchery	CA 7000004	Central Drain	NA	182.8
Rockwood Gas Turbine Station	CA 0104949	Bryant Drain	1.3	2.6
Imperial Valley Resources Biomass Waste Fuel Power Plant	CA 0105066	Rose Drain	NA	15.5
Future Point Sources	NA	NA	NA	1000.0
<b>TOTAL</b>			<b>1098</b>	<b>3196</b>

**Footnotes for Table No. 4-5:**

1. Does not include volatile suspended solids determination.
2. Calculated using design flows and 30-day mean TSS limits.
3. Determined using double the current effluent limits to allow for facility expansion. For the three energy generating facilities without current TSS limits, a 30 mg/L TSS limit is used for current effluent limit in this calculation.

**2. Implementation Actions for Attainment of TMDL**

TMDL attainment shall be in accordance with the schedule contained in Table 4-6:

**Table 4-6: INTERIM NUMERIC TARGETS FOR ATTAINMENT OF THE SEDIMENT/SILTATION TMDL<sup>1</sup> FOR THE ALAMO RIVER**

Phase	Time Period <sup>2</sup>	Estimated Percent Load Reduction <sup>3</sup>	Interim Target (mg/L) <sup>4</sup>
Phase 1	Years 1 – 3	15%	320
Phase 2	Years 4 – 7	25%	240
Phase 3	Years 8 – 10	10%	216
Phase 4	Years 11 – 13	8%	200

**Footnotes for Table No. 4-6:**

1. For purposes of measuring compliance, all samples will be analyzed for volatile suspended solids at locations where organic loading represents a significant proportion of the total suspended solids or turbidity. The volatile suspended solids will be subtracted for determining compliance.
2. Year 1 refers to the effective date to start TMDL implementation, which shall be one year after USEPA approves the TMDL. For example, if USEPA approves the TMDL on November 15, 2001, Year 1 is November 15, 2002, which makes Year 3 November 15, 2005, which makes Year 4 November 15, 2006, and so on.
3. Percent reductions indicate the reduction required in total suspended sediment load from the average concentration of the Alamo River at the beginning of each phase, beginning with the 1980-2000 average concentration of 377 mg/L.
4. These interim targets are goals which translate current silt/sediment related Basin Plan narrative objectives and are not intended to specifically be used for enforcement purposes.

**C. NEW RIVER SEDIMENTATION/SILTATION TMDL**

**SUMMARY**

This TMDL was adopted by the California Regional Water Quality Control Board, Colorado River Basin Region in June 2002; approved by the Office of Administrative Law in January 2003; and approved by the U.S. Environmental Protection Agency on March 31, 2003.

1. **TMDL ELEMENTS**

**Table 4-7: NEW RIVER SEDIMENTATION/SILTATION TMDL ELEMENTS**

ELEMENT	DESCRIPTION												
<b>Problem Statement (impaired water quality standard)</b>	Excess delivery of sediment to the New River has resulted in degraded conditions that impair designated beneficial uses: warm freshwater habitat; wildlife habitat; preservation of threatened, rare, and endangered species habitat; contact- and non-contact recreation; freshwater replenishment. As the New River discharges into the Salton Sea, sediment also threatens the same beneficial uses of the Salton Sea. Sediment serves as a carrier for DDT, DDT metabolites, and other insoluble pesticides including toxaphene, which pose a threat to aquatic and avian communities and people feeding on fish from the New River; and suspended solids concentrations, sediment loads, and turbidity levels are in violation of water quality objectives. These current concentrations, loads, and levels are also forming objectionable bottom deposits, which are also adversely affecting the beneficial uses of New River.												
<b>Numeric Target</b>	200 mg/L Total Suspended Solids (annual average) <sup>2</sup>												
<b>Source Analysis</b>	<table border="1"> <thead> <tr> <th data-bbox="427 768 1089 800"><u>Source</u></th> <th data-bbox="1089 768 1453 800"><u>tons/year</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="427 831 1089 863">Agricultural Drain Discharges:</td> <td data-bbox="1089 831 1453 863">137,715</td> </tr> <tr> <td data-bbox="427 894 1089 926">In-Stream Erosion &amp; Wind Deposition:</td> <td data-bbox="1089 894 1453 926">6,409</td> </tr> <tr> <td data-bbox="427 957 1089 989">NPDES Permitted Facilities:</td> <td data-bbox="1089 957 1453 989">356</td> </tr> <tr> <td data-bbox="427 1020 1089 1052">International Boundary</td> <td data-bbox="1089 1020 1453 1052">11,265</td> </tr> <tr> <td data-bbox="427 1083 1089 1110">Total:</td> <td data-bbox="1089 1083 1453 1110">155,745</td> </tr> </tbody> </table>	<u>Source</u>	<u>tons/year</u>	Agricultural Drain Discharges:	137,715	In-Stream Erosion & Wind Deposition:	6,409	NPDES Permitted Facilities:	356	International Boundary	11,265	Total:	155,745
<u>Source</u>	<u>tons/year</u>												
Agricultural Drain Discharges:	137,715												
In-Stream Erosion & Wind Deposition:	6,409												
NPDES Permitted Facilities:	356												
International Boundary	11,265												
Total:	155,745												
<b>Margin of Safety</b>	6,409 tons/year (corresponds to 10 mg/L)												
<b>Seasonal Variations and Critical Conditions</b>	Both the flow and sedimentation regimes within the New River watershed are relatively stable, and the sediment and water sources within the watershed are relatively uniform and widespread; therefore, this TMDL does not include provisions other than the established load allocations and implementation plan for seasonal variations or critical conditions. Staff's analysis of potential water transfers out of the watershed indicate that the transfers are not likely to affect compliance with this TMDL, but could cause other water quality problems that will need to be addressed by the parties responsible for the transfers.												
<b>Loading Capacity</b>	127,881 tons/year												

(This table is continued on the following page.)

<sup>2</sup> The numeric target is a goal that translates current silt/sediment-related Basin Plan narrative objectives and shall not be used for enforcement purposes.

**Table 4-7: NEW RIVER SEDIMENTATION/SILTATION TMDL ELEMENTS (cont'd.)**

ELEMENT	DESCRIPTION		
<b>Load Allocations and Wasteload Allocations</b>	<b>Load Allocations:</b> <ul style="list-style-type: none"> <li>• Natural sources of sediment to the New River, including erosion and wind deposition, are allocated 6,409 tons/year.</li> <li>• Waste discharges from nonpoint sources into the New River shall not exceed the load allocations specified below:</li> </ul>		
	<b>River Reach</b>	<b># of IID Drains Identified within Reach</b>	<b>Sediment Load Allocation (tons/year)<sup>1,2</sup></b>
	New River immediately downstream of the International Boundary, at the USGS gauging station, a point identified hereafter as "NR-0"	None	
	Reach 1: Downstream from the International Boundary to the intersection of the Evan Hewes Road Bridge and the New River Channel, a point identified hereafter as "NR-1"	14	20,730
	Reach 2: This reach encompasses the river from NR-1 to Drop Structure 2, a point upstream of the Rutheford Road Bridge hereafter referred to as "NR-2".	17	32,350
	Reach 3: This reach covers the river from NR-2 to the point where it intersects the Lack Road Bridge, a point hereafter referred to as "NR-Outlet."	23	35,835
	<b>Direct Outfalls to River</b>	<b># of IID Drains Identified</b>	<b>Sediment Load Allocation (tons/year)<sup>1,2</sup></b>
	Tailwater outfalls discharging directly to the New River	a	14,884
	<b>Natural Sources</b>		
	Natural sources		6,409
	<b>Waste Load Allocations:</b> <ul style="list-style-type: none"> <li>• The discharge from point sources (NPDES permits) shall not exceed the total suspended solids limits specified under 40 CFR 122 et seq., and the corresponding mass loading rates.</li> </ul>		

**Footnotes for Table No. 4-7:**

1. The sediment load allocation for any particular applicable reach shall be distributed proportionately amongst the agricultural drains within that particular reach based on the relative flow contribution of each drain to the total flow contribution to the reach from the drains within the reach. The sediment load allocation will be reviewed every three years following TMDL implementation. The sediment load allocation will vary depending on drain flow.
2. The sediment load allocations have been calculated based on the estimated individual average drain flows within the reach for the 1995-2000 period. At lower or higher drain flows, the average annual load allocation for a particular reach shall not exceed the load given by:

LAR = (180)\*(QR)\*(0.0013597), where:

LAR = Load Allocation for any of the New River reaches identified above (tons/yr).

QR = Reach Flow (ac-ft) = Total flow contribution to reach from the drains within the reach (ac-ft). The sediment load allocation will be reviewed by the Executive Officer every three years following TMDL implementation.

<sup>a</sup> The number of outfalls has not been determined.

## 2. **Implementation Actions for Attainment of TMDL**

TMDL attainment shall be in accordance with the schedule contained in Table 4-8:

**Table 4-8: INTERIM NUMERIC TARGETS FOR ATTAINMENT OF THE SEDIMENTATION/SILTATION TMDL FOR THE NEW RIVER**

Phase	Time Period <sup>1</sup>	Estimated Percent Load Reduction <sup>2</sup>	Interim Target (mg/L) <sup>3</sup>
Phase 1	Years 1 – 3	5%	229
Phase 2	Years 4 – 6	7%	213
Phase 3	Years 7 – 9	4%	204
Phase 4	Years 10 – 12	2%	200

### Footnotes for Table No. 4-8:

1. Year 1 refers to the effective date to start TMDL implementation, which shall be one year after USEPA approves the TMDL. For example, if USEPA approves the TMDL on November 15, 2002, Year 1 is November 15, 2003, which makes Year 3 November 15, 2005, which makes Year 4 November 15, 2006, and so on.
2. Percent reductions indicate the reduction required in total suspended sediment load from the average concentration of the New River at the beginning of each phase, beginning with the 1980-2001 average concentration of 306 mg/L.
3. These interim targets are goals which translate current silt/sediment related Basin Plan narrative objectives and are not intended to specifically be used for enforcement purposes.

## D. IMPERIAL VALLEY DRAINS SEDIMENTATION/SILTATION TMDL

### SUMMARY

This TMDL was adopted by the California Regional Water Quality Control Board, Colorado River Basin Region in January 2005.

### 1. **TMDL ELEMENTS**

The Imperial Valley Drains Sedimentation/Siltation TMDL contains allocations that apply to three Imperial Valley drains (Niland 2, P, and Pumice) and their tributary drains (Vail 4A, Vail 4, Vail 3A, Vail 3, and Vail 2A feed into Pumice). These drains (among others) empty directly into the Salton Sea. Figure 4-2 is a map of the three drains (and their tributary drains) for which allocations have been specified in this TMDL.

Figure 4-2: DRAINS (NILAND 2, P, AND PUMICE AND THEIR TRIBUTARY DRAINS) FOR WHICH ALLOCATIONS HAVE BEEN SPECIFIED IN THIS TMDL



**Table 4-9: IMPERIAL VALLEY DRAINS (NILAND 2, P, AND PUMICE) SEDIMENTATION/SILTATION TMDL ELEMENTS**

ELEMENT	DESCRIPTION										
<b>Problem Statement (impaired water quality standard)</b>	Excess delivery of sediment to Niland 2, P, and Pumice Imperial Valley drains has resulted in degraded conditions that impair designated beneficial uses: warm freshwater habitat; wildlife habitat; preservation of threatened, rare, or endangered species; water contact and non-contact water recreation; and freshwater replenishment. As the drains discharge into the Salton Sea, sediment also threatens the same beneficial uses of the Salton Sea. Sediment serves as a carrier for DDT, DDT metabolites, and other insoluble pesticides including toxaphene, which pose a threat to aquatic and avian communities and people feeding on fish from the drains. Suspended solids concentrations, sediment loads, and turbidity levels are in violation of water quality objectives. These current concentrations, loads, and levels also are forming objectionable bottom deposits, which are adversely affecting the beneficial uses.										
<b>Numeric Target</b>	200 mg/L Total Suspended Solids (annual average) <sup>3</sup>										
<b>Source Analysis</b>	<table border="0"> <tr> <td colspan="2"><b>Source</b></td> </tr> <tr> <td>Agricultural Tailwater</td> <td style="text-align: right;">11,602.4</td> </tr> <tr> <td>Natural Sources (In-Stream Erosion, Wind Deposition, Wildlife)</td> <td style="text-align: right;">277.4</td> </tr> <tr> <td>Storm Event Runoff from Farm Land</td> <td style="text-align: right;">50.5</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">11,930.0</td> </tr> </table>	<b>Source</b>		Agricultural Tailwater	11,602.4	Natural Sources (In-Stream Erosion, Wind Deposition, Wildlife)	277.4	Storm Event Runoff from Farm Land	50.5	Total	11,930.0
<b>Source</b>											
Agricultural Tailwater	11,602.4										
Natural Sources (In-Stream Erosion, Wind Deposition, Wildlife)	277.4										
Storm Event Runoff from Farm Land	50.5										
Total	11,930.0										
<b>LOAD ALLOCATIONS</b>											
<b>Margin of Safety</b>	277.4 tons/year, (corresponds to TSS of 10 mg/L)										
<b>Seasonal Variations and Critical Conditions</b>	Seasonal differences exist regarding local water flow, but not local climate (e.g., rainfall). Sediment becomes suspended in tailwater regardless of the season. However, more flow at certain times of year means that more sediment becomes suspended in drains at certain times of year. To address this seasonal variation, the numeric target is expressed in terms of an annual average. If data for certain months exceeds the load allocation, this may be tempered by low data readings in other months. Therefore, variability is accounted for and addressed by use of an annual average.										
<b>Loading Capacity (Total Assimilative Capacity)</b>	5,547.2 tons/year, (corresponds to TSS of 200 mg/L)										

(This table is continued on the following page.)

<sup>3</sup> The numeric target is a goal that translates current sediment/silt-related Basin Plan narrative objectives and shall not be used for enforcement purposes.

**Table 4-9: IMPERIAL VALLEY DRAINS (NILAND 2, P, AND PUMICE) SEDIMENTATION/SILTATION TMDL ELEMENTS (continued)**

ELEMENT	DESCRIPTION		
<b>Load Allocations and Wasteload Allocations</b>	<b>Load Allocations:</b> <ul style="list-style-type: none"> <li>• Natural sources of sediment to Niland 2, P, and Pumice Imperial Valley Drains are allocated 277.4 tons/year.</li> <li>• Waste discharges from nonpoint sources into Niland 2, P, and Pumice Imperial Valley Drains shall not exceed load allocations specified below:</li> </ul>		
	<b>Drain Sources</b>	<b># of Drains Included in Segment</b>	<b>Sediment Load Allocation (tons/year)<sup>1</sup></b>
	Niland 2	1	300.1
	P	1	638.2
	Pumice, including 5 Vail drains (Vail 4A, Vail 4, Vail 3A, Vail 3, and Vail 2A) that drain into it	6	3,904.3
	Future Growth	None	149.8
	Total Load Allocation for drains (corresponds to TSS of 180 mg/L)	8	4,992.4
	<b>Other Sources</b>		
	Natural Sources	Not applicable	277.4
	Margin of Safety	Not applicable	277.4
	Total Load Allocation for other sources (corresponds to TSS of 20 mg/L)	Not applicable	554.8
	<b>Waste Load Allocations:</b> <ul style="list-style-type: none"> <li>• The discharge from point sources (NPDES permits) shall not exceed the total suspended solids limits specified under 40 CFR 122 et seq., and the corresponding mass loading rates.</li> </ul>		

**Footnote for Table No. 4-9:**

1. The sediment load allocation for any particular drain shall be distributed proportionately amongst the agricultural drains in the project area, based on the relative flow contribution of each drain to the total flow contribution of all drains in the project area. The sediment load allocation will be reviewed every three years following TMDL implementation. The sediment load allocation will vary depending on drain flow.

**2. Implementation Actions for Attainment of TMDL**

The Implementation Plan for this TMDL applies not just to the three drains (Niland 2, P, and Pumice) for which allocations are specified, but to all Imperial Valley drains that empty directly into the Salton Sea. This is necessary because all of the drains contribute, albeit in varying degrees, to sediment/silt impacts on water quality standards of the drains and the Salton Sea, and are so listed pursuant to Section 303(d) of the Clean Water Act. This approach ensures Valley-wide consistency in controlling sediment in all drains that empty directly into the Salton Sea, prevents a piece-meal approach in controlling sediment, and will enable de-listing of all the drains simultaneously upon successful completion of the control measures.

TMDL attainment shall be in accordance with the schedule contained in Table 4-10:

**Table 4-10: INTERIM NUMERIC TARGETS FOR ATTAINMENT OF THE SEDIMENT/SILTATION TMDL FOR IMPERIAL VALLEY DRAINS**

Phase	Time Period	Estimated Percent Load Reduction <sup>1</sup>	Interim Target (mg/L) <sup>2</sup>
Phase 1	2005 through 2006	10%	376
Phase 2	2007 through 2009	25%	282
Phase 3	2010 through 2012	20%	226
Phase 4	2013 through 2015	12%	200

**Footnotes for Table No. 4-10:**

1. The reduction required in the average concentration at the end of each phase, beginning with the current (2002) average concentration of 418 mg/L.
2. The interim numeric target is a goal that translates current sediment/silt-related Basin Plan narrative objectives and shall not be used for enforcement purposes.

**E. FURTHER IMPLEMENTATION ACTIONS AND REGULATIONS FOR ALL IMPERIAL VALLEY SEDIMENTATION/SILTATION TMDLs**

**1. DESIGNATED MANAGEMENT ACTIONS**

Consistent with the State NPS Program, sediment pollution shall be controlled by responsible parties through implementation of Management Practices (MPs). For the purpose of this Section, responsible parties include:

- Farmers/landowners, renters/lessees, and operators/growers discharging waste into Imperial Valley Drains, New River, and Alamo River in a manner that causes or could cause violation of load allocations and/or exceedance of the Sediment/Silt numeric target;
- The Imperial Irrigation District;
- The United States Environmental Protection Agency and U.S. Section of the International Boundary and Water Commission, for wastes discharged from Mexico into the Alamo River and New River.

Responsible parties who already have complied with the requirements of previously-adopted Sedimentation/Siltation TMDLs are not required to re-submit reports, workplans, or other information already submitted to the Regional Board. Responsible parties who are subject to multiple TMDLs are encouraged, but not required, to combine submissions so that a single report or workplan satisfies the requirements of all applicable TMDLs. Early implementation of actions by responsible parties will be welcomed by the Regional Board, to simplify timelines between all Imperial Valley Sedimentation/Siltation TMDLs.

**1.1 FARM LANDOWNERS, RENTERS/LESSEES, OPERATORS/GROWERS**

Farm landowners, renters/lessees, and/or operators/growers shall submit self-determined Sediment Control Programs (Water Quality Management Plans) to the Regional Board by:

**Table 4-11 SEDIMENT CONTROL PROGRAM DUE DATES**

<b>TMDL</b>	<b>Date</b>
Alamo River	September 28, 2003
New River	June 30, 2004
Imperial Valley Drains	6 months after U.S. Environmental Protection Agency (USEPA) approval

and on an annual basis thereafter.

The Sediment Control Program may be submitted by an individual farm landowner, renter/lessee, or operator/grower (hereafter "Individual Program") or by a group of farm landowners, renters/lessees, and/or operators/growers (hereafter "Group Program"). Individual and Group Sediment Control Programs (Water Quality Management Plans) are required pursuant to CWC §13267. These programs are necessary to achieve compliance with these TMDLs and applicable water quality objectives, and to monitor/assess MP effectiveness. Regional Board staff strongly recommends that individual farm landowners, renters/lessess, and/or operators/growers work with the Imperial County Farm Bureau (ICFB) to submit a Group Plan through the ICFB's Watershed Program. Group Plans offer landowners the ability to work together to solve their erosion problems, while also affording a measure of privacy to the members of the Group. A Group Program must provide information on a drain- or drainshed basis regarding which responsible parties are enrolled in the program. Additionally, a group may provide a single monitoring and reporting plan as long as results are representative of the efficiency of the group's various control practices, in order to measure overall water quality improvements.

In either case (whether a Group or Individual Plan), the program shall, at a minimum, address the following in their Sediment Control Programs:

1. Name of farm landowner, business address, mailing address, and phone number
2. Name of farm operator/grower, business address, mailing address, and phone number
3. Problem assessment, including site conditions(s), crop(s), potential or current NPS problems, problem severity, and problem frequency
4. Statement of goals (measurable outcomes or products)
5. Existing and/or alternative sediment management practices (technical/economic feasibility, desired outcome, etc.)
6. Timetable for implementation of management practices (measured in either water quality improvement or level of implementation)
7. Monitoring, including progress toward goals, and effectiveness of management decisions
8. Mechanism for reporting planned and completed implementation actions to the Regional Board.

A group program may address Item Nos. 1 through 6, above, for the individuals enrolled in the program as a group. The program shall nevertheless provide sufficient information so that the Regional Board can: (a) determine at a minimum on a drain- or drainshed-basis which responsible parties are enrolled in the program; (b) the types of sediment problems (i.e., severity, magnitude, and frequency) either the group as a whole or the drain/drainshed face; (c) the proposed sediment management practices for the group; and (d) the time table for implementation of the management practices (measured in either water quality improvement and/or level of implementation). Regarding Item Nos. 7 and 8, a single monitoring and reporting plan may also be proposed for a group provided that the monitoring and reporting will provide results that are representative of the efficiency of various control practices within the group and representative enough to measure overall water quality improvements. Reported implementation of MPs shall be submitted to the Regional Board under penalty of perjury.

All programs and reports specified herein are requested pursuant to Section 13267 of the California Water Code. In accordance with Section 13267(b)(2) of the California Water Code, when requested by the responsible party or group furnishing a program, the portions of a program, which might disclose trade secrets or secret processes, shall not be made available for inspection by the public but shall be made available to governmental agencies for use in making studies. However, these portions of a program shall be available for use by the Regional Board or any state agency in judicial review or enforcement proceedings involving the person or group of persons furnishing the report.

1.2 IMPERIAL IRRIGATION DISTRICT

**Table 4-12 REVISED DWQIP DUE DATES**

<b>*TMDL</b>	<b>Date</b>
Alamo River	September 28, 2003
New River	June 30, 2004
Imperial Valley Drains	6 months after USEPA approval

The Imperial Irrigation District shall submit to the Regional Board a revised Drain Water Quality Improvement Plan (DWQIP) with a proposed program to control and monitor water quality impacts caused by drain maintenance operations within the Alamo and New River and Imperial Valley Drains Watersheds and dredging operations in the Alamo and New River and Imperial Valley Drains. The revised DWQIP shall be subject to the approval of the Executive Officer and shall address, but need not be limited to, items “a” and “b”, below:

**a. Drain and River Deltas Maintenance**

- Reduction in drain cleaning and dredging activities to the practical extent allowed by the implementation of on- and off-field sediment control MPs by farmers landowners, renters/lessees, operators/growers and the MP effectiveness in reducing silt built up in the drains and the New and Alamo River Deltas and Imperial Valley Drains to avoid impacts on sensitive resources.
- Mechanism(s) to assess effectiveness of such reduction

**b. Drain Water Quality Monitoring Plan**

The revised DWQIP shall consist of a proposed program to monitor the New and Alamo Rivers and Imperial Valley Drains:

- Water quality impacts caused by dredging operations in the drains and to monitor the effects that dredging operations in the New and Alamo River Deltas and Imperial Valley Drains have on compliance with the rivers' and drains' water quality standards;
- Representative samples from the water column of all major drains and a representative number of the small drains tributary to the New and Alamo Rivers and those drains emptying directly to the Salton Sea for analyses of flow, TSS, Turbidity, and nutrients. Samples collected from the last drain weir before the drain outfalls to the river shall be considered representative of the water column;
- A representative number of source water locations for TSS;
- A representative number of drains at a location sufficiently upstream of the outfalls to the river so as to provide an idea of how much of the silt is being reduced by field MPs;
- Sediment impacts from storm events;

**c. Information on Agricultural Dischargers**

**Table 4-13 IID SUBMISSION OF DATA ON AGRICULTURAL DISCHARGERS DUE DATES**

<b>TMDL</b>	<b>Date</b>
Alamo River	October 28, 2003
New River	July 31, 2004
Imperial Valley Drains	6 months after USEPA approval

and on a semi-annual basis thereafter, the IID shall submit the following information to the Regional Board on the agricultural dischargers within the District:

The names and mailing addresses for all the owners of properties within the IID service area that are being used for irrigated agriculture, as well as the location of their properties. The names and mailing addresses for all water account holders within the IID service area, and the location of all fields that they irrigate. For each parcel within the IID service area, the location of the parcel, the irrigation canal and gates serving the parcel, the drop boxes draining the parcel, the drains that these drop boxes empty into, and the fields located within each parcel. For each field within the IID service area, the parcel within which each field is located, the area and location of each field within the parcel, the irrigation canal and gates serving each field, the drop boxes draining each field and the

drains to which these drop boxes drain. The above information should be submitted in an electronic, tabular, and easily geo-referenced format.

**No later than 60 days following the Executive Officer's approval of the revised DWQIP**, the IID shall submit to the Executive Officer a Quality Assurance Project Plan (QAPP) prepared in accordance with Requirements for Quality Assurance Project Plans for Environmental Data Operations, EPA QA/R-5, 1994 for the revised DWQIP. The QAPP is subject to the approval of the Executive Officer. No later than 30 days following the Executive Officer's approval of the QAPP, the IID shall implement the QAPP and submit quarterly and annual monitoring reports to the Executive Officer. The quarterly reports shall be due on the month following the calendar's quarter and shall transmit a quarterly summary of the results for the previous three months. The annual reports shall be due on February 15 and summarize the year's data, quality control reports, and any trends in the data.

The DWQIP and QAPP are required pursuant to CWC §13225 and 13267. These are necessary to achieve compliance with this TMDL and the applicable water quality objectives and to monitor/assess effectiveness of MPs in a cost-effective manner. IID is required to provide this information because it operates and maintains the subject drains and because it is the only entity with access to some of the information required in the DWQIP.

All plans and reports requested herein are requested pursuant to Section 13267 of the California Water Code and shall be prepared under the direct supervision of a California registered civil engineer and/or agricultural engineer, with experience in the preparation of this type of program.

**1.3 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA) AND U.S. SECTION OF THE INTERNATIONAL BOUNDARY AND WATER COMMISSION (USIBWC)**

The USEPA and USIBWC are not responsible parties for the Imperial Valley Drains Sedimentation/Siltation TMDL. The USEPA and USIBWC are responsible parties for the Alamo River and New River Sedimentation/Siltation TMDLs.

**Table 4-14 TECHNICAL REPORT DUE DATES**

<b>TMDL</b>	<b>Date</b>
Alamo River	September 28, 2003
New River	June 30, 2004

The USEPA and/or the U.S. Section of the IBWC shall submit to the Regional Board a technical report pursuant to Section 13225 of the California Water Code describing the proposed control measures, monitoring plan and reporting procedures, and quality assurance procedures the U.S. Government proposes to take to ensure that discharges of wastes from Mexico do not violate or contribute to a violation of these TMDLs, particularly a violation of the Load Allocation immediately downstream of the International Boundary, at the points identified as "AR-0." and "NR-0". The report shall be prepared under the direct supervision of a California registered civil engineer, with experience in the preparation of these types of reports and shall include a time schedule for implementation.

**2. RECOMMENDED MANAGEMENT PRACTICES (MPs)**

Implementation of MPs should normally include: (1) consideration of specific site conditions; (2) monitoring to assure that practices are properly applied and are effective; (3) improvement of a MP or implementation of additional MPs or other management practices when needed to resolve a deficiency and; (4) mitigation of a problem where practices are not effective. The practices listed herein are a compilation of MPs recommended by the Imperial Valley Sedimentation/Siltation TMDL Technical Advisory Committee (Silt TMDL TAC), Natural Resources Conservation Services Field Office Technical Guide (NRCS FOTG), IID, and University of California Cooperative Extension (Holtville Field Station). Inclusion of practices herein is not meant to imply or establish a prescriptive list of 'one size fits all' preferred practices for the Imperial Valley Drains, Salton Sea, and Alamo and New River Basins. These recommendations do not preclude dischargers from implementing other proven sediment management practices. Identification of the most appropriate controls to achieve the TMDL for site- and crop-specific conditions is best made by the dischargers relying on technical resource agencies and organizations. The listed practices are recommended because they have been documented to be effective under a variety of circumstances. Under many circumstances, implementation of a combination of MPs may be

necessary to ensure that discharges do not adversely impact water quality. In addition, the effectiveness of many MPs can be greatly increased when used in conjunction with other MPs.

## 2.1 ON-FIELD SEDIMENT CONTROL MPs

The following practices have been recommended for implementation as on-field sediment-control MPs (references are in brackets):

- **Tailwater Drop Box with Raised Grade Board (Imperial Irrigation District Regulation No. 39)**

This practice involves maintenance of the grade board at an elevation high enough to minimize erosion. In many situations the grade board elevation can be set higher than required by IID Regulations, especially when anticipated tailwater flows will not reach an elevation that will cause crop damage.

Imperial Irrigation District's Regulation 39 (required by IID) calls for maintenance of field drainage structures, and states in part, "It is the responsibility of each water user to maintain a tailwater structure and approach channel in acceptable condition, in order to qualify for delivery of water. An acceptable structure shall have vertical walls and a permanent, level grade board set a maximum of 12 inches below the natural surface. If the situation warrants, and at the discretion of the district, 18 inches maximum may be allowed".

See also: Imperial Irrigation District Regulation No. 39, NRCS FOTG Conservation Practice "Structure for Water Control" (Code 587).

- **Improved Drop Box with Widened Weir and Raised Grade Board**

This practice involves widening the drop box overpour weir and maintaining the grade board at an elevation high enough to minimize erosion. Widening the drop box overpour weir enables the weir elevation to be set higher without raising the surface elevation of the water above the acceptable level. Higher weir elevations allow for an increased tailwater ditch cross section, and reduced erosion when water leaving the field enters the tailwater ditch. See also: NRCS FOTG Conservation Practice "Structure for Water Control" (Code 587).

- **Pan Ditch (Enlarged Tailwater Ditch Cross Section)**

This practice involves widening the tailwater ditch and making it very shallow, which will result in decreased tailwater velocity and depth. The water must be checked downstream of the oversized area to make the cross section of the water as large as practical. The slower the velocity, the more sediment will settle out of the water and stay in the field, and the less will be picked up by the moving water. Effectiveness can be further improved by planting grass filter strips in the tailwater ditch and/or installing tailwater ditch checks.

- **Tailwater Ditch Checks or Check Dams**

Tailwater Ditch Checks are temporary or permanent dams that hold the water level well above the ground. They can be placed at intervals in tailwater ditches, especially those with steeper slopes. They increase the cross section of the stream of water, decrease the water velocity and reduce erosion, and may cause sediment already in the water to settle out. Tailwater Ditch Checks can be constructed of plastic, concrete, fiber, metal or other suitable material. If plastic sheets are used, care must be taken not to allow pieces of the plastic to be carried downstream with the water. In order to be effective, this practice must be utilized in condition where water velocities will not wash out the check dams or the sides of the tailwater ditch around the dams. Tailwater ditch checks or check dams are expected to work best in wide "pan ditches" where the width of tailwater stream can be effectively increased.

- **Field to Tailditch Transition**

This practice involves use of spillways or pipes where water moves from fields into tailwater ditches, allowing the tailwater to fall down into the tailwater ditch from the field without washing across and eroding the soil. Spillways might be constructed of plastic, concrete, metal, or other suitable material. If plastic sheets are used, care must be taken not to allow deterioration to cause pieces of the plastic to be carried downstream with the water. This procedure may be useful on fields irrigated in bordered-strips and furrows. Care must be taken to address erosion that may be caused in the tailditch at the location where the spillway discharges to the tailditch.

- **Irrigation Land Leveling**

This practice involves maintaining or adjusting field slope so as to avoid excessive slopes or low spots at the tail end of a field. In some cases it might be advantageous to maintain a reduced main or cross slope, which facilitates more uniform distribution of irrigation water and can result in reduced salt build-up in the soil, increased production, reduced tailwater, and decreased erosion. See also: NRCS FOTG Conservation Practice “Irrigation Land Leveling” (Code 464).

- **Filter Strips**

This practice involves elimination of borders on the last 20 to 200 feet of the field. Planted crop is maintained to the end of the field and tailwater from upper lands is used to irrigate the crop at the ends of the adjacent lower lands. It is important that the main slope on the lower end of the field is no greater than on the balance of the field. A reduced slope might be better. With no tailwater ditch, there should be very little erosion as the water slowly moves across a wide area of the field to the tailwater box. Some sediment might settle out as the crop slows the water while it moves across the field. This could be used with water tolerant crops or special soil conditions. See also: NRCS FOTG Conservation Practice “Filter Strip” (Code 393).

- **Irrigation Water Management**

Irrigation Water Management is defined as determining and controlling the rate, amount, and timing of irrigation water in a planned manner. Effective implementation of this practice can result in minimizing on-farm soil erosion and the subsequent transport of sediments into receiving waters. Specific methods of Irrigation Water Management include: Surge Irrigation, Cut-Back Irrigation, Irrigation Scheduling, and the Runoff Reduction Method. In some cases, irrigation water management could include the employment of an additional irrigator to assist in better monitoring and managing irrigation water and addressing potential erosion problems. Irrigator Water Quality Training could provide irrigators with the knowledge necessarily to implement IWM and other sediment control practices. See also: NRCS FOTG Conservation Practice “Improved Water Application” (Code 197, CA Interim) and NRCS FOTG Conservation Practice “Irrigation Water Management” (Code 449).

- **Sprinkler Irrigation**

Sprinkler irrigation involves water distribution by means of sprinklers or spray nozzles. The purpose of this practice is to efficiently and uniformly apply irrigation water to maintain adequate soils moisture for optimum plant growth without causing excessive water loss, erosion, or reduced water quality. See also: NRCS FOTG Conservation Practice “Irrigation System, Sprinkler” (Code 442).

- **Drip Irrigation**

Drip irrigation consists of a network of pipes and emitters that apply water to the surface or subsurface of the soil in the form of spray or a small stream.

- **Reduced Tillage**

This practice involves limiting the use of heavy farm machinery to only the operations required for crop growing and harvesting. The goal is to eliminate at least one cultivation per crop. Reduced tillage practices include working seed beds only enough to properly plant, avoiding work in wet soil, varying tillage depth from year to year, cultivating only to control weeds, and chiseling when dry to break up plow plan. Such practices minimize erosion and sedimentation that may occur in furrows.

- **Furrow Dikes (also known as “C-Taps”)**

Furrow dikes are small dikes created in furrows to manage the velocity of the water in the furrow. They can be either constructed of earth and built with an attachment to tillage equipment, pre-manufactured “C-Taps,” or other material, including rolled fiber mat, plastic, etc.

## 2.2 OFF-FIELD SEDIMENT CONTROL MPs

The following practices have been recommended as off-field sediment-control BMPs (references are in brackets):

- **Channel Vegetation/Grassed Waterway**

This practice involves establishing and maintaining adequate plants on channel banks and associated areas to stabilize channel banks and adjacent areas and reduce erosion and sedimentation, and establishing maximum side slopes. This practice serves to stabilize the channel bank, reducing the potential for bank failure. See also: NRCS FOTG Conservation Practice "Channel Vegetation" (Code 322) and NRCS FOTG Conservation Practice "Grassed Waterway" (Code 412).

- **Irrigation Canal or Lateral**

This practice applies to irrigation drainage channels. One objective of the practice is to prevent erosion or degradation of water quality. Drainage channels should be designed to develop velocities that are non-erosive for the soil materials of which the channel is constructed. See also: NRCS FOTG Conservation Practice "Irrigation Canal or Lateral" (Code 320).

- **Sediment Basins**

Sediment basins are constructed to collect and store debris or sediment. The capacity of the sediment basin should be sufficient to store irrigation tailwater flows for long enough to allow most of the sediments within the water to settle out. The sediment basins also must be cleaned regularly to maintain their capacity and effectiveness.

## 2.3 ESTIMATED COST OF IMPLEMENTATION AND SOURCES OF FINANCING FOR IMPERIAL VALLEY DRAINS, AND NEW AND ALAMO RIVERS

The estimated total cost of implementing MPs range from just over \$2.00 to \$52.50 per acre per year, which is estimated to be less than or about 2% of production cost. The development of Farm Water Quality Management Plans are estimated to be less than \$200.00 per field. Monitoring costs are estimated to range from \$100.00 to \$500.00 depending on the monitoring program. The preparation of the IID monitoring plan is estimated to be \$25,000. Implementation of the IID monitoring plan is estimated to be \$70,000 per year, and the characterization of dredging impacts is estimated to be \$20,000.

Potential sources of financing are: Private financing by individual sources; Bond indebtedness or loans from government institutions; Surcharge on water deliveries to lands contributing to the sediment pollution problem; Taxes and fees levied by the Irrigation District that provides drainage management; State and/or Federal grants and low-interest loans, including State Proposition 13 (Costa-Machado Act of 2000) grant funds and Federal Clean Water Act Section 319(h) grant funds; and, Single purpose appropriations from Federal and/or state legislative bodies.

## 2.4 RECOMMENDED ACTIONS FOR COOPERATING AGENCIES

### 2.4.1 IMPERIAL COUNTY FARM BUREAU WATERSHED PROGRAM

The Imperial County Farm Bureau (ICFB) initiated a "Watershed Program" in 1999, in which it committed to development of program elements, including "outreach programs and mechanisms to encourage and foster an effective self-determined approach to attainment of TMDL load applications." To implement the program, the ICFB has committed to make contact with every farm landowner, renter/lessee, and operator/grower, and to supply material related to the TMDL process, its ramifications, and implementation alternatives. The specific goals of the Watershed Program include: (1) coordination of grass roots educational program to make farmers aware of the TMDL process, and educate farmers on how to reduce sediment/silt leaving their fields, (2) maintenance of informational and data website, (3) coordination of workshops with local technical assistance agencies, and (4) cooperation with Regional Board staff to track and report MP effectiveness. The ICFB has designated the geographical areas for ten (10) subwatershed groups, each covering approximately 50,000 acres of irrigated land. These geographical designations are to be utilized in the ICFB Watershed Program's approach to education and implementation. Although the Imperial County Farm Bureau is not a regulatory agency, it has committed to develop and implement a "Watershed Program" that can play a vital role in achieving TMDL waste load allocations. Therefore, it is appropriate to recommend that the ICFB prepare, submit, and implement the following:

a. ICFB WATERSHED PROGRAM PLAN

The Imperial County Farm Bureau should:

- By:

**Table 4-15 LETTER ISSUE DUE DATES**

<b>TMDL</b>	<b>Date</b>
Alamo River	July 28, 2003
New River	April 30, 2004
Imperial Valley Drains	3 months after USEPA approval

issue letters to all potential program participants within the project area that are enrolled in the ICFB Watershed Program, informing them that the TMDL is being implemented and stating what is required of them.

- By:

**Table 4-16 LIST OF PROGRAM PARTICIPANTS DUE DATES**

<b>TMDL</b>	<b>Date</b>
Alamo River	September 28, 2003
New River	June 30, 2004
Imperial Valley Drains	5 months after USEPA approval

provide the Regional Board with a list of program participants, organized by subwatershed (“drainshed”).

- By:

**Table 4-17 ICFB WATERSHED PROGRAM PLAN DUE DATES**

<b>TMDL</b>	<b>Date</b>
Alamo River	September 28, 2003
New River	June 30, 2004
Imperial Valley Drains	6 months after USEPA approval

submit the ICFB Watershed Program Plan to the Regional Board. The Plan should (1) identify measurable environmental and programmatic goals; (2) describe aggressive, reasonable milestones and timelines for development and implementation of TMDL outreach plans; (3) describe aggressive, reasonable milestones and timelines for development of sub-watershed (“drainshed”) plans; (4) describe a commitment to develop and implement a tracking and reporting program.

- Submit semi-annual reports to the Regional Board’s Executive Officer that describe the progress of each subwatershed groups, any technical assistance workshops that are planned or were conducted, and any pertinent information.

b. ICFB TRACKING AND REPORTING PROCEDURES

The Imperial County Farm Bureau should also:

- By:

**Table 4-18 TRACKING IMPLEMENTATION PLAN DUE DATES**

<b>TMDL</b>	<b>Date</b>
Alamo River	October 28, 2003
New River	July 31, 2004
Imperial Valley Drains	7 months after USEPA approval

submit a plan to the Regional Board’s Executive Officer describing tracking and reporting process for (1) implementation of MPs (and other proven management practices) and (2) MP performance.

- Implement the tracking and reporting procedures in accordance with the Implementation Plan.
- Submit a yearly summary report to the Regional Board’s Executive Officer by 15th of February of each year.

2.4.2 UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

The Regional Board supports efforts of the University of California Cooperative Extension to provide interested growers information on sediment control MPs, implement projects qualitatively assessing MP performance, and develop farm water quality planning programs.

2.4.3 NRCS

The Regional Board recommends that the NRCS require control of irrigation-induced erosion as part of the Farm Plans developed under the Environmental Quality Incentives Program (EQIP) or other federal grant programs.

**F. NEW RIVER AT THE INTERNATIONAL BOUNDARY TRASH TMDL**

**1. TMDL Elements**

For the purpose of this TMDL, trash is defined as human-caused litter. "Litter" is defined in California Government Code §68055.1(g) as follows:

"Litter means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or containers constructed of steel, aluminum, glass, paper, plastic, and other natural and synthetic materials, thrown or deposited on the lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling or manufacturing [...]."

**Table 4-19: NEW RIVER AT THE INTERNATIONAL BOUNDARY TRASH TMDL ELEMENTS**

ELEMENT	DESCRIPTION								
<p><b>Problem Statement (impaired water quality standard)</b></p>	<p>Trash deposited in the New River and its tributaries in Mexico has degraded U.S. water quality and impaired the following designated beneficial uses of the U.S. section of the New River: warm freshwater habitat; wildlife habitat; preservation of threatened rare, or endangered species; water contact recreation; non-contact water recreation; and freshwater replenishment. Trash adversely affects fish and wildlife communities. Trash also causes secondary water quality impacts to the River's terminus at the Salton Sea because trash serves as a carrier for pathogens, dissolved organic matter, and volatile organic compounds that pose a public health threat to people and fish and wildlife communities. Trash in the New River violates Basin Plan water quality objectives, including: (a) general surface water objectives (Aesthetic Qualities, Tainting Substances, Dissolved Oxygen, Suspended Solids and Settleable Solids, Biostimulatory Substances, and Turbidity), and (b) specific surface water objectives for the New River at the International Boundary (qualitative standards 1 through 5 of Minute No. 264 of the Mexican-American Water Treaty).</p>								
<p><b>Numeric Target<sup>1</sup></b></p>	<p>The numeric target established by this TMDL is zero pounds/day of trash.</p>								
<p><b>Source Analysis</b></p> <p><b>Source Analysis (continued)</b></p>	<table border="0"> <thead> <tr> <th data-bbox="500 1591 1036 1623"><b>Source</b></th> <th data-bbox="1068 1591 1230 1623"><b>pounds/year</b></th> </tr> </thead> <tbody> <tr> <td data-bbox="500 1654 922 1686">Mexican wastewater drains/reaches</td> <td data-bbox="1117 1654 1214 1686">240,000</td> </tr> <tr> <td data-bbox="500 1707 695 1738">Natural Sources</td> <td data-bbox="1166 1707 1182 1738">0</td> </tr> <tr> <td data-bbox="500 1770 565 1801"><b>Total</b></td> <td data-bbox="1036 1770 1295 1833"><b>240,000 pounds/year (or 658 pounds/day)</b></td> </tr> </tbody> </table>	<b>Source</b>	<b>pounds/year</b>	Mexican wastewater drains/reaches	240,000	Natural Sources	0	<b>Total</b>	<b>240,000 pounds/year (or 658 pounds/day)</b>
<b>Source</b>	<b>pounds/year</b>								
Mexican wastewater drains/reaches	240,000								
Natural Sources	0								
<b>Total</b>	<b>240,000 pounds/year (or 658 pounds/day)</b>								

<b>Margin of Safety</b>	There is an implicit margin of safety for this TMDL, meaning that the margin of safety is incorporated into the conservative processes used to develop the TMDL (i.e., numeric target is zero), and is not quantified.
<b>Seasonal Variations and Critical Conditions</b>	Strong seasonal differences do not exist regarding rainfall. Mexicali Valley irrigation practices differ between summer and winter. More irrigation water flow in summer months means that more trash may be carried by the New River in summer. Less irrigation water flow in winter means that concentrations of some pollutants (e.g., pathogens, dissolved organic matter, volatile organic compounds) may increase in winter.
<b>Loading Capacity (Total Assimilative Capacity)</b>	Zero pounds/day of trash
<b>Load Allocations and Wasteload Allocations</b>	As stated in 40 CFR 130.2, a TMDL is the sum of load allocations for nonpoint sources, individual wasteload allocations for point sources, and natural sources. In the New River, load allocations (e.g., wastewater drains) and wasteload allocations (e.g., wastewater treatment plants) are zero pounds of trash per day because the numeric target and loading capacity are zero. Load allocations apply to discharges at the Mexican border as well as to all nonpoint sources of trash along the New River in the United States. Each NPDES facility discharging to the New River in the United States has an individual wasteload allocation of zero pounds of trash per day.

**Footnote for Table No. 4-19:**

<sup>1</sup> The numeric target is a goal that translates current Basin Plan narrative objectives into quantitative values.

**2. Implementation Actions for Attainment of TMDL**

TMDL attainment for interim and final numeric targets shall be in accordance with the schedule in Table 4-20.

**Table 4-20: TIME SCHEDULE FOR IMPLEMENTATION PLAN PHASES AND NUMERIC TARGETS FOR TRASH IN THE NEW RIVER AT THE INTERNATIONAL BOUNDARY**

<b>Phase</b>	<b>Time Period</b>	<b>Reduction from Existing Conditions</b>	<b>Allowable Load* (pounds/day)</b>
Phase I	Within 2 years of USEPA Approval of TMDL	75%	165 (Interim Numeric Target)
Phase II	Within 3 years of USEPA approval of TMDL	100%	0 (Final Numeric Target)

\* Percent reduction required at the end of each phase, starting with the current (2005) average of 240,000 pounds/year or 658 pounds/day.

Implementation Plan measures should be sufficient to achieve the TMDL so long as the third parties mentioned above are willing to complete the requested tasks below within the timeframes specified.

**2.1 Actions to be Taken by Third Party Cooperating Agencies and Organizations**

Consistent with the California Porter-Cologne Water Quality Control Act, the Basin Plan may identify requested implementation actions for agencies other than the Regional Water Quality Control Board (CWC §13242(a)). Accordingly, the Regional Board requests that the following cooperating agencies sign a Memorandum of Understanding (MOU) to ensure coordination of International Boundary projects: U.S. members of the New River/Mexicali Sanitation Program Binational Technical Advisory Committee (BTAC), North American Development Bank (NADBank), Border Environment Cooperation Commission (BECC), California Border Environment Cooperation Commission (CalBECC), City of Calexico New River Committee (CCNRC), and Citizens Congressional Task Force on the New River (CCRFNR). The MOU should address:

- Establishment of a coordination committee consisting of one representative from each agency and the Regional Board;
- Establishment of a coordination committee charter to ensure cooperation and communication between all agencies;
- Compilation of a list of potential/ongoing projects and funding sources to address pollution in the New River/ International Boundary area; and
- Submission of semi-annual progress reports to the Regional Board.

The MOU should be signed, and progress reports submitted, in accordance with the schedule in Table 4-21.

**Table 4-21: REQUESTED ACTIONS FOR THIRD PARTY COOPERATING AGENCIES AND ORGANIZATIONS**

Task	Due Date
1. Submit signed MOU to the Regional Board.	Six (6) months after USEPA approval of TMDL
2. Submit progress reports (through coordination committee) to the Regional Board describing status of projects and recommend actions to address pollution in the New River at the International Boundary.	Semiannually, with the first report due 12 months after USEPA approval of TMDL

**2.2 Actions Requested to be Taken by the U.S. Government**

The Regional Board does not have the authority to require Mexico or the U.S. Government to reduce trash that crosses the International Boundary. Accordingly, this TMDL requests that the USIBWC and the USEPA:

- Specify and implement measures to ensure that trash discharges from Mexico do not violate or contribute to a violation of this TMDL;
- Remove trash from Mexico that has accumulated at Imperial County Calxico Landfill culverts; and
- Conducts water quality and trash monitoring in the New River at the International Boundary to evaluate for water quality impacts from trash.

It is critical that the U.S. Government coordinates activities with the other third party coordinating agencies and organizations:

- to implement reasonable, timely measures to mitigate trash impacts on U.S. water quality in the New River/International Boundary area;
- to ensure bi-national standards of Minute No. 264 are met, and
- to persuade Mexico to prevent littering of Mexican surface waters that impact water quality in the New River/ International Boundary area<sup>2</sup>

The Regional Board requests that the USIBWC and USEPA complete the trash reduction actions listed in Table 4-22.

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<sup>2</sup> Removing trash from the New River at or immediately downstream of the International Boundary does not eliminate all water quality impacts because pollutants leached from trash in Mexico may contaminate the New River in the U.S. Pollutants dissolved from trash will be addressed if it is determined that water quality objectives at the International Boundary are still being exceeded after implementation of this TMDL and the New River TMDLs for VOCs, DO, and pathogens.

**Table 4-22: REQUESTED TRASH REDUCTION ACTIONS FOR THE USIBWC AND USEPA**

Task	Requested Target Date
Describe in a report* current and/or proposed measures to ensure Mexico complies with this TMDL. The report should specify parties responsible for implementation, financial options, and implementation time schedule.	Three (3) months after USEPA approval of TMDL
Describe in a report* the current and/or proposed measures to remove trash from Mexico that has accumulated at Imperial County Calexico Landfill culverts. The report should specify the parties responsible for implementation, financial options, and implementation time schedule.	Three (3) months after USEPA approval of TMDL
Begin implementation measures identified in Tasks 1 and 2.	Six (6) months after USEPA approval of TMDL
Describe in a report* the progress achieved towards completion of implementation measures identified in Tasks 1 and 2.	Semiannually, beginning 12 months after USEPA approval of TMDL
Complete implementation measures identified in Tasks 1 and 2.	Three (3) years after USEPA approval of TMDL

\* The report should be prepared under the direct supervision of a California registered civil engineer, with experience in the preparation of these types of reports.

The Regional Board also requests that the USIBWC and the USEPA implement the water quality and trash monitoring in the New River at the International Boundary that is summarized in Table 4-23 below, and submit monitoring reports to the Regional Board according to the schedule specified in the table. The Regional Board requests that monitoring be conducted in accordance with a Quality Assurance Project Plan (QAPP). Water Quality samples from the New River shall be collected at the closest practical site on the U.S. side of the International Boundary.<sup>3</sup>

**Table 4-23: REQUESTED MONITORING ACTIONS FOR THE USIBWC AND USEPA**

Task	Requested Target Date
Prepare a monitoring plan and QAPP to monitor water quality and trash in the New River at the International Boundary.	Three (3) months after USEPA approval of TMDL
Implement water quality and trash monitoring in the New River at the International Boundary, pursuant to the QAPP.	Six (6) months after USEPA approval of TMDL
Submit monitoring data and reports to the Regional Board.	Semiannually, beginning 12 months after USEPA approval of TMDL

<sup>3</sup> It may be impractical to take water quality samples immediately at the International Boundary because wastewater infrastructure (e.g., treatment lagoons, raw sewage bypasses, and drains) empties into the New River at this location, causing mixing/aeration of water that could yield misleading monitoring results. The closest water quality monitoring site currently in use (for International Boundary Line and the State Water Board's Surface Water Ambient Monitoring Program, SWAMP) is located in the New River at the Imperial Irrigation District Bridge, near the U.S. Geological Survey water quality gage, about 0.5 miles from the International Boundary. The party that conducts monitoring for this TMDL should explore using locations closer than the currently used water quality monitoring site.

### **3. Regional Board Monitoring and Tracking Program**

Regional Board staff will coordinate the TMDL Monitoring and Tracking Program. It is important to track TMDL implementation, monitor water quality progress, and modify TMDLs and Implementation Plans as necessary to:

- Address uncertainty that may have existed during TMDL development;
- Ensure that implementation is occurring; and
- Ensure TMDL effectiveness, given watershed changes that may have occurred after TMDL development.

#### **Water Quality and Trash Monitoring**

The Implementation Plan calls for water quality and trash monitoring to determine TMDL progress, and to revise the TMDL as needed. Monitoring program objectives include evaluation of:

- Water quality objectives attainment;
- Implementation of effectiveness;
- In-stream water quality; and
- Water quality temporal and spatial trends.

Regional Board staff requests that USIBWC and USEPA conduct water quality and trash monitoring of the New River at or immediately downstream of the International Boundary, and submit monitoring data and reports to the Regional Board.

#### **Implementation Tracking Program**

The Implementation Plan calls for a tracking program to assess implementation. Objectives include assessment and tracking of measures already in place, and evaluation of TMDL progress. Regional Board staff will evaluate data to determine when numeric targets are attained, and will present annual reports to the Regional Board describing progress.

#### **Measures of Success, and Failure Scenarios**

The primary measure of success for TMDL implementation is attainment of zero trash in the New River at the International Boundary within three years of USEPA approval of the TMDL. Another measure of success may be a substantially lower level of trash than currently exists, such as meeting the interim numeric target (i.e., 75% trash reduction within two years of USEPA approval of the TMDL.)

The primary failure scenario for TMDL implementation is the failure to achieve zero trash in the New River at the International Boundary, or the failure to substantially reduce trash if zero trash is not achieved. If either of these failure scenarios occurs, the Regional Board will consider taking further actions to achieve TMDL compliance.

### **4. TMDL Review Schedule**

#### **Annual Reports**

Regional Board staff shall present annual reports to the Regional Board describing progress toward milestone attainment. The reports will assess:

- Water quality improvement, in terms of trash reduction at the International Boundary; Monitoring results;
- Control measures implemented to deal with pollution originating in Mexico;
- Whether milestones were met on time or at all. If milestones were not met, the reports will discuss the reasons; and
- Recommendations for further actions.

#### **Triennial Review**

The State must hold public hearings for reviewing applicable water quality standards (WQS), and modifying/

adopting the standards as appropriate pursuant to Section 303 of the Clean Water Act and 40 CFR Part 130. The State also must formulate and periodically review (and update as necessary) regional water quality control plans pursuant to Section 13240 of the California Water Code. Following adoption by the Regional Board, Basin Plan amendments and supporting documents are submitted to the State Water Resources Control Board for review and approval, the State Office of Administrative Law for its concurrence that the amendments meet State Administrative Procedures Act requirements, and finally the USEPA.

The first TMDL review is scheduled to conclude three years after TMDL adoption to provide adequate time for implementation and data collection. At this time, TMDL compliance should be achieved. If the TMDL is not achieved, the Regional Board will consider taking further actions to achieve TMDL compliance. Subsequent reviews (if needed) will be conducted concurrently with the Triennial Review of the Basin Plan. The TMDL Review will include the same components assessed in annual reports, and will conform to the schedule in Table 4-24.

Public hearings will be held at least every three years to review this TMDL. At these hearings, the Regional Board will:

- Review monitoring results;
- Review progress toward milestone attainment;
- Consider approval of proposed management practices for the control of pathogens from human-made nonpoint sources of pollution;
- Consider enforcement action; and
- Consider revision of TMDL components.

This proposed review schedule indicates the Regional Board’s commitment to periodic review and refinement of this TMDL via the Basin Plan amendment process.

**Table 4-24: TMDL REVIEW SCHEDULE**

Activity	Date
USEPA Approval of TMDL	December 2006
Terminate First TMDL Review, Conduct Regional Board Public Hearing, and Begin Second TMDL Review	December 2009
Terminate Second TMDL Review, Conduct Regional Board Public Hearing, Begin Third TMDL Review, and Continue triennial review cycle	December 2012

\*Dates are contingent upon USEPA approval

Public hearings will be held at least every three years to review this TMDL. At these hearings, the Regional Board will:

- review monitoring results;
- review progress toward milestone attainment;
- consider approval of proposed management practices for the control of pathogens from human-made nonpoint sources of pollution;
- consider enforcement action; and
- consider revision of TMDL components.

This proposed review schedule indicates the Regional Board’s commitment to periodic review and refinement of this TMDL via the Basin Plan amendment process.

## G. NEW RIVER AT THE INTERNATIONAL BOUNDARY DISSOLVED OXYGEN TMDL

### SUMMARY

This TMDL was adopted by the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Board) on May 20, 2010.

This TMDL was approved by:

The State Water Resources Control Board (SWRCB) on **December 6, 2011**

The California Office of Administrative Law (OAL) on **May 21, 2012**

The U.S. Environmental Protection Agency (USEPA) on **November 16, 2012**

### 1. TMDL Elements

Elements of this Total Maximum Daily Load (TMDL), as described in the “State of California S.B. 469 TMDL Guidance: A Process for Addressing Impaired Waters in California, June 2005,” are described in Table 4-25:

**Table 4-25: ELEMENTS OF THE TMDL AND IMPLEMENTATION PLAN FOR DISSOLVED OXYGEN IN THE NEW RIVER AT THE INTERNATIONAL BOUNDARY**

ELEMENT	DESCRIPTION
<p><b><u>Project Definition</u></b> (To describe the impairment being addressed by the TMDL)</p>	<p>This TMDL addresses impairment (or pollution) of low Dissolved Oxygen (DO) in the first 12 mile (mi) [19.3 kilometer (km)] reach of the New River downstream of the International Boundary (IB) caused mainly by waste discharges from Mexico. The New River originates in Mexicali Valley, Mexico. It flows approximately 20 miles (32.2 km) through the city of Mexicali, Mexico, crosses the IB, continues through the city of Calexico, California, in the U.S., and travels northward about 60 miles (96.56 km) until it empties into the Salton Sea. The Salton Sea is California’s largest inland surface water.</p> <p>The Basin Plan prescribes a general surface water quality objective (WQO) for DO in all surface waters designated WARM, such as the New River, of a minimum of 5.0 (five) milligrams per liter (mg/l) at any time. (Basin Plan, Chapter 3, Section II.F., p. 3-2.) The Basin Plan also prescribes a specific surface WQO for the New River at the International Boundary of 5.0 mg/l, which is based on the quantitative standards set forth in Minute No. 264 of the Mexican-American Water Treaty, titled “Recommendations for Solution of the New River Border Sanitation Problem at Calexico, California – Mexicali, Baja California Norte.” This Treaty was signed and made effective by the U.S. and Mexico on December 4, 1980. (Basin Plan, Chapter 3, Section III.B., Table 3-1, p. 3-6.) Accordingly, this TMDL proposes these DO WQOs as the numerical target to be met.</p>
<p><b><u>Watershed Description</u></b> (To provide a geographic and environmental setting for the TMDL)</p>	<p>The New River watershed is approximately 500,000 acres (202,350 hectares) in size: 200,000 acres (80,940 hectares) of Imperial Valley farmland in the U.S.; and 300,000 acres (121,410 hectares) in Mexico, including the Mexicali metropolitan area and agricultural land in Mexicali Valley. The climate of the New River watershed is hot, with dry summers, occasional thunderstorms, and gusty high winds. Average annual rainfall is less than 3 inches (76.2 mm), and temperatures are in excess of 100 °F (38 °C) for more than 100 days per year. Major soils associations in the New River watershed are within the “wet” series of poorly drained soils. Sources of flows to the New River are urban and agricultural runoff, and treated municipal and industrial wastes from the Mexicali Valley, Mexico, and the Imperial Valley, California, U.S.</p>

	<p>Downstream reaches of the New River provide important habitat for many kinds of wildlife. Birds are the most diverse wildlife group using the New River. Generally, waterfowl and shorebirds are seen where the New River meets the Salton Sea. Riparian areas along some parts of the New River, especially in downstream reaches, provide important habitat for songbirds. The New River contains state and federally endangered and threatened species. Fifteen special status wildlife and plant species (including one that is endangered and/or threatened) occur or potentially occur in the New River International Boundary vicinity.</p>																							
<p><b>Data Analysis</b> (To inventory relevant data and provide a summary of the water quality and flow conditions in the impaired water and identify any important trends or relationships)</p>	<p>Development of this TMDL started in early 2003. Regional Board staff collected monthly water quality samples at four locations in the New River, from March 2003 to November 2009, to evaluate DO impairments. The four sampling locations are:</p> <ul style="list-style-type: none"> <li>• New River at IB;</li> <li>• Evan Hewes Highway (EH), about 20 river miles downstream from IB;</li> <li>• Drop Structure 2 (D2), about 50 river miles downstream from IB; and</li> <li>• Outlet to the Salton Sea (Outlet), about 60 river miles downstream from IB.</li> </ul> <p>This TMDL also used water quality data from the Regional Board Border Program, U.S. Section of the International Boundary and Water Commission (USIBWC), U.S. Geological Survey (USGS), Imperial Irrigation District (IID), and wastewater treatment plants (WWTPs) in the New River watershed inside the U.S.</p> <p>For the past 28 years, the Regional Water Board has observed flows from Mexico to be decreasing. In 1980, average flows for the New River at the IB and at the outlet to the Salton Sea were about 6.10 and 17.71 cubic meters per second (cms), respectively. In 2008, average flows for the New River at the IB and at the outlet to the Salton Sea were about 3.36 and 15.61 cms, respectively.</p> <p>DO averages for the New River at the IB ranged from 0.8 to 2.8 mg/l from 1997 to 2002. Data and source analysis for this TMDL determined that the Mexicali Valley in Mexico is the most significant source of materials causing New River DO impairments. The Las Arenitas Wastewater Treatment Plant (WWTP), which started operations in March 2007, was designed to prevent Mexicali's remaining untreated sewage from discharging into the New River. As a result, DO levels in the impaired section of the New River improved significantly, but DO concentrations continue to violate the DO WQO of 5.0 mg/l at any time. Annual DO concentration averages for the New River at IB from both the Regional Board and USIBWC are shown below.</p> <table border="1" data-bbox="480 1360 1458 1518"> <thead> <tr> <th rowspan="2"></th> <th colspan="5"><b>Annual DO Concentrations in mg/l for the New River at the IB</b></th> </tr> <tr> <th><b>2005</b></th> <th><b>2006</b></th> <th><b>2007</b></th> <th><b>2008</b></th> <th><b>2009</b></th> </tr> </thead> <tbody> <tr> <td><b>Regional Water Board</b></td> <td>0.88</td> <td>2.85</td> <td>3.21</td> <td>4.43</td> <td>5.61</td> </tr> <tr> <td><b>USIBWC</b></td> <td>0.82</td> <td>1.18</td> <td>3.70</td> <td>4.27</td> <td>5.94</td> </tr> </tbody> </table>		<b>Annual DO Concentrations in mg/l for the New River at the IB</b>					<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>Regional Water Board</b>	0.88	2.85	3.21	4.43	5.61	<b>USIBWC</b>	0.82	1.18	3.70	4.27	5.94
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<p><b>Source Analysis</b> (To provide a complete inventory and description of all sources of the pollutant of concern, including point, nonpoint, and background sources in the watershed.)</p>	<p>This source analysis identifies and characterizes sources of oxygen demanding materials that result in low DO concentrations in the New River. BOD and NH<sub>3</sub> from the Mexicali Valley, Mexico, are found to be the main cause of low DO in the first 12-mile segment of the New River downstream of the International Boundary as shown by analysis of available data to date and New River QUAL2K Water Quality computer model simulations. A continuous monitoring program at various locations along the impaired section of the New River is needed to properly characterize any contribution of materials causing DO impairment from natural and nonpoint sources, and to evaluate the long term effect of the Las Arenitas WWTP in the New River Watershed.</p>																							

<p><b><u>Critical Conditions and Seasonal Variations</u></b> (To identify the critical conditions and seasonal variation in the TMDL.)</p>	<p>Prior to the completion of the Las Arenitas WWTP in March 2007, there were no significant critical conditions or seasonal variations for DO in the impaired section of the New River. Data showed year-round violations of DO WQOs immediately downstream of the International Boundary, regardless of season or climate. Analyses of data since March 2007 suggest improved concentrations of DO in the impaired section of the New River, although the DO concentrations still violate the Basin Plan's DO WQO of a minimum of 5 mg/l at any time, especially during the hot summer months. Because the materials that cause low DO may stay in the New River up to a few months, controlling these materials throughout the year is important. In addition, New River flows at the IB should be managed on a whole-year basis based on: (a) the oxygen data (which do not appear to exhibit strong seasonal variability); and (b) the fact that the warmer months have lower flows. In conclusion, currently there are no significant critical conditions or seasonal variations for DO in the impaired section of the New River.</p>
<p><b><u>Numeric Target</u></b> (To identify the appropriate numeric water quality target(s) that represents attainment of applicable WQO and that were used in the calculation of the TMDL.)</p>	<p>The numeric target for DO established by this TMDL for the first 12 mile (19.3 km) segment of the New River downstream from the International Boundary is a minimum of 5.0 mg/l at any time.</p>
<p><b><u>Linkage Analysis</u></b> (To describe the method used to establish the relationship between pollutant loading and in-stream water quality response and how the relationship was used to identify the loading capacity of the impaired water.)</p>	<p>A Steady-State New River DO QUAL2K Model, which was developed by Tetra Tech, Inc., for the USEPA, was used to establish the linkage between loading of materials causing DO impairment in the New River and the predicted DO responses. First priority in Model calibration was the determination of temperature, DO, carbonaceous BOD, and NH<sub>3</sub>. The second priority was the consideration of other nutrients, conductivity, suspended solids, alkalinity and pH. Phytoplankton, detritus, and pathogens were not calibrated due to limited data. The Model concentrated on the critical condition months of June, July, and August where lower flow, higher temperature and lower DO concentrations are characteristic of the New River's flow at the IB. BOD and NH<sub>3</sub>, expressed as mass per unit of time, were chosen because (1) the modeling showed BOD and NH<sub>3</sub> are the most influential parameters affecting DO levels in the New River and (2) variations in other parameters were shown to have only a minor influence. Data and modeling analysis showed that Mexico's sources are the major cause of low DO in the New River. Allocations recommended by the Model for Mexico are expected to meet the applicable DO WQO in first 12-mile (19.3 km) segment downstream of the New River at IB. As more water quality data are collected and evaluated, allocations will be revised, if necessary.</p>
<p><b><u>TMDL Calculation and Allocations</u></b> (To clearly identify all TMDL allocations for point sources (waste load allocations) and nonpoint sources (load allocations) in</p>	<p>This TMDL proposes to eliminate low DO impairment in the first 12 mile (19.3 km) reach of the New River downstream of the IB. To accomplish this WQO, the TMDL specifies allowable loads of BOD and NH<sub>3</sub> to the sources of DO impairments. The allowable loads are based on steady-state New River DO QUAL2K Model projections, scientific literature, monitoring data, and best professional judgment.</p> <p>The load allocations for all discharges from Mexico to the New River at the International Boundary are 5.0 mg/l or 1529 kg/day of BOD and 0.5 mg/l or 153 kg/day of NH<sub>3</sub>. The mass/day load allocations are based on the 2007 average flows of 125 cubic feet per second (cfs) or 3.54 cms measured at the IB.</p> <p>All publicly owned treatment works that discharge pollutants from point sources in the</p>

the watershed.)

impaired New River watershed in the U.S. have been issued NPDES permits, which prescribe, among other requirements, effluent limitations for BOD concentrations. Therefore, wasteload allocations for these facilities are the BOD limitations prescribed in their existing permits, as shown below:

**Wasteload Allocations (Current NPDES Permitted BOD Effluent Limitations in mg/l)**

Discharger	Average Monthly	Average Weekly	Permit Numbers
City of Calexico WWTP	30	45	CA7000009
Seeley County Water District	45	65	CA0105023
Centinela State Prison	45	65	CA7000001
U.S. Naval Air Facility, El Centro	30	45	CA0104906
McCabe Union School District	30	45	CA0104281
Date Gardens Mobile Home Park	30	45	CA0104841

Although there are no effluent limitations for DO and NH<sub>3</sub> in these NPDES permits, DO and NH<sub>3</sub> are addressed in the receiving surface water limitation sections of the permits.

This TMDL has an implicit Margin of Safety (MOS) that is incorporated into the conservative assumptions used to develop the TMDL, and thus, is not quantified. The MOS is implicit in this TMDL process through the use of conservative model inputs (temperature, DO concentrations, and flow). Conservative temperature values are employed through the use of the highest average maximum temperature that would normally occur under critical stream flow conditions. The DO concentrations and stream flow employed for the summer reflects the lowest DO and flows that would normally occur during the critical conditions period.

**Implementation Plan**  
(To describe the strategy for implementing the TMDL, and restoring water quality standards, including implementation activities, milestones/goals, timeline, funding, and responsible parties.)

The TMDL Implementation Plan proposes to eliminate New River low DO impairment in two phases. Phase 1 of the TMDL Implementation Plan (first three years after USEPA approval) requests that the federal government (USIBWC and USEPA) take the following three actions:

1. Develop and submit to the Regional Board a New River DO TMDL Implementation Report that describes measures taken or proposed to ensure Mexico does not cause or contribute to violations of this TMDL. This report is due one (1) year after USEPA approval of the TMDL.
2. Continue to conduct water quality and DO monitoring in the New River at IB, and to submit monitoring data and reports to the Regional Board. This task is ongoing.
3. Develop and submit to the Regional Board a New River DO TMDL Final Implementation Report that describes progress in completing the implementation measures identified in Actions 1 and 2, above. This report is due three (3) years after USEPA approval of the TMDL.

Phase 1 of TMDL Implementation also requests that third party cooperating agencies and organizations (i.e., U.S. members of the New River/ Mexicali Sanitation Program Binational Technical Advisory Committee (BTAC), North American Development Bank (NADBank), Border Environment Cooperation Commission (BECC), California

	<p>Border Environment Cooperation Commission (CalBECC), City of Calexico New River Committee (CCNRC), and Citizens Congressional Task Force on the New River (CCTFNR)) take the following two actions:</p> <ol style="list-style-type: none"> <li>1. Develop, sign, and submit to the Regional Board a memorandum of understanding (MOU) to ensure coordination of New River IB projects. The MOU is due six (6) months after USEPA approval of the TMDL.</li> <li>2. Develop and submit to the Regional Board New River DO TMDL implementation progress reports. These reports are due semiannually, with the first report due 12 months after USEPA approval of the TMDL.</li> </ol> <p>Phase 2 of TMDL Implementation (second three years after USEPA approval) will be implemented if Phase 1 does not result in attaining the DO WQO of a minimum of 5.0 mg/l at any time in the first 12 mile (19.3 km) section of the New River downstream from the International Border.</p> <p>Regional Board staff will track TMDL implementation and monitor water quality progress in both phases, enforce provisions, and propose modifications of the TMDL to the Regional Board, if necessary, in accordance with a time schedule.</p>
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## 2. Measures of Success and Failure Scenarios

### Measures of Success

The primary measure of success for TMDL implementation is timely attainment of numeric targets for DO in the New River. Another measure of success is the level of TMDL compliance. A third measure of success is the cooperation from Mexico to maintain the Las Arenitas WWTP, and to identify and prevent other waste dischargers from violating the TMDL. Such cooperation is essential to the success of the TMDL Implementation Plan.

### Failure Scenarios

The only failure scenario for TMDL implementation is the failure to achieve the numeric DO WQO of 5.0 mg/l at any time in the 12 mile (19.3 km) section of the New River downstream from the IB. If DO WQOs are not reached by the end of the first phase (the first three years after USEPA approval), several actions may be considered for the second phase (the following three years). A river wastewater treatment plant in the U.S. could be one of these actions, if feasible and appropriate.

## 3. TMDL REVIEW SCHEDULE

### Annual Reports

Annual reports will be provided by Regional Board staff to the Regional Board describing progress toward milestone attainment. Reports will assess:

- monitoring results;
- water quality improvement;
- implementation actions and effectiveness; and
- recommendations for further actions, including more stringent enforcement.

**Triennial Review**

The Regional Boards must hold public hearings for reviewing applicable Water Quality Standards (WQSs), and modifying/adopting the standards as appropriate pursuant to CWA Section 303 and 40 CFR Part 130. Also, the Regional Board must formulate and periodically review (and update as necessary) Regional Board Basin Plans pursuant to CWC Section 13240. Following adoption by the Regional Board, Basin Plan amendments and supporting documents are reviewed and approved by the SWRCB, the State Office of Administrative Law and, if the Basin Plan amendment concerns waters subject to the CWA, USEPA. Since the Basin Plan amendment concerns waters subject to the CWA (i.e., the New River), USEPA approval is required.

The first review for this TMDL will occur during a Regional Board public hearing scheduled three years after USEPA approval of the TMDL. The Regional Board may consider more stringent regulatory mechanisms for a second implementation phase (the second three years of implementation) if the TMDL is not achieved at this time. The TMDL review will evaluate attainment of numeric targets, and include the same components assessed in annual reports. The schedule for TMDL review is provided in Table 4-26.

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**Table 4-26: TMDL REVIEW SCHEDULE\***

<u>Activity</u>	<u>Date*</u>
Begin First TMDL Review	Two Years after USEPA Approval
Terminate First TMDL Review, Conduct Regional Board Public Hearing, and Begin Second TMDL Review	Three Years after USEPA Approval
Terminate Second TMDL Review, Conduct Regional Board Public Hearing, and Begin Third TMDL Review	Six Years after USEPA Approval
Etc.	
* Dates are contingent upon availability of Regional Board resources. Subsequent reviews will occur concurrently with Triennial Reviews.	

Public hearings will be held at least once every three years to review this TMDL. At these hearings, the Regional Board will:

- review monitoring results;
- review progress toward milestone attainment;
- consider approval of proposed management practices;
- consider enforcement action, if necessary; and
- consider revision of TMDL components.

This proposed review schedule indicates the Regional Board’s commitment to periodic review and refinement of this TMDL via the Basin Plan amendment process.

**H. Coachella Valley Stormwater Channel Bacterial Indicators TMDL**

**1. TMDL Elements**

**Table 4-27: COACHELLA VALLEY STORMWATER CHANNEL BACTERIAL INDICATORS TMDL ELEMENTS**

<u>ELEMENT</u>	<u>DESCRIPTION</u>
	Coachella Valley Stormwater Channel (CVSC) is on the California 303(d) List for impairment by pathogens of unknown sources. This listing applies to the 17-mile length of the CVSC from Indio to the Salton Sea. This violation of water quality standards (WQSs) is a threat to public health, and impairs the following CVSC beneficial uses (BUs): Water Contact Recreation (REC I) and Water Non-Contact Recreation (REC II).

<p><b><u>Project Definition</u></b></p>	<p>WQSs consist of designated beneficial uses, specified numeric or narrative water quality objectives (WQOs) that protect these BUs, and antidegradation requirements to ensure that existing uses and the level of water quality necessary to protect the existing uses are maintained and protected. The following Table summarizes REC I bacteria indicator WQOs for all surface waters in the Colorado River Basin Region, excepting the Colorado River:</p> <p style="text-align: center;"><b><u>Bacterial Indicator Water Quality Objectives</u></b></p> <table border="1" data-bbox="440 468 1484 594"> <thead> <tr> <th><b><u>Indicator Parameter</u></b></th> <th><b><u>30-Day Geometric<sup>a</sup> Mean</u></b></th> <th><b><u>Maximum Instantaneous</u></b></th> </tr> </thead> <tbody> <tr> <td><i>E. coli</i></td> <td>126 MPN<sup>b</sup>/100 Milliliter (ml)</td> <td>400 MPN/100 ml</td> </tr> <tr> <td>Fecal coliform</td> <td>200 MPN/100 ml</td> <td>c</td> </tr> <tr> <td>Enterococci</td> <td>33 MPN/100 ml</td> <td>100 MPN/100 ml</td> </tr> </tbody> </table> <p>a- Based on a minimum of no less than 5 samples equally spaced over a 30-day period.  b- Most probable number.  c- No more than 10 % of total samples during any 30-day period exceed 400 MPN per 100 ml</p> <p>Federal Clean Water Act (CWA), Section 303(d)(1)(A) requires all states to identify surface waters impaired by pollution (i.e., that do not meet WQSs), and to establish Total Maximum Daily Loads (TMDLs) for pollutants causing the impairments. As a result, a TMDL to address bacterial indicator organisms is proposed for CVSC, which has been completed pursuant to the State of California TMDL Guidance issued in June 2005, and USEPA guidance published in April 2001.</p>	<b><u>Indicator Parameter</u></b>	<b><u>30-Day Geometric<sup>a</sup> Mean</u></b>	<b><u>Maximum Instantaneous</u></b>	<i>E. coli</i>	126 MPN <sup>b</sup> /100 Milliliter (ml)	400 MPN/100 ml	Fecal coliform	200 MPN/100 ml	c	Enterococci	33 MPN/100 ml	100 MPN/100 ml
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<p><b><u>Watershed Description</u></b></p>	<p>CVSC is located in Coachella Valley in Riverside County, California. The Coachella Valley is bounded to the north by the San Bernardino and Little San Bernardino Mountains, and to the south by the San Jacinto and Santa Rosa Mountains, and the Salton Sea. The Coachella Valley has been heavily agricultural since the early 1900's. Agricultural lands are irrigated by groundwater and water from the Colorado River delivered to the Valley through the Coachella Canal via the All-American Canal. CVSC is an unlined, engineered extension of the Whitewater River, and serves as a conveyance channel for irrigation return water, treated wastewater from three National Pollutant Discharge Elimination System (NPDES) permitted municipal wastewater treatment plants, wastewater discharge from one NPDES permitted aquaculture facility (Kent SeaTech Corporation Fish Farm (KSCFF), owned/operated by Kent SeaTech Corporation), and urban and stormwater runoff. The Coachella Valley Water District (CVWD) operates and maintains the CVSC. The three permitted wastewater treatment plants are:</p> <ul style="list-style-type: none"> <li>• Valley Sanitary District Wastewater Treatment Plant (VSDWTP), Indio, owned/operated by Valley Sanitary District;</li> <li>• Mid-Valley Water Reclamation Plant (MVWRP), Thermal, owned/operated by CVWD; and</li> <li>• Coachella Sanitary District Wastewater Treatment Plant (CSDWTP), Coachella, owned/operated by the City of Coachella and the Coachella Sanitary District.</li> </ul> <p>Average annual flows in CVSC are decreasing due to changes in agricultural practices and suburban development. The CVSC and its tributary drains provide flood control and protection in addition to habitat for many types of wildlife including migratory songbirds, waterfowl, coyotes, raccoons, and rodents. Although recreation in the stormwater channel is prohibited by CVWD, people are known to recreate in and around the stormwater channel.</p>												

<p><b><u>Data Analysis</u></b></p>	<p>During the development of this TMDL, water quality samples were collected monthly at eight locations in the CVSC, from February to September 2003, to evaluate bacteria concentrations and loading. Eleven of the 59 samples collected exceeded the 400 MPN/100 ml E. coli WQO in the Colorado River Basin Water Quality Control Plan (Basin Plan) and one of the proposed numeric targets for this TMDL. Based on the 2004 State of California's 303(d) Listing Policy, this exceedance rate would be sufficient to confirm the impairment identified in the 303(d) List.</p>
<p><b><u>Source Analysis</u></b></p>	<p>To identify potential sources of bacteria, Regional Water Board staff reviewed bacteria data provided by the three NPDES wastewater treatment facilities (WWTFs) and the City of Coachella, which is the only Municipal Separate Storm Sewer System (MS4) permittee discharging into the impaired section of the CVSC. Data reviewed indicate that all three WWTFs met their applicable bacteria WQOs. Data also indicate that urban and stormwater flows contain fecal coliform levels in violation of its applicable WQOs for REC I and REC II. These water quality violations range up to 900,000 MPN/100 ml at Avenue 52 Storm Drain in Coachella, September 1999. Due to the limited data available, actual contribution from urban and stormwater runoff and contributions from other point and nonpoint sources require further characterization.</p> <p>To assist with characterizing the bacterial contribution from agricultural sources (Agricultural Dischargers), the Coachella Valley Agricultural Stakeholder Water Quality Task Force (CVAS) was formed for the purpose of collecting water samples and monitoring the amount of E. coli discharged from agricultural sources. Samples were collected from subsurface drain collectors that service agricultural land and ultimately discharge into the CVSC. Monitoring was conducted from July 2008 through June 2009. Four hundred fifty water samples were collected from five (5) representative subsurface drain collectors at receiving water locations upstream from the collectors, and at receiving water locations downstream from the collectors. The samples were analyzed for E. coli concentrations. The analysis of results from this monitoring program indicated that E. coli levels in the subsurface drain collectors were typically two orders of magnitude lower than the E. coli levels in the CVSC. Out of one hundred fifty samples collected from the drain collectors, four exceeded the 400 MPN/100 ml Instantaneous Maximum E. coli WQO. None of the ninety 30-day geometric means calculated for E. coli exceeded the Basin Plan WQO of 126 MPN/100 ml. No significant correlation could be made between the E. coli levels measured in the drain collector discharges and the E. coli levels measured in the CVSC. The overall results of this monitoring program indicate that bacteria entering the CVSC in flows from subsurface drain collectors serving agricultural lands have only a de minimis effect on the bacterial indicator impairment in the CVSC.</p> <p>To further identify possible sources of bacteria to CVSC, a Ribotype or DNA microbial source tracking (MST) method was used. MST methods match fingerprints from bacterial strains isolated from a water system to those isolated from hosts such as humans, cows, geese, chicken, or municipal wastewater. The DNA monitoring and analysis study was conducted from October 2003 through March 2004. Two hundred water samples were collected from three sites along CVSC. E. coli strains were isolated from water samples, ribotypes fingerprinted, and then compared to a source library. The DNA monitoring and analysis study determined the percentage distribution of fecal sources in the CVSC. The following potential bacterial sources were identified in CVSC from the two hundred samples collected during the study: avian (40%), human (25%), rodents plus other wild mammals (25%), and livestock (&lt;3%). Approximately 6% of the E. coli species originated from unknown sources. This distribution provides an idea of the possible sources of bacteria in CVSC, although it does not reflect the relative loading from those sources. Although scientific studies support the use of ribotype-based MST methods, there are concerns regarding their accuracy due to spatial and temporal</p>

	vectors, stability of the markers, and sampling design.
<b><u>Critical Conditions and Seasonal Variation</u></b>	The climate in the Coachella Valley is arid with hot summers and warm winters and very low average annual rainfall (<3 inches/year). The water in the CVSC mainly originates from irrigation return flows, rising groundwater, fish farm effluent, treated municipal wastewater, urban runoff, and stormwater runoff. Analysis of available water quality data suggest slightly higher concentrations of bacteria in warm months, but the bacteria concentrations do not appear to be correlated with flow.
<b><u>Numeric Targets</u></b>	<p>TMDL numeric targets derived from the Basin Plan's WQOs have been established for E. coli as a log mean (Geomean) of 126 MPN/100 ml (based on a minimum of not less than five samples during a 30-day period), and 400 MPN/100 ml for a single sample. The rationale supporting Regional Water Board staff's decision to choose only one bacterial indicator for the CVSC, E. coli, is as follows:</p> <p>The Colorado River Basin Region's Basin Plan has bacterial indicator WQOs for E. coli, fecal coliform, and enterococci. In most cases, these indicators do not cause human illness directly; rather, they have shown a correlation as indicators of the presence of other harmful pathogens in water bodies. The general inclusion of all three bacterial indicators in the Basin Plan has presented region-wide application problems and confusion for the regulated community. The CVSC is considered a fresh water recreational surface water. The decision to express the numeric targets, loading capacity, and allocations in the CVSC TMDL in terms of E.coli only was based on recommendations from USEPA guidance to eliminate fecal coliform as an indicator of pathogens causing human illness, and to rely instead on either E. coli and/or Enterococci. The USEPA water quality criteria document, titled "Ambient Water Quality Criteria for Bacteria, 1986" recommends replacing fecal coliform with either E. coli or enterococci as bacterial indicators for the protection of fresh water recreational users. The USEPA provided draft implementation guidance in May 2002, titled "Implementation Guidance for Ambient Water Quality Criteria for Bacteria," that reaffirmed the 1986 guidance. Further, E. coli, which is a species of fecal coliform, is being used in the TMDL as a surrogate for fecal coliform. Consequently, a load reduction in E. coli into the CVSC that will attain the E. coli WQOs will also result in a load reduction in fecal coliform and attain the fecal coliform WQOs.</p> <p>The TMDL targets must not be exceeded more frequently than the allowable exceedance rate described in the State of California's 303(d) Listing Policy, as a result of controllable sources with the exception of the three NPDES WWTFs, which have met their applicable bacteria WQOs and thus, shall be required to continue to meet their WQOs. All other responsible parties, however, shall be required to attain their respective WLA and LA numeric targets within ten (10) years after USEPA approves the TMDL.</p>
<b><u>Linkage Analysis</u></b>	For this TMDL, the connection between pollutant loading and protection of BUs is established by the fact that TMDL numeric targets and allocations are equal to WQOs for the most stringent BU of CVSC in the Basin Plan. Therefore, this TMDL's numeric targets protect all BUs of CVSC. There is a one-to-one relationship between loading allocations and numeric targets in this TMDL. For example, a 30-day geometric mean wasteload/load allocation of 126 MPN/100 ml for E. coli at the point of discharge makes it more likely that 126 MPN/100 ml or less will be present in the CVSC, especially if contributions from natural background sources are not exceeding these allocations. The potential for increased or decreased concentration downstream due to growth and decay dynamics may be offset by dilution from subsurface drainage from irrigated agricultural lands and effluent from permitted wastewater treatment plants and thus provides an implicit margin of safety.

<b><u>TMDL Calculations and Allocations</u></b>	<p>A TMDL is a numeric calculation of the loading capacity of a water body to assimilate a certain pollutant and still attain all WQSs. The TMDL is the sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources and natural background sources, and a margin of safety (MOS) to address uncertainties. Discharges from all current and future point sources and controllable nonpoint sources of pollution to the impaired section of CVSC shall not exceed the following WLAs and LAs for E. coli.</p> <p>Both WLAs and LAs for E. coli are:</p> <ol style="list-style-type: none"> <li>1) the log mean (Geomean) of samples collected shall not exceed 126 MPN/100 ml (based on a minimum of not less than five samples during a 30-day period), and<sup>4</sup></li> <li>2) 400 MPN/100 ml for a single sample.</li> </ol> <p>The allocations are applicable throughout the entire stretch of the impaired section of the CVSC year-round. The numeric target concentrations are based on extensive epidemiological studies conducted by the USEPA and others. To address the uncertainty concerning bacterial die-off and re-growth dynamics in CVSC, and to better address critical conditions and seasonal variations, this TMDL provides a MOS by including a monitoring and review plan that uses data collected during implementation to evaluate TMDL effectiveness and the need for revision.</p>		
	<b><u>Allocation Type</u></b>	<b><u>Discharger</u></b>	<b><u>E. Coli Allocations</u></b>
	Point Source (WLAs)	VSDWTP CSDWTP MWWRP	A log mean (Geomean) of ≤126 MPN/100 ml (based on a minimum of not less than five samples during a 30-day period), and 400 MPN/100 ml for a single sample
	Point Source (WLAs)	KSCFF Cal-Trans City of Coachella (MS4 co-permittee)	A log mean (Geomean) of ≤126 MPN /100 ml (based on a minimum of not less than five samples during a 30-day period), and 400 MPN/100 ml for a single sample
Nonpoint Source (LAs)	Agricultural Runoff Federal Lands Tribal Lands	A log mean (Geomean) of ≤126 MPN/100 ml (based on a minimum of not less than five samples during a 30-day period), and 400 MPN/100 ml for a single sample	

<sup>4</sup> For Nonpoint sources, when it is impractical to collect five samples for the log mean (Geomean), the single sample maximum allocation of 400 MPN/100 ml may be used to determine compliance with the load allocation.

	Nonpoint Source (LAs)	Septic Systems	Zero (0) MPN/100 ml
	Load allocations (LAs) and wasteload allocations (WLAs) for bacteria indicator dischargers into CVSC are described below:		
<b><u>Monitoring Plan</u></b>	Dischargers listed in Table 4-27 will be required to develop and submit as a whole, or in groups, a comprehensive water quality monitoring program for the 303(d) listed segment of CVSC to the Regional Water Board Executive Officer for review and approval 90 days after USEPA approves the TMDL. The monitoring plan will include a sufficient number of monitoring stations and monitoring events to adequately address all potential sources of bacteria.		

## **2. Implementation Actions for Attainment of TMDL**

The implementation plan is divided into two phases. Phase I actions will take three years to complete and will focus on monitoring and addressing bacterial indicators associated with wastewater discharges from NPDES facilities, and urban and stormwater runoff. Regional Water Board staff will coordinate closely with USEPA to address waste discharges from tribal lands. If E. coli WQOs are not achieved by the end of Phase I, Regional Water Board staff will implement additional actions to control E. coli sources in Phase II. Enforcement actions against violators of the TMDL will occur in both phases if necessary. This approach provides for immediate assessment of known sources of bacterial indicators while allowing time for additional monitoring to assess TMDL implementation, effectiveness, and need for modification.

Agricultural Dischargers and the CVWD are specifically exempted from having to complete Phase I monitoring actions regarding agricultural discharges. The Regional Water Board acknowledges the monitoring completed by CVAS in 2008-2009, and finds that its monitoring accurately characterizes the contribution of irrigated agriculture to the bacterial indicator impairment in the CVSC. The Regional Water Board considers CVAS's effort as an early implementation of this TMDL. Accordingly, this effort does not exempt Agricultural Dischargers and the CVWD from completing Phase II actions, should Phase II become necessary and available data indicate discharges into the CVSC from irrigated agriculture exceed E. coli WQOs.

### 2.1 Phase I Implementation Actions

Phase I actions will occur within three years after USEPA approves the TMDL, and begin as directed in Table 4-28 below. Phase I requires:

- Monitor CVSC for bacteria loading from city of Coachella, KSCFF, Cal-Trans, federal lands, and tribal lands;
- Identify significant federal and tribal dischargers to CVSC and notify them of their role in TMDL implementation;
- Receive a written report from each tribal entity, or from USEPA, describing measures to ensure waste discharges from tribal property do not violate or contribute to a violation of this TMDL;
- Prepare an amendment to the Basin Plan that rectifies current limitations of having three bacterial indicator organisms, clarifies which indicators apply to specified surface waters of the Region, and as necessary, determines the need for site-specific objectives; and
- Monitor, track, and survey CVSC to determine if Phase I activities achieve bacteria WQOs.

### **2.2 Phase I Implementation Responsible Parties and Schedule**

The time schedule and parties responsible for implementing Phase I actions are provided in Table 4-28 below.

**Table 4-28: PHASE I ACTIONS AND TIME SCHEDULES**

<u>Due</u>	<u>Action</u>
<b>Immediately following Regional Water Board approval of TMDL</b>	Regional Water Board staff shall begin preparing an amendment to the Basin Plan that rectifies current limitations of having three bacteria indicator organisms, clarifies which indicators apply to which surface waters of the Region, and as necessary, develops site-specific objectives. This Basin Plan amendment shall be drafted and presented to the Regional Water Board for consideration of adoption at the earliest practicable date, but no later than eighteen (18) months following USEPA approval of the CVSC Bacterial Indicators TMDL.
<b>90 days after USEPA approves the TMDL</b>	Pursuant to requests from Regional Water Board staff, the responsible parties, which includes Kent Seatech Corporation Fish Farm (NPDES permittee), Cal-Trans (MS4 permittee); and the city of Coachella (MS4 permittee), shall submit to Regional Water Board staff with the cooperation and assistance of the Coachella Valley Water District, which operates and maintains the impaired section of CVSC, data that characterize their contribution of bacteria to the CVSC or shall develop bacterial indicator water quality monitoring programs. As part of the water quality monitoring programs, Quality Assurance Project Plans (QAPPs) shall be developed and submitted to the Regional Water Board Executive Officer for review and approval. Monitoring data will be provided to Regional Water Board staff on a quarterly basis and will be used to assess contributions of bacteria to CVSC from anthropogenic sources (stormwater and urban runoff, and other sources). Responsible parties that join groups to complete Phase I actions shall be allowed an additional 90 days to submit their QAPP.
<b>90 days after USEPA approves the TMDL</b>	Regional Water Board staff shall begin to identify significant federal and tribal dischargers to CVSC and notify them of their role in TMDL implementation.
<b>90 days after USEPA approves the TMDL</b>	Regional Water Board staff shall develop a plan to conduct TMDL surveillance and track TMDL activities. The objectives of the plan are to assess monitoring data, measure attainment of the water quality objectives, and determine compliance with the TMDL.
<b>90 days after USEPA approves the TMDL</b>	Pursuant to a request from the Regional Water Board, each tribal entity, in coordination with USEPA, shall submit a technical report describing measures to ensure that waste discharges to CVSC from tribal land do not violate or contribute to a violation of this TMDL.
<b>3 years after USEPA approves the TMDL</b>	Regional Water Board staff shall submit a written report to the Regional Water Board describing monitoring results, attainment of the water quality objectives, and the need to revise the TMDL, if necessary.

Phase I actions are intended to aid in developing an effective assessment of critical conditions and sources, which will be used to develop and implement appropriate control measures in Phase II. Responsible parties, who are fulfilling their responsibilities, have no obligation to undertake the actions assigned to others, who may fail to perform.

**2.3 Phase II Implementation Actions**

Actions taken in Phase I (within three years after USEPA approves the TMDL) will determine whether WQOs have been achieved, sources of bacterial pollution have been identified, and whether additional actions are required in Phase II (within seven years after end of Phase 1) to meet WQOs. If monitoring and assessment in

Phase I indicate that waste discharges to CVSC from anthropogenic activities violate this TMDL, and that violations persist despite recommended operation and maintenance procedures and control measures in responsible parties' existing permits, the Regional Water Board shall require the implementation of additional actions to control anthropogenic sources of bacteria in Phase II. The Regional Water Board will require responsible parties to select and implement new/additional management practices (MPs) for Phase II, following characterization of sources and a determination of whether these sources can be controlled. This determination shall take into consideration background conditions and cost factors. The Regional Water Board may revise Municipal Separate Storm Sewer System (MS4) permit water quality based effluent limitations, which may be expressed in terms of narrative management practice (MP) requirements. The Regional Water Board may also consider revising WQOs for CVSC to address natural background sources of bacteria. This revision would be accomplished through the establishment of a Site Specific Objective (SSO) after completing a Use Attainability Analysis (UAA). If an SSO is required, it would be developed by the end of Phase 2 based on available resources.

Violations of WQOs will be addressed by implementing MPs identified in the discharger's existing Regional Water Board permit, or by implementing measures provided in the SWRCB's Nonpoint Source Program Plan and/or Nonpoint Source Program Strategy and Implementation Plan (PROSIP). Appropriate and required regulatory procedures will be followed prior to implementing any additional control practice(s).

#### **2.4 TMDL Review Schedule**

Annual reports will be provided to the Regional Water Board by Regional Board staff describing progress in attaining the water quality objectives. The reports will assess:

- Water quality improvement in terms of E. coli concentration;
- Water quality objectives achieved, delayed, or not achieved, and why; and
- Compliance with Regional Water Board orders and requests.

#### **2.5 Triennial Review**

Federal law requires states to hold public hearings to review WQSs, and modify/adopt standards as appropriate (CWA Section 303(c); 40 CFR Section 131.20). State law requires that each regional board shall formulate and adopt water quality control plans (Basin Plan) for all areas within the region. Such plans shall be periodically reviewed and may be revised (CWC Section 13240). All Basin Plan amendments and supporting documents adopted by the Regional Water Board must be submitted to the SWRCB, and then OAL, for review and approval. Lastly, the USEPA has final approval authority for Basin Plan amendments concerning surface waters.

The first review of this TMDL is scheduled for completion three years after USEPA approves the TMDL to provide adequate time for implementation and data collection. Subsequent reviews will be conducted concurrently with the Triennial Review of the Basin Plan. The TMDL review schedule is shown below in Table 4-29.

**Table 4-29: TMDL REVIEW SCHEDULE**

<u>Activity</u>	<u>Date*</u>
Begin TMDL Review	Two years after USEPA approves the TMDL
Terminate First TMDL Review, and conduct Regional Water Board Public Hearing	Three years after USEPA approves the TMDL
Begin Second TMDL Review	Five years after USEPA approves the TMDL
Terminate Second Review and Conduct Regional Water Board Public Hearing	Six years after USEPA approves the TMDL
Etc.	
* Dates are contingent upon availability of Regional Water Board resources. Subsequent reviews will occur concurrently	

Monitoring results and progress toward attainment of the water quality objectives will be provided during Triennial Review public hearings. If TMDL progress is insufficient, staff will recommend to the Regional Water Board additional MPs to control pollutant sources, enforcement action, TMDL revision, or other means to achieve WQOs.

This proposed review schedule reflects the Regional Water Board's commitment to periodic review and refinement of this TMDL, via the basin plan amendment process.

## **VI. ACTIONS OF OTHER AUTHORITIES**

Within the Colorado River Basin Region, there are several water quality issues requiring actions that fall either wholly or in large part outside the direct authority of the State and Regional Boards. One particular issue involves recharge of the Coachella Valley ground water basin with imported water.

The Coachella Valley Water District (CVWD) and the Desert Water Agency (DWA) exchange their entitlements to State Water Project water for equal volumes of the Metropolitan Water District of Southern California's (MWD) water entitlement from the Colorado River. This water is delivered via the MWD's Colorado River Aqueduct for recharge purposes in the upper portion of the Coachella Valley. The recharge lessens the Valley's overdraft problem, although the total dissolved solids (TDS) concentration of Colorado River water is significantly higher than that of the native ground water in the greater portion of Coachella Valley.

In addition to importing water to augment available local supplies as required to lessen overdraft of ground water supplies within the Coachella Valley and to meet existing and future growth therein, the Regional Board encourages the CVWD and DWA to implement water conservation and reclamation practices within their respective jurisdictional areas of the Coachella Valley.

The water resources of the Coachella Valley are limited, and the demands on those resources have increased considerably. Every effort must be made to optimize the use of available water resources. The quantity of treated wastewaters produced by community sewerage systems is appreciable, and the TDS concentrations of the treated wastewaters is less than that of the Colorado River water which is purchased and spread for recharge in the upper valley areas. In recognition of this, the Regional Board supports the reuse of community wastewaters, wherever economically and socially feasible. (See page 4-2.)