California Regional Water Quality Control Board
Colorado River Basin Region

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Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

TO: Victoria A. Whitney, Deputy Director
DIVISION OF WATER QUALITY
STATE WATER RESOURCES CONTROL BOARD

FROM: Robert Perdue 11/21/11
Executive Officer
COLORADO RIVER BASIN
REGIONAL WATER QUALITY CONTROL BOARD

DATE: November 21, 2011

SUBJECT: MINOR, NON-SUBSTANTIVE CHANGE TO THE BASIN PLAN AMENDMENT ADOPTED UNDER COLORADO RIVER BASIN REGIONAL WATER BOARD RESOLUTION NO. R7-2010-0011

Under the authority delegated to me, as Executive Officer for the Colorado River Basin Regional Water Quality Control Board, to make minor, non-substantive changes to Basin Plan Amendments, I am correcting a typographical error in the Basin Plan amendment adopted by our Water Board as Resolution No. R7-2010-0011. This resolution establishes a Total Maximum Daily Load and Implementation Plan for Dissolved Oxygen in the New River at the International Boundary, Imperial County, California.

The typographical error is in the description of one of the elements of the TMDL described in Table G-1 under "TMDL Calculation and Allocations." The word "nonpoint" is misspelled under that element title. Attached, please find both the strikethrough/underline language and the final corrected language.

Please contact Nadim Shukry-Zeywar at (760) 776-8942, or Francisco Costa at (760) 776-8937 if you have any questions or comments about this correction.

Attachments

cc: Rik Rasmussen, DWQ
Nirmal Sandhar, DWQ
Stacy Gillespie, OCC
Tom Vandenberg, OCC
Nadim Shukry-Zeywar, R7
Francisco Costa, R7

Attachment 1

Strikethrough/Underline Language for the New River Dissolved Oxygen TMDL BPA

BPA Adopted by the Regional Water Board on May 20, 2010

An Amendment to the Water Quality Control Plan for the Colorado River Basin Region
To Establish the Total Maximum Daily Load and Implementation Plan for Dissolved Oxygen in the New River at the International Boundary, Imperial County, California

AMENDMENT

(Proposed changes are in reference to the Basin Plan as amended through June 2006. Proposed additions are denoted by underlined text, proposed deletions are denoted by ~~strikethrough~~ text)

To FRONT COVER, edit the following:
Includes Amendments Adopted by the Regional Board through ~~June 2006~~ May 20, 2010

To FOREWARD section after the FRONT COVER, edit the following:
This Basin Plan includes amendments adopted by the Regional Board through ~~June 2006~~ May 2010.

To TABLE OF CONTENTS, "CHAPTER 4 – IMPLEMENTATION", Section "V.", add the following and renumber pages accordingly:

G. NEW RIVER AT THE INTERNATIONAL BOUNDARY DISSOLVED OXYGEN TMDL
Table G-1: Elements of the TMDL and Implementation Plan for Dissolved Oxygen in the New River at the International Boundary
Table G-2: TMDL Review Schedule

Page 4-46, To "CHAPTER 4 – IMPLEMENTATION", Section "V.", immediately prior to the Section "VI. ACTIONS OF OTHER AUTHORITIES," add the following new Section and renumber the subsequent pages accordingly:

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 **[Insert Date]**
The California Office of Administrative Law (OAL) on **[Insert Date]**
The U.S. Environmental Protection Agency (USEPA) on **[Insert Date]**

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 G-1:

Table G-1: Elements of the TMDL and Implementation Plan for Dissolved Oxygen in the New River at the International Boundary

ELEMENT	DESCRIPTION
Project Definition (To describe the impairment being addressed by the TMDL)	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. 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.
Watershed Description (To provide a geographic and environmental setting for the TMDL)	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. 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.

Data Analysis
(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)

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:

- New River at IB;
- Evan Hewes Highway (EH), about 20 river miles downstream from IB;
- Drop Structure 2 (D2), about 50 river miles downstream from IB; and
- Outlet to the Salton Sea (Outlet), about 60 river miles downstream from IB.

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.

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.

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.

	Annual DO Concentrations in mg/l for the New River at the IB				
	2005	**2006**	**2007**	**2008**	**2009**
Regional Water Board	0.88	2.85	3.21	4.43	5.61
USIBWC	0.82	1.18	3.70	4.27	5.94

Source Analysis (To provide a complete inventory and description of all sources of the pollutant of concern, including point, nonpoint, and background sources in the watershed.)	This source analysis identifies and characterizes sources of oxygen demanding materials that result in low DO concentrations in the New River. BOD and NH_3 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.
Critical Conditions and Seasonal Variations (To identify the critical conditions and seasonal variation in the TMDL.)	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.
Numeric Target (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.)	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.
Linkage Analysis (To describe the method used to establish the relationship between pollutant loading and in-stream water	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_3. 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

quality response and how the relationship was used to identify the loading capacity of the impaired water.)	temperature and lower DO concentrations are characteristic of the New River's flow at the IB. BOD and NH_3, expressed as mass per unit of time, were chosen because (1) the modeling showed BOD and NH_3 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.
TMDL Calculation and Allocations (To clearly identify all TMDL allocations for point sources (waste load allocations) and nonpopint sources (load allocations) in the watershed.)	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_3 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. 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_3. 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. All publicly owned treatment works that discharge pollutants from point sources in the 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_3 in these NPDES permits, DO and NH_3 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 on-going. 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 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: 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. 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.

	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. 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.
Monitoring Plan (To describe the plan for follow-up monitoring to track TMDL implementation and resulting water quality improvements.)	Contingent on funding, two types of monitoring will be performed by Regional Board staff: (1) water quality monitoring; and (2) implementation tracking. The water quality monitoring will be conducted pursuant to a Quality Assurance Project Plan (QAPP) that is modeled after and consistent with existing QAPPs for monitoring the New River at IB and the Surface Water Ambient Monitoring Program (SWAMP). Parameters sampled are: Flow; DO; Temperature; pH; BOD; Organic Matter; Total Suspended Solids (TSSs); Chemical Oxygen Demand; NH_3 ; Nitrate (NO_3); Nitrite (NO_2); Total Nitrogen (TN); Inorganic Phosphorous; and Total Phosphorous. Monthly sampling will occur on the U.S. side of the New River in at least the following five locations; IB; EH; Forrester Road (FR); D2; and Outlet. Data from other agencies will also be utilized. Implementation tracking will be developed to: • evaluate data to determine when numeric targets are attained; • assess and track actions already in place; and • evaluate TMDL progress. The monitoring and tracking programs will be developed and begin one month after USEPA approves the TMDL.

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 a minimum 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 G-2. .

Table G-2: TMDL Review Schedule*

Activity	Date*
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.

Attachment 2

Final Corrected Language for the New River Dissolved Oxygen TMDL BPA

BPA Adopted by the Regional Water Board on May 20, 2010

An Amendment to the Water Quality Control Plan for the Colorado River Basin Region
To Establish the Total Maximum Daily Load and Implementation Plan for Dissolved Oxygen in the New River at the International Boundary, Imperial County, California

AMENDMENT

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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 G-1:

Table G-1: Elements of the TMDL and Implementation Plan for Dissolved Oxygen in the New River at the International Boundary

ELEMENT	DESCRIPTION
Project Definition (To describe the impairment being addressed by the TMDL)	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. 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.
Watershed Description (To provide a geographic and environmental setting for the TMDL)	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. 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.

Data Analysis
(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)

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:

- New River at IB;
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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.

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.

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.

	Annual DO Concentrations in mg/l for the New River at the IB				
	2005	**2006**	**2007**	**2008**	**2009**
Regional Water Board	0.88	2.85	3.21	4.43	5.61
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Critical Conditions and Seasonal Variations (To identify the critical conditions and seasonal variation in the TMDL.)	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.
Numeric Target (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.)	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.
Linkage Analysis (To describe the method used to establish the relationship between pollutant loading and in-stream water	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_3. 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

quality response and how the relationship was used to identify the loading capacity of the impaired water.)	temperature and lower DO concentrations are characteristic of the New River's flow at the IB. BOD and NH_3, expressed as mass per unit of time, were chosen because (1) the modeling showed BOD and NH_3 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.
TMDL Calculation and Allocations (To clearly identify all TMDL allocations for point sources (waste load allocations) and nonpoint sources (load allocations) in the watershed.)	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_3 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. 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_3. 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. All publicly owned treatment works that discharge pollutants from point sources in the 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_3 in these NPDES permits, DO and NH_3 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 on-going. 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 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: 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. 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.

	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. 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.
Monitoring Plan (To describe the plan for follow-up monitoring to track TMDL implementation and resulting water quality improvements.)	Contingent on funding, two types of monitoring will be performed by Regional Board staff: (1) water quality monitoring; and (2) implementation tracking. The water quality monitoring will be conducted pursuant to a Quality Assurance Project Plan (QAPP) that is modeled after and consistent with existing QAPPs for monitoring the New River at IB and the Surface Water Ambient Monitoring Program (SWAMP). Parameters sampled are: Flow; DO; Temperature; pH; BOD; Organic Matter; Total Suspended Solids (TSSs); Chemical Oxygen Demand; NH_3 ; Nitrate (NO_3); Nitrite (NO_2); Total Nitrogen (TN); Inorganic Phosphorous; and Total Phosphorous. Monthly sampling will occur on the U.S. side of the New River in at least the following five locations; IB; EH; Forrester Road (FR); D2; and Outlet. Data from other agencies will also be utilized. Implementation tracking will be developed to: • evaluate data to determine when numeric targets are attained; • assess and track actions already in place; and • evaluate TMDL progress. The monitoring and tracking programs will be developed and begin one month after USEPA approves the TMDL.

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 a minimum 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 G-2. .

Table G-2: TMDL Review Schedule*

Activity	Date*
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.