

CHAPTER 7 – CONSULTATION AND COORDINATION7-1

7.1 Overview of the Draft SEIS Preparation7-1

 7.1.1 Public Involvement Process7-1

 7.1.2 Public Scoping Meeting7-1

 7.1.3 Comments on Project Alternatives7-5

7.2 Distribution List7-7

CHAPTER 8 – LIST OF PREPARERS8-1

8.1 Contributors to the SEIS8-1

8.2 Preparers of the SEIS8-2

CHAPTER 9 – REFERENCES CITED9-1

CHAPTER 10 – GLOSSARY10-1

CHAPTER 11 – INDEX.....11-1

APPENDICES

A Notifications and Public Scoping

- Notice of Intent
- Notices Published in the Local Newspapers
- Transcript of Public Scoping Meeting, November 12, 2003

B IBWC Minutes

- Minute 270
- Minute 283
- Minute 296
- Minute 311

C Public Law 106-457

D Shore and Ocean Discharge Modeling Report

E Ecological Risk Assessment

F Cost Estimates for Alternatives

G Court Order Setting Compliance Schedule

APPENDIX A

NOTIFICATIONS AND PUBLIC SCOPING

I. Submission of Comments on This Notice and Internet Access to Comments and Submissions

You may submit comments in response to this document by (1) hard copy, (2) FAX transmission (facsimile), or (3) electronically through the OSHA webpage. Please note you cannot attach materials such as studies or journal articles to electronic comments. If you have additional materials, you must submit three copies of them to the OSHA Docket Office at the address above. The additional materials must clearly identify your electronic comments by name, date, subject and docket number so we can attach them to your comments. Because of security-related problems there may be a significant delay in the receipt of comments by regular mail. Please contact the OSHA Docket Office at (202) 693-2350 for information about security procedures concerning the delivery of materials by express delivery, hand delivery and messenger service.

II. Background

The Department of Labor, as part of its continuing effort to reduce paperwork and respondent (i.e. employer) burden, conducts a preclearance consultation program to provide the public with an opportunity to comment on proposed and continuing information-collection requirements in accordance with the Paperwork Reduction Act of 1995 (PRA-95) (44 U.S.C. 3506(c)(2)(A)).

This program ensures that information is in the desired format, reporting burden (time and cost) is minimal, collection instruments are clearly understood, and OSHA's estimate of the information-collection burden is correct. The Occupational Safety and Health Act of 1970 (the Act) authorizes information collection by employers as necessary or appropriate for enforcement of the Act or for developing information regarding the causes and prevention of occupational injuries, illnesses, and accidents (29 U.S.C. 657).

The certification requirement specified in the Aerial Lifts Standard demonstrates that the manufacturer or an equally-qualified entity has assessed a modified aerial lift and found that it was safe for use by, or near, employees; and would provide employees with a level of protection at least equivalent to the protection afforded by the lift prior to modification.

III. Special Issues for Comment

OSHA has a particular interest in comments on the following issues:

- Whether the proposed information-collection requirements are necessary

for the proper performance of the Agency's functions to protect workers, including whether the information is useful;

- The accuracy of OSHA's estimate of the burden (time and costs) of the information-collection requirements, including the validity of the methodology and assumptions used;
- The quality, utility, and clarity of the information collected; and
- Ways to minimize the burden on employers who must comply; for example, by using automated or other technological information collection and transmission techniques.

IV. Proposed Actions

OSHA is proposing to extend the information-collection requirements in the Aerial Lift (29 CFR 1926.453(a)(2)). The Agency is requesting an increase of 12 hours, from 3 hours to 15 hours. The increase is a result of increasing the number of aerial lifts, which increased the number being inspected from 60 lifts to 300 lifts. The certification requirement specified in the Aerial Lifts Standard demonstrates that the manufacturer or an equally-qualified entity has assessed a modified aerial lift and found that it was safe for use by employees.

OSHA will summarize the comments submitted in response to this notice, and will include this summary in the request to OMB to extend the approval of the information collection requirements contained in the Aerial Lift Standard.

Type of Review: Extension of a currently-approved information-collection requirement.

Title: Manufacturer's Certification of Aerial Lifts in Construction (29 CFR 1926.453).

OMB Number: 1218-0216.

Affected Public: Business or other for-profit.

Number of Respondents: 300.

Frequency: On occasion.

Total Responses: 300.

Average Time Per Response: 3 minutes.

Estimated Total Burden Hours: 15 hours.

Estimated Cost (Operation and Maintenance): 0.

V. Authority and Signature

John L. Henshaw, Assistant Secretary of Labor for Occupational Safety and Health, directed the preparation of this notice. The authority for this notice is the Paperwork Reduction Act of 1995 (44 U.S.C. 3506), and Secretary of Labor's Order No. 5-2002 (67 FR 65008).

Signed at Washington, DC on October 16, 2003.

John L. Henshaw,
Assistant Secretary of Labor.

[FR Doc. 03-26611 Filed 10-21-03; 8:45 am]

BILLING CODE 4510-26-M

INTERNATIONAL BOUNDARY AND WATER COMMISSION, UNITED STATES AND MEXICO, UNITED STATES SECTION

Notice of Intent To Prepare a Supplemental Environmental Impact Statement for Clean Water Act Compliance of the South Bay International Wastewater Treatment Plant, San Diego County, CA

AGENCY: United States Section, International Boundary and Water Commission.

ACTION: Notice of intent to prepare a draft Supplemental Environmental Impact Statement (SEIS).

SUMMARY: This notice advises the public that pursuant to Section 102(2) (c) of the National Environmental Policy Act of 1969, as amended, the United States Section, International Boundary and Water Commission (USIBWC) proposes to analyze and evaluate the impacts of alternatives for the South Bay International Wastewater Treatment Plant to achieve compliance with the Clean Water Act. The Draft SEIS will evaluate alternatives for treatment of sewage flows from Tijuana, Mexico that cross into the United States along the U.S./Mexican border in San Diego. This notice is being provided as required by the Council on Environmental Quality Regulations (40 CFR 1501.7) and the USIBWC's Operational Procedures for Implementing Section 102 of the National Environmental Policy Act of 1969, published in the *Federal Register* September 2, 1981 (46 FR 44083-44094) to obtain suggestions and information from other agencies and the public on the scope of issues to be addressed in the Draft SEIS. A public scoping meeting will be held to obtain community input to ensure that all concerns are identified and addressed in the Draft SEIS.

DATES: The USIBWC will conduct a public scoping meeting from 6 to 8 p.m. PST on Wednesday, November 12, 2003 at the San Ysidro Middle School, 4345 Otay Mesa Road, San Diego, CA. Full public participation by interested federal, State, and local agencies as well as other interested organizations and the general public is encouraged during the scoping process that will end 60 days from the date of this notice. Public

comments on the scope of the Draft SEIS, reasonable alternatives that should be considered, anticipated environmental problems, and actions that might be taken to address them are requested.

FOR FURTHER INFORMATION CONTACT:

Comments will be accepted for 60 days following the date of this notice by Mr. Charles Fischer, Environmental Protection Specialist, USIBWC, 2225 Dairy Mart Road, San Diego, California, 92173. Telephone: 619/662-7600, Facsimile: 619/662-7607. E-mail: cfischer@ibwc.state.gov

SUPPLEMENTARY INFORMATION: The USIBWC has invited the USEPA to participate as a cooperating agency pursuant to 40 CFR 1501.6, to the extent possible. Other agencies may be invited to become cooperators as they are identified during the scoping process.

Background

Since the 1930s, raw sewage flowing into the United States from Mexico has posed a serious threat to public health and the environment in the South Bay communities of San Diego. Although substantial improvements have been implemented over the last two decades, large volumes of untreated wastewater still flow into the Tijuana River Valley today during the rainy season.

In July 1990, the USIBWC and Mexico signed Treaty Minute 283, which outlined a plan for the treatment of renegade sewage flows emanating from Tijuana, Mexico and crossing into the United States along the U.S./Mexican border in San Diego. In the Minute, the two countries agreed to construct an international secondary wastewater treatment plant (IWTP) on the U.S. side of the border that would treat 25 million gallons per day (mgd) of dry-weather sewage flows.

In a 1994 Final Environmental Impact Statement (FEIS) and Record of Decision (ROD), the USIBWC and the EPA, acting as lead agencies, decided to approve the construction of the South Bay International Wastewater Treatment Plant (SBIWTP) and South Bay Ocean Outfall (SBOO). The SBIWTP is located on a 75-acre site just west of San Ysidro, CA near the intersection of Dairy Mart and Monument Roads. Treated effluent is discharged to the Pacific Ocean through the SBOO, a 4.5-mile long 11-foot diameter pipe completed in January 1999.

Pursuant to the completion of an interim operations supplemental environmental impact statement (SEIS), the EPA and the USIBWC decided to construct the SBIWTP in phases: by first building advanced primary facilities

followed later by secondary treatment facilities. The intent of this phased construction was to expedite treatment of up to 25 mgd of untreated sewage from Tijuana, which would otherwise have continued to pollute the Tijuana River and Estuary, and coastal waters in the United States.

Treatment at the SBIWTP was initiated in April 1997 as an advanced primary plant with discharge initially through an emergency connection to the City of San Diego Point Loma treatment facility. In January 1999, the SBIWTP began discharging through the completed SBOO.

After the release of the May 1994 Final EIS and ROD and the decision to construct the SBIWTP in two stages, significant additional information became available and new circumstances occurred which warranted a reconsideration of the best means of achieving the completion of secondary treatment facilities at the SBIWTP. Also as a settlement to a lawsuit which challenged the 1994 FEIS, the USIBWC and EPA decided to prepare a SEIS that examined this new information, and the lawsuit was settled.

In January 1998, the USIBWC and the EPA issued the Draft Long Term Treatment Options SEIS (Draft SEIS), to re-evaluate secondary treatment options for the SBIWTP. In addition, in October 1998, the agencies also issued a supplement to the 1996 Interim Operation SEIS that addressed impacts of the advanced primary treatment. This supplement disclosed new information about the presence of dioxins and acute toxicity in the advanced primary discharge. This new information was incorporated into the Final Long Term Treatment Options Supplemental Environmental Impact Statement (Final SEIS) released in March 1999.

In the 1999 ROD for the Long Term Treatment Options SEIS, the EPA and the USIBWC selected the Completely Mixed Aerated (CMA) Pond System at the Hofer Site as the long-term option to provide secondary treatment of 25 mgd of wastewater at the SBIWTP. However, the construction of these secondary treatment facilities was not funded by Congress and the plant has continued to provide advanced primary treatment.

In February 2001, California's Office of the Attorney General, on behalf of the California Regional Water Quality Control Board, San Diego Region (Regional Board), filed a complaint in U.S. District Court, Southern District of California, alleging violations of the federal Clean Water Act and the California Porter-Cologne Water Quality Control Act. Specifically, the complaint

alleged USIBWC's discharge violated the terms of its National Pollutant Discharge Elimination System (NPDES) permit issued by the Regional Board for failing to treat the effluent to secondary standards and for violating other effluent limitations. The matter is now scheduled for trial.

The USIBWC has decided to prepare a Supplemental Environmental Impact Statement to address options/actions to cease violations of the NPDES permit limits either by providing secondary treatment in Mexico pursuant to Pub. L. 106-457; or by some other means, including but not limited to redirecting some or all of the IWTP effluent from California's waters and/or instituting some combination of these options.

Coordination with the U.S. Environmental Protection Agency, California Regional Water Control Board and other government agencies, as required, will take place to ensure compliance with applicable federal and state laws and regulations.

The environmental review of this project will be conducted in accordance with the requirements of NEPA, CEQ Regulations (40 CFR parts 1500-1508), other appropriate federal regulations and the USIBWC procedures for compliance with those regulations. Copies of the Draft SEIS will be transmitted to federal and state agencies and other interested parties for comments and will be filed with the Environmental Protection Agency in accordance with 40 CFR parts 1500 through 1508 and USIBWC procedures.

Alternatives

The Draft SEIS to be prepared will consider a range of alternatives, including the no action alternative, based on issues and concerns associated with the project. The Draft SEIS will identify, describe, and evaluate the existing environmental, cultural, sociological and economical, and recreational resources; and evaluate the impacts associated with the alternatives under consideration. Significant issues that have been identified to be addressed in the Draft SEIS include, but are not limited to, impacts to water resources, water quality, cultural and biological resources, and human health effects.

The Draft SEIS will evaluate eight alternatives, as described herein:

1. No Action

Operation of IWTP as an advanced primary facility would continue with discharge to the SBOO until secondary treatment facilities are constructed.

2. Pub. L. 106-457—Secondary Treatment Facility in Mexico

Operation of IWTP as an advanced primary facility would continue with 25 mgd of primary treated effluent sent to a Secondary Treatment Facility to be constructed in Mexico. Treated effluent would be discharged through the SBOO. Facilities in the U.S. would include: a pump station located on the SBIWTP site; a force main extending from the pump station across the international border to the site of the Secondary Treatment Facility in Mexico; and, a return flow pipeline from the treatment facility to connect with the SBOO.

3. Operate the IWTP with Treated Flows Returned to Mexico for Discharge to Pacific Ocean at Punta Bandera

Operation of IWTP as an advanced primary facility would continue with conveyance of the treated effluent to Mexico via primary effluent return connection (PERC) conveyance/pumping facilities at the SBIWTP and existing conveyance/pumping facilities in Tijuana. If effluent does not enter the San Antonio de los Buenos WWTP, it would be discharged to the surf at a point approximately 5 miles south of the U.S. border at Punta Bandera.

4. Operate the IWTP With Treated Flows Returned to Mexico for Discharge to Pacific Ocean South of Punta Bandera

IWTP would continue to be used for advanced primary treatment with discharge of treated effluent to the Pacific Ocean at a point approximately one mile south of Punta Bandera (approximately 6 miles south of U.S. border).

5. Operate IWTP With City of San Diego Connection

Operation of IWTP as an advanced primary facility would continue but with a total of 15 mgd of advanced primary treated effluent sent to the City of San Diego's Southbay Water Reclamation Plant (SBWRP) for secondary treatment via a new connection with discharge of treated effluent through SBOO. The IWTP would send 10 mgd of screened effluent to the City's Point Loma Wastewater Treatment Plant for secondary treatment via the City's South Metro Interceptor.

6. Operate the IWTP With Treated Flows To send to Mexico and SBWRP

This alternative would be the same as Alternative 5 but instead of sending 10 mgd of screened effluent to Point Loma WWTP, 10 mgd of primary treated effluent would be returned to Mexico for discharge to the Pacific Ocean at Punta Bandera.

7. Completely Mixed Aeration (CMA) Ponds (i.e., Secondary Treatment) at the IWTP

As evaluated in the 1999 FEIS and ROD, a CMA pond system would be constructed at the IWTP to provide secondary treatment.

8. IWTP Closure/Shutdown

The IWTP would be closed as a result of lawsuit resulting from SBIWTP's noncompliance with Clean Water Act. Mexico's current pumping, conveyance, and treatment facilities would be used to handle projected sewage flows.

Availability of the Draft SEIS

The USIBWC anticipates the Draft SEIS will be made available to the public by August 2004.

Dated: October 14, 2003.

Mario Lewis,

Legal Advisor.

[FR Doc. 03-26620 Filed 10-21-03; 8:45 am]

BILLING CODE 7010-01-P

FEDERAL MINE SAFETY AND HEALTH REVIEW COMMISSION

Sunshine Act, Meetings

October 15, 2003.

TIME AND DATE: 10 a.m., Thursday, October 23, 2003.

PLACE: Hearing Room, 9th Floor, 601 New Jersey Avenue, NW., Washington, DC

STATUS: Open.

MATTERS TO BE CONSIDERED: The Commission will consider and act upon the following in open session:

Secretary of Labor v. Rag Shoshone Coal Corporation, Docket No. WEST 99-342-R, WEST 99-384-R and WEST 2000-349. (Issues include whether the judge correctly concluded that the Secretary of Labor's interpretation of 30 CFR 70.207(e)(7) was reasonable; whether the judge correctly concluded that the Secretary of Labor was not required to engage in notice-and-comment rulemaking before imposing the 060 designed occupation for purposes of sampling levels of respirable cost dust; and whether the judge correctly concluded that the Secretary of Labor's imposition of the 060 designated occupation was not arbitrary, capricious, or an abuse of discretion.)

The Commission heard oral argument in this matter on October 9, 2003.

Any person attending this meeting who requires special accessibility features and/or auxiliary aids, such as sign language interpreters, must inform

the Commission in advance of those needs. Subject to 29 CFR 2706.150(a)(3) and § 2706.160(d).

FOR FURTHER INFORMATION CONTACT: Jean Ellen (202) 434-9950/(202) 708-9300 for TDD Relay/1-800-877-9339 for toll free.

Jean H. Ellen,

Chief Docket Clerk.

[FR Doc. 03-26778 Filed 10-20-03; 1:19 pm]

BILLING CODE 6735-01-M

MORRIS K. UDALL SCHOLARSHIP AND EXCELLENCE IN NATIONAL ENVIRONMENTAL POLICY FOUNDATION

Notice of Federal Advisory Committee Meeting

AGENCY: U.S. Institute for Environmental Conflict Resolution, Morris K. Udall Foundation.

ACTION: Notice of meeting.

SUMMARY: The National Environmental Conflict Resolution (ECR) Advisory Committee, of the U.S. Institute for Environmental Conflict Resolution, will conduct a public meeting on Wednesday and Thursday, November 12-13, 2003, at the Westward Look Resort, 245 Ina Road, Tucson, Arizona 85704. The meeting will occur from 8 a.m. to approximately 5 p.m. on November 12, and from 8 a.m. to approximately noon on November 13.

Members of the public may attend the meeting in person. Seating is limited and is available on a first-come, first-served basis. During this meeting, the Committee will discuss: Committee organizational details; environmental conflict resolution (ECR) processes in connection with Section 101 of the National Environmental Policy Act (NEPA); best practices in ECR; reports of subcommittees on NEPA Section 101, best practices, and affected communities; and planning for future Committee work.

Members of the public may make oral comments at the meeting or submit written comments. In general, each individual or group making an oral presentation will be limited to five minutes, and total oral comment time will be limited to one-half hour each day. Written comments may be submitted by mail or by e-mail to gargus@ecr.gov. Written comments received in the Institute office far enough in advance of a meeting may be provided to the Committee prior to the meeting; comments received too near the meeting date to allow for distribution will normally be provided

PARSONS

100 W. WALNUT ST., #A2

PASADENA, CA 91123

ATTN: ROSEMARIE CRISOLOGO

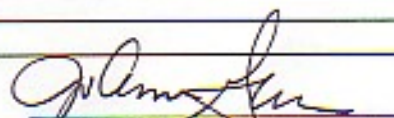
STATE OF CALIFORNIA) ss.
County of San Diego}

The Undersigned, declares under penalty of perjury under the laws of the State of California: That....She is a resident of the County of San Diego. THAT....She is and at all times herein mentioned was a citizen of the United States, over the age of twenty-one years, and thatShe is not a party to, nor interested in the above entitled matter; thatShe is..... Chief Clerk for the publisher of

The San Diego Union-Tribune

a newspaper of general circulation, printed and published daily in the City of San Diego, County of San Diego, and which newspaper is published for the dissemination of local news and intelligence of a general character, and which newspaper at all the times herein mentioned had and still has a bona fide subscription list of paying subscribers, and which newspaper has been established, printed and published at regular intervals in the said City of San Diego, County of San Diego, for a period exceeding one year next preceding the date of publication of the notice hereinafter referred to, and which newspaper is not devoted to nor published for the interests, entertainment or instruction of a particular class, profession, trade, calling, race, or denomination, or any number of same; that the notice of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following date, to-wit:

OCTOBER 31, NOVEMBER 1 & 2, 2003


Chief Clerk for the Publisher

Affidavit of Publication of

Legal Classified Advertisement

Ad # 8645522

Ordered by: ROSEMARIE CRISOLOGO

NOTICE OF PUBLIC MEETING

The United States Section of the International Boundary and Water Commission (USIBWC) will hold a Public Scoping Meeting regarding alternatives for the South Bay International Wastewater Treatment Plant to achieve compliance with the Clean Water Act. The USIBWC will be preparing a Supplemental Environmental Impact Statement (SEIS) pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, as amended. The SEIS will evaluate the environmental impacts that could result from alternative methods for treating sewage flows from Tijuana, Mexico that cross into the United States along the U.S./Mexican border in San Diego.

A Public Scoping Meeting is being held to obtain input on the scope of issues to be addressed in the SEIS. This meeting will be held from 6 to 8 a.m. PST on Wednesday, November 12, 2003 at the San Ysidro Middle School, 4345 Otay Mesa Road, San Diego, CA. Full public participation by interested federal, state, and local agencies, as well as other interested organizations and the general public is encouraged during the scoping process that will end on December 22, 2003. Comments on the scope of the SEIS, reasonable alternatives that should be considered, anticipated environmental problems, and actions that might be taken to address them are requested.

The SEIS to be prepared will consider a range of alternatives, including the no action alternative, based on issues and concerns associated with the project. The SEIS will identify, describe, and evaluate the existing environmental, cultural, sociological and economic, and recreational resources; and evaluate the impacts associated with the alternatives under consideration. Significant issues that have been identified to be addressed in the SEIS include, but are not limited to, impacts to water resources, water quality, and human health effects.

A Notice of Intent to prepare an SEIS for this project was published in the Federal Register (Vol. 68, No. 204) on Wednesday, October 22, 2003. This notice can be viewed at: <http://www.usibwc.gov/otay/docs/feis/0831022c.html>

The USIBWC anticipates the Draft SEIS will be made available to the public by August 2004.

Please send comments to Mr. Charles Fischer, Environmental Protection Specialist, USIBWC, 2225 Doherty Mart Road, San Diego, California, 92171. Telephone: 619/662-7600, Facsimile: 619/662-7607, E-mail: cfischer@ibwc.state.gov

Comments should be received no later than December 22, 2003.

CERTIFICATE OF PUBLICATION

RoseMarie Crisologo
Parsons
100 W. Walnut St.
Pasadena, CA 91123

IN THE MATTER
OF
Scoping Meeting

NO.

NOTICE OF PUBLIC MEETING

The United States Section of the International Boundary and Water Commission (USIBWC) will hold a Public Scoping Meeting regarding alternatives for the South Bay International Wastewater Treatment Plant to achieve compliance with the Clean Water Act. The USIBWC will be preparing a Supplemental Environmental Impact Statement (SEIS) pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, as amended. (The SEIS will evaluate the environmental impacts that could result from alternative methods for treating sewage flows from Tijuana, Mexico that cross into the United States along the U.S./Mexican border in San Diego.)

A Public Scoping Meeting is being held to obtain input on the scope of issues to be addressed in the SEIS. This meeting will be held from 6 to 8 p.m. PST on Wednesday, November 12, 2003 at the San Ysidro Middle School, 4345 Otay Mesa Road, San Diego, CA. Full public participation by interested federal, State, and local agencies as well as other interested organizations and the general public is encouraged during the scoping process that will end on December 22, 2003. Comments on the scope of the SEIS, reasonable alternatives that should be considered, anticipated environmental problems, and actions that might be taken to address them are requested.

The SEIS to be prepared will consider a range of alternatives, including the no action alternative, based on issues and concerns associated with the project. The SEIS will identify, describe, and evaluate the existing environmental, cultural, sociological and economical, and recreational resources, and evaluate the impacts associated with the alternatives under consideration. Significant issues that have been identified to be addressed in the SEIS include, but are not limited to, impacts to water resources, water quality, and human health effects.

A Notice of Intent to prepare an SEIS for this project was published in the Federal Register (Vol. 68, No. 204) on Wednesday, October 22, 2003. This notice can be viewed at <http://www.usibwc.com/ceis/docs/foia/031022a.htm>. The USIBWC anticipates the Draft SEIS will be made available to the public by August 2004.

Please send comments to Mr. Charles Frazier, Environmental Protection Specialist, USIBWC, 2225 Dairy Man Road, San Diego, California, 92173. Telephone: 619/552-7600. Facsimile: 619/552-7507. E-mail: cfrazier@usibwc.com. Comments should be received no later than December 22, 2003.
Pub. Oct. 31-1108800

I, Eboni Hines, am a citizen of the United States and a resident resident of the county aforesaid; I am over the age of eighteen years, and not party to or interested in the above entitled matter. I am the principal clerk of the Daily Transcript, a newspaper of general circulation, printed and published daily, except Saturdays and Sundays, in the City of San Diego, County of San Diego and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Diego, State of California, under the date of January 23, 1909, Decree No. 14894; and the

NOTICE OF PUBLIC MEETING

is a true and correct copy of which the annexed is a printed copy and was published in said newspaper on the following date(s), to wit:

OCTOBER 31

I certify under penalty of perjury that the foregoing is true and correct.

Dated at San Diego, California this 31 day of

October, 2003

Eboni N. Hines
(Signature)



INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

OCT 29 2003

Dear Stakeholder:

The United States Section, International Boundary and Water Commission (USIBWC) is undertaking preparation of a Supplemental Environmental Impact Statement (SEIS) to analyze and evaluate the impacts of alternatives for the South Bay International Wastewater Treatment Plant to achieve compliance with the Clean Water Act. An updating of the project conditions and analysis of alternatives in the form of a SEIS is required to satisfy the requirements of the National Environmental Policy Act.

The USIBWC will conduct a public scoping meeting for the project from 6:00 - 8:00 p.m. on Wednesday, November 12, 2003 at the San Ysidro Middle School, 4345 Otay Mesa Road, San Diego, CA. The USIBWC will accept public comments on the scope of the SEIS, reasonable alternatives that should be considered, anticipated environmental problems, and related issues.

The SEIS will evaluate alternatives for treatment of sewage from Tijuana, Mexico that crosses into the United States along the international border in San Diego. Currently, the USIBWC treats that sewage to the advanced primary level at its South Bay International Wastewater Treatment Plant. The SEIS will discuss 8 alternatives, including alternatives providing for the discharge of the plant's effluent into Mexican, rather than U.S., waters; alternatives for secondary treatment by existing plants operated by the City of San Diego; secondary treatment at a facility to be constructed in Mexico in accordance with Public Law 106-457; secondary treatment at the existing plant; and shutdown of the existing plant, with all sewage flows handled in Mexico.

The USIBWC will continue to accept public comment on the scope of issues to be addressed in the SEIS through December 22, 2003. Comments can be sent to Mr. Charles Fischer, Environmental Protection Specialist, USIBWC, 2225 Dairy Mart Road, San Diego, CA 92173, telephone: 619-662-7600, fax: 619-662-7607, e-mail: cfischer@ibwc.state.gov.

The complete Notice of Intent to Prepare a Supplemental Environmental Impact Statement is available in the Federal Register, Vol. 68, No. 204, Wednesday, October 22, 2003, http://www.access.gpo.gov/su_docs/fedreg/a031022c.html.

Sincerely,

Douglas Echlin
Acting Chief
Environmental Management Division

APPENDIX B IBWC MINUTES

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

MINUTE NO. 270

Ciudad Juarez, Chih.
April 30, 1985

RECOMMENDATIONS FOR THE FIRST STAGE TREATMENT AND DISPOSAL
FACILITIES FOR THE SOLUTION OF THE BORDER SANITATION PROBLEM
AT SAN DIEGO, CALIFORNIA-TIJUANA, BAJA CALIFORNIA

The Commission met in the offices of the Mexican Section in Ciudad Juarez, Chihuahua, at 10:00 a.m. on April 30, 1985, to consider the border sanitation problem at San Diego, California-Tijuana, Baja California, to review the plans for the first stage treatment and disposal facilities prepared by the Secretariat of Urban Development and Ecology (SEDUE) of Mexico for solution of the problem, and to formulate recommendations to the two Governments with respect thereto.

The Commission referred to the last paragraph in Article 3 of the Water Treaty relating to the "Utilization of the Waters of the Colorado and Tijuana Rivers, and of the Rio Grande", signed February 3, 1944, which stipulates that the two Governments "agree to give preferential attention to the solution of all border sanitation problems". The Commission also referred to Recommendation No. 4 of Minute No. 261 dated September 24, 1979, which was approved by the two Governments and which stipulates, "that for each of the border sanitation problems, the Commission prepare a Minute for the approval of the two Governments, in which there would be included, identification of the problem, definition of conditions which require solution, specific quality standards that should be applied, the course of action that should be followed for its solution, and the specific time schedule for its implementation".

The Commission also referred to the Agreement signed by Presidents Reagan and de la Madrid on August 14, 1983 on "Cooperation for the Protection and Improvement of the Environment in the Border Area", Article 2 of which stipulates that, "the parties undertake, to the fullest extent practical, to adopt appropriate measures to prevent, reduce and eliminate sources of pollution in their respective territory which affect the border area of the other".

The Commissioners reviewed each of the border sanitation problems which need resolution and agreed that the problem in the San Diego-Tijuana area is the most urgent and requires solution as soon as possible.

The Commissioners noted that the problem in the San Diego-Tijuana area results from discharges of untreated sanitary wastewaters from the city of Tijuana northward along the natural drainage courses and in the Tijuana River, crossing the international boundary into the territory of the United States. They also noted that contributing to the problem are the northward littoral currents of the coastal waters which at certain

times of the year result in Tijuana wastewaters discharged to the ocean south of the boundary, being carried northward onto the beaches of Tijuana and south San Diego. They noted that the existing facilities for disposal of Tijuana sanitary wastewaters were constructed in 1962 for discharge of the untreated wastewaters at a point about 5.6 miles (9.0 km) south of the boundary. They examined the record of operations of the facilities which shows frequent periods, often of long duration, in which the facilities were out of operation. The Commissioners observed that in the last 20 years, the population of Tijuana has increased from about 200,000 to about 800,000 inhabitants greatly increasing the volume of sanitary wastewaters to be disposed of. They observed that for these reasons, there have been frequent and extended periods of pollution of the coastal waters and the beaches on both sides of the boundary, and of the Tijuana River and adjoining lands, creating serious hazards to the health and well-being of inhabitants in the areas, and impairing the beneficial use of these waters.

The Commissioners reviewed the Integrated Project for Potable Water and Sewerage prepared by Mexico to improve the potable water supply and distribution system, and to expand the sanitary wastewater collection network needed to serve the growing population of the city of Tijuana, and noted its relation to the solution of the border sanitation problem. They also noted that as a part of the Integrated Project Mexico will soon complete an aqueduct to supply the city of Tijuana with water from the Colorado River in an amount up to 80 million gallons per day (mgd) (3500 liters per second, lps), which will triple the current supply, and will satisfy the city's needs to near the year 2000. The Commissioners observed that the engineers of the Secretariat of Urban Development and Ecology (SEDUE), estimate that the volume of sanitary wastewaters will increase from the current average discharge of approximately 18 mgd (800 lps), to 38 mgd (1660 lps) by 1989 and to 73 mgd (3200 lps) by the year 2000. They noted that the Integrated Project will be carried out in two stages.

The Commissioners made note that SEDUE of Mexico has undertaken to resolve the Tijuana border sanitation problem for which it has prepared a plan for the facilities to treat and dispose of the sanitary wastewaters, as a part of the first stage of the Integrated Project for Potable Water and Sewerage for Tijuana, hereinafter referred to as "first stage treatment and disposal facilities". A description of the plan for the first stage treatment and disposal facilities, including copies of a location plan, a general plan, a flow diagram, a construction schedule and a related table of estimated increases in discharges of sanitary wastewaters all prepared by SEDUE is attached, and forms a part of this Minute. The Commissioners noted that the Project provides for a pumping plant, maximum operating capacity 50 mgd (2200 lps) in the northwesterly part of the city, adjoining the international boundary, to pump the sanitary wastewaters of the city westward by means of a reinforced concrete pipeline, maximum capacity 62 mgd (2700 lps), a distance of 2.7 miles (4.3 km) to a point near the coast. At that point the wastewaters are to be conveyed south first by gravity in a closed conduit and then in an

open canal, maximum capacity 62 mgd (2700 lps), to a point about 4 miles (6.4 km) south of the boundary where the first stage treatment facilities would be built. The Project also provides for collection and pumping of the sanitary wastewaters from the "Playas de Tijuana", subdivision west of the city, to discharge those waters into the beforementioned gravity conveyance canal at a point 2.1 miles (3.4 km) north of the site for the planned treatment facilities.

The first stage treatment facilities provided in the project are designed to treat an average discharge in the range of 34 to 50 mgd (1500 to 2200 lps), and will consist of two modules, each designed to treat an average discharge in the range of 17 to 25 mgd (750 to 1100 lps). Although the facilities could treat such range of average discharges, the peak inflow to the plant with two modules will be limited by the maximum capacity of the conveyance facilities to a peak of 62 mgd (2700 lps) which corresponds to an average of 34 mgd (1500 lps), using a peak to average ratio of 1.8. Treatment in each module will be effected by means of facultative aerated and polishing lagoons. The effluent from the plant would be used partially for irrigation of nearby lands and the remaining part is to be chlorinated and conveyed about 1.6 miles (2.6 km) farther south, to a point 5.6 miles (9.0 km) south of the boundary where it will be discharged to the ocean. The characteristics for the treatment facilities plan, including the quality of effluent to be achieved, are set forth in detail in the previously mentioned attachment.

The Commissioners examined the schedule prepared by Mexico for construction of the treatment and disposal facilities and the related table of estimated increases in the discharge of sanitary wastewaters that will require treatment and disposal. The Commissioners noted, as has been observed on the ground, that the pumping plant and the pressure and gravity conveyance conduits are near completion and will be in operation by June 1985, and that construction has started on the works planned for disposal of the sanitary wastewaters from Playas de Tijuana and that these works are to be completed by March 1986. They noted that the first module of the treatment plant will be completed by December 1986. They noted that the second module of the treatment plant will be completed by the time the flow of wastewaters requiring treatment exceeds an average discharge of 25 mgd (1100 lps). Referring to the beforementioned table of discharge increases, they noted that the discharge of sanitary wastewaters requiring treatment is expected to reach the total capacity of the first stage treatment facilities by 1989, and that the Project provides that by that date the second stage facilities will be completed and in operation.

The Commissioners then considered the comments of the technical group, consisting of engineers of the Commission, the Environmental Protection Agency of the United States, and the Secretariat of Urban Development and Ecology of Mexico on the plans presented by Mexico for the first stage facilities for treatment and disposal of the sanitary wastewaters, and noted that the group expressed satisfaction with the conceptual bases and the progress of such plans. They noted that the

plans presented did not bring out observations that could result in modifications. They also noted that the present discharges of wastewaters, taken as the bases for scheduling the construction of the facilities, should be verified by measurements in the conveyance canal once the new pumping installations are in operation.

The Commissioners agreed that the planned treatment and disposal facilities of the first stage of the Integrated Project will provide a solution to the Tijuana sanitation problem until about 1989, if designed, constructed, operated and maintained so as to prevent discharge of untreated sanitary and industrial wastewaters across the international boundary and to assure that the quality of the treated wastewaters discharged to the ocean and reaching the international boundary meet the present quality criteria of the United States and Mexico for primary contact recreation use of such waters. They referred to the construction schedule and agreed that it is essential that the planned treatment and disposal facilities corresponding to the first stage of the Integrated Project, as well as the subsequent facilities needed for the second stage, be constructed in a timely manner to assure the treatment capacity needed in advance of the rate of discharge of sanitary wastewaters collected.

Accordingly, the Commission agreed to submit for approval of the two Governments the following

RESOLUTION:

1. That Mexico proceed to construct, operate and maintain the sanitary wastewater treatment and disposal facilities which form a part of the first stage of the Integrated Project for Potable Water and Sewerage, prepared by Mexico for the city of Tijuana, Baja California, in conformance with SEDUE'S plan described herein.
2. That Mexico design, construct, operate and maintain the treatment and disposal facilities for the city of Tijuana to prevent discharges of untreated sanitary and industrial wastewaters across the international boundary in the San Diego-Tijuana area.
3. That the design and construction of the sanitary wastewater treatment and disposal facilities planned by Mexico include standby equipment to be utilized during periods of breakdowns or maintenance of the installations.
4. That Mexico operate and maintain the first stage treatment and disposal facilities so that the quality of the coastal receiving waters at the international boundary comply with the water quality criteria established for primary contact recreation uses: "the most probable number of coliform bacteria will be less than 1,000 organisms per 100 milliliter (ml), provided that not more than 20% of the total monthly samples (at least 5) exceed 1,000 per 100 ml, and that no single sample taken during a verification period of 48 hours should exceed 10,000 per 100 ml".

5. That prior to the initiation of construction, Mexico provide to the Mexican Section for the Commission's joint review and approval, copies of SEDUE'S plans and designs for construction of the first stage treatment and disposal facilities and its plans for operation and maintenance including monitoring and supervision, and that each Section inform the appropriate Agencies of its Government of any deficiency.
6. That Mexico progress in the construction of the treatment and disposal facilities in accordance with the approved plans and specifications and in such a timely manner that the installed capacity of the facilities is not exceeded by the rate of discharge of collected sanitary wastewaters.
7. That Mexico take the necessary measures to assure the timely availability of sufficient funds to carry out the construction of the treatment and disposal facilities of the first stage of the Integrated Project, in accordance with the previous paragraph and the corresponding plans and specifications.
8. That Mexico take the necessary measures to annually assure that sufficient funds are timely available to operate and maintain the first stage treatment and disposal facilities, including preventative maintenance, to enable performance of these functions in a manner that will assure insofar as possible against breakdowns or interruptions.
9. That in the event of a breakdown or interruption in the operation of the treatment and disposal facilities of the first stage, Mexico take special measures to make the immediate repairs; and that if Mexico requests through the Commission, the United States Section seek to make arrangements so that its country can provide assistance to Mexico so that the repairs can be made immediately through and under the supervision of the Commission. In the event of uncontrolled flows of Tijuana wastewaters across the boundary into the United States, Mexico will accept in its treatment and disposal system such Tijuana wastewaters as may be collected in the United States for conveyance to the Mexican system in a volume not to exceed that of the uncontrolled wastewaters.
10. That in accordance with Article 2 of the 1944 Water Treaty, the construction, operation and maintenance of the wastewater treatment and disposal facilities be jointly observed by representatives of the Commission, and each Section of the Commission inform the appropriate agencies of its Government of the results of the observations.
11. That the Commission attempt to arrange as soon as possible an agreement for continued use of the emergency connection to the metropolitan system of the city of San Diego during the interim period until the first module of the treatment plant is completed, in terms acceptable to the appropriate authorities of each country.

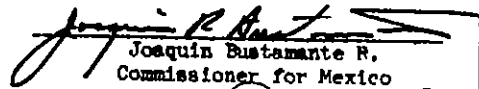
12. That Mexico initiate immediately the studies and designs of alternatives for the subsequent treatment and disposal facilities needed for the second stage of the Integrated Project with the objective of presenting the plans in a timely manner for consideration of the Commission for its approval in accordance with the aforesaid criteria that the installed capacity of the treatment facilities shall not be exceeded by the rate of discharge of sewage collected, and that during these studies, Mexico consult with the Commission through the Mexican Section, and that Mexico upon adoption of a definite plan, present it with the corresponding construction schedule, to the Commission for its approval and recommendation to the two Governments.

13. That this Minute requires the specific approval of the two Governments.


The meeting was adjourned.



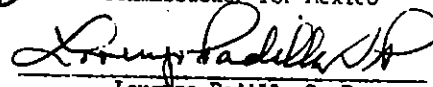
J. F. Friedkin
U.S. Commissioner



Joaquin Bustamante R.
Commissioner for Mexico



N. R. Ybarra
U.S. Section Secretary



Lorenzo Padilla S. P.
Mexican Section Secretary

**INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO**

Minute No. 283

El Paso, Texas
July 2, 1990

**CONCEPTUAL PLAN FOR THE INTERNATIONAL SOLUTION TO THE
BORDER SANITATION PROBLEM IN
SAN DIEGO, CALIFORNIA/TIJUANA, BAJA CALIFORNIA**

The Commission met in the offices of the United States Section in El Paso, Texas on July 2, 1990, at 10:00 a.m., to consider a conceptual plan for an international solution which would provide for the proper collection, treatment and final disposal of sewage in excess of the capacities of existing facilities in San Diego, California/Tijuana, Baja California.

The Commissioners noted the interest of the United States and Mexican Governments at the meeting of United States President George Bush and Mexican President Carlos Salinas de Gortari October 3, 1989 in Washington, D.C., expressed by United States Secretary of State James A. Baker, III and Mexican Foreign Relations Secretary Fernando Solana in their diplomatic notes of that date that the Commission conclude a Minute on the referenced conceptual plan at the earliest time possible.

The Commissioners noted the stipulations in the Treaty between the United States of America and the United Mexican States for the "Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande", dated February 3, 1944 as they relate to the obligation of both Governments to provide preferential attention to the solution of border sanitation problems; the stipulations in Minute No. 261, entitled "Recommendations for the Solution to the Border Sanitation Problems", dated September 24, 1979, as they relate to prevention, standards and joint actions for solution of border sanitation problems; and implementation by the Government of Mexico of Minute No. 270, entitled "Recommendations for the First Stage Treatment and Disposal Facilities for the Solution of the Border Sanitation Problem at San Diego, California/Tijuana, Baja California", dated April 30, 1985.

The Commissioners concurred with the steady progress by the Government of Mexico to implement the measures stipulated

INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES AND MEXICO

...2

in Minute No. 270 and made note of the intention of the Government of Mexico to construct, along the right bank of the Rio El Alamar, the second treatment plant module envisioned in Minute No. 270. The Commissioners also reviewed the conclusions from meetings which took place on July 23, 1987 in Ciudad Juarez, Chihuahua and July 24, 1987 and September 9, 1988 in El Paso, Texas in order to comply with resolutions Nos. 6 and 12 of Minute No. 270 as they relate to studies and designs for alternatives for the subsequent sewage treatment and final disposal facilities for the city of Tijuana, Baja California.

The Commissioners noted that sewage in the cities of San Diego, California and Tijuana, Baja California area is handled as follows:

1. Sewage generated in the southern area of the city of San Diego, California is conveyed northwards by pumping facilities and pressure and/or gravity lines to the Point Loma advanced primary treatment plant. The treated sewage is discharged to the Pacific Ocean through an 11,500 feet (3.4 kilometers) long deep ocean outfall at a point 13.5 miles (21.67 kilometers) north of the international boundary.
2. Sewage generated in the city of Tijuana, Baja California is conveyed southwest of the city by pumping facilities and pressure and/or gravity lines to a secondary sewage treatment plant located at San Antonio de los Buenos which has a capacity of 25 mgd (1100 lbs). The treated sewage is discharged to the Pacific Ocean at a point 5.6 miles (9.0 kilometers) south of the international boundary.
3. Uncontrolled discharges from Mexico into the United States at Smuggler Gulch (Canon del Matadero), and El Sol Canyons, which include two nearby drains, are intercepted through works in the United States and are returned to the city of Tijuana, Baja California's final disposal system. At times, part of the discharges from Mexico, due to outages at Pumping Plant No. 1, are conveyed in the San Diego, California sewage collection and treatment system in conformance with stipulations in Commission Minute No. 222, entitled "Emergency Connection of the Sewerage Collection System of the City of Tijuana, Baja California to the Metropolitan Sewerage System of the City of San Diego, California," dated November 30, 1965. It has not been possible to eliminate uncontrolled sewage that continuously flows in

INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES AND MEXICO

...3

amounts of 0.11 mgd (5 lps) at Goats Canyon (Canon de los Laureles) and of 10 mgd (438 lps) in the Tijuana River, respectively.

The United States Commissioner informed that the city of San Diego, California has a comprehensive study underway to upgrade its potable water and sewage collection and treatment systems. One of the treatment plants in the United States could be located in the Tijuana River Valley. The city of San Diego, California, the State of California, and the United States Federal Government, the responsible entities in this country charged with these matters, are obligated to pay the costs associated with sewage treatment for the city of San Diego, California.

The Mexican Commissioner informed that his Government has financed the construction and operation and maintenance of Module I of the first stage sewage treatment facilities for the city of Tijuana, Baja California with a capacity of 25 mgd (1100 lps), based on the agreements in Minute No. 270, and that his Government plans to construct a secondary treatment plant for the sewage generated in east Tijuana, Baja California, in place of the second module of the first stage treatment facilities for that city. The new secondary treatment plant would discharge its effluent into the Rio El Alamar, a tributary of the Tijuana River. The United States Commissioner reported that his Government wishes to propose a binational secondary treatment plant solution in the city of San Diego, California for which the cost to Mexico for construction, operation and maintenance would be equivalent to that of the Rio El Alamar treatment plant.

The Commissioners considered that participation by Mexico in the construction, operation and maintenance of an international wastewater treatment plant in the United States in the manner outlined above is a satisfactory alternative to meet the commitment in Minute No. 270 for the construction of the second module of the first stage treatment facilities for the city of Tijuana, Baja California. At the same time, they considered that the Commission should jointly determine the real costs of the construction, operation and maintenance of the secondary treatment plant proposed along the Rio El Alamar.

The United States Commissioner stated that even with secondary treatment and disinfection provided to sewage from an international plant, the United States authorities charged with water quality would require a deep ocean discharge at the downstream end of the land outfall for final disposal of

INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES AND MEXICO

...4

effluent at a point to be selected upon completion of oceanographic studies. Because water quality standards are more strict in the United States, the construction, operation and maintenance of the land and deep ocean outfalls would be financed by the United States in recognition of the potential benefits to the Tijuana River Estuary and United States beaches in south San Diego County, California.

The Commissioners then analyzed plans in the United States and Mexico for construction of sanitation facilities in San Diego, California and the city of Tijuana, Baja California. These are:

1. Completion in Mexico of the works planned for Tijuana, Baja California in the construction plans of the Integrated Project for Potable Water and Sewerage including a gravity sewer trunkline from Tijuana Pumping Plant No. 1 to the boundary.
2. Construction in Mexico of sewage collection works necessary to convey to the international sewage treatment plant, city of Tijuana, Baja California sewage that would have been treated at the Rio El Alamar treatment plant.
3. Construction in the United States of an international secondary treatment sewage plant with disinfection and capacity of at least 25 mgd (1100 lps) to treat sewage generated in excess of the capacity of the conveyance and treatment facilities of the first stage works constructed by Mexico in accordance to the recommendations in Minute No. 270, to be located near Dairy Mart Road.
4. Construction in the United States of a pipeline system with capacity of at least 25 mgd (1100 lps) to convey the international treatment plant effluent to the coastal surf waters.
5. Construction in the United States of a deep ocean outfall system with a capacity to discharge into the Pacific Ocean at least 25 mgd (1100 lps) of treated sewage from the international plant. The length of this outfall will be based on the results of oceanographic studies.

The Commissioners agreed that the construction and operation of the conveyance, treatment and final disposal works above described, would permanently and definitively

INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES AND MEXICO

...5

resolve the existing border sanitation problem and concluded that the joint solution is the best alternative to this common problem. At the same time, they agreed that reuse of the treated sewage by each country is desirable at such time as either country may consider it opportune and arranges for construction of the necessary works.

The Commission then adopted the following recommendations for the approval of the two Governments:

1. Participation by the Government of Mexico in the construction, operation and maintenance of an international treatment plant in the United States in place of the construction of the second module of the first stage sewage treatment facilities for the city of Tijuana, Baja California, initially planned in Commission Minute No. 270.
2. Completion at Mexico's expense of the sewage collection system for the city of Tijuana, Baja California in accordance with the respective integrated project and operation and maintenance at Mexico's expense of that system and the conveyance, treatment and disposal facilities constructed under Minute No. 270.
3. Construction at the expense of the United States and Mexico of the necessary sewage collection works to convey to the international sewage treatment plant, sewage from the city of Tijuana, Baja California that would have been treated in the Rio El Alamar treatment plant. The cost corresponding to the United States shall be in an amount not to exceed \$4 million, United States currency, to be provided in a manner determined by the two Governments through the Commission. The Government of Mexico at its expense will assure completion of the construction of these sewage collection works. The operation and maintenance of these works shall be charged to Mexico.
4. The final design and joint construction between the United States and Mexico of an international secondary treatment plant with disinfection facilities, sludge digesters and sludge transport vehicles, to be located in United States territory at a site known as Dairy Mart Road. The construction will be in modules with approximate capacity of 25 mgd (1100 lps) and both Governments will determine the maximum treatment capacity as soon as possible. The site

INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES AND MEXICO

...6

of the international treatment plant will be in a construction area outside of an environmental protection area, the latter located between the international boundary and the construction area.

5. Construction and operation and maintenance in the United States at United States expense, of a pipeline system with a capacity of at least 25 mgd (1100 lps) to convey treated sewage from the international treatment plant to the coastal surf waters.
6. Construction, operation and maintenance in the United States at United States expense, of a deep ocean outfall with an estimated length to be determined by the results of oceanographic studies and a capacity to discharge into the Pacific Ocean at least 25 mgd (1100 lps) of treated sewage from the international plant.
7. The cost of construction, operation and maintenance of the international treatment plant shall be covered by the United States and Mexican Governments. The cost corresponding to Mexico shall be in an amount, to be determined by the two Governments through the Commission, equal to that which would have been used in the construction, operation and maintenance of the treatment plant planned for the Rio El Alamar. The costs of construction corresponding to Mexico shall be covered in 10 annual payments, each equal to one-tenth of total construction cost determined by the two Governments through the Commission, beginning at the time that the international treatment plant enters into operation. The costs for operation and maintenance corresponding to Mexico shall be paid annually. The United States Government shall cover the difference between these costs and those that result from the construction, operation and maintenance of the international treatment plant.
8. The final design, the specific division of construction, operation and maintenance costs, the division of work to be carried out by each country and the construction and expenditures schedules corresponding to each country for the international treatment plant, will be established by the Commission in subsequent Minutes, subject to the approval of the two Governments. Standards, criteria and restrictions, including those for odor control, applicable in the city of San Diego and the state of California,

INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES AND MEXICO

...7

will be utilized in the design, construction and operation of the international treatment plant.

9. The Government of Mexico could cover part or all of the costs corresponding to Mexico for the operation and maintenance of the international plant through the supply of electrical energy for operation of the international treatment plant.
10. The Government of Mexico at a cost to Mexico shall dispose, in its territory, the sludge resulting from treatment of the city of Tijuana, Baja California sewage in the international treatment plant. Mexico would receive such sludge from the international sewage treatment plant in the United States in vehicles operated by Mexican personnel employed directly or indirectly in the operation and maintenance of the international treatment plant.
11. The Governments of the United States and Mexico reserve the right to dispose in their own territory part or all of the untreated sewage, in a manner consistent with the desire of both Governments expressed in Minute No. 261 of the Commission to prevent border sanitation problems. Also, both Governments reserve the right to return for reuse in their respective territories part or all of the international treatment plant effluent corresponding to each country's sewage inflows. The cost of construction of works to allow reuse of the effluent from the international treatment plant will be covered by the Government benefitting from such reuse.
12. The Government of Mexico, in accordance with laws in force in that country, in order to assure efficient treatment of Tijuana sewage in the international plant, will require all industries to provide appropriate pre-treatment of wastewaters that those industries may discharge into the Tijuana sewage collection system which would in turn discharge into the international sewage treatment plant.
13. Any sanitation facilities constructed in the Tijuana River Valley, in addition to those contemplated for this international project shall contemplate, consistent with laws in force in each country, measures necessary to avoid negative impacts in

INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES AND MEXICO

...8

outlying urban areas on both sides of the international boundary.

14. Consistent with Articles 2, 20, and 23 of the Water Treaty of February 3, 1944, the construction, operation and maintenance of the international treatment plant shall be under the supervision of the International Boundary and Water Commission, United States and Mexico. Similarly the design and construction of the works necessary to convey to the international treatment plant sewage from the city of Tijuana, Baja California that would have been treated in the Rio El Alamar treatment plant shall be under the supervision of the Commission. The construction of jointly financed works in the territory of each country, shall in no way confer jurisdiction to one country over the territory of the other.
15. Upon approval of this Minute by the United States and Mexican Governments the Principal Engineers of both Sections will develop and carry out an appropriate program of sampling and analysis of the water quality of inflows into the Tijuana River that would be captured by collection works in Mexico for conveyance to the international treatment plant.
16. The Government of Mexico will assure that there are no discharges of treated or untreated domestic or industrial wastewaters into waters of the Tijuana River that cross the international boundary, and that in the event of a breakdown in collection or other detention facilities designed to prevent such discharges, the Government of Mexico will take special measures to immediately stop such discharges and make repairs. Should Mexico request it through the Commission, the United States Section will attempt to assist with equipment and other resources in the containment of such discharges and temporary repairs under the supervision of the Commission.
17. This Minute requires the specific approval of the two Governments, and shall enter into force upon such approval with the understandings that: a) the funds to cover the costs to the United States are subject to the availability of those funds, b) the advance payment by the United States Government, in the amount to be determined by the Commission to be reimbursed by the Government of Mexico is also

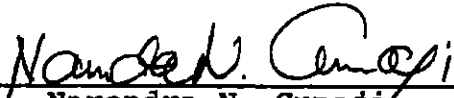
INTERNATIONAL BOUNDARY AND WATER COMMISSION

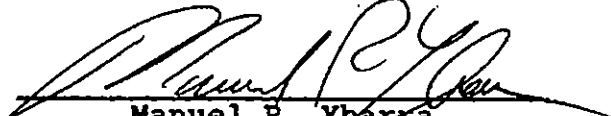
UNITED STATES AND MEXICO

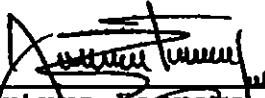
...9


subject to the availability of funds and c) that the Mexican Commissioner notify the United States Commissioner that the Secretariat of Planning and Budget of Mexico has approved the financing of this joint project corresponding to Mexico.

The meeting was adjourned.


Narendra N. Gunaji
United States Commissioner


Manuel R. Ybarra
United States Section
Secretary


J. Arturo Herrera Solis
Interim Mexican Commissioner


Jose de Jesus Luevano Grano
Acting Mexican Section
Secretary

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

Minute No. 296

April 16, 1997
El Paso, Texas

**DISTRIBUTION OF CONSTRUCTION, OPERATION AND MAINTENANCE
COSTS FOR THE INTERNATIONAL WASTEWATER TREATMENT PLANT
CONSTRUCTED UNDER THE AGREEMENTS IN COMMISSION MINUTE NO. 283
FOR THE SOLUTION OF THE BORDER SANITATION PROBLEM
AT SAN DIEGO, CALIFORNIA/TIJUANA, BAJA CALIFORNIA**

The Commission met in the offices of the United States Section in El Paso Texas at 8:00 a.m. on April 16, 1997 to recommend to the two Governments the specific distribution costs of construction, operation and maintenance of the International Wastewater Treatment Plant (IWTP) under the terms of International Boundary and Water Commission (IBWC) Minute No. 283, entitled, "Conceptual Plan for the Solution of the Border Sanitation Problem in San Diego, California/Tijuana, Baja California," signed July 2, 1990.

The Commissioners observed that in Resolution No. 8 of Minute No. 283 the IBWC should recommend, for the approval of the two Governments, the specific cost corresponding to each country for the construction, operation and maintenance of the IWTP.

A. General

The Commissioners reviewed the activities carried out by each country in furtherance of Minute No. 283 and made the following observations:

- o Mexico is completing the sewage collection works and the work necessary in Mexico to convey the collected Tijuana sewage to the IWTP.
- o The United States is completing the construction of the IWTP and conveyance and ocean discharge system. The United States is scheduled to complete construction and begin operation in April 1997 of the advanced primary treatment module with a capacity of 25 million gallons per day (mgd) or 1100 liters per second (lps). The United States has developed an operations and maintenance manual for the advanced primary treatment module. A secondary treatment module is under design and an environmental review is underway to determine the best alternative to achieve secondary treatment. Construction of the outfall system for ocean discharge is underway with completion scheduled for 1998. Also, the Commissioners continue to analyze the environmental studies being

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

conducted in the United States as part of an analysis of alternatives to best achieve secondary treatment.

- o The IBWC Commissioners have coordinated, with the responsible authorities in each country, the necessary actions for treatment at the plant site and removal to Mexico of the sludge generated from Tijuana wastewaters in the advanced primary treatment module. The sludge will be removed from the IWTP each day. Mexico is completing arrangements for disposal, in its territory, of the sludge at a site approved for such disposal in accordance with applicable Mexican legislation.

- o The United States is considering alternatives for the interim discharge of the advanced primary treated effluent. The alternatives include a) continued use of the emergency connection up to 13 mgd (570 lps), b) discharge to the Tijuana River of advanced primary treated effluent, and c) return of an advanced primary treated effluent to Mexico. The Commissioners observed that in the case that the alternative for temporary discharge of an advanced primary treated effluent to Mexico is selected, the IBWC would support the necessary arrangements for the construction of an appropriate conveyance and disposal system in Mexico that would be properly coordinated with Pumping Plant No. 1 in Tijuana. They also observed that in case of a temporary discharge of primary treated effluent using the emergency connection to the City of San Diego, Mexico's cooperation would be necessary to handle, to extent possible, the flows generated in excess of the emergency connection capacity.

- o The IBWC Commissioners observed the progress in the Tijuana wastewater characterization programs for wastewaters that would be conveyed to the IWTP. The data will allow a) identification of pollutant limits that would protect the efficiency of the IWTP and b) delivery of data to Mexico for Mexico's implementation of its industrial wastewater pretreatment programs in Tijuana based on standards in Mexico. Under such programs discharges of industrial wastewaters into this system must not exceed limits for non-conventional pollutants. The Commissioners considered it appropriate that the IBWC, with the expert recommendation of the specialized water quality agencies of each country, should determine the limits of pollutant concentrations that if exceeded would harm the plant's efficiency. The Commissioners observed that the Commission would monitor the plant's effluent for non-conventional pollutants each six months and more frequently in the event that excessive concentrations of non-conventional pollutants are detected. The results would be provided to the appropriate officials in Mexico so that those officials can identify the source of these pollutants and apply the

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

... 3

appropriate laws. As the IWTP is located in the United States and will discharge to the coastal waters in the United States, the ocean discharge must meet quality standards established in the United States, under a permit granted to the United States Section of the IBWC.

- o The Mexican Commissioner informed that Mexico continues to evaluate alternatives for treatment of future Tijuana sewage in excess of the 25 mgd (1100 lps) assigned for Tijuana in the IWTP, which at an opportune time will be discussed before the IBWC in the context of Minute No. 261. In such case, the IBWC would determine whether it is practical to expand the IWTP to handle Tijuana flows in excess of the 25 mgd (1100 lps) assigned to Mexico in the IWTP and, if so, make recommendations on the terms of Mexico's financial participation in such expansion.

B. Distribution of Construction, Operation and Maintenance Costs

The Commissioners noted that discussions were held by the Principal Engineers of the IBWC on studies developed by Mexico's National Water Commission (CNA) regarding the costs of construction, operation and maintenance of the wastewater plant that Mexico planned to construct in the Rio Alamar, had Mexico not participated in the international plant. The Commissioners reviewed the information presented by the Principal Engineers and considered, as appropriate, the amount of \$16.8 million (U.S. currency) as the cost that Mexico would have expended to construct a treatment plant (Rio Alamar plant) in Mexico. Under the terms of Resolution No. 7 of Minute No. 283, Mexico would cover this corresponding share in 10 annual installments of \$1.68 million each upon the start of the IWTP operation, with the first payment due on December 15, 1997. The payment method was developed in a consensus with the Comisión Estatal de Servicios Públicos de Tijuana (CESPT), and the CNA to make the necessary adjustments in an internal cash flow that will allow payment in the amount corresponding to Mexico. This procedure will be followed for subsequent payments toward the total amount to cover the payment on December 15 of each year.

The Commissioners also reviewed the information presented by the Principal Engineers, in Exhibit A, and considered, as appropriate for the capacity of 25 mgd (1100 lps), the amount of \$0.034 per cubic meter (U.S. currency) as the cost that Mexico would have expended in 1997 in the operation and maintenance of the Rio Alamar plant. They observed that for subsequent years, adjustments in costs, as needed, would be applied based on Mexican economy. The CESPT should participate in the annual review of the operation and maintenance costs to enable this organization to incorporate such increases in its budget in subsequent years. Further, the Commissioners observed that Mexico, through CESPT, should begin to cover its part of the costs of the IWTP operation and maintenance once the treatment plant is in operation. Such payments will be made in quarterly. The monthly payments would be made within 10 days of the month corresponding to the end of each quarter. The payment schedule was defined in a consensus with the CESPT allowing for necessary internal cash flow adjustments to cover the payment. A cost

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

... 4

adjustment factor would be estimated for the next year based on the prior year's performance. A final accounting would be performed at the end of the year.

The Commissioners considered that the two Sections of the Commission will ensure, at least once a month, a systematic exchange and sharing of information with the CESPT and the agency responsible for the IWTP operation, hydrometric data generated through IWTP system measuring devices, including but not limited to, influent from Mexico in order to carry out an adequate accounting of the flows delivered for treatment at the IWTP as well as effluent from the IWTP. The Commissioners considered it appropriate for the Principal Engineers to develop a similar program for the effluent data generated from the treatment and ocean discharge systems in the United States and Mexico before the ocean outfall operations begin.

Finally, the Commissioners observed that in the event that Tijuana wastewaters from canyon and other collectors as may be conveyed for treatment at the IWTP, the operations and maintenance costs that Mexico would cover for these volumes would be the same as those in the prior paragraphs, that is \$0.034 per cubic meter of sewage treated. The Mexican Section will inform the United States Section in a timely manner of such discharges and their estimated volumes. The volumes would exclude flows from ruptured drinking water lines and from storm runoff. The payments for treatment of these wastewaters will be covered in the quarterly payment by Mexico for the waters conveyed to the IWTP in the international collector up to the capacity of 25 mgd (1100 lps). Should the discharges from all of these points exceed an average of 25 mgd (1100 lps), computed each quarter, the Commission will determine the costs chargeable to Mexico for treating such excess discharges.

Based on the above considerations, the Commissioners adopted the following resolutions for the approval of the two Governments:

1. The IWTP construction costs chargeable to Mexico will be \$16.8 million (United States currency) an amount which corresponds to the total amount that Mexico would have expended to construct the Río Alamar treatment plant, had Mexico not participated in construction of the IWTP. Mexico will pay this amount to the United States in 10 annual fixed installments of \$1.68 million (United States currency) each upon the start of the IWTP operations, with the first annual payment to be provided on December 15, 1997. The payment method was developed in a consensus with the Comisión Estatal de Servicios Públicos de Tijuana (CESPT), and the CNA to make the necessary adjustments in an internal cash flow that will allow payment in the amount corresponding to Mexico. This procedure will be followed for subsequent payments toward the total amount to cover the payment on December 15 of each year.

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

... 5

2. The operation and maintenance costs of the IWTP chargeable to Mexico for up to 25 mgd (1100 lps) will be \$0.034 per cubic meter (U.S. currency) as the cost that Mexico would have expended in 1997 in the operation and maintenance of the Rio Alamar plant. In subsequent years, adjustments, as needed, to costs would be applied based on Mexican economy. The CESPT should participate in the annual review of the operation and maintenance costs to enable this organization to incorporate, in a timely manner, such increases in its budget in subsequent years. Cost adjustment factors would be estimated for the next year based on the prior year's performance. A final accounting would be performed at the end of the year.
3. For the construction and operations and maintenance payments, the Mexican Section of the IBWC will collect the amounts corresponding to the CESPT and, where appropriate, to the CNA in order to complete the payment to the U.S. Section of the IBWC in accordance with IBWC procedures in effect for these purposes.
4. Mexico will begin to cover its proportionate costs of the IWTP operation and maintenance corresponding to point 2) upon the start of operations of the IWTP. The quarterly payment will be made within 10 days after the end of each quarter, in a procedure developed in a consensus with the CESPT for the necessary internal cash flow adjustments that will allow its payment.
5. The United States Section will provide to the Mexican Section a copy of the operations and maintenance manual developed for the IWTP to allow the responsible Mexican authorities to understand the IWTP operations criteria.
6. In the event that Tijuana wastewaters from canyon and other collectors are conveyed for treatment at the IWTP, the operations and maintenance costs that Mexico through the CESPT would cover for these volumes would be the same as those in the prior paragraphs, that is \$0.034 per cubic meter of sewage treated. The Mexican Section, with the prior consultation with the CESPT, will inform the United States Section in a timely manner of such discharges and their estimated volumes which would not include drinking water from ruptured lines or storm runoff. The payments for treatment of these wastewaters will be incorporated by the CESPT in the quarterly payment by Mexico for the waters conveyed to the IWTP in the international collector up to the capacity of 25 mgd (1100 LPs). In the event that discharges from all of these points exceed an average of 25 mgd (1100 LPs), assigned to Mexico, computed each quarter, the Commission

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

... 6

will determine the charges to Mexico corresponding to treat the excess discharges.

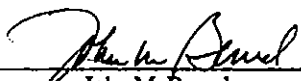
7. The two Sections of the Commission will ensure, and at least monthly, a systematic exchange of information with the CESPT and the agency responsible for the IWTP operation, hydrometric data generated through IWTP system measuring devices, including but not limited to, influent from Mexico in order to carry out an adequate accounting of the flows delivered for treatment at the IWTP as well as effluent from the IWTP. The Commissioners consider it appropriate that the Principal Engineers develop a similar program for the effluent data generated from the effluent data generated from the treatment and ocean discharge systems in the United States and Mexico before the ocean outfall operations begin.
8. The IBWC will review, in the context of Minute No. 261, alternatives being considered by Mexico for treatment of future Tijuana sewage in excess of the 25 mgd (1100 lps) identified for Tijuana in the IWTP. As part of this review, the IBWC will make recommendations to the governments as to the practicality of expanding the IWTP to handle flows in excess of 25 mgd (1100 lps) assigned to Mexico in the IWTP and if so, develop recommendations for the terms of Mexico's financial participation in such expansion.
9. The IBWC will continue to analyze the environmental studies being conducted in the United States regarding alternatives for the best means of achieving secondary treatment.
10. The Commission will continue to characterize inflows to the IWTP and determine, with the expert recommendation of the appropriate water quality authorities of each country, the limits of pollutant concentrations in the system that, if exceeded, would harm the efficiency of the international plant. The Commission will monitor inflows at the international boundary for potential exceedences and provide the information to the Government of Mexico so that the proper authorities in Mexico can apply those limits in applying appropriate pretreatment laws.
11. In case of an interim discharge of advanced primary treated effluent to Mexico, the IBWC will make the necessary arrangements for an appropriate conveyance and disposal infrastructure system in Mexico.
12. In the case of an interim discharge of advanced primary treated effluent utilizing emergency connection to the city of San Diego, the cooperation

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

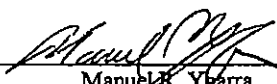
of Mexico would be necessary to handle, to the extent possible, the flows in excess of the emergency connection capacity as may be generated.

13. The IBWC will review and recommend to the two Governments the additional infrastructure needed to collect sewage that is currently discharged to the Tijuana River through storm and other drains such that there is no discharge of untreated sanitary or industrial wastewaters in the international boundary between San Diego and Tijuana.
14. All activities carried out pursuant to this Minute will be subject to the availability of appropriated funds, resources and personnel and applicable laws and regulations of each country.
15. This Minute shall enter into force when the Government of the United States of America and the Government of the United Mexican States have each provided written notification through their Section of IBWC of its approval.

The meeting was adjourned.



John M. Bernal
United States Commissioner



Manuel K. Ybarra
United States Section Secretary



J. Arturo Herreza Solís
Mexican Commissioner



José de Jesús Luevano Grano
Mexican Section Secretary

**INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO**

El Paso, Texas
February 20, 2004

MINUTE NO. 311

**RECOMMENDATIONS FOR SECONDARY TREATMENT IN MEXICO OF THE
SEWAGE EMANATING FROM THE TIJUANA RIVER AREA IN BAJA
CALIFORNIA, MEXICO**

The Commission met at the offices of the United States Section in El Paso, Texas on February 20, 2004 at 1:30 p.m., to address the construction in Mexico of a plant and related facilities for secondary treatment of sewage emanating from the Tijuana River area in Mexico that flows untreated into the United States or is partially treated at the South Bay International Wastewater Treatment Plant (SBIWTP) located in San Ysidro, California.

The Commissioners noted the stipulations in the Treaty between the United States of America and the United Mexican States for the "Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande," signed February 3, 1944, as they relate to the obligation of both Governments to provide preferential attention to the solution of border sanitation problems. They also noted the stipulations in Minute No. 283, entitled "Conceptual Plan for the International Solution to the Border Sanitation Problem in San Diego, California/Tijuana, Baja California," dated July 2, 1990, that provided for the United States and Mexico to design, construct, operate and maintain a treatment plant for up to 25 million gallons per day (mgd) <1100 liters per second (l/s)> of wastewater arriving from the City of Tijuana, Baja California to be treated to a level of secondary treatment in the United States. The Commissioners also noted that the Mexican Government covers the costs of operation and maintenance of the volumes mentioned above in its corresponding portion, in accordance with Minute No. 296, entitled "Distribution of Construction, Operation and Maintenance Costs for the International Wastewater Treatment Plant Constructed under the Agreements in Commission Minute No. 283 for the solution of the Border Sanitation Problem at San Diego, California/Tijuana, Baja California," dated April 16, 1997. Likewise, they noted that due to problems in the United States the level of treatment provided by the present international plant is only at a level of advanced primary treatment.

The United States Commissioner noted that the level of treatment provided at the SBIWTP currently fails to meet the secondary treatment level standard set forth in the State of California discharge permit. The concentration and mass emissions rates for total suspended solids and Carbonaceous Biochemical Oxygen Demand and Whole Effluent Toxicity have routinely exceeded the permit levels since the initiation of advanced primary treatment in 1997. In addition, the United States Commissioner noted the failure to meet

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

2

discharge permit requirements had resulted in litigation in Federal District Court. The United States Commissioner further noted that a possible result of this lawsuit is that the United States Section would be required to cease discharges from the SBIWTP. The Mexican Commissioner noted that this would mean that the SBIWTP could not accept any flows from Mexico and this would not be acceptable to Mexico. Both Commissioners noted that this would have serious impacts on health and the environment in the border region.

The Commissioners noted passage by the United States Congress of Public Law 106-457, "Tijuana River Valley Estuary and Beach Cleanup" signed on November 7, 2000, which authorizes appropriation of up to \$156 million dollars to comprehensively address the treatment of sewage emanating from the Tijuana River area in Mexico that flows untreated or partially treated into the United States causing significant adverse public health and environmental impacts. They also considered the proposal presented by the United States Section to the Mexican Section through correspondence in January 2002. The implementation of a secondary treatment facility in Mexico in a manner consistent with Public Law 106-457 would provide the secondary treatment which was originally to be provided at the SBIWTP in conformance with Minute No. 283.

The Commissioners noted the efforts of the Comisión Estatal de Servicios Públicos de Tijuana and of the United States Environmental Protection Agency (USEPA) in the development of the Master Plan for Water and Sanitation for the City of Tijuana, Baja California, published on March 7, 2003, which analyzes the present and future generation of wastewater in the City of Tijuana, the available treatment capacity at present, and the facilities required to cover the treatment needs through 2023. The Mexican Commissioner noted that the United States proposal for constructing the secondary treatment for the SBIWTP in Mexico would complement the provisions in the City of Tijuana Master Plan until 2023 that suggests the construction of a wastewater treatment plant with total treatment capacity of 33.5 mgd (1470 l/s). In addition the Master Plan considered secondary treatment consisting of 25 mgd (1100 l/s) of the SBIWTP advanced primary effluent, if secondary treatment of that effluent is not provided for at a facility in the United States. This increases the total needed capacity for the planning period to 2023 to 59 mgd (2570 l/s).

I. PROPOSED PROJECT

The Commissioners considered it possible to implement the concept of the referenced United States proposal in Mexico for a secondary treatment facility for sewage emanating from the City of Tijuana, Baja California, under a public-private participation arrangement. The United States Section would agree to fund, subject to availability of annual appropriations, up to \$156 million for the engineering, construction, and for a period of 20 years for the operation and maintenance of a 59 mgd (2570 l/s) wastewater treatment plant in Mexico if the treatment of 25 mgd (1100 l/s) of advanced primary effluent of the SBIWTP is not provided in the United States. Any additional costs will be subject to

**INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO**

3

subsequent Commission agreements. The Government of Mexico would continue to cover the corresponding costs for the first 25 mgd (1100 l/s) as stipulated in Minutes Nos. 283 and 296.

Specifically, the proposed project will consider at a minimum the following:

- To locate the required primary and/or secondary treatment facilities in Mexico and associated facilities directly related to the project in the United States and Mexico.
- To provide secondary treatment of the SBIWTP effluent in Mexico, if such treatment is not provided for at facilities located in the United States.
- To provide the treatment capacity, including all processes necessary to provide secondary treatment level, in Mexico, for flows of 59 mgd (2570 l/s) if the treatment of 25 mgd (1100 l/s) of advanced primary effluent of the SBIWTP is not provided in the United States.
- To obtain all the permits required by the Mexican authorities in order to facilitate the verification and oversight of compliance with laws related to the treatment structures that are constructed in Mexico.
- To comply with the water quality laws of the United States and of the State of California in order to allow the discharge in the United States of treated effluent that is not utilized in Mexico through the Southbay Ocean Outfall (SBOO), constructed in the United States within the framework of Minute No. 283.
- To provide the pumping, conveyance and secondary treatment in Mexico for a flow of 59 mgd (2570 l/s), as derived from the results of the City of Tijuana Master Plan.
- To have supervision and approval of each phase of the projects resulting from the United States proposal undertaken by the Commission with participation of the appropriate United States and Mexican technical advisors.
- Ownership and disposition of wastewater from Tijuana, Baja California, treated or not treated under this proposal, will remain under the jurisdiction of the Government of Mexico. Likewise, the Government of Mexico will maintain the jurisdiction for disposal of said wastewater in accordance with applicable Mexican laws.

II. CONTRACT SERVICES

Likewise, both Commissioners observed it acceptable to develop the United States proposal to engineer, construct, operate and maintain treatment works in Mexico in conformance with applicable Mexican legislation, under an operating lease contract between the Commission and the service provider of the Mexican facility. The United States Section would make payments to the service provider, subject to the availability of annual appropriations, under the contract, which would be administered by the Mexican Section in accordance with the 1944 Water Treaty. The payments to be made to the service provider would be offset by compensations or credits that reflect an agreed upon percentage of payments received by Mexico through the sale of water treated by the facility. Said

**INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO**

4

compensations or credits would be mutually agreed upon by the two governments through the Commission. In no instance will the service provider be authorized to decide on the fate or use of the Tijuana, Baja California wastewater, treated or untreated. This decision will be made solely by the Government of Mexico. The service provider may propose mechanisms and specific actions to this respect, but, in any case, will require the authorization of the Government of Mexico.

The Government of the United States would provide, subject to the availability of annual appropriation up to a total of \$156 million for the implementation of the project. Any costs above this amount will be subject to subsequent Minutes of the Commission.

The contract will at a minimum include the following items:

- Conveyance of the advanced primary effluent from the SBIWTP, located in the United States, to the Mexican facility for secondary treatment, if secondary treatment for the effluent is not provided at a facility located in the United States.
- Treatment to the secondary level at the facility in Mexico, in compliance with applicable water quality laws of the United States, the State of California, and Mexico.
- Return conveyance from the Mexican treatment facility to the United States of any treated effluent that cannot be reused. The effluent may be discharged through the SBOO into the Pacific Ocean in compliance with water quality laws of the United States and the State of California.
- Wastewater treatment capacity that provides secondary treatment for volumes in addition to the capacity of the SBIWTP, for a total capacity of 59 mgd (2570 l/s) if the treatment of 25 mgd (1100 l/s) of the advanced primary effluent of the SBIWTP is not provided in the United States.
- A contract term of 20 years. When the contract terminates, the facilities will be transferred, in good operating conditions, to the responsible Mexican authorities.
- Attainment of permits in order for the Commission to monitor, verify and assure compliance with United States, California, and Mexican water quality standards.
- Arrangements in order for the Commission to assure the proper disposal and use, at a site or sites in Mexico, of sludge produced at the SBIWTP and the Mexican facility.
- Payment by the United States Section, subject to annual availability of appropriations, for the contracted wastewater treatment services, including the necessary processes to attain treatment at a secondary level for a capacity of 59 mgd (2570 l/s), if the treatment of 25 mgd (1100 l/s) of advanced primary effluent is not provided in the United States. The payment will cover all agreed upon costs associated with the development, financing, construction, operation and maintenance of the Mexican facilities, on an annual basis.
- Provisions for non-compliance with the terms of the contract.
- The use of competitive procedures applicable in Mexico in the procurement of all

**INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO**

5

property and/or services for the engineering, construction, and operation and maintenance of the Mexican facility.

- Oversight of a Binational Technical Committee composed of appropriate United States and Mexican technical advisors, presided over by the Commission, to provide support to the Commission in the supervision of the different phases of the proposed actions included in this and subsequent Minutes. The Technical Committee may include for the United States the State of California and USEPA and for Mexico Comisión Nacional del Agua (CNA) and Government of Baja California.
- Provisions for the Commission, with the support of the Binational Technical Committee, to review and approve the selection of all contractors to perform the engineering, construction, and operation and maintenance for the Mexican facility.
- Ensure the maintenance by the service provider of the Mexican facility of all records (including books, documents, papers, reports, and other materials) pertaining to the operation of the facility necessary to demonstrate compliance with the terms of the contract and those in this Minute.
- Access by the Commission for audit and examination of all records maintained in accordance with the previous item, to facilitate the monitoring and evaluation of the performance of the Mexican facility

The Commissioners noted that the implementation of this Minute would require supervision by the Commission with the support of the Binational Technical Committee that includes the monitoring, on a quarterly basis, of the progress and status on the implementation of any contract executed under this Minute, as well as an evaluation of the extent to which the terms of such contract have been met. They also considered the recommendations that the findings of such observations will be presented, through the respective Section, to domestic agencies requiring such reports, beginning no later than two years after the execution of such a contract and every year after until contract close-out.

III. PREVIOUS CONSULTATIONS

The Commissioners also noted the ongoing discussions convened by the two Sections since January 2001. Meetings of the Commission have taken place and letters have been exchanged within the Commission as well as at the diplomatic level, in which the Government of Mexico has shown interest in the United States proposal and expressed its willingness to further discuss this matter on the basis that the concept is compatible with the option recommended in the City of Tijuana Master Plan, presents opportunities for additional investment in Mexico, includes an arrangement for the disposal of the effluent by means of the SBOO, allows opportunity to realize the existing potential for reuse of the effluent, decreases the pressure on the supply sources by placing the treated effluent closer to the potential sites for potable and non-potable reuse, and involves cooperation between

**INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO**

6

both countries for treatment and disposal of a volume of Tijuana wastewater greater than the present 25 mgd (1100 l/s).

From the various meetings and exchange of letters of the Commission, the following understandings were noted:

1. It would be feasible to incorporate the participation of a public-private service provider for the treatment of wastewater in accordance with applicable regulations in Mexico.
2. The Commission could participate in an operating lease contract for the engineering, construction, operation and maintenance in accordance with Mexican law and in accordance with additional terms to be established in a subsequent Commission Minute.
3. The operating lease contract would be administered consistent with provisions in the 1944 Water Treaty, applicable Mexican laws and in accordance with the terms and conditions established through subsequent Commission Minutes.
4. That the adopted project would be consistent with the solution identified in the Tijuana Master Plan; that it would address infrastructure capacities, land use, land acquisition, type of treatment and disposal of effluent; they would satisfy the requirements of CNA and the State of Baja California; that it would dedicate special attention to odor control; that it would address the selection of the service provider, in accordance with procedures in applicable Mexican laws; and it would define the fate of the facilities when the contract period ends.

IV. IMPLEMENTATION PLAN

The Commissioners noted the legislation set forth by the United States Congress in Public Law 106-457, the conclusions set forth by the Tijuana Master Plan and the discussions held by the Commission were sufficient basis to move ahead in relation to the secondary treatment of the effluent from the SBIWTP and the future flows of Tijuana. Therefore, the Commissioners considered it appropriate to implement the following actions:

1. Once the initial appropriated funds are available, the Commission would develop an operating lease arrangement contract, as defined under Section II of this Minute, "Contract Services," for the financing and development of the engineering, construction, operation and maintenance of the facilities in Mexico. This arrangement will need to have the approval of both governments, expressed in a subsequent Minute.
2. The final design of the facilities to be constructed in Mexico and the final arrangement for its implementation, as well as the terms under which the United States Section will make payments for the design, construction, operation and maintenance of said facilities, will be established in a subsequent Minute of the

**INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO**

7

Commission. In case that agreement on an operating lease arrangement or design that is acceptable to both governments is not reached, the stipulations established in Commission Minutes Nos. 283 and 296 will apply.

3. At the termination of the contract, the facilities constructed in Mexico will be transferred in adequate operating condition to the responsible Mexican authorities. The terms for subsequent operation will be established in a Commission Minute, and if necessary, the terms for the discharge of the plant effluent.

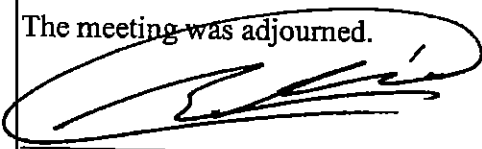
Based on the above, the Commissioners present the following recommendations for the approval of the two governments:

1. The United States Section shall fund, subject to availability of annual appropriations, up to a total of \$156 million for the engineering, construction, and for a period of 20 years the operation and maintenance of a 59 mgd (2570 l/s) secondary wastewater treatment plant in Mexico, if the treatment of 25 mgd (1100 l/s) of advanced primary effluent of the SBIWTP is not provided in the United States. Any additional costs shall be subject to subsequent Commission agreements. The Government of Mexico shall cover the corresponding costs for the first 25 mgd (1100 l/s) as stipulated in Commission Minutes Nos. 283 and 296. Treatment to the secondary treatment level will be in compliance with water quality laws of the United States, the State of California and Mexico.
2. The Commission shall adopt the implementation plan contained in Section IV of this Minute.
3. The Commission, with support from their respective technical advisors, shall review and approve the terms of reference for the selection of a service provider.
4. The Commission shall administer the project guided by the solution identified in the Tijuana Master Plan, to satisfy the requirements of the responsible Mexican authorities and to address infrastructure capacities, land use, land acquisition, type of treatment, odor control, sludge management, and disposal of effluent that cannot be reused in Mexico. The effluent may be discharged through the SBOO into the Pacific Ocean in compliance with water quality laws of the United States and the State of California.
5. The Commission shall supervise the project including quarterly monitoring of progress and status of performance on any contract executed to fulfill the objective of this Minute, and an evaluation of the degree to which the service provider of the facilities in Mexico has complied with the terms of the contract. The results of these observations shall be presented, through the corresponding Section of the Commission, to the authorities which require these reports in each country, beginning no later than two years after execution of the contract referred to in Section II of this Minute, and annually thereafter.

**INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO**

6. All activities undertaken pursuant to the provisions of this Minute shall be subject to the availability of appropriated funds, resources, and corresponding personnel, as well as to applicable laws and regulations in each country.
7. This Minute shall enter into force upon notification of approval by the Government of the United States of America and the Government of the United Mexican States through the respective Sections of the Commission, and shall terminate when the operating lease contract referenced in Paragraph No. 1 of Section IV of this Minute concludes.

The meeting was adjourned.



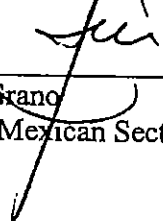
Arturo Q. Duran
United States Commissioner



Carlos Peña, Jr.
Secretary of the United States Section



J. Arturo Herrera Solís
Mexican Commissioner



Jesús Luévano Grano
Secretary of the Mexican Section

APPENDIX C
PUBLIC LAW 106-457

Public Law 106-457
106th Congress

An Act

To encourage the restoration of estuary habitat through more efficient project financing and enhanced coordination of Federal and non-Federal restoration programs, and for other purposes.

Nov. 7, 2000
[S. 835]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) **SHORT TITLE.**—This Act may be cited as the “Estuaries and Clean Waters Act of 2000”.

(b) **TABLE OF CONTENTS.**—

Estuaries and
Clean Waters Act
of 2000.
33 USC 2901
note.

Sec. 1. Short title; table of contents.

TITLE I—ESTUARY RESTORATION

- Sec. 101. Short title.
- Sec. 102. Purposes.
- Sec. 103. Definitions.
- Sec. 104. Estuary habitat restoration program.
- Sec. 105. Establishment of Estuary Habitat Restoration Council.
- Sec. 106. Estuary habitat restoration strategy.
- Sec. 107. Monitoring of estuary habitat restoration projects.
- Sec. 108. Reporting.
- Sec. 109. Funding.
- Sec. 110. General provisions.

TITLE II—CHESAPEAKE BAY RESTORATION

- Sec. 201. Short title.
- Sec. 202. Findings and purposes.
- Sec. 203. Chesapeake Bay.

TITLE III—NATIONAL ESTUARY PROGRAM

- Sec. 301. Addition to national estuary program.
- Sec. 302. Grants.
- Sec. 303. Authorization of appropriations.

TITLE IV—LONG ISLAND SOUND RESTORATION

- Sec. 401. Short title.
- Sec. 402. Innovative methodologies and technologies.
- Sec. 403. Assistance for distressed communities.
- Sec. 404. Authorization of appropriations.

TITLE V—LAKE PONTCHARTRAIN BASIN RESTORATION

- Sec. 501. Short title.
- Sec. 502. Lake Pontchartrain basin.

TITLE VI—ALTERNATIVE WATER SOURCES

- Sec. 601. Short title.
- Sec. 602. Pilot program for alternative water source projects.

TITLE VII—CLEAN LAKES

- Sec. 701. Grants to States.

Sec. 702. Demonstration program.

TITLE VIII—TIJUANA RIVER VALLEY ESTUARY AND BEACH CLEANUP

Sec. 801. Short title.

Sec. 802. Purpose.

Sec. 803. Definitions.

Sec. 804. Actions to be taken by the Commission and the Administrator.

Sec. 805. Negotiation of new treaty minute.

Sec. 806. Authorization of appropriations.

TITLE IX—GENERAL PROVISIONS

Sec. 901. Purchase of American-made equipment and products.

Sec. 902. Long-term estuary assessment.

Sec. 903. Rural sanitation grants.

TITLE I—ESTUARY RESTORATION

Estuary
Restoration Act
of 2000.
33 USC 2901
note.

SEC. 101. SHORT TITLE.

This title may be cited as the "Estuary Restoration Act of 2000".

33 USC 2901.

SEC. 102. PURPOSES.

The purposes of this title are—

(1) to promote the restoration of estuary habitat;

(2) to develop a national estuary habitat restoration strategy for creating and maintaining effective estuary habitat restoration partnerships among public agencies at all levels of government and to establish new partnerships between the public and private sectors;

(3) to provide Federal assistance for estuary habitat restoration projects and to promote efficient financing of such projects; and

(4) to develop and enhance monitoring and research capabilities through the use of the environmental technology innovation program associated with the National Estuarine Research Reserve System established by section 315 of the Coastal Zone Management Act of 1972 (16 U.S.C. 1461) to ensure that estuary habitat restoration efforts are based on sound scientific understanding and innovative technologies.

33 USC 2902.

SEC. 103. DEFINITIONS.

In this title, the following definitions apply:

(1) **COUNCIL.**—The term "Council" means the Estuary Habitat Restoration Council established by section 105.

(2) **ESTUARY.**—The term "estuary" means a part of a river or stream or other body of water that has an unimpaired connection with the open sea and where the sea water is measurably diluted with fresh water derived from land drainage. The term also includes near coastal waters and wetlands of the Great Lakes that are similar in form and function to estuaries, including the area located in the Great Lakes biogeographic region and designated as a National Estuarine Research Reserve under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) as of the date of enactment of this Act.

(3) **ESTUARY HABITAT.**—The term "estuary habitat" means the physical, biological, and chemical elements associated with an estuary, including the complex of physical and hydrologic features and living organisms within the estuary and associated ecosystems.

(4) ESTUARY HABITAT RESTORATION ACTIVITY.—

(A) IN GENERAL.—The term “estuary habitat restoration activity” means an activity that results in improving degraded estuaries or estuary habitat or creating estuary habitat (including both physical and functional restoration), with the goal of attaining a self-sustaining system integrated into the surrounding landscape.

(B) INCLUDED ACTIVITIES.—The term “estuary habitat restoration activity” includes—

(i) the reestablishment of chemical, physical, hydrologic, and biological features and components associated with an estuary;

(ii) except as provided in subparagraph (C), the cleanup of pollution for the benefit of estuary habitat;

(iii) the control of nonnative and invasive species in the estuary;

(iv) the reintroduction of species native to the estuary, including through such means as planting or promoting natural succession;

(v) the construction of reefs to promote fish and shellfish production and to provide estuary habitat for living resources; and

(vi) other activities that improve estuary habitat.

(C) EXCLUDED ACTIVITIES.—The term “estuary habitat restoration activity” does not include an activity that—

(i) constitutes mitigation required under any Federal or State law for the adverse effects of an activity regulated or otherwise governed by Federal or State law; or

(ii) constitutes restoration for natural resource damages required under any Federal or State law.

(5) ESTUARY HABITAT RESTORATION PROJECT.—The term “estuary habitat restoration project” means a project to carry out an estuary habitat restoration activity.

(6) ESTUARY HABITAT RESTORATION PLAN.—

(A) IN GENERAL.—The term “estuary habitat restoration plan” means any Federal or State plan for restoration of degraded estuary habitat that was developed with the substantial participation of appropriate public and private stakeholders.

(B) INCLUDED PLANS AND PROGRAMS.—The term “estuary habitat restoration plan” includes estuary habitat restoration components of—

(i) a comprehensive conservation and management plan approved under section 320 of the Federal Water Pollution Control Act (33 U.S.C. 1330);

(ii) a lakewide management plan or remedial action plan developed under section 118 of the Federal Water Pollution Control Act (33 U.S.C. 1268);

(iii) a management plan approved under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.); and

(iv) the interstate management plan developed pursuant to the Chesapeake Bay program under section 117 of the Federal Water Pollution Control Act (33 U.S.C. 1267).

(7) **INDIAN TRIBE.**—The term “Indian tribe” has the meaning given such term by section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450b).

(8) **NON-FEDERAL INTEREST.**—The term “non-Federal interest” means a State, a political subdivision of a State, an Indian tribe, a regional or interstate agency, or, as provided in section 104(f)(2), a nongovernmental organization.

(9) **SECRETARY.**—The term “Secretary” means the Secretary of the Army.

(10) **STATE.**—The term “State” means the States of Alabama, Alaska, California, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, Washington, and Wisconsin, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the United States Virgin Islands, American Samoa, and Guam.

33 USC 2903.

SEC. 104. ESTUARY HABITAT RESTORATION PROGRAM.

(a) **ESTABLISHMENT.**—There is established an estuary habitat restoration program under which the Secretary may carry out estuary habitat restoration projects and provide technical assistance in accordance with the requirements of this title.

(b) **ORIGIN OF PROJECTS.**—A proposed estuary habitat restoration project shall originate from a non-Federal interest consistent with State or local laws.

(c) **SELECTION OF PROJECTS.**—

(1) **IN GENERAL.**—The Secretary shall select estuary habitat restoration projects from a list of project proposals submitted by the Estuary Habitat Restoration Council under section 105(b).

(2) **REQUIRED ELEMENTS.**—Each estuary habitat restoration project selected by the Secretary must—

(A) address restoration needs identified in an estuary habitat restoration plan;

(B) be consistent with the estuary habitat restoration strategy developed under section 106;

(C) include a monitoring plan that is consistent with standards for monitoring developed under section 107 to ensure that short-term and long-term restoration goals are achieved; and

(D) include satisfactory assurance from the non-Federal interests proposing the project that the non-Federal interests will have adequate personnel, funding, and authority to carry out items of local cooperation and properly maintain the project.

(3) **FACTORS FOR SELECTION OF PROJECTS.**—In selecting an estuary habitat restoration project, the Secretary shall consider the following factors:

(A) Whether the project is part of an approved Federal estuary management or habitat restoration plan.

(B) The technical feasibility of the project.

(C) The scientific merit of the project.

(D) Whether the project will encourage increased coordination and cooperation among Federal, State, and local government agencies.

(E) Whether the project fosters public-private partnerships and uses Federal resources to encourage increased private sector involvement, including consideration of the amount of private funds or in-kind contributions for an estuary habitat restoration activity.

(F) Whether the project is cost-effective.

(G) Whether the State in which the non-Federal interest is proposing the project has a dedicated source of funding to acquire or restore estuary habitat, natural areas, and open spaces for the benefit of estuary habitat restoration or protection.

(H) Other factors that the Secretary determines to be reasonable and necessary for consideration.

(4) PRIORITY.—In selecting estuary habitat restoration projects to be carried out under this title, the Secretary shall give priority consideration to a project if, in addition to meriting selection based on the factors under paragraph (3)—

(A) the project occurs within a watershed in which there is a program being carried out that addresses sources of pollution and other activities that otherwise would re-impair the restored habitat; or

(B) the project includes pilot testing of or a demonstration of an innovative technology having the potential for improved cost-effectiveness in estuary habitat restoration.

(d) COST SHARING.—

(1) FEDERAL SHARE.—Except as provided in paragraph (2) and subsection (e)(2), the Federal share of the cost of an estuary habitat restoration project (other than the cost of operation and maintenance of the project) carried out under this title shall not exceed 65 percent of such cost.

(2) INNOVATIVE TECHNOLOGY COSTS.—The Federal share of the incremental additional cost of including in a project pilot testing of or a demonstration of an innovative technology described in subsection (c)(4)(B) shall be 85 percent.

(3) NON-FEDERAL SHARE.—The non-Federal share of the cost of an estuary habitat restoration project carried out under this title shall include lands, easements, rights-of-way, and relocations and may include services, or any other form of in-kind contribution determined by the Secretary to be an appropriate contribution equivalent to the monetary amount required for the non-Federal share of the activity.

(4) OPERATION AND MAINTENANCE.—The non-Federal interests shall be responsible for all costs associated with operating, maintaining, replacing, repairing, and rehabilitating all projects carried out under this section.

(e) INTERIM ACTIONS.—

(1) IN GENERAL.—Pending completion of the estuary habitat restoration strategy to be developed under section 106, the Secretary may take interim actions to carry out an estuary habitat restoration activity.

(2) FEDERAL SHARE.—The Federal share of the cost of an estuary habitat restoration activity before the completion of the estuary habitat restoration strategy shall not exceed 25 percent of such cost.

(f) COOPERATION OF NON-FEDERAL INTERESTS.—

(1) IN GENERAL.—The Secretary may not carry out an estuary habitat restoration project until a non-Federal interest has entered into a written agreement with the Secretary in which the non-Federal interest agrees to—

(A) provide all lands, easements, rights-of-way, and relocations and any other elements the Secretary determines appropriate under subsection (d)(3); and

(B) provide for maintenance and monitoring of the project.

(2) NONGOVERNMENTAL ORGANIZATIONS.—Notwithstanding section 221(b) of the Flood Control Act of 1970 (42 U.S.C. 1962d-5b(b)), for any project to be undertaken under this title, the Secretary, in consultation and coordination with appropriate State and local governmental agencies and Indian tribes, may allow a nongovernmental organization to serve as the non-Federal interest for the project.

(g) DELEGATION OF PROJECT IMPLEMENTATION.—In carrying out this title, the Secretary may delegate project implementation to another Federal department or agency on a reimbursable basis if the Secretary, upon the recommendation of the Council, determines such delegation is appropriate.

33 USC 2904.

SEC. 105. ESTABLISHMENT OF ESTUARY HABITAT RESTORATION COUNCIL.

(a) COUNCIL.—There is established a council to be known as the "Estuary Habitat Restoration Council".

(b) DUTIES.—The Council shall be responsible for—

(1) soliciting, reviewing, and evaluating project proposals and developing recommendations concerning such proposals based on the factors specified in section 104(c)(3);

(2) submitting to the Secretary a list of recommended projects, including a recommended priority order and any recommendation as to whether a project should be carried out by the Secretary or by another Federal department or agency under section 104(g);

(3) developing and transmitting to Congress a national strategy for restoration of estuary habitat;

(4) periodically reviewing the effectiveness of the national strategy in meeting the purposes of this title and, as necessary, updating the national strategy; and

(5) providing advice on the development of the database, monitoring standards, and report required under sections 107 and 108.

(c) MEMBERSHIP.—The Council shall be composed of the following members:

(1) The Secretary (or the Secretary's designee).

(2) The Under Secretary for Oceans and Atmosphere of the Department of Commerce (or the Under Secretary's designee).

(3) The Administrator of the Environmental Protection Agency (or the Administrator's designee).

(4) The Secretary of the Interior, acting through the Director of the United States Fish and Wildlife Service (or such Secretary's designee).

(5) The Secretary of Agriculture (or such Secretary's designee).

(6) The head of any other Federal agency designated by the President to serve as an ex officio member of the Council.

(d) PROHIBITION OF COMPENSATION.—Members of the Council may not receive compensation for their service as members of the Council.

(e) CHAIRPERSON.—The chairperson shall be elected by the Council from among its members for a 3-year term, except that the first elected chairperson may serve a term of fewer than 3 years.

(f) CONVENING OF COUNCIL.—

(1) FIRST MEETING.—The Secretary shall convene the first meeting of the Council not later than 60 days after the date of enactment of this Act for the purpose of electing a chairperson.

Deadline.

(2) ADDITIONAL MEETINGS.—The chairperson shall convene additional meetings of the Council as often as appropriate to ensure that this title is fully carried out, but not less often than annually.

(g) COUNCIL PROCEDURES.—The Council shall establish procedures for voting, the conduct of meetings, and other matters, as necessary.

(h) PUBLIC PARTICIPATION.—Meetings of the Council shall be open to the public. The Council shall provide notice to the public of such meetings.

(i) ADVICE.—The Council shall consult with persons with recognized scientific expertise in estuary or estuary habitat restoration, representatives of State agencies, local or regional government agencies, and nongovernmental organizations with expertise in estuary or estuary habitat restoration, and representatives of Indian tribes, agricultural interests, fishing interests, and other estuary users—

(1) to assist the Council in the development of the estuary habitat restoration strategy to be developed under section 106; and

(2) to provide advice and recommendations to the Council on proposed estuary habitat restoration projects, including advice on the scientific merit, technical merit, and feasibility of a project.

SEC. 106. ESTUARY HABITAT RESTORATION STRATEGY.

33 USC 2905.

(a) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Council, shall develop an estuary habitat restoration strategy designed to ensure a comprehensive approach to maximize benefits derived from estuary habitat restoration projects and to foster the coordination of Federal and non-Federal activities related to restoration of estuary habitat.

Deadline.

(b) GOAL.—The goal of the strategy shall be the restoration of 1,000,000 acres of estuary habitat by the year 2010.

(c) INTEGRATION OF ESTUARY HABITAT RESTORATION PLANS, PROGRAMS, AND PARTNERSHIPS.—In developing the estuary habitat restoration strategy, the Council shall—

(1) conduct a review of estuary management or habitat restoration plans and Federal programs established under other laws that authorize funding for estuary habitat restoration activities; and

(2) ensure that the estuary habitat restoration strategy is developed in a manner that is consistent with the estuary management or habitat restoration plans.

(d) **ELEMENTS OF THE STRATEGY.**—The estuary habitat restoration strategy shall include proposals, methods, and guidance on—

(1) maximizing the incentives for the creation of new public-private partnerships to carry out estuary habitat restoration projects and the use of Federal resources to encourage increased private sector involvement in estuary habitat restoration activities;

(2) ensuring that the estuary habitat restoration strategy will be implemented in a manner that is consistent with the estuary management or habitat restoration plans;

(3) promoting estuary habitat restoration projects to—

(A) provide healthy ecosystems in order to support—
 (i) wildlife, including endangered and threatened species, migratory birds, and resident species of an estuary watershed; and

(ii) fish and shellfish, including commercial and recreational fisheries;

(B) improve surface and ground water quality and quantity, and flood control;

(C) provide outdoor recreation; and

(D) address other areas of concern that the Council determines to be appropriate for consideration;

(4) addressing the estimated historic losses, estimated current rate of loss, and extent of the threat of future loss or degradation of each type of estuary habitat;

(5) measuring the rate of change for each type of estuary habitat;

(6) selecting a balance of smaller and larger estuary habitat restoration projects; and

(7) ensuring equitable geographic distribution of projects funded under this title.

Federal Register,
 publication.

(e) **PUBLIC REVIEW AND COMMENT.**—Before the Council adopts a final or revised estuary habitat restoration strategy, the Secretary shall publish in the Federal Register a draft of the estuary habitat restoration strategy and provide an opportunity for public review and comment.

(f) **PERIODIC REVISION.**—Using data and information developed through project monitoring and management, and other relevant information, the Council may periodically review and update, as necessary, the estuary habitat restoration strategy.

33 USC 2906.

SEC. 107. MONITORING OF ESTUARY HABITAT RESTORATION PROJECTS.

(a) **UNDER SECRETARY.**—In this section, the term “Under Secretary” means the Under Secretary for Oceans and Atmosphere of the Department of Commerce.

(b) **DATABASE OF RESTORATION PROJECT INFORMATION.**—The Under Secretary, in consultation with the Council, shall develop and maintain an appropriate database of information concerning estuary habitat restoration projects carried out under this title, including information on project techniques, project completion, monitoring data, and other relevant information.

(c) **MONITORING DATA STANDARDS.**—The Under Secretary, in consultation with the Council, shall develop standard data formats for monitoring projects, along with requirements for types of data collected and frequency of monitoring.

(d) **COORDINATION OF DATA.**—The Under Secretary shall compile information that pertains to estuary habitat restoration projects from other Federal, State, and local sources and that meets the quality control requirements and data standards established under this section.

(e) **USE OF EXISTING PROGRAMS.**—The Under Secretary shall use existing programs within the National Oceanic and Atmospheric Administration to create and maintain the database required under this section.

(f) **PUBLIC AVAILABILITY.**—The Under Secretary shall make the information collected and maintained under this section available to the public.

SEC. 108. REPORTING.

33 USC 2907.

(a) **IN GENERAL.**—At the end of the third and fifth fiscal years following the date of enactment of this Act, the Secretary, after considering the advice and recommendations of the Council, shall transmit to Congress a report on the results of activities carried out under this title.

(b) **CONTENTS OF REPORT.**—A report under subsection (a) shall include—

(1) data on the number of acres of estuary habitat restored under this title, including descriptions of, and partners involved with, projects selected, in progress, and completed under this title that comprise those acres;

(2) information from the database established under section 107(b) related to ongoing monitoring of projects to ensure that short-term and long-term restoration goals are achieved;

(3) an estimate of the long-term success of varying restoration techniques used in carrying out estuary habitat restoration projects;

(4) a review of how the information described in paragraphs (1) through (3) has been incorporated in the selection and implementation of estuary habitat restoration projects;

(5) a review of efforts made to maintain an appropriate database of restoration projects carried out under this title; and

(6) a review of the measures taken to provide the information described in paragraphs (1) through (3) to persons with responsibility for assisting in the restoration of estuary habitat.

SEC. 109. FUNDING.

33 USC 2908.

(a) **AUTHORIZATION OF APPROPRIATIONS.**—

(1) **ESTUARY HABITAT RESTORATION PROJECTS.**—There is authorized to be appropriated to the Secretary for carrying out and providing technical assistance for estuary habitat restoration projects—

(A) \$40,000,000 for fiscal year 2001;

(B) \$50,000,000 for each of fiscal years 2002 and 2003;

(C) \$60,000,000 for fiscal year 2004; and

(D) \$75,000,000 for fiscal year 2005.

Such sums shall remain available until expended.

(2) **MONITORING.**—There is authorized to be appropriated to the Under Secretary for Oceans and Atmosphere of the Department of Commerce for the acquisition, maintenance, and management of monitoring data on restoration projects carried out under this title, \$1,500,000 for each of fiscal years 2001 through 2005. Such sums shall remain available until expended.

(b) SET-ASIDE FOR ADMINISTRATIVE EXPENSES OF THE COUNCIL.—Not to exceed 3 percent of the amounts appropriated for a fiscal year under subsection (a)(1) or \$1,500,000, whichever is greater, may be used by the Secretary for administration and operation of the Council.

33 USC 2909.

SEC. 110. GENERAL PROVISIONS.

(a) AGENCY CONSULTATION AND COORDINATION.—In carrying out this title, the Secretary shall, as necessary, consult with, cooperate with, and coordinate its activities with the activities of other Federal departments and agencies.

(b) COOPERATIVE AGREEMENTS; MEMORANDA OF UNDERSTANDING.—In carrying out this title, the Secretary may—

(1) enter into cooperative agreements with Federal, State, and local government agencies and other entities; and

(2) execute such memoranda of understanding as are necessary to reflect the agreements.

(c) FEDERAL AGENCY FACILITIES AND PERSONNEL.—Federal agencies may cooperate in carrying out scientific and other programs necessary to carry out this title, and may provide facilities and personnel, for the purpose of assisting the Council in carrying out its duties under this title.

(d) IDENTIFICATION AND MAPPING OF DREDGED MATERIAL DISPOSAL SITES.—In consultation with appropriate Federal and non-Federal public entities, the Secretary shall undertake, and update as warranted by changed conditions, surveys to identify and map sites appropriate for beneficial uses of dredged material for the protection, restoration, and creation of aquatic and ecologically related habitats, including wetlands, in order to further the purposes of this title.

(e) STUDY OF BIOREMEDIATION TECHNOLOGY.—

Deadline.

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Administrator of the Environmental Protection Agency, with the participation of the estuarine scientific community, shall begin a 2-year study on the efficacy of bioremediation products.

(2) REQUIREMENTS.—The study shall—

(A) evaluate and assess bioremediation technology—

(i) on low-level petroleum hydrocarbon contamination from recreational boat bilges;

(ii) on low-level petroleum hydrocarbon contamination from stormwater discharges;

(iii) on nonpoint petroleum hydrocarbon discharges; and

(iv) as a first response tool for petroleum hydrocarbon spills; and

(B) recommend management actions to optimize the return of a healthy and balanced ecosystem and make improvements in the quality and character of estuarine waters.

TITLE II—CHESAPEAKE BAY RESTORATION

Chesapeake Bay
Restoration Act
of 2000.
State listing,
33 USC 1251
note.

SEC. 201. SHORT TITLE.

This title may be cited as the “Chesapeake Bay Restoration Act of 2000”.

SEC. 202. FINDINGS AND PURPOSES.

33 USC 1267
note.

(a) FINDINGS.—Congress finds that—

(1) the Chesapeake Bay is a national treasure and a resource of worldwide significance;

(2) over many years, the productivity and water quality of the Chesapeake Bay and its watershed were diminished by pollution, excessive sedimentation, shoreline erosion, the impacts of population growth and development in the Chesapeake Bay watershed, and other factors;

(3) the Federal Government (acting through the Administrator of the Environmental Protection Agency), the Governor of the State of Maryland, the Governor of the Commonwealth of Virginia, the Governor of the Commonwealth of Pennsylvania, the Chairperson of the Chesapeake Bay Commission, and the mayor of the District of Columbia, as Chesapeake Bay Agreement signatories, have committed to a comprehensive cooperative program to achieve improved water quality and improvements in the productivity of living resources of the Bay;

(4) the cooperative program described in paragraph (3) serves as a national and international model for the management of estuaries; and

(5) there is a need to expand Federal support for monitoring, management, and restoration activities in the Chesapeake Bay and the tributaries of the Bay in order to meet and further the original and subsequent goals and commitments of the Chesapeake Bay Program.

(b) PURPOSES.—The purposes of this title are—

(1) to expand and strengthen cooperative efforts to restore and protect the Chesapeake Bay; and

(2) to achieve the goals established in the Chesapeake Bay Agreement.

SEC. 203. CHESAPEAKE BAY.

Section 117 of the Federal Water Pollution Control Act (33 U.S.C. 1267) is amended to read as follows:

“SEC. 117. CHESAPEAKE BAY.

“(a) DEFINITIONS.—In this section, the following definitions apply:

“(1) ADMINISTRATIVE COST.—The term ‘administrative cost’ means the cost of salaries and fringe benefits incurred in administering a grant under this section.

“(2) CHESAPEAKE BAY AGREEMENT.—The term ‘Chesapeake Bay Agreement’ means the formal, voluntary agreements executed to achieve the goal of restoring and protecting the Chesapeake Bay ecosystem and the living resources of the Chesapeake Bay ecosystem and signed by the Chesapeake Executive Council.

"(3) CHESAPEAKE BAY ECOSYSTEM.—The term 'Chesapeake Bay ecosystem' means the ecosystem of the Chesapeake Bay and its watershed.

"(4) CHESAPEAKE BAY PROGRAM.—The term 'Chesapeake Bay Program' means the program directed by the Chesapeake Executive Council in accordance with the Chesapeake Bay Agreement.

"(5) CHESAPEAKE EXECUTIVE COUNCIL.—The term 'Chesapeake Executive Council' means the signatories to the Chesapeake Bay Agreement.

"(6) SIGNATORY JURISDICTION.—The term 'signatory jurisdiction' means a jurisdiction of a signatory to the Chesapeake Bay Agreement.

"(b) CONTINUATION OF CHESAPEAKE BAY PROGRAM.—

"(1) IN GENERAL.—In cooperation with the Chesapeake Executive Council (and as a member of the Council), the Administrator shall continue the Chesapeake Bay Program.

"(2) PROGRAM OFFICE.—

"(A) IN GENERAL.—The Administrator shall maintain in the Environmental Protection Agency a Chesapeake Bay Program Office.

"(B) FUNCTION.—The Chesapeake Bay Program Office shall provide support to the Chesapeake Executive Council by—

"(i) implementing and coordinating science, research, modeling, support services, monitoring, data collection, and other activities that support the Chesapeake Bay Program;

"(ii) developing and making available, through publications, technical assistance, and other appropriate means, information pertaining to the environmental quality and living resources of the Chesapeake Bay ecosystem;

"(iii) in cooperation with appropriate Federal, State, and local authorities, assisting the signatories to the Chesapeake Bay Agreement in developing and implementing specific action plans to carry out the responsibilities of the signatories to the Chesapeake Bay Agreement;

"(iv) coordinating the actions of the Environmental Protection Agency with the actions of the appropriate officials of other Federal agencies and State and local authorities in developing strategies to—

"(I) improve the water quality and living resources in the Chesapeake Bay ecosystem; and

"(II) obtain the support of the appropriate officials of the agencies and authorities in achieving the objectives of the Chesapeake Bay Agreement; and

"(v) implementing outreach programs for public information, education, and participation to foster stewardship of the resources of the Chesapeake Bay.

"(c) INTERAGENCY AGREEMENTS.—The Administrator may enter into an interagency agreement with a Federal agency to carry out this section.

"(d) TECHNICAL ASSISTANCE AND ASSISTANCE GRANTS.—

Government
organization.

"(1) IN GENERAL.—In cooperation with the Chesapeake Executive Council, the Administrator may provide technical assistance, and assistance grants, to nonprofit organizations, State and local governments, colleges, universities, and interstate agencies to carry out this section, subject to such terms and conditions as the Administrator considers appropriate.

"(2) FEDERAL SHARE.—

"(A) IN GENERAL.—Except as provided in subparagraph (B), the Federal share of an assistance grant provided under paragraph (1) shall be determined by the Administrator in accordance with guidance issued by the Administrator.

"(B) SMALL WATERSHED GRANTS PROGRAM.—The Federal share of an assistance grant provided under paragraph (1) to carry out an implementing activity under subsection (g)(2) shall not exceed 75 percent of eligible project costs, as determined by the Administrator.

"(3) NON-FEDERAL SHARE.—An assistance grant under paragraph (1) shall be provided on the condition that non-Federal sources provide the remainder of eligible project costs, as determined by the Administrator.

"(4) ADMINISTRATIVE COSTS.—Administrative costs shall not exceed 10 percent of the annual grant award.

"(e) IMPLEMENTATION AND MONITORING GRANTS.—

"(1) IN GENERAL.—If a signatory jurisdiction has approved and committed to implement all or substantially all aspects of the Chesapeake Bay Agreement, on the request of the chief executive of the jurisdiction, the Administrator—

"(A) shall make a grant to the jurisdiction for the purpose of implementing the management mechanisms established under the Chesapeake Bay Agreement, subject to such terms and conditions as the Administrator considers appropriate; and

"(B) may make a grant to a signatory jurisdiction for the purpose of monitoring the Chesapeake Bay ecosystem.

"(2) PROPOSALS.—

"(A) IN GENERAL.—A signatory jurisdiction described in paragraph (1) may apply for a grant under this subsection for a fiscal year by submitting to the Administrator a comprehensive proposal to implement management mechanisms established under the Chesapeake Bay Agreement.

"(B) CONTENTS.—A proposal under subparagraph (A) shall include—

"(i) a description of proposed management mechanisms that the jurisdiction commits to take within a specified time period, such as reducing or preventing pollution in the Chesapeake Bay and its watershed or meeting applicable water quality standards or established goals and objectives under the Chesapeake Bay Agreement; and

"(ii) the estimated cost of the actions proposed to be taken during the fiscal year.

"(3) APPROVAL.—If the Administrator finds that the proposal is consistent with the Chesapeake Bay Agreement and the national goals established under section 101(a), the Administrator may approve the proposal for an award.

Deadline.
Public
information.

"(4) FEDERAL SHARE.—The Federal share of a grant under this subsection shall not exceed 50 percent of the cost of implementing the management mechanisms during the fiscal year.

"(5) NON-FEDERAL SHARE.—A grant under this subsection shall be made on the condition that non-Federal sources provide the remainder of the costs of implementing the management mechanisms during the fiscal year.

"(6) ADMINISTRATIVE COSTS.—Administrative costs shall not exceed 10 percent of the annual grant award.

"(7) REPORTING.—On or before October 1 of each fiscal year, the Administrator shall make available to the public a document that lists and describes, in the greatest practicable degree of detail—

"(A) all projects and activities funded for the fiscal year;

"(B) the goals and objectives of projects funded for the previous fiscal year; and

"(C) the net benefits of projects funded for previous fiscal years.

"(f) FEDERAL FACILITIES AND BUDGET COORDINATION.—

"(1) SUBWATERSHED PLANNING AND RESTORATION.—A Federal agency that owns or operates a facility (as defined by the Administrator) within the Chesapeake Bay watershed shall participate in regional and subwatershed planning and restoration programs.

"(2) COMPLIANCE WITH AGREEMENT.—The head of each Federal agency that owns or occupies real property in the Chesapeake Bay watershed shall ensure that the property, and actions taken by the agency with respect to the property, comply with the Chesapeake Bay Agreement, the Federal Agencies Chesapeake Ecosystem Unified Plan, and any subsequent agreements and plans.

"(3) BUDGET COORDINATION.—

"(A) IN GENERAL.—As part of the annual budget submission of each Federal agency with projects or grants related to restoration, planning, monitoring, or scientific investigation of the Chesapeake Bay ecosystem, the head of the agency shall submit to the President a report that describes plans for the expenditure of the funds under this section.

"(B) DISCLOSURE TO THE COUNCIL.—The head of each agency referred to in subparagraph (A) shall disclose the report under that subparagraph with the Chesapeake Executive Council as appropriate.

"(g) CHESAPEAKE BAY PROGRAM.—

"(1) MANAGEMENT STRATEGIES.—The Administrator, in coordination with other members of the Chesapeake Executive Council, shall ensure that management plans are developed and implementation is begun by signatories to the Chesapeake Bay Agreement to achieve and maintain—

"(A) the nutrient goals of the Chesapeake Bay Agreement for the quantity of nitrogen and phosphorus entering the Chesapeake Bay and its watershed;

"(B) the water quality requirements necessary to restore living resources in the Chesapeake Bay ecosystem;

"(C) the Chesapeake Bay Basinwide Toxins Reduction and Prevention Strategy goal of reducing or eliminating

the input of chemical contaminants from all controllable sources to levels that result in no toxic or bioaccumulative impact on the living resources of the Chesapeake Bay ecosystem or on human health;

"(D) habitat restoration, protection, creation, and enhancement goals established by Chesapeake Bay Agreement signatories for wetlands, riparian forests, and other types of habitat associated with the Chesapeake Bay ecosystem; and

"(E) the restoration, protection, creation, and enhancement goals established by the Chesapeake Bay Agreement signatories for living resources associated with the Chesapeake Bay ecosystem.

"(2) SMALL WATERSHED GRANTS PROGRAM.—The Administrator, in cooperation with the Chesapeake Executive Council, shall—

"(A) establish a small watershed grants program as part of the Chesapeake Bay Program; and

"(B) offer technical assistance and assistance grants under subsection (d) to local governments and nonprofit organizations and individuals in the Chesapeake Bay region to implement—

"(i) cooperative tributary basin strategies that address the water quality and living resource needs in the Chesapeake Bay ecosystem; and

"(ii) locally based protection and restoration programs or projects within a watershed that complement the tributary basin strategies, including the creation, restoration, protection, or enhancement of habitat associated with the Chesapeake Bay ecosystem.

"(h) STUDY OF CHESAPEAKE BAY PROGRAM.—

"(1) IN GENERAL.—Not later than April 22, 2003, and every 5 years thereafter, the Administrator, in coordination with the Chesapeake Executive Council, shall complete a study and submit to Congress a comprehensive report on the results of the study.

Deadline.

"(2) REQUIREMENTS.—The study and report shall—

"(A) assess the state of the Chesapeake Bay ecosystem;

"(B) compare the current state of the Chesapeake Bay ecosystem with its state in 1975, 1985, and 1995;

"(C) assess the effectiveness of management strategies being implemented on the date of enactment of this section and the extent to which the priority needs are being met;

"(D) make recommendations for the improved management of the Chesapeake Bay Program either by strengthening strategies being implemented on the date of enactment of this section or by adopting new strategies; and

"(E) be presented in such a format as to be readily transferable to and usable by other watershed restoration programs.

"(i) SPECIAL STUDY OF LIVING RESOURCE RESPONSE.—

"(1) IN GENERAL.—Not later than 180 days after the date of enactment of this section, the Administrator shall commence a 5-year special study with full participation of the scientific community of the Chesapeake Bay to establish and expand understanding of the response of the living resources of the Chesapeake Bay ecosystem to improvements in water quality

Deadline.

that have resulted from investments made through the Chesapeake Bay Program.

"(2) REQUIREMENTS.—The study shall—

"(A) determine the current status and trends of living resources, including grasses, benthos, phytoplankton, zooplankton, fish, and shellfish;

"(B) establish to the extent practicable the rates of recovery of the living resources in response to improved water quality condition;

"(C) evaluate and assess interactions of species, with particular attention to the impact of changes within and among trophic levels; and

"(D) recommend management actions to optimize the return of a healthy and balanced ecosystem in response to improvements in the quality and character of the waters of the Chesapeake Bay.

"(j) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section \$40,000,000 for each of fiscal years 2001 through 2005. Such sums shall remain available until expended."

TITLE III—NATIONAL ESTUARY PROGRAM.

SEC. 301. ADDITION TO NATIONAL ESTUARY PROGRAM.

Section 320(a)(2)(B) of the Federal Water Pollution Control Act (33 U.S.C. 1330(a)(2)(B)) is amended by inserting "Lake Pontchartrain Basin, Louisiana and Mississippi;" before "and Peconic Bay, New York."

SEC. 302. GRANTS.

Section 320(g) of the Federal Water Pollution Control Act (33 U.S.C. 1330(g)) is amended by striking paragraphs (2) and (3) and inserting the following:

"(2) PURPOSES.—Grants under this subsection shall be made to pay for activities necessary for the development and implementation of a comprehensive conservation and management plan under this section.

"(3) FEDERAL SHARE.—The Federal share of a grant to any person (including a State, interstate, or regional agency or entity) under this subsection for a fiscal year—

"(A) shall not exceed—

"(i) 75 percent of the annual aggregate costs of the development of a comprehensive conservation and management plan; and

"(ii) 50 percent of the annual aggregate costs of the implementation of the plan; and

"(B) shall be made on condition that the non-Federal share of the costs are provided from non-Federal sources."

SEC. 303. AUTHORIZATION OF APPROPRIATIONS.

Section 320(i) of the Federal Water Pollution Control Act (33 U.S.C. 1330(i)) is amended by striking "\$12,000,000 per fiscal year for each of fiscal years 1987, 1988, 1989, 1990, and 1991" and inserting "\$35,000,000 for each of fiscal years 2001 through 2005".

TITLE IV—LONG ISLAND SOUND RESTORATION

Long Island
Sound
Restoration Act.
33 USC 1251
note.

SEC. 401. SHORT TITLE.

This title may be cited as the “Long Island Sound Restoration Act”.

SEC. 402. INNOVATIVE METHODOLOGIES AND TECHNOLOGIES.

Section 119(c)(1) of the Federal Water Pollution Control Act (33 U.S.C. 1269(c)(1)) is amended by inserting “, including efforts to establish, within the process for granting watershed general permits, a system for promoting innovative methodologies and technologies that are cost-effective and consistent with the goals of the Plan” before the semicolon at the end.

SEC. 403. ASSISTANCE FOR DISTRESSED COMMUNITIES.

Section 119 of the Federal Water Pollution Control Act (33 U.S.C. 1269) is amended—

- (1) by redesignating subsection (e) as subsection (f); and
- (2) by inserting after subsection (d) the following:

“(e) ASSISTANCE TO DISTRESSED COMMUNITIES.—

“(1) ELIGIBLE COMMUNITIES.—For the purposes of this subsection, a distressed community is any community that meets affordability criteria established by the State in which the community is located, if such criteria are developed after public review and comment.

“(2) PRIORITY.—In making assistance available under this section for the upgrading of wastewater treatment facilities, the Administrator may give priority to a distressed community.”.

SEC. 404. AUTHORIZATION OF APPROPRIATIONS.

Section 119(f) of the Federal Water Pollution Control Act (as redesignated by section 403 of this Act) is amended—

- (1) in paragraph (1) by striking “1991 through 2001” and inserting “2001 through 2005”; and
- (2) in paragraph (2) by striking “not to exceed \$3,000,000 for each of the fiscal years 1991 through 2001” and inserting “not to exceed \$40,000,000 for each of fiscal years 2001 through 2005”.

TITLE V—LAKE PONTCHARTRAIN BASIN RESTORATION

Lake
Pontchartrain
Basin
Restoration Act
of 2000.

SEC. 501. SHORT TITLE.

This title may be cited as the “Lake Pontchartrain Basin Restoration Act of 2000”.

SEC. 502. LAKE PONTCHARTRAIN BASIN.

Title I of the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) is amended by adding at the end the following:

33 USC 1273.

“SEC. 121. LAKE PONTCHARTRAIN BASIN.

“(a) ESTABLISHMENT OF RESTORATION PROGRAM.—The Administrator shall establish within the Environmental Protection Agency the Lake Pontchartrain Basin Restoration Program.

“(b) PURPOSE.—The purpose of the program shall be to restore the ecological health of the Basin by developing and funding restoration projects and related scientific and public education projects.

“(c) DUTIES.—In carrying out the program, the Administrator shall—

“(1) provide administrative and technical assistance to a management conference convened for the Basin under section 320;

“(2) assist and support the activities of the management conference, including the implementation of recommendations of the management conference;

“(3) support environmental monitoring of the Basin and research to provide necessary technical and scientific information;

“(4) develop a comprehensive research plan to address the technical needs of the program;

“(5) coordinate the grant, research, and planning programs authorized under this section; and

“(6) collect and make available to the public publications, and other forms of information the management conference determines to be appropriate, relating to the environmental quality of the Basin.

“(d) GRANTS.—The Administrator may make grants—

“(1) for restoration projects and studies recommended by a management conference convened for the Basin under section 320; and

“(2) for public education projects recommended by the management conference.

“(e) DEFINITIONS.—In this section, the following definitions apply:

“(1) BASIN.—The term ‘Basin’ means the Lake Pontchartrain Basin, a 5,000 square mile watershed encompassing 16 parishes in the State of Louisiana and 4 counties in the State of Mississippi.

“(2) PROGRAM.—The term ‘program’ means the Lake Pontchartrain Basin Restoration Program established under subsection (a).

“(f) AUTHORIZATION OF APPROPRIATIONS.—

“(1) IN GENERAL.—There is authorized to be appropriated to carry out this section \$20,000,000 for each of fiscal years 2001 through 2005. Such sums shall remain available until expended.

“(2) PUBLIC EDUCATION PROJECTS.—Not more than 15 percent of the amount appropriated pursuant to paragraph (1) in a fiscal year may be expended on grants for public education projects under subsection (d)(2).”

Public
information.

TITLE VI—ALTERNATIVE WATER SOURCES

Alternative
Water Sources
Act of 2000.
33 USC 1251
note.

SEC. 601. SHORT TITLE.

This title may be cited as the “Alternative Water Sources Act of 2000”.

SEC. 602. PILOT PROGRAM FOR ALTERNATIVE WATER SOURCE PROJECTS.

Title II of the Federal Water Pollution Control Act (33 U.S.C. 1281 et seq.) is amended by adding at the end the following:

“SEC. 220. PILOT PROGRAM FOR ALTERNATIVE WATER SOURCE PROJECTS.

33 USC 1300.

“(a) POLICY.—Nothing in this section shall be construed to affect the application of section 101(g) of this Act and all of the provisions of this section shall be carried out in accordance with the provisions of section 101(g).

“(b) IN GENERAL.—The Administrator may establish a pilot program to make grants to State, interstate, and intrastate water resource development agencies (including water management districts and water supply authorities), local government agencies, private utilities, and nonprofit entities for alternative water source projects to meet critical water supply needs.

“(c) ELIGIBLE ENTITY.—The Administrator may make grants under this section to an entity only if the entity has authority under State law to develop or provide water for municipal, industrial, and agricultural uses in an area of the State that is experiencing critical water supply needs.

“(d) SELECTION OF PROJECTS.—

“(1) LIMITATION.—A project that has received funds under the reclamation and reuse program conducted under the Reclamation Projects Authorization and Adjustment Act of 1992 (43 U.S.C. 390h et seq.) shall not be eligible for grant assistance under this section.

“(2) ADDITIONAL CONSIDERATION.—In making grants under this section, the Administrator shall consider whether the project is located within the boundaries of a State or area referred to in section 1 of the Reclamation Act of June 17, 1902 (32 Stat. 385), and within the geographic scope of the reclamation and reuse program conducted under the Reclamation Projects Authorization and Adjustment Act of 1992 (43 U.S.C. 390h et seq.).

“(3) GEOGRAPHICAL DISTRIBUTION.—Alternative water source projects selected by the Administrator under this section shall reflect a variety of geographical and environmental conditions.

“(e) COMMITTEE RESOLUTION PROCEDURE.—

“(1) IN GENERAL.—No appropriation shall be made for any alternative water source project under this section, the total Federal cost of which exceeds \$3,000,000, if such project has not been approved by a resolution adopted by the Committee on Transportation and Infrastructure of the House of Representatives or the Committee on Environment and Public Works of the Senate.

"(2) REQUIREMENTS FOR SECURING CONSIDERATION.—For purposes of securing consideration of approval under paragraph (1), the Administrator shall provide to a committee referred to in paragraph (1) such information as the committee requests and the non-Federal sponsor shall provide to the committee information on the costs and relative needs for the alternative water source project.

"(f) USES OF GRANTS.—Amounts from grants received under this section may be used for engineering, design, construction, and final testing of alternative water source projects designed to meet critical water supply needs. Such amounts may not be used for planning, feasibility studies or for operation, maintenance, replacement, repair, or rehabilitation.

"(g) COST SHARING.—The Federal share of the eligible costs of an alternative water source project carried out using assistance made available under this section shall not exceed 50 percent.

Deadline.

"(h) REPORTS.—On or before September 30, 2004, the Administrator shall transmit to Congress a report on the results of the pilot program established under this section, including progress made toward meeting the critical water supply needs of the participants in the pilot program.

"(i) DEFINITIONS.—In this section, the following definitions apply:

"(1) ALTERNATIVE WATER SOURCE PROJECT.—The term 'alternative water source project' means a project designed to provide municipal, industrial, and agricultural water supplies in an environmentally sustainable manner by conserving, managing, reclaiming, or reusing water or wastewater or by treating wastewater. Such term does not include water treatment or distribution facilities.

"(2) CRITICAL WATER SUPPLY NEEDS.—The term 'critical water supply needs' means existing or reasonably anticipated future water supply needs that cannot be met by existing water supplies, as identified in a comprehensive statewide or regional water supply plan or assessment projected over a planning period of at least 20 years.

"(j) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section a total of \$75,000,000 for fiscal years 2002 through 2004. Such sums shall remain available until expended."

TITLE VII—CLEAN LAKES

SEC. 701. GRANTS TO STATES.

Section 314(c)(2) of the Federal Water Pollution Control Act (33 U.S.C. 1324(c)(2)) is amended by striking "\$50,000,000" the first place it appears and all that follows through "1990" and inserting "\$50,000,000 for each of fiscal years 2001 through 2005".

SEC. 702. DEMONSTRATION PROGRAM.

Section 314(d) of the Federal Water Pollution Control Act (33 U.S.C. 1324(d)) is amended—

(1) in paragraph (2) by inserting "Otsego Lake, New York; Oneida Lake, New York; Raystown Lake, Pennsylvania; Swan Lake, Itasca County, Minnesota; Walker Lake, Nevada; Lake Tahoe, California and Nevada; Ten Mile Lakes, Oregon;

Woahink Lake, Oregon; Highland Lake, Connecticut; Lily Lake, New Jersey; Strawbridge Lake, New Jersey; Baboosic Lake, New Hampshire; French Pond, New Hampshire; Dillon Reservoir, Ohio; Tohopekaliga Lake, Florida; Lake Apopka, Florida; Lake George, New York; Lake Wallenpaupack, Pennsylvania; Lake Allatoona, Georgia;" after "Sauk Lake, Minnesota;"

(2) in paragraph (3) by striking "By" and inserting "Notwithstanding section 3003 of the Federal Reports Elimination and Sunset Act of 1995 (31 U.S.C. 1113 note; 109 Stat. 734-736), by"; and

(3) in paragraph (4)(B)(i) by striking "\$15,000,000" and inserting "\$25,000,000".

TITLE VIII—TIJUANA RIVER VALLEY ESTUARY AND BEACH CLEANUP

SEC. 801. SHORT TITLE.

This title may be cited as the "Tijuana River Valley Estuary and Beach Sewage Cleanup Act of 2000".

SEC. 802. PURPOSE.

The purpose of this title is to authorize the United States to take actions to address comprehensively the treatment of sewage emanating from the Tijuana River area, Mexico, that flows untreated or partially treated into the United States causing significant adverse public health and environmental impacts.

SEC. 803. DEFINITIONS.

In this title, the following definitions apply:

(1) ADMINISTRATOR.—The term "Administrator" means the Administrator of the Environmental Protection Agency.

(2) COMMISSION.—The term "Commission" means the United States section of the International Boundary and Water Commission, United States and Mexico.

(3) IWTP.—The term "IWTP" means the South Bay International Wastewater Treatment Plant constructed under the provisions of the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), section 510 of the Water Quality Act of 1987 (101 Stat. 80-82), and Treaty Minutes to the Treaty for the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, dated February 3, 1944.

(4) SECONDARY TREATMENT.—The term "secondary treatment" has the meaning such term has under the Federal Water Pollution Control Act and its implementing regulations.

(5) SECRETARY.—The term "Secretary" means the Secretary of State.

(6) MEXICAN FACILITY.—The term "Mexican facility" means a proposed public-private wastewater treatment facility to be constructed and operated under this title within Mexico for the purpose of treating sewage flows generated within Mexico, which flows impact the surface waters, health, and safety of the United States and Mexico.

(7) MGD.—The term "mgd" means million gallons per day.

Tijuana River
Valley Estuary
and Beach
Sewage Cleanup
Act of 2000.
Mexico.
22 USC 277d-43
note.
22 USC 277d-43
note.

22 USC 277d-43.

22 USC 277d-44. SEC. 804. ACTIONS TO BE TAKEN BY THE COMMISSION AND THE ADMINISTRATOR.

(a) SECONDARY TREATMENT.—

(1) IN GENERAL.—Subject to the negotiation and conclusion of a new Treaty Minute or the amendment of Treaty Minute 283 under section 1005 of this Act, and notwithstanding section 510(b)(2) of the Water Quality Act of 1987 (101 Stat. 81), the Commission is authorized and directed to provide for the secondary treatment of a total of not more than 50 mgd in Mexico—

- (A) of effluent from the IWTP if such treatment is not provided for at a facility in the United States; and
- (B) of additional sewage emanating from the Tijuana River area, Mexico.

(2) ADDITIONAL AUTHORITY.—Subject to the results of the comprehensive plan developed under subsection (b) revealing a need for additional secondary treatment capacity in the San Diego-Tijuana border region and recommending the provision of such capacity in Mexico, the Commission may provide not more than an additional 25 mgd of secondary treatment capacity in Mexico for treatment described in paragraph (1).

Deadline.

(b) COMPREHENSIVE PLAN.—Not later than 24 months after the date of enactment of this Act, the Administrator shall develop a comprehensive plan with stakeholder involvement to address the transborder sanitation problems in the San Diego-Tijuana border region. The plan shall include, at a minimum—

- (1) an analysis of the long-term secondary treatment needs of the region;
- (2) an analysis of upgrades in the sewage collection system serving the Tijuana area, Mexico; and
- (3) an identification of options, and recommendations for preferred options, for additional sewage treatment capacity for future flows emanating from the Tijuana River area, Mexico.

(c) CONTRACT.—

(1) IN GENERAL.—Subject to the availability of appropriations to carry out this subsection and notwithstanding any provision of Federal procurement law, upon conclusion of a new Treaty Minute or the amendment of Treaty Minute 283 under section 5, the Commission may enter into a fee-for-services contract with the owner of a Mexican facility in order to carry out the secondary treatment requirements of subsection (a) and make payments under such contract.

(2) TERMS.—Any contract under this subsection shall provide, at a minimum, for the following:

(A) Transportation of the advanced primary effluent from the IWTP to the Mexican facility for secondary treatment.

(B) Treatment of the advanced primary effluent from the IWTP to the secondary treatment level in compliance with water quality laws of the United States, California, and Mexico.

(C) Return conveyance from the Mexican facility of any such treated effluent that cannot be reused in either Mexico or the United States to the South Bay Ocean Outfall for discharge into the Pacific Ocean in compliance with water quality laws of the United States and California.

(D) Subject to the requirements of subsection (a), additional sewage treatment capacity that provides for advanced primary and secondary treatment of sewage described in subsection (a)(1)(B) in addition to the capacity required to treat the advanced primary effluent from the IWTP.

(E) A contract term of 20 years.

(F) Arrangements for monitoring, verification, and enforcement of compliance with United States, California, and Mexican water quality standards.

(G) Arrangements for the disposal and use of sludge, produced from the IWTP and the Mexican facility, at a location or locations in Mexico.

(H) Maintenance by the owner of the Mexican facility at all times throughout the term of the contract of a 20 percent equity position in the capital structure of the Mexican facility.

(I) Payment of fees by the Commission to the owner of the Mexican facility for sewage treatment services with the annual amount payable to reflect all agreed upon costs associated with the development, financing, construction, operation, and maintenance of the Mexican facility, with such annual payment to maintain the owner's 20 percent equity position throughout the term of the contract.

(J) Provision for the transfer of ownership of the Mexican facility to the United States, and provision for a cancellation fee by the United States to the owner of the Mexican facility, if the Commission fails to perform its obligations under the contract. The cancellation fee shall be in amounts declining over the term of the contract anticipated to be sufficient to repay construction debt and other amounts due to the owner that remain unamortized due to early termination of the contract.

(K) Provision for the transfer of ownership of the Mexican facility to the United States, without a cancellation fee, if the owner of the Mexican facility fails to perform the obligations of the owner under the contract.

(L) The use of competitive procedures, consistent with title III of the Federal Property and Administrative Services Act of 1949 (41 U.S.C. 251 et seq.), by the owner of the Mexican facility in the procurement of property or services for the engineering, construction, and operation and maintenance of the Mexican facility.

(M) An opportunity for the Commission to review and approve the selection of contractors providing engineering, construction, and operation and maintenance for the Mexican facility.

(N) The maintenance by the owner of the Mexican facility of all records (including books, documents, papers, reports, and other materials) necessary to demonstrate compliance with the terms of this section and the contract.

Records.

(O) Access by the Inspector General of the Department of State or the designee of the Inspector General for audit and examination of all records maintained pursuant to subparagraph (N) to facilitate the monitoring and evaluation required under subsection (d).

Records.

(P) Offsets or credits against the payments to be made by the Commission under this section to reflect an agreed upon percentage of payments that the owner of the Mexican facility receives through the sale of water treated by the facility.

(d) IMPLEMENTATION.—

(1) IN GENERAL.—The Inspector General of the Department of State shall monitor the implementation of any contract entered into under this section and evaluate the extent to which the owner of the Mexican facility has met the terms of this section and fulfilled the terms of the contract.

Deadline.

(2) REPORT.—The Inspector General shall transmit to Congress a report containing the evaluation under paragraph (1) not later than 2 years after the execution of any contract with the owner of the Mexican facility under this section, 3 years thereafter, and periodically after the second report under this paragraph.

22 USC 277d-45. SEC. 805. NEGOTIATION OF NEW TREATY MINUTE.

(a) CONGRESSIONAL STATEMENT.—In light of the existing threat to the environment and to public health and safety within the United States as a result of the river and ocean pollution in the San Diego-Tijuana border region, the Secretary is requested to give the highest priority to the negotiation and execution of a new Treaty Minute, or a modification of Treaty Minute 283, consistent with the provisions of this title, in order that the other provisions of this title to address such pollution may be implemented as soon as possible.

(b) NEGOTIATION.—

(1) INITIATION.—The Secretary is requested to initiate negotiations with Mexico, within 60 days after the date of enactment of this Act, for a new Treaty Minute or a modification of Treaty Minute 283 consistent with the provisions of this title.

(2) IMPLEMENTATION.—Implementation of a new Treaty Minute or of a modification of Treaty Minute 283 under this title shall be subject to the provisions of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(3) MATTERS TO BE ADDRESSED.—A new Treaty Minute or a modification of Treaty Minute 283 under paragraph (1) should address, at a minimum, the following:

(A) The siting of treatment facilities in Mexico and in the United States.

(B) Provision for the secondary treatment of effluent from the IWTP at a Mexican facility if such treatment is not provided for at a facility in the United States.

(C) Provision for additional capacity for advanced primary and secondary treatment of additional sewage emanating from the Tijuana River area, Mexico, in addition to the treatment capacity for the advanced primary effluent from the IWTP at the Mexican facility.

(D) Provision for any and all approvals from Mexican authorities necessary to facilitate water quality verification and enforcement at the Mexican facility.

(E) Any terms and conditions considered necessary to allow for use in the United States of treated effluent from the Mexican facility, if there is reclaimed water which is surplus to the needs of users in Mexico and such use

is consistent with applicable United States and California law.

(F) Any other terms and conditions considered necessary by the Secretary in order to implement the provisions of this title.

SEC. 806. AUTHORIZATION OF APPROPRIATIONS.

22 USC 277d-46.

There is authorized to be appropriated a total of \$156,000,000 for fiscal years 2001 through 2005 to carry out this title. Such sums shall remain available until expended.

TITLE IX—GENERAL PROVISIONS

SEC. 901. PURCHASE OF AMERICAN-MADE EQUIPMENT AND PRODUCTS.

33 USC 2901 note.

(a) **IN GENERAL.**—It is the sense of Congress that, to the extent practicable, all equipment and products purchased with funds made available under this Act should be American made.

(b) **NOTICE TO RECIPIENTS OF ASSISTANCE.**—The head of each Federal Agency providing financial assistance under this Act, to the extent practicable, shall provide to each recipient of the assistance a notice describing the statement made in subsection (a).

SEC. 902. LONG-TERM ESTUARY ASSESSMENT.

Mississippi.
33 USC 2901
note.

(a) **IN GENERAL.**—The Secretary of Commerce (acting through the Under Secretary for Oceans and Atmosphere) and the Secretary of the Interior (acting through the Director of the Geological Survey) may carry out a long-term estuary assessment project (in this section referred to as the "project") in accordance with the requirements of this section.

(b) **PURPOSE.**—The purpose of the project shall be to establish a network of strategic environmental assessment and monitoring projects for the Mississippi River south of Vicksburg, Mississippi, and the Gulf of Mexico, in order to develop advanced long-term assessment and monitoring systems and models relating to the Mississippi River and other aquatic ecosystems, including developing equipment and techniques necessary to implement the project.

(c) **MANAGEMENT AGREEMENT.**—To establish, operate, and implement the project, the Secretary of Commerce and the Secretary of the Interior may enter into a management agreement with a university-based consortium.

(d) **AUTHORIZATION OF APPROPRIATIONS.**—There is authorized to be appropriated—

(1) \$1,000,000 for fiscal year 2001 to develop the management agreement under subsection (c); and

(2) \$4,000,000 for each of fiscal years 2002, 2003, 2004, and 2005 to carry out the project.

Such sums shall remain available until expended.

SEC. 903. RURAL SANITATION GRANTS.

Section 303(e) of the Safe Drinking Water Act Amendments of 1996 (33 U.S.C. 1263a(e)) is amended by striking "\$15,000,000" and all that follows through "section." and inserting the following: "to carry out this section \$40,000,000 for each of fiscal years 2001 through 2005."

Approved November 7, 2000.

LEGISLATIVE HISTORY—S. 835 (H.R. 1775) (H.R. 3039):

HOUSE REPORTS: Nos. 106-550 accompanying H.R. 3039 (Comm. on Transportation and Infrastructure), 106-561, Pt. 1 (Comm. Transportation and Infrastructure) and Pt. 2 (Comm. on Resources) both accompanying H.R. 1775, and 106-995 (Comm. of Conference).

SENATE REPORTS: No. 106-189 (Comm. on Environment and Public Works).

CONGRESSIONAL RECORD Vol. 146 (2000):

Mar. 30, considered and passed Senate.

Sept. 12, considered and passed House, amended.

Oct. 23, Senate agreed to conference report.

Oct. 25, House agreed to conference report.



APPENDIX D

SHORE AND OCEAN DISCHARGE MODELING REPORT

APPENDIX D – SHORE AND OCEAN DISCHARGE MODELING REPORT

An ocean contaminant transport modeling study for coastal discharge was prepared in support of the Supplemental Environmental Impact Statement (SEIS) for Clean Water Act Compliance of effluent from the South Bay International Wastewater Treatment Plant (SBIWTP) in San Diego, California. The ocean contaminant transport modeling study was conducted to support evaluation of the alternatives in the Draft SEIS. This study evaluated potential impacts of bacterial concentrations that would occur as a result of different wastewater effluent flows from alternative treatment scenarios. This appendix is a synopsis of the Shore and Ocean Discharge Modeling Report for Clean Water Act Compliance at the SBIWTP (October 2004), which is available upon request from the United States Section of the International boundary and Water Commission (USIBWC).

This study identified the time-dependent distributions of bacterial concentration along the coast of California north and south of a shore-based discharge of wastewater at Punta Bandera, Baja California. These distributions were evaluated out to determine whether the California Ocean Plan requirements would be met for the waters extending north of the United States/Mexico border. The impacts on the initial dilution achieved by the SBOO discharge for varying flows and levels of treatment also will be modeled.

The California Ocean Plan is the state's water quality control plan for ocean waters. Among the Plan's high priority issues is an increased stringency of the water contact fecal coliform standard. The current standard requires:

“Sample of water from each sampling station shall have a density of total coliform organism less than 1,000 per 100 milliliters (mL) (or 10 per mL); provided that not more than 20 percent of the samples at any sampling station, in any 30 day period, may exceed 1,000 per 100 mL (10 per mL), and provided further that not a single sample, when verified by a repeat sample taken within 48 hours, shall exceed 10,000 per 100 mL (100 per mL).”

D.1 BACKGROUND

Sewage contamination problems in the Tijuana River Valley area have been chronic since the 1930s due to rapid growth and inadequate sewerage infrastructure in Mexico. The physiographic setting of Tijuana at the United States border results in the flow of sewage from Tijuana that is not captured or treated. This sewage flows into the United States via the Tijuana River as well as canyons and gullies draining to the north. The SBIWTP, constructed in 1997, provides advanced primary treatment of sewage originating from Tijuana and then discharges treated effluent through the South Bay Ocean Outfall (SBOO).

Sewage flows have caused quarantines of beaches along the south San Diego coast and have adversely impacted the Tijuana River estuary, a National Estuarine Research Reserve.

D.2 TREATMENT ALTERNATIVES

The USIBWC is evaluating options for providing secondary treatment at the SBIWTP or through another private or public entity. Other options include redirecting some or all of the SBIWTP effluent from California's waters, or the use of other means of treatment, or the institution of a combination of these options. The alternatives developed will enable wastewater flows to be treated in compliance with the Clean Water Act. Alternatives formulation was the result of a public consultation process that included regulatory agencies. This study evaluates the water quality, in terms of projecting potential bacterial concentrations, associated with the seven alternative treatment options for Clean Water Act compliance.

D.3 STUDY METHODOLOGY

The Shore Discharge Model (SDM) was used to evaluate the transport of ocean contaminants. This model was developed in an earlier study to examine pollutant distributions (bacteria and conservative material) discharged from Punta Bandera. This study differs from the previous study in that a single discharge having different volume and pollutant concentrations was modeled. The SDM model is described in detail in *Wastewater Discharge Modeling and Analysis of Alternative Interim Disposal Options* prepared by Parsons in 1996.

An area extending from south of Punta Bandera to north of Point Loma and from the coast to offshore is divided into three regions of rectangular cells. The inner region lies adjacent to the coast (wave-dominated processes of dispersion), an outer region lies offshore (dominated by oceanic processes), and a transition region lies between these two. The model contains about 13,000 cells and extends 25 km upcoast of Punta Bandera, 5 km downcoast, and about 4.1 km offshore from the coast.

Wastewater is discharged into the inner grid cell near the coast at Punta Bandera. The discharge rate and concentrations can vary throughout the day. As wastewater is discharged into the ocean, it is transported by the currents and mixed with adjacent ocean water. The mixing results from turbulent eddies in both the nearshore and offshore grids, and also via the action of rip-current cells in the inner grid. Currents in the nearshore zone are driven by the height, period, and direction of approach of the waves, and currents in the offshore zone are driven by the coastal currents. Five years of time-series of wave characteristics generated from the statistical properties of waves measured by an offshore wave recording buoy are used to drive the nearshore transport, and current measurements previously collected off South Bay are used for the time-series of ocean currents in the simulations.

The model computes the temporal evolution of the concentration of a constituent of interest (e.g., bacterial concentrations) in each simulation cell. These concentrations are determined by the discharge rate, the concentration in the effluent, the nearshore and offshore currents, and the strengths of the eddy and rip-current mixing.

D.4 DISCHARGE AT PUNTA BANDERA

Sewered wastewaters from the City of Tijuana, Baja California (B.C.), Mexico, and the developed coastal areas south and west of the city are treated at the SBIWTP in

the United States or are bypassed for treatment at the San Antonio de los Buenos Wastewater Treatment Plant (SABWWTP) in Mexico.

The SABWWTP is about 6 km south of the United States-Mexico border. Recently upgraded with high-rate aerated lagoons, the plant can treat about 25 mgd of influent. Flows greater than 25 mgd can bypass the plant and can be discharged, along with the treated plant effluent, into the at San Antonio de los Buenos creek and then across the beach at Punta Bandera, about 9 km south of the border. Effluent from this discharge could be transported upcoast (north) by the nearshore and coastal currents and into United States waters.

The nine effluent discharge scenarios examined in this study (seven alternatives and three flow horizons) alter the quantity and quality of the wastewaters discharged at Punta Bandera, and hence, the potential for contamination north of the border. The effects of the Punta Bandera discharge, and changes in these effects associated with changes in the discharge scenarios, were examined using the computer numerical simulation model known as the SDM.

Alternatives were evaluated for total coliform only. The current study is intended to update a similar 1996 study and applies the same methodology. Total coliform is still preferred as an indicator (while other more meaningful indicators are being evaluated) because of the relative simplicity and low cost of the analysis and the long track record of the monitored sites. In addition, in spite of its perceived limitations, this indicator shows a remarkable correlation with bacterial contamination. This indicator was used in both the 1996 and the present study, not for the reasons listed above, but because in the 1996 study, a preliminary evaluation showed this indicator to be the most stringent parameter of compliance.

This study does not assess compliance based on the monitoring data; rather, it compares the proposed alternatives on the likelihood of compliance for several potential treatment and discharge scenarios.

D.5 OCEAN DISCHARGE

Discharge of treated effluent through the SBOO was also studied. Depending on the alternative considered, average flows as high as 59 mgd will be discharged through this facility. Modeling of the SBOO discharges is limited to evaluation of the impacts of varying initial dilutions that can be attained at different flows. This evaluation was limited to a comparison of initial dilutions with those attained in the 1996 study and the inferences of the changes that could be expected at the shoreline monitoring stations.

D.6 FINDINGS

The principal findings of this study are summarized below.

D.6.1 Coastal Discharge at Punta Bandera

- ◆ Depending on the alternative and the corresponding quantity of flow discharged, bacterial concentrations at certain coastal stations may not comply with California Ocean Plan standards at certain times of the year. Table D-1 summarizes the projected monthly bacterial compliance for each alternative.

Table D-1. Comparison of Compliance for Bacterial Concentrations

Alt.	Description	Year	Flow (mgd)	Conc. (×10 ⁶ MPN/100mL)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1A	No Action Alternative (Continued Operation of SBIWTP as Advanced Primary Facility)	2004	31	29.69	0.0003	0.0003	Yes	0.0001	Yes	0.0001	0.0032	0.0016	Yes	0.0016	0.0008	0.0014	
		2009	40	30.98	0.0005	0.0003	Yes	0.0009	Yes	0.0004	0.0052	0.0036	0.0003	0.0021	0.0015	0.002	
		2023	50	31.86	0.0005	0.0005	Yes	0.0009	Yes	0.0005	0.0068	0.0051	0.0005	0.0026	0.0018	0.002	
1B		2004	31	29.69	0.0003	0.0003	Yes	0.0001	Yes	0.0001	0.0032	0.0016	Yes	0.0016	0.0008	0.0014	
		2009	40	30.98	0.0005	0.0003	Yes	0.0009	Yes	0.0004	0.0052	0.0036	0.0003	0.0021	0.0015	0.002	
		2023	59	32.4	0.0005	0.0009	0.0001	0.0012	Yes	0.0005	No	No	0.0005	0.0034	0.0018	0.0028	
2		Operate SBIWTP as Advanced Primary Facility with Treated Flows Conveyed to Mexico	2004	31	29.69	0.0003	0.0003	Yes	0.0001	Yes	0.0001	0.0032	0.0016	Yes	0.0016	0.0008	0.0014
			2009	65	29.95	0.0005	0.0019	0.0003	0.0012	Yes	0.0005	No	No	0.0005	0.0032	0.0022	0.0033
			2023	84	31.19	0.0008	0.0024	0.0004	0.0015	0.0001	0.0019	No	No	0.0021	0.0048	0.0027	0.0052
3	Operate SBIWTP with City of San Diego Connection	2004	31	29.69	0.0003	0.0003	Yes	0.0001	Yes	0.0001	0.0032	0.0016	Yes	0.0016	0.0008	0.0014	
		2009	51	30.4	0.0005	0.0005	Yes	0.0009	Yes	0.0005	0.0063	0.0051	0.0005	0.0023	0.0018	0.002	
		2023	70	31.76	0.0005	0.0019	0.0004	0.0015	Yes	0.0017	No	No	0.0009	0.0046	0.002	0.0041	
4A, 4B, 4C Option I	PL 106-457 Facility (Secondary Treatment in Mexico)	2004	31	29.69	0.0003	0.0003	Yes	0.0001	Yes	0.0001	0.0032	0.0016	Yes	0.0016	0.0008	0.0014	
		2009	25	28.32	0.0003	Yes	Yes	Yes	Yes	0.0001	0.0018	0.0012	Yes	0.0011	0.0004	0.0007	
		2023	25	28.32	0.0003	Yes	Yes	Yes	Yes	0.0001	0.0018	0.0012	Yes	0.0011	0.0004	0.0007	
4A, 4B, 4C Option II		2004	31	29.69	0.0003	0.0003	Yes	0.0001	Yes	0.0001	0.0032	0.0016	Yes	0.0016	0.0008	0.0014	
		2009	65	28.32	0.0005	0.0017	0.0003	0.0012	Yes	0.0005	No	No	0.0005	0.0026	0.0022	0.0028	
		2023	84	28.32	0.0005	0.0019	0.0004	0.0015	0.0001	0.0017	No	No	0.0017	0.0048	0.0027	0.0042	
5A, 5B		Secondary Treatment in U.S. (CMA Ponds/ Activated Sludge)	2004	31	29.69	0.0003	0.0003	Yes	0.0001	Yes	0.0001	0.0032	0.0016	Yes	0.0016	0.0008	0.0014
			2009	40	30.98	0.0005	0.0003	Yes	0.0009	Yes	0.0004	0.0052	0.0036	0.0003	0.0021	0.0015	0.002
			2023	59	32.4	0.0005	0.0009	0.0001	0.0012	Yes	0.0005	No	No	0.0005	0.0034	0.0018	0.0028
6	Secondary Treatment at SBIWTP and in Mexico	2004	31	29.69	0.0003	0.0003	Yes	0.0001	Yes	0.0001	0.0032	0.0016	Yes	0.0016	0.0008	0.0014	
		2009	25	28.32	0.0003	Yes	Yes	Yes	Yes	0.0001	0.0018	0.0012	Yes	0.0011	0.0004	0.0007	
		2023	25	28.32	0.0003	Yes	Yes	Yes	Yes	0.0001	0.0018	0.0012	Yes	0.0011	0.0004	0.0007	
7	Closure/Shutdown of SBIWTP	2004	56	32.24	0.0005	0.0012	0.0001	0.0012	Yes	0.0005	No	No	0.0005	0.0026	0.0018	0.0028	
		2009	65	32.68	0.0005	0.0019	0.0004	0.0012	Yes	0.0013	No	No	0.0008	0.0037	0.0023	0.0036	
		2023	84	33.29	0.0008	0.0024	0.0004	0.0015	0.0001	0.0022	No	No	0.0023	0.0051	0.003	0.0052	

Yes = Bacterial concentrations in this month would comply with standard.
 No = Bacterial concentrations in this month would not comply with standard.

Note: Numerical values shown in each monthly column is the probability of exceeding the standard

- ◆ The probability of meeting the standards is higher for stations farther north (farther away from the source) and for smaller discharges.
- ◆ A review of the USIBWC monitoring data indicates a high concentration of bacteria at stations close to, and north of, the mouth of the Tijuana River. The data is seasonal and appears to be superimposed on the concentrations associated with the Punta Bandera coastal discharge. Even during the summer months the levels appear to be higher than expected in this area, which could indicate residual bacterial contamination in the surface and, possibly, in the underground flows to the sea.
- ◆ While calibrating the SDM, it became apparent that the effluent from the San Antonio de los Buenos Wastewater Treatment Plant is disinfected three out of four days. This reduces the probability of noncompliance with the bacterial standard in United States waters. Based on the Punta Bandera discharge alone for all alternatives modeled, all stations north of the border have a less than 20 percent probability of samples exceeding 1,000 TC/100 mL. The worst case modeled is Alternative 7 (SBIWTP Closure/Shutdown), year 2023, with 84 mgd total flow discharged (25 mgd treated at the SABWWTP and 59 mgd untreated). In this case, the peak 30-day period had a probability of less than 17 percent. Averaging the results based on five years of wave data leads to the conclusion that this alternative would comply with this standard. Within the statistical variability of the five years modeled, however, the samples could exceed the 1,000 TC/100 mL threshold during some periods.
- ◆ At the border sampling station, the 10,000 TC/100 mL standard has a probability of being violated once every 5.7 years. The probability is reduced at the northern stations.
- ◆ Much like the 1996 study, no substantial difference is noted between the several scenarios and discharged flows in term of meeting the bacterial standards. This is because the bacterial standards are based on a probability of exceeding a threshold value rather than on a parametric measure of concentrations (e.g., mean, median). Hence, a probabilistic standard based on threshold concentrations tends to mask out concentration differences among discharge scenarios.
- ◆ Based on the Punta Bandera discharge alone, a higher probability of noncompliance is predicted during July and August. The prediction is based on relatively high waves from subtropical storms from Mexico causing a faster transport to the north of the discharged wastefield.
- ◆ To properly calibrate the model, only the monitoring data for the no-river outflow periods were used. Both the monitoring data and the model indicate a bacteria reduction trend toward the north.

D.6.2 SBOO Discharge

- ◆ The discharge through the SBOO always achieves an initial dilution of at least 100 to 1 for all flows considered. As the flow increases, so do the number of outfall ports that will be open and discharging. The median initial dilution for the SBOO discharge varies between 193 and 199 to 1.

- ◆ On an annual basis, about 50 percent of the wastefield is predicted to be below 15 m while about 75 percent of the wastefield will be below 10 m. About 15 percent of the wastefield will be located between 5 m and the surface. This percentage is higher than what was predicted in the 1996 study and is partially the result of an improved model better able to simulate surfacing field conditions.
- ◆ The wastefield will be higher in the water column from December to January. During that time, the initial dilution will be the highest with values greater than 500 to 1.
- ◆ The concentration of TC bacteria used in the current modeling effort was 5.7 times less than that used in the 1996 modeling. The bacterial concentration used in the 1996 modeling was derived from limited data on the strength of the Mexican sewage and by making certain assumptions on the level of reduction in the treatment process. In the current modeling, the lower concentration was derived from analyses of effluent samples taken daily for a week in March 2004.
- ◆ Relocating the diffuser in waters off Mexico would not change the performance of the diffuser modeled in this study. The statement is based on the understanding that the relocated diffuser will be at the same depth and orientation as the existing one. It is further assumed that the new discharge would be exposed to very similar current patterns.
- ◆ Based on the findings, it is concluded that the 1996 predictions of bacterial concentrations at the shore monitoring stations are not likely to be exceeded for any alternatives with discharge from the SBOO.

APPENDIX E ECOLOGICAL RISK ASSESSMENT

**DRAFT
SUPPLEMENTAL
ENVIRONMENTAL IMPACT STATEMENT**

**Clean Water Act Compliance
at the
South Bay International Wastewater Treatment Plant**

**APPENDIX E
ECOLOGICAL RISK ASSESSMENT**

December 2004

TABLE OF CONTENTS

ACRONYMS	E-III
1.0 INTRODUCTION	E-1
1.1 ERA Objective	E-1
1.2 ERA Elements	E-1
1.3 Alternatives under Consideration	E-2
1.4 Effluent Routing and Disposal	E-3
1.5 Prior Risk Evaluation	E-4
2.0 PROBLEM FORMULATION	E-5
2.1 Regional Setting	E-5
2.2 Conceptual Site Model	E-6
2.3 Potential Contaminants of Concern	E-8
3.0 EXPOSURE ASSESSMENT	E-9
3.1 Discharge Characterization	E-9
3.2 Releases at SBOO	E-10
3.3 Water Quality at the United States/Mexico Border	E-11
4.0 EFFECTS CHARACTERIZATION	E-11
4.1 Characterization of Ocean Water	E-11
4.2 Tijuana River Characterization	E-12
4.3 Sediment Quality	E-12
5.0 RISK CHARACTERIZATION	E-12
5.1 Releases at SBOO	E-12
5.2 Water Quality at the United States/Mexico Border	E-13
5.3 Comparison of Alternatives on the Basis of Ecological Risk	E-14
6.0 REFERENCES CITED	E-15

LIST OF FIGURES

Figure 1. Alternatives by Level of Treatment and Location	E-3
Figure 2. Conceptual Site Model for South Bay Outfall Discharge.....	E-7
Figure 3. Conceptual Site Model for Punta Bandera Discharge.....	E-7

LIST OF TABLES

Table 1. Effluent Routing by Alternative and Level of Treatment (Average Flows in Million Gallons per Day).....	E-16
Table 2. April 2001 to March 2003 Characterization of the SBIWTP Influent Wastewater and Treated Primary Effluent	E-17
Table 3. Anticipated Effluent Quality by Treatment Level	E-18
Table 4. SBOO Water Quality at the Edge of Mixing Zone (100:1 Dilution)	E-19
Table 5. Sediment Quality for SBOO Discharge (Adapted from CH2M Hill, 1998: Table D-2)	E-20
Table 6. Solids Load for SBOO Discharge.....	E-20
Table 7. 2009 Effluent Concentration at Punta Bandera Shoreline Discharge...	E-21
Table 8. 2023 Effluent Concentration at Punta Bandera Shoreline Discharge...	E-22
Table 9. Dilution Factors for Punta Bandera Discharge Based on 5-Year Simulation Results (Coastal Station S4 at the United States/Mexico Border)	E-23
Table 10. 2009 Water Quality at the USA/Mexico Border (Coastal Station S4) ...	E-24
Table 11. 2023 Water Quality at the USA/Mexico Border (Coastal Station S4) ...	E-25
Table 12. Reference Values for Water and Sediment Quality.....	E-26
Table 13. Hazard Quotient at the Edge of the SBOO Mixing Zone	E-27
Table 14. Hazard Quotient for Sediments at the SBOO Discharge	E-28
Table 15. Hazard Quotient at the USA/Mexico Border (Coastal Station S4) for 2009 Conditions	E-29
Table 16. Hazard Quotient at the USA/Mexico Border (Coastal Station S4) for 2023 Conditions	E-30
Table 17. Hazard Quotient for Exposure of Tijuana River Biota (Alternative 1A). E-31	
Table 18. Number of Potential Exceedances of Water Quality Indicators.....	E-32

ACRONYMS

Acronym	Definition
CMA	completely mixed aeration
COC	contaminants of concern
EPA	Environmental Protection Agency
ERA	Ecological Risk Assessment
HCH	hexachlorocyclohexane
HQ	hazard quotient
IWTP	International Wastewater Treatment Plant
mgd	million gallons per day
mg/L	milligrams per liter
MWWD	(San Diego) Metropolitan Wastewater Department
NEPA	National Environmental Policy Act
NPDES	national pollutant discharge elimination system
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PLWTP	Point Loma Wastewater Treatment Plant
SABWWTP	San Antonio de los Buenos Wastewater Treatment Plant
SBIWTP	South Bay International Wastewater Treatment Plant
SBOO	South Bay Ocean Outfall
SEIS	Supplemental Environmental Impact Statement
SWBRP	South Bay Water Reclamation Plant
TSS	total suspended solids
USIBWC	United States Section, International Boundary and Water Commission

1.0 INTRODUCTION

1.1 ERA OBJECTIVE

The United States Section of the International Boundary and Water Commission (USIBWC) is evaluating the potential environmental impacts of sewage treatment and disposal alternatives at the South Bay International Wastewater Treatment Plant (SBIWTP). The SBIWTP and its system of canyon collectors prevent dry weather flows of raw sewage from flowing across the border into the Tijuana River Valley, Tijuana Estuary and south San Diego beaches. The SBIWTP treats an average of 25 million gallons per day (mgd) of raw sewage originating from Tijuana and then discharges the treated effluent 3.5 miles out into the Pacific Ocean through the South Bay Ocean Outfall (SBOO). Alternatives under consideration address modifications in current sewage treatment levels and ocean disposal over a 20-year period, as well as changes in routing of the effluent for disposal south of the United States/Mexico border, at Punta Bandera, Baja California.

This Ecological Risk Assessment (ERA) was prepared as part of the Supplemental Environmental Impact Statement (SEIS) in support of the alternatives evaluation. The risk characterization is based on the use of ecological quotients, the ratio of expected exposure concentrations to reference values indicative of potential adverse effects on receptor organisms.

This ERA evaluates the potential risks of effluent routing and disposal as they relate to:

- ◆ Potential impacts on marine biota in the SBOO area of influence due to modified treatment levels and associated changes in effluent quality and sediment release.
- ◆ Transboundary effects in terms of protection of marine biota from coastal discharges originating in Mexico.

Potential effects in Mexican jurisdictional waters are not included in this risk assessment. Detrimental effects on water quality and coastal biota are expected due to current wastewater discharges at Punta Bandera, and those conditions would deteriorate further as the flow of untreated wastewater increases.

1.2 ERA ELEMENTS

The ERA was prepared in accordance with the United States Environmental Protection Agency (USEPA) *Guidelines for Ecological Risk Assessment* (USEPA/630/R-95/002F, April 1998) and the California State guidelines (Guidance for Ecological Risk Assessment at Hazardous Waste Facilities and Permitted Facilities, California Environmental Protection Agency, Human and Ecological Risk Division, July 4, 1996). The ERA is organized into four main elements:

- ◆ *Problem Formulation*, the description of potentially-exposed aquatic ecosystems, and the formulation of exposure scenarios including exposure pathways and ecological receptors based on site characterization.
- ◆ *Exposure Assessment*, an evaluation of exposure conditions and transfer factors, either by direct contact with water and sediments, or through food ingestion.

- ◆ *Characterization of Ecological Effects*, the selection of reference values for potential effects, and the extrapolation of these values to the site eco-receptors.
- ◆ *Risk Characterization*, the use of ecological quotients and an evaluation of the uncertainty of the risk assessment.

1.3 ALTERNATIVES UNDER CONSIDERATION

The USIBWC considered a range of alternative treatment and discharge options for wastewater now treated at the SBIWTP. The seven alternatives screened and selected for evaluation of potential impacts are described in Chapter 2 of the Draft SEIS. Key features of those alternatives are listed below. Figure 1 compares the treatment levels and locations of the alternatives.

- ◆ **Alternative 1:** No Action (Operation of SBIWTP as Advanced Primary Facility)
 - Option A: With No Future Improvements to Mexico's Existing Conveyance Facilities
 - Option B: With Future Improvements to Existing Conveyance Facilities
- ◆ **Alternative 2:** Operate SBIWTP as Advanced Primary Facility with Treated Flows Conveyed To Mexico for Discharge via PERC/Mexico's Facilities
- ◆ **Alternative 3:** Operate SBIWTP with City of San Diego Connections
- ◆ **Alternative 4:** Secondary Treatment Facility in Mexico (Public Law 106-457)
 - Treatment Option A: Operation of SBIWTP as Advanced Primary Facility, Secondary Treatment in Mexico
 - Treatment Option B: Cease Operation of SBIWTP, Secondary Treatment in Mexico
 - Treatment Option C: Bajagua LLC Proposal – Operation of SBIWTP as Advanced Primary Facility, Secondary Treatment in Mexico
 - Discharge Option I: Treated Effluent Discharged in United States via SBOO
 - Discharge Option II: Treated Effluent Discharged at Punta Bandera, Mexico
- ◆ **Alternative 5:** Secondary Treatment in the United States at SBIWTP
 - Option A: Completely Mixed Aeration (CMA) Ponds at SBIWTP
 - Option B: Activated Sludge Secondary Treatment at SBIWTP, With Flow Equalization or Expanded Capacity (Suboptions 5B-1 and 5B-2)
[Note: Both suboptions are evaluated jointly in the risk assessment as no differences in flow or effluent quality are expected]
- ◆ **Alternative 6:** Secondary Treatment in the United States and in Mexico
- ◆ **Alternative 7:** SBIWTP Closure/Shutdown

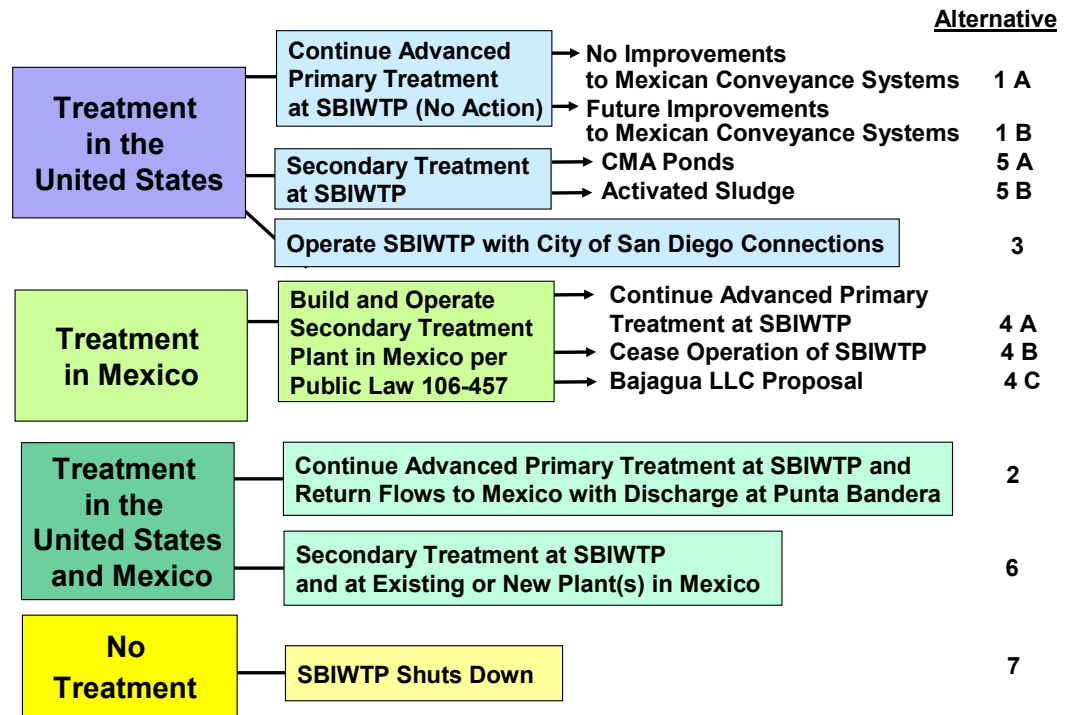


Figure 1. Alternatives by Level of Treatment and Location

1.4 EFFLUENT ROUTING AND DISPOSAL

Table 1 summarizes the expected routing of the City of Tijuana’s wastewater and level of treatment by the alternatives considered in the SEIS. All tables cited in the text appear at the end of the assessment.

The city’s 2004 sewage generation of 56 mgd is expected to increase to 65 mgd by 2009 and reach an estimated 84 mgd by 2023. Flows would be routed primarily to two locations: the South Bay Ocean Outfall and the Punta Bandera shoreline discharge about 6 miles south of the United States/Mexico border.

At the SBOO, a release of 25 mgd of advanced primary effluent from the SBIWTP would continue unmodified under the No Action Alternative. The alternatives being considered would improve effluent quality at the SBOO by adding secondary treatment (at the SBIWTP, the San Diego facilities, or in Mexico), route the treated effluent back to Mexico for shoreline discharge at Punta Bandera, and discontinue SBIWTP operation. An increase of up to 59 mgd in secondary effluent discharge through the SBOO is also being considered.

At Punta Bandera, the current coastal discharge of 25 mgd of facultative lagoon effluent would continue unmodified under the No Action Alternative. However, the current release of untreated wastewater would increase from 6 mgd to 15 mgd in 2009 and to 34 mgd in 2023. For several alternatives, primary or secondary treatment would be provided for untreated wastewater releases (at the SBIWTP or in aerated lagoon systems in Mexico). In Alternative 7, discontinued SBIWTP operation

would add 25 mgd of untreated discharges at Punta Bandera, totaling 59 mgd in 2023.

Additional wastewater releases are also possible at two other locations.

- ◆ Under the No Action Alternative (Option A), up to 9 mgd of untreated wastewater could reach the Tijuana River if the city's wastewater generation exceeds the 50 mgd collection system routing capacity of untreated water flows to Punta Bandera.
- ◆ Under Alternative 3, up to 14 mgd of primary effluent from the SBIWTP would be transferred for discharge at the Point Loma Outfall operated by the City of San Diego. Of this flow, 5 mgd could be released through the SBOO after secondary treatment at the city's South Bay Water Reclamation Plant.

1.5 PRIOR RISK EVALUATION

An ecological risk evaluation was conducted for SBOO discharges as part of the Supplemental EIS for Long Term Treatment Options of the SBIWTP (Appendix D of CH2M Hill, 1998). The evaluation considered seven options for additional treatment of the 25 mgd primary effluent discharge. Of the options considered in 1998, two were retained for further evaluation in the current SEIS for Clean Water Act compliance:

- ◆ Continued operation of the SBIWTP as an advanced primary facility, retained in the current SEIS as the No Action Alternative (Alternative 5 in the 1998 ERA).
- ◆ Addition of secondary treatment using completely mixed aerated lagoons or an activated sludge system, retained in the current SEIS as Alternative 5, Options A and B, respectively (Alternatives 4 Option A and Alternative 3, respectively, in the 1998 ERA).

The 1998 assessment concluded that ecological risk from the effluent was expected to occur only immediately near the outfall. While the undiluted effluent discharge was expected to contribute metals and organic contaminants at levels exceeding chronic exposure levels, the allowable 100:1 dilution factor for effluent discharge would eliminate potential toxicity at the edge of the permitted mixing zone.

For sediment fallout from the SBOO, the 1998 ERA showed the possibility of several metals and organic contaminants exceeding chronic toxicity thresholds in the newly settled particulate matter. Under conditions produced by some alternatives, a small ecological risk of chronic toxicity to sedentary benthic organisms immediately around the diffusers was identified. The estimated rates for sediment deposition were considered too low to expect significant risk to benthic communities by direct burial.

The 1998 evaluation concluded that pond treatment alternatives consistently had the least potential for ecological risk due to their lower final effluent concentrations. The highest risk came from lower levels of treatment (partial secondary and advanced primary treatments).

2.0 PROBLEM FORMULATION

This section briefly describes the regional setting for the discharge locations, provides a conceptual model for exposure of ecological receptor to contaminants, and identifies potential contaminants of concern (COC).

2.1 REGIONAL SETTING

Treatment Facilities

The SBIWTP occupies about 75 acres in San Diego County, directly north of Tijuana, Mexico. The SBIWTP is in the Tijuana River watershed, about 3.75 miles east of the Tijuana River Estuary. On the United States side of the border, the area around the SBIWTP and alternative treatment sites is largely undeveloped and sparsely populated. Much of the surrounding land is publicly owned. Agriculture, ranches and quarries occupy private lands. Immediately west of the SBIWTP are lands owned by the City of San Diego, where the South Bay Water Reclamation Plant is located.

In contrast to the SBIWTP setting, lands south of the border are largely developed. Tijuana is a major urban center with extensive industrial activity and a population estimated at 1,270,000 in 2003. Most of the sewer collection system's service area is within the Tijuana River basin, which extends into the United States and reaches the Pacific Ocean. Various infrastructure works intercept the city's wastewater flow for delivery to the San Antonio de los Buenos Wastewater Treatment Plant in southern Tijuana, or route the flow directly to the Punta Bandera discharge location.

Receiving Waters

Under the alternatives being considered, sewage with various levels of treatment would be discharged into the South Bay area at two main locations: the SBOO discharge structure about 3.5 miles west of the San Diego coast and about 1/2 mile north of the United States/Mexico border, and a shoreline discharge at Punta Bandera in Baja California, about 6 miles south of the border. Releases from Punta Bandera could be transported upcoast into the South Bay area by nearshore and coastal currents.

The South Bay, with depths typically ranging from 50 to 100 feet, is part of a broad ocean embayment known as the Southern California Bight. Physical conditions and flow patterns in the region are described in the Shore and Ocean Discharge Modeling Report for the SEIS (Parsons, 2004). The water column is generally well mixed during winter months, with little depth-related variability in any physical parameter. Surface water warming during summer produces stratification by establishing an abrupt water temperature and density change (thermocline).

The City of San Diego has monitored sediments, benthic communities and fish populations in the SBOO area annually starting 3-1/2 years before the outfall began operation in January 1999. The study area is centered around the SBOO discharge and extends along the shoreline from Coronado, California, southward to Playa Blanca in Mexico. Offshore monitoring is conducted in an adjacent area overlying the coastal shelf at sites from 25 to 150 feet deep. Sediments in the South Bay area are dominated by fine sands, with grain size tending to increase with depth. Coarse

sediments are found offshore and southward of the outfall discharge, while finer sediments are found toward the mouth of San Diego Bay.

Monitoring data for 2003 showed that concentrations of various trace metals and organic indicators were generally low in SBOO sediments compared with other coastal areas off southern California (City of San Diego, 2004). The highest organic indicator and metal concentrations were associated with the finer sediments. Pesticides, polynuclear aromatic hydrocarbon (PAH) compounds and polychlorinated biphenyls (PCB) either were not detected or were found at very low concentrations in some locations. Assemblages of benthic organisms were typical of natural indigenous communities characteristic of similar habitats on the southern California continental shelf, and similar in composition to those surveyed before SBOO operation. Overall, monitoring program findings have found no evidence to suggest that the discharge affected either fish or benthic communities in the outfall vicinity (City of San Diego, 2004).

In addition to the main discharge locations at SBOO and Punta Bandera, untreated water flows into the Tijuana River and estuary would also take place under the No Action Alternative (Option A) if Tijuana sewage generation eventually exceeds the existing collection system's capacity. Without additional collection capacity, up to 9 mgd of untreated sewage would drain from the Tijuana watershed into the river by 2023. The western Tijuana River valley is designated as the Tijuana River National Estuarine Research Reserve, and was established by the National Oceanic and Atmospheric Administration to protect one of the few remaining large areas of coastal wetland in southern California.

2.2 CONCEPTUAL SITE MODEL

Ecosystems at Risk

Figures 2 and 3 show pathways and receptors for two compliance points, the SBOO area of influence, and at the border between the United States and Mexico where transboundary effects on marine biota could be expected from the Punta Bandera wastewater discharges.

In the SBOO area of influence, the ocean outfall contributes dissolved and particulate-bound contaminants. The primary receptors at risk are benthic organisms and demersal fish that inhabit the South Bay continental shelf. Exposure includes the water column as well as organisms exposed to sediments constituents and excessive sedimentation in the immediate outfall vicinity. Exposure may take place with the water or accumulated sediments and, secondarily, through the food web by ingestion of contaminants in tissues of prey organisms. Given the depth and distance of the discharge from the coastal area, effects on shoreline and coastal biota are not expected. This assumption is supported by the findings of the ongoing long-term monitoring program previously described.

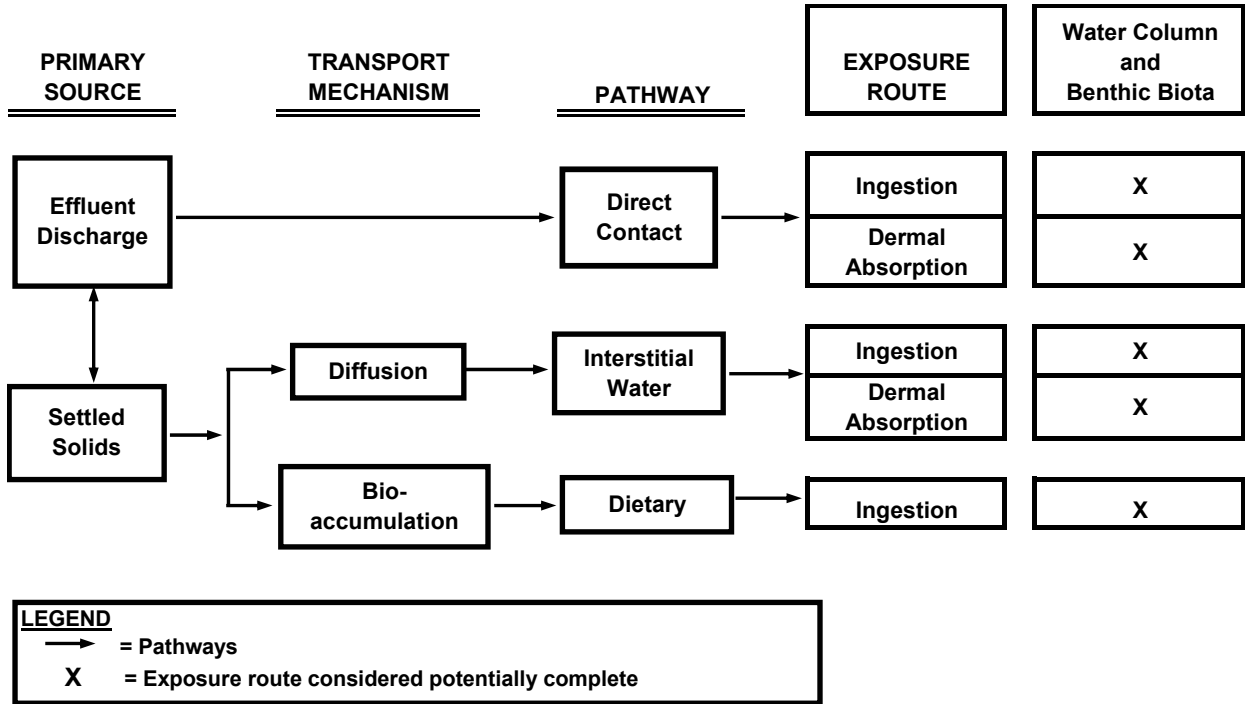


Figure 2. Conceptual Site Model for South Bay Outfall Discharge

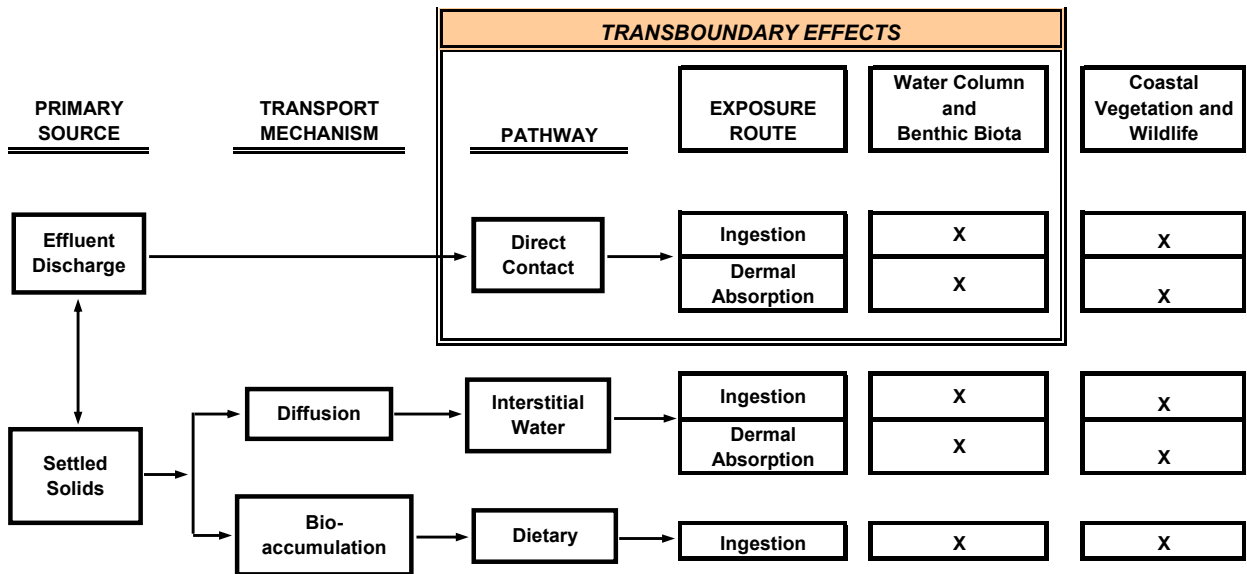


Figure 3. Conceptual Site Model for Punta Bandera Discharge

For the Punta Bandera discharge, coastal ecosystems are a major consideration (Figure 3). In this ecological risk assessment, impacts considered were limited to transboundary effects of the upcoast transport of wastewaters. At the border, the water quality goal is to achieve compliance with the 2001 California Ocean Plan. At the discharge point at Punta Bandera, current impacts from untreated wastewaters are expected to increase as the discharge flow and sediment deposition increase. Analysis of those impacts was excluded from the risk assessment because effects on Mexico jurisdictional waters are not part of the SEIS evaluation.

Receptors and Endpoint Selection

Section 3.1 of the SEIS describes water quality conditions and Section 3.4 describes biological communities. No individual receptors were identified for the risk assessment because water quality criteria were used for reference based on multispecies testing for overall protection of aquatic biota. Thus, compliance with the California Ocean Plan objectives is expected to protect all trophic levels and feeding guilds. The use of water quality criteria also defines the endpoint as a contaminant concentration with a very low probability of adverse effect.

For sediment evaluation, benthic invertebrate and fish fauna are at risk for exposure to constituents and solids settling immediately around the outfall. As with water quality criteria, risk for sediment exposure was based on benchmarks that define the assessment endpoint as a low probability of adverse effects on benthic organisms.

2.3 POTENTIAL CONTAMINANTS OF CONCERN

A primary goal of the long-term alternatives is to evaluate the expected ocean discharges' capacity to comply with state water quality regulations protecting aquatic life. For that evaluation, parameters for protection of marine aquatic life under the 2001 California Ocean Plan (SWRCB, 2001: Table B) were used to compare the potential ecological risks of wastewater treatment and routing alternatives. The 17 parameters were arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, cyanide, ammonia (as nitrogen), endosulfan, endrin, and total concentrations of nonchlorinated phenolic compounds, chlorinated phenolics, and hexachlorocyclohexane (HCH) (based on Lindane, the single detected HCH).

Table 2 presents a summary of monthly monitoring data for the SBIWTP influent and primary effluent from April 2001 to March 2003. The values listed are average and maximum concentrations over the 2-year period from monthly NPDES monitoring reports submitted by USIBWC to the SWRCB. Removal efficiencies based on average values are also listed. Influent data for cadmium, selenium, chlorinated phenolic compounds, endosulfan, endrin, and total HCH (as Lindane), not available from the monitoring program, were obtained from the 1995–1996 Tijuana wastewater characterization study, as reported in the SBOO dispersion model (GDC, 1997: Table A4.4).

Based on monitoring data, chlorinated phenolic substances, endosulfan, and endrin, were excluded from the risk assessment as potential contaminants of concern. Those compounds have not been detected during the ongoing monthly effluent monitoring at the SBIWTP, nor were they detected in the untreated influent during the 1995-1996 Tijuana wastewater characterization study (Table 2).

The use of current and historical wastewater characterization data in the risk evaluation is considered conservative since the City of Tijuana instituted an industrial

pretreatment program. The program will identify pollutants of concern and trace pollutants to their sources, meet Mexican and United States standards for the effluent and sludge produced at the SBIWTP, and meet Mexican standards at the San Antonio de los Buenos Wastewater Treatment Plant in Mexico. The initial effort is concentrated on pretreatment activities that relate to the operation of the SBIWTP, especially strategies to reduce elevated acute toxicity levels at the treatment plant.

Effluent toxicity and total chlorine residual, two additional parameters for protection of marine aquatic life listed in the 2001 California Ocean Plan (SWRCB, 2001: Table B) were also evaluated qualitatively for the SBOO discharge. The current discharge of advanced primary effluent complies with the outfall's NPDES permit limits of 0.2 mg/L for 6-month median concentration, and 0.81 mg/L of daily maximum concentration. The SBOO effluent, however, exceeds permit limits for acute toxicity (2 and 1.5 toxic units for weekly and monthly averages, respectively), as well as chronic toxicity (100 toxic units for weekly average).

No analysis was made of toxicity in the Punta Bandera discharge since toxicity is a non-conservative parameter whose changes in response to various treatment levels, and likely reduction during ocean transport to the international border, are unknown. For chlorine residual, also a non-conservative parameter, no information is available on coastal discharge concentration, and likely reduction during ocean transport to the international border.

3.0 EXPOSURE ASSESSMENT

3.1 DISCHARGE CHARACTERIZATION

Table 3 lists the characterization of expected discharges for the levels of treatment under consideration. Estimates for untreated wastewater and advanced primary effluent were obtained from SBIWTP monthly monitoring reports and historical data, as described in Section 2.3. For other levels of treatment, effluent concentrations were calculated by applying a removal efficiency value to the untreated water concentration. Removal efficiencies were obtained as follows:

- ◆ *Activated sludge systems* – theoretical removal efficiency data compiled in the SBOO effluent discharge and dispersion study (GDC, 1997: Table 5.7A).
- ◆ *Completely Mixed Aeration (CMA) pond systems* – data about metals removal were based on the design data for the CMA pond system at the Hofer sites presented in the evaluation of long-term treatment options for the SBIWTP (CH2M Hill, 1998: Appendix B3, Table 16). Removal rates for HCH and nonchlorinated phenolic compounds are as reported for CMA systems in the effluent discharge and dispersion study for the SBOO (GDC, 1997: Table 5.7A). Zero removal was assumed for ammonia and cyanide. For aerated lagoon treatment systems to be constructed in Mexico, it was assumed that they would achieve removal efficiencies comparable to the CMA system designed for the Hofer site.
- ◆ *Facultative Lagoons* – data for the Hofer site CMA pond system were also used to estimate removal for facultative lagoons since the system would include anaerobic zones as initial stages. Removal data for the Hofer site anaerobic zone

represented the performance of the facultative lagoon treatment system at San Antonio de los Buenos. Zero removal was assumed for ammonia and cyanide.

3.2 RELEASES AT SBOO

Table 4 lists expected effluent concentrations for SBOO discharges. Releases would range from 5 to 59 mgd with various levels of treatment depending on the alternative. No releases would be associated with Alternatives 2, 4-II, and 7 because the entire flow would be transferred to Punta Bandera for coastal discharge.

Water Quality

To comply with the objectives of Table B of the 2001 California Ocean Plan, the point of exposure for receptor organisms is the edge of a permitted 100:1 dilution contour as parameters are allowed to exceed water quality criteria inside the mixing zone. Exposure values for the risk evaluation, listed in Table 4, reflect average and daily maximum concentrations for the three levels of treatment in Table 2, adjusted for a 100:1 allowable dilution. Treatment levels apply as follows:

- ◆ Advanced primary treatment at the SBIWTP (Alternative 1 Options A and B).
- ◆ Secondary treatment in aerated lagoon systems at the SBIWTP (Alternative 5 Option A and Alternative 6) or in Mexico (Alternative 4-I).
- ◆ Secondary treatment in activated sludge systems at the SBIWTP or the South Bay Water Reclamation Plant (Alternative 5 Option B or Alternative 3, respectively).

Sediment Quality

The characterization of SBOO solids was evaluated for the 1998 SBIWTP treatment options assessment for the three treatment levels now under consideration: advanced primary, secondary in completely mixed aerated lagoons, and secondary in activated sludge systems (CH2M Hill 1998: Table D-2). Table 5 shows this characterization, by potential COC, as it applies to water quality compliance alternatives. Concentrations were calculated on the basis of a 350 mg/L average concentration of total suspended solids (TSS) in the untreated influent wastewater.

Unlike the 1998 evaluation, which considered a constant SBOO flow of 25 mgd, discharge alternatives now under consideration include flow regimes ranging from discontinued SBOO operation to a discharge of 59 mgd. Under these conditions, differences in the extent of exposure of benthic communities among alternatives would be associated by sediment quality and with the magnitude of the solids load. Table 6 lists loads by alternative on a percent basis relative to current discharge conditions (88 mg/L for 25 mgd of advanced primary effluent). For Alternatives 3 and 5B, the solids load from activated sludge systems would represent from 5 to 24 percent of the current discharge. For Alternative 5A, aerated pond systems would release a solids load equivalent of 24 percent of the No Action Alternative load. For Alternatives 4-I and 6, the expected solids load would increase over time with flow increases. Estimated load values are 38 and 56 percent for 2009 to 2023 conditions, respectively, relative to the No Action Alternative load.

3.3 WATER QUALITY AT THE UNITED STATES/MEXICO BORDER

Punta Bandera Discharges

Expected discharge composition at Punta Bandera is listed in Table 7 for 2009 and in Table 8 for 2023. The discharge would be a combination of four components that would vary in flow and treatment levels as follows:

- ◆ Secondary effluent from aerated pond systems in Tijuana, under consideration for Alternative 4 (up to 59 mgd).
- ◆ A constant 25-mgd discharge of effluent from facultative lagoons now in operation at the San Antonio de los Buenos treatment plant.
- ◆ Advanced primary effluent routed to Punta Bandera from the SBIWTP (from 11 to 25 mgd).
- ◆ Untreated sewage, with flow increasing up to 56 mgd by 2023.

At the United States/Mexico border, the Punta Bandera discharge would be diluted to various degrees as it is transported by coastal and shoreline currents. Table 9 lists monthly dilution factors calculated for a 5-year simulation period by the ocean transport model (Parsons, 2004: Appendix F). Data are applicable to coastal Station S4 located at the border. Dilution factors vary widely each month with changes in prevailing current regimes.

Simulation data for September, which has the lowest potential dilution, were selected as the most critical for risk evaluation (Table 9). Expected concentrations of potential contaminants of concern at the border, calculated on the basis of critical dilution, are listed in Table 10 for 2009 conditions and in Table 11 for 2023 conditions.

Tijuana River

Tijuana River biota would be exposed to untreated wastewater contaminants under Alternative 1 Option A due to releases of up to 9 mgd by 2023. The most critical exposure condition, adopted for the risk assessment, occurs during dry-weather flow conditions, when no dilution flows are available. For this exposure scenario, the undiluted wastewater COC concentrations shown in Table 2 apply.

4.0 EFFECTS CHARACTERIZATION

Table 12 lists the reference values used in the risk evaluation calculations for ocean water, freshwater and sediments.

4.1 CHARACTERIZATION OF OCEAN WATER

The applicable water quality criteria for the South Bay, at the SBOO discharge and at the border, are the 2001 California Ocean Plan objectives for protecting marine aquatic life. Two criteria, the 6-month median and daily maximum limits, were used in the risk assessment for the long-term average and maximum values (Table 12). The potential COC are those screened in Section 2.3.

Average concentrations are likely to be a less critical than daily maximum concentrations in terms of the 2001 California Ocean Plan because compliance is based on a 6-month median. Dilution conditions throughout a 6-month period are expected to substantially exceed the lowest dilution month used in the risk evaluation (Table 9).

4.2 TIJUANA RIVER CHARACTERIZATION

USEPA water quality criteria for protecting freshwater organisms were used in the risk evaluation of untreated wastewater discharges into the Tijuana River (Alternative 1 Option A). Acute exposure values would apply to intermittent releases into the dry river bed, while more stringent chronic values would apply to discharges under continuous flow conditions.

4.3 SEDIMENT QUALITY

Sediment deposition in the SBOO vicinity was evaluated using reference criteria developed by Long, et al. (1995) for marine sediments. Those criteria identify a range of potential adverse effects on sediment-associated organisms for individual COC based on multiple studies on sediment chemistry, bioassays, toxicity tests, and benthic community composition analysis. Two reference values are listed:

- ◆ *Effects Range-Low*, below which moderate or no adverse effects are anticipated (10th percentile of the observed effects distribution).
- ◆ *Effects Range-Median*, representing conditions under which effects are likely (50th percentile of the observed effects distribution).

5.0 RISK CHARACTERIZATION

The risk characterization was based on the exposure conditions described in Section 3 for the alternatives and pathways and reference values listed in Section 4. The ratio of exposure concentrations to reference values, the hazard quotient (HQ, unitless), was used to indicate potential risk to ecological receptors. For a given contaminant of concern, an HQ value greater than 1.0 indicates a potential for adverse effects under a given exposure condition.

5.1 RELEASES AT SBOO

Water Quality

Table 13 lists HQs applicable to the edge of the allowable mixing zone around the SBOO discharge. All calculated HQ values were below 1.0 indicating that, under any alternative under consideration, aquatic organisms would not be at risk from exposure to metals, cyanide, non-chlorinated phenolic compounds, or total HCH. This result is consistent with the ecological risk evaluation findings for the 1998 evaluation of treatment and discharge options for the SBOO (CH2M Hill, 1998: Appendix D).

The advanced primary effluent currently discharged through the SBOO complies with total chlorine requirements. Future compliance with total chlorine residual in the

effluent is anticipated for all alternatives, as this is an operational parameter whose concentration is controlled by the treatment facility. Current SBOO effluent, however, does not meet NPDES permit limits for acute toxicity and chronic toxicity. Potential toxicants in the effluent are not known. It is anticipated that under Alternative 1 (both Options A and B) effluent toxicity will continue to exceed allowable values unless additional treatment is provided, and/or toxicants are controlled at the source under an industrial pretreatment program; the initial phase of this program is currently being implemented by the City of Tijuana. For Alternatives 3, 4 (Discharge Option I), 5 (Options A and B) and 6, the other alternatives with SBOO discharges, toxicity removal or reduction to permitted values is anticipated by addition of secondary treatment in combination with implementation of Tijuana's industrial pretreatment program.

Sediment Quality

Table 14 lists HQs calculated for sediments immediately around the SBOO. Near the outfall, HQs for copper, mercury and silver would exceed the value of 1, which indicates an exceedance of a threshold for low effects under all alternatives. Nickel would also exceed this threshold under Alternatives 3 and Alternative 5 Option B. When more likely effect levels are considered, as indicated by the Effects Range-Median criteria, mercury and silver would exceed the HQ of 1 under four alternatives: Alternatives 1 (Option A and B), 3, and 5 (Option B). Potential adverse effects were also reported in the 1998 ecological risk evaluation of the SBOO treatment and discharge options (Appendix D of CH2M Hill, 1998).

The potential risks of sediments would be limited to the solids settling area near the outfall. As Table 14 shows, all alternatives would reduce the solids load relative to current conditions.

5.2 WATER QUALITY AT THE UNITED STATES/MEXICO BORDER

Punta Bandera Discharge

Calculated HQs for exposure of aquatic organisms at coastal Station S4 are listed in Table 15 for 2009 conditions and in Table 16 for 2023 conditions. The evaluation represents exposure under critical dilution conditions for daily average and daily maximum concentrations.

For 2009 exposure conditions, daily average ammonia concentrations would exceed reference values for all alternatives except Alternatives 4 (Discharge Option I) and 6 (Table 15). These exceedances would be based on an assumed critical dilution and no ammonia degradation during effluent transport to the border by shoreline currents. Copper could also have an exceedance under Alternatives 2, 3, and 7. Cyanide would be marginally exceeded under Alternative 4 (Discharge Option II). In Alternative 7, discontinued SBIWTP operation, chromium, nickel and Lindane concentrations at the border could also be exceeded.

For daily maximum concentrations, the number of exceedances for 2009 would be lower than under average conditions (Table 15). Potential exceedances would apply to Alternatives 2, 3, and 7 (ammonia, nickel, chromium, or copper). As described in Section 4.1, daily maximum concentrations are likely to be more critical than average concentrations for the 2001 California Ocean Plan because compliance for average

concentrations is based on a 6-month period when dilution conditions are expected to substantially exceed the critical monthly dilution used in the risk evaluation (Table 9).

Under 2023 conditions, the number of parameters potentially exceeded would increase relative to 2009 conditions. Under most alternatives, both daily average and daily maximum concentrations would exceed water quality reference values for chromium, copper, nickel, ammonia, and Lindane (Table 16). Alternatives 1 (Option A) and 4 (Discharge Option II) would only have two exceedances, while none would be expected for Alternatives 4 (Discharge Option I) and 6.

Tijuana River

Table 17 lists the HQs calculated for sewage discharges to the Tijuana River, an exposure scenario applicable only to 2023 conditions under the No Action Alternative (Alternative 1 Option A). Expected concentrations of most parameters selected for the risk evaluation would exceed allowable water quality criteria under both acute and chronic exposures, as indicated by HQ values greater than 1.

5.3 COMPARISON OF ALTERNATIVES ON THE BASIS OF ECOLOGICAL RISK

Table 18 compares the water quality reference values that would be exceeded under the various alternatives. Discharges to the SBOO, Punta Bandera (2009 and 2023 exposure scenarios) and the Tijuana River were considered.

For the SBOO discharge, the risk analysis revealed that no alternative is likely to exceed water quality reference values at the point of exposure (the edge of the allowable mixing zone) for metals, cyanide, non-chlorinated phenolic compounds, or total HCH. In terms of effluent toxicity, no compliance with allowable limits is anticipated for the discharge of advanced primary effluent (Alternative 1). For Alternatives 3, 4 (Discharge Option I), 5 (Options A and B) and 6, a significant reduction or elimination of acute and chronic toxicity is expected due to the addition of secondary treatment in combination with source control in Tijuana. For settled solids in the outfall vicinity, Alternatives 4-I, 5A, and 6 represent the lowest risk for sediment quality and solids load relative to other discharge options, as shown in Table 14.

For Punta Bandera discharges, no water quality indicators would be exceeded under Alternatives 4 (Discharge Option I) and 6 for either 2009 or 2023. For all other alternatives, concentrations of parameters in the risk evaluation would exceed one or more indicators on the basis of the lowest anticipated dilution (late summer conditions), as listed in Table 18.

In the 2009 exposure scenario, one or two reference values would be exceeded at the border for Alternatives 1 (Options A and B), 4 (Discharge Option II) and 5 (Options A and B). Exceedances of 3 or more reference values under critical dilution conditions would apply to Alternatives 2, 3, and 7.

In the 2023 exposure scenario, the number of potential exceedances at the border due to Punta Bandera discharges would increase relative to 2009 conditions. Alternative 4 (Discharge Option II) could exceed 3 reference values, while up to 8 exceedances would be expected under Alternatives 1 (Option B) and 5. Up to 12

would be expected for Alternatives 2, 3, and 7. In Alternative 1 (Option A), 4 reference values would be exceeded due to the Punta Bandera discharge, and multiple exceedances would also occur in the Tijuana River due to sewage discharges across the border.

Overall, Alternatives 4 (Discharge Option I) and 6 are the most favorable for compliance with water quality requirements and expected sediment quality. Both alternatives include secondary treatment at the SBIWTP or at Tijuana or both, with effluent discharge through the SBOO. Alternative 4 (Discharge Option II) (secondary treatment with Punta Bandera discharge) could slightly exceed requirements, at least during low dilution conditions. The remaining alternatives would have a significantly higher potential to exceed water quality reference values than Alternatives 4 and 6.

6.0 REFERENCES CITED

- California Environmental Protection Agency, 1996. *Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities*. Department of Toxic Substances Control, Human and Ecological. July 4, 1996.
- CH2M Hill, 1998. Draft Supplemental Environmental Impact Statement for the International Boundary and Water Commission South Bay International Treatment Plant Long Term Operations. Prepared for USIBWC and EPA. January.
- City of San Diego, 2004. Annual Receiving Waters Monitoring Report for the South Bay Ocean Outfall (South Bay Water Reclamation Plant): 2003. Ocean Monitoring Program, Metropolitan Wastewater Department, Environmental Monitoring and Technical Services Division. July. This and previous reports are available at <http://www.sannet.gov/mwwd/environment/reports.shtml>.
- GDC, 1997. Effluent Discharge and Dispersion through the South Bay Ocean Outfall. Appendix C, Draft Supplemental Environmental Impact Statement for the International Boundary and Water Commission South Bay International Treatment Plant Long Term Operations (CH2M Hill, 1998).
- Long, E.R., D.D. MacDonald, S.L. Smith and F.D. Calder, 1995. Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. *Environmental Management* 19(1):81-97.
- Parsons, 2004. Final Shore and Ocean Discharge Modeling Report. Clean Water Act Compliance at the South Bay International Wastewater Treatment Plant. Prepared for the United States Section, International Boundary and Water Commission. October.
- SWRCB, 2001. California Ocean Plan. State Water Resources Control Board, California Environmental Protection Agency. Available at: <http://www.swrcb.ca.gov/plnspols/oplans/op2001.pdf>
- USEPA, 1998. U.S. Environmental Protection Agency. Guidelines for Ecological Risk Assessment. USEPA/630/R-65/002F, April 1998. Available at <http://cfpub2.epa.gov/ncea/cfm/recordisplay.cfm?deid=12460>

**Table 1. Effluent Routing by Alternative and Level of Treatment
(Average Flows in Million Gallons per Day)**

Routing of Tijuana Projected Flow	South Bay Ocean Outfall			Point Loma Outfall, Adv. Primary Effluent	Shoreline Discharge at Punta Bandera				Untreated Release to Tijuana River
	Activated Sludge Effluent	Aerated Pond Effluent	Advanced Primary Effluent		Aerated Pond Effluent	Facultative Lagoon Effluent	Advanced Primary Effluent	Untreated Release	

2004 flow, 56 mgd

Alternatives 1-6	-	-	25	-	-	25	-	6	-
Alternative 7	-	-	-	-	-	25	-	31	-

2009 flow, 65 mgd

Alternative 1A	-	-	25	-	-	25	-	15	-
Alternative 1B	-	-	25	-	-	25	-	15	-
Alternative 2	-	-	-	-	-	25	25	15	-
Alternative 3	0 - 5*	-	-	9 - 14*	-	25	11	15	-
Alternative 4-I	-	40	-	-	-	25	-	-	-
Alternative 4-II	-	-	-	-	40	25	-	-	-
Alternative 5A	-	25	-	-	-	25	-	15	-
Alternative 5B	25	-	-	-	-	25	-	15	-
Alternative 6	-	40	-	-	-	25	-	-	-
Alternative 7	-	-	-	-	-	25	-	40	-

2023 Flow, 84 mgd


Alternative 1A	-	-	25	-	-	25	-	25	9
Alternative 1B	-	-	25	-	-	25	-	34	-
Alternative 2	-	-	-	-	-	25	25	34	-
Alternative 3	0 - 5*	-	-	9 - 14*	-	25	11	34	-
Alternative 4-I	-	59	-	-	-	25	-	-	-
Alternative 4-II	-	-	-	-	59	25	-	-	-
Alternative 5A	-	25	-	-	-	25	-	34	-
Alternative 5B	25	-	-	-	-	25	-	34	-
Alternative 6	-	59	-	-	-	25	-	-	-
Alternative 7	-	-	-	-	-	25	-	59	-

25 Highlited values indicate treatment at the SBIWTP, either primary, or primary and up to 25 mgd of secondary treatment.

* Out of 14 mgd that would be routed to City of San Diego installations, up to 5 mgd could receive secondary treatment at the South Bay Water Reclamation Plant and released through SBOO.

Table 2. April 2001 to March 2003 Characterization of the SBIWTP Influent Wastewater and Treated Primary Effluent

Parameter	Daily Average (24 Month Average)*			Daily Maximum (Over 24 Month Period)*	
	Influent (ug/L)	Effluent (ug/L)	Removal Efficiency	Influent (ug/L)	Effluent (ug/L)
Arsenic	3.28	1.87	43.0%	9.8	9.3
Cadmium	1.2	0.104	n/a	4.2	2.5
Chromium	96.2	14.1	85.3%	289	59.0
Copper	258	79.1	69.3%	942	565
Lead	22.10	0.000	100.0%	88.3	0.000
Mercury	0.143	0.083	41.7%	2.5	2.0
Nickel	156	66.0	57.7%	1003	270
Selenium	1.75	0.000	100%	3.97	0.000
Silver	4.84	0.135	97.2%	19.0	3.25
Zinc	376	103	72.6%	948	250
Cyanide	22.5	20.3	9.8%	80.0	27.5
Phenolic Compounds (non-chlorinated)	28.8	3.3	88.5%	100	27.7
Ammonia (as N)	30,600	57,200	n/a	46,800	74,200
Total HCH (Lindane)	0.16	<0.001	100%	0.37	<0.001
Chlorinated Phenolics	<6.1	<0.001	n/a	<0.01	<0.001
Endosulfan	<0.02	<0.001	n/a	<0.01	<0.001
Endrin	<0.03	<0.001	n/a	<0.01	<0.001

 Influent values from the 1995-1996 emergency connection Tijuana wastewater characterization study (GDC, 1997, Table A4.2).

* Calculated from monthly average and maximum concentrations for the South Bay International Treatment Plant as listed in monthly NPDES permit monitoring reports.

n/a Not applicable.

Table 3. Anticipated Effluent Quality by Treatment Level

	Concentration by Treatment Level (ug/L)*					Removal Efficiency		
	Untreated Wastewater (Table 2)	Primary Effluent (Table 2)	Facultative Lagoons	C. Mixed Aerated Ponds	Activated Sludge Systems	Facultative Lagoons**	C. Mixed Aerated Ponds**	Activated Sludge Systems***
DAILY AVERAGE								
Arsenic	3.28	1.87	3.28	1.81	1.80	0.0%	44.8%	45%
Cadmium	1.200	0.104	0.20	0.08	0.17	83.3%	93.3%	86%
Chromium	96.2	14.1	14.7	3.62	24.05	84.7%	96.2%	75%
Copper	258	79.1	42.0	7.57	36.12	83.7%	97.1%	86%
Lead	22.1	0.0	2.02	1.83	8.62	90.9%	91.7%	61%
Mercury	0.143	0.083	0.03	0.01	0.06	81.3%	91.7%	60%
Nickel	156	66	54.3	37.0	90.5	65.2%	76.3%	42%
Selenium	1.75	0.0	0.50	0.50	1.75	71.3%	71.3%	0%
Silver	4.84	0.135	0.81	0.25	1.21	83.3%	94.8%	75%
Zinc	376	103	58.1	16.5	75.2	84.6%	95.6%	80%
Cyanide	22.5	20.3	22.5	22.5	6.98	0%	0%	69%
Non-Chlorinated Phenolic Compounds	28.8	3.3	2.9	2.9	2.88	90%	90%	90%
Ammonia (as N)	30,600	57,200	30,600	30,600	30,600	0%	0%	0%
Total HCH (Lindane)	0.160	0.000	0.024	0.024	0.077	85.0%	85.0%	52%
DAILY MAXIMUM								
Arsenic	9.8	9.3	9.80	5.41	5.39			
Cadmium	4.2	2.5	0.70	0.28	0.59			
Chromium	289	59	44.1	10.9	72.3			
Copper	942	565	153.2	27.6	131.9			
Lead	88.3	0.0	8.1	7.3	34.4			
Mercury	2.5	2.0	0.47	0.21	1.00			
Nickel	1003	270	348.9	237.7	581.7			
Selenium	3.97	0.0	1.14	1.14	3.97			
Silver	19	3.25	3.17	0.98	4.75			
Zinc	948	250	146	41.6	190			
Cyanide	80	27.5	80	80	25			
Non-Chlorinated Phenolic Compounds	100	27.7	10	10	10			
Ammonia (as N)	46,800	74,200	46,800	46,800	46,800			
Total HCH (Lindane)	0.370	0.000	0.056	0.056	0.178			

* Data for untreated wastewater and primary effluent from SBIWTP data as previously presented in Table 2. For other treatment levels, removal efficiencies were applied to untreated wastewater concentrations.

** Metals removal data based on design data for the CMA pond system at Hofer site, as presented in the evaluation of SBIWTP long-term treatment options (CH2M-Hill, 1998b: Appendix B3, Table 16). Effluent data for the anaerobic zone of the CMA system was used as representative of a facultative lagoon treatment system. Removal rates for non-chlorinated phenols and HCH as reported for CMA pond systems in the SBOO effluent discharge and dispersion study (GDC, 1997: Table 5.7A).

*** Removal efficiency data from SBOO effluent discharge and dispersion study (GDC, 1997: Table 5.7A).

Table 4. SBOO Water Quality at the Edge of Mixing Zone (100:1 Dilution)

	Alt. 1A	Alt. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
	Advanced Primary	Advanced Primary	Activated Sludge	Aerated Ponds	Aerated Ponds	Activated Sludge	Aerated Ponds

Parameter	Daily Average Concentration (ug/L)						
Arsenic*	2.99	2.99	2.99	2.99	2.99	2.99	2.99
Cadmium	0.0010	0.0010	0.0017	0.0008	0.0008	0.0017	0.0008
Chromium	0.141	0.141	0.241	0.036	0.036	0.241	0.036
Copper*	2.77	2.77	2.34	2.06	2.06	2.34	2.06
Lead	0.000	0.000	0.086	0.018	0.018	0.086	0.018
Mercury*	0.0013	0.0013	0.0011	0.0006	0.0006	0.0011	0.0006
Nickel	0.660	0.660	0.905	0.370	0.370	0.905	0.370
Selenium	0.000	0.000	0.018	0.005	0.005	0.018	0.005
Silver*	0.160	0.160	0.171	0.161	0.161	0.171	0.161
Zinc*	8.95	8.95	8.67	8.09	8.09	8.67	8.09
Cyanide	0.203	0.203	0.070	0.225	0.225	0.070	0.225
Non-Chlorinated Phenolic Compounds	0.033	0.033	0.029	0.029	0.029	0.029	0.029
Ammonia (as N)	572	572	306	306	306	306	306
Total HCH (Lindane)	0.00000	0.00000	0.00077	0.00024	0.00024	0.00077	0.00024

Parameter	Daily Maximum Concentration (ug/L)						
Arsenic*	3.06	3.06	3.02	3.02	3.02	3.02	3.02
Cadmium	0.0250	0.0250	0.0059	0.0028	0.0028	0.0059	0.0028
Chromium	0.590	0.590	0.723	0.109	0.109	0.723	0.109
Copper*	7.63	7.63	3.30	2.26	2.26	3.30	2.26
Lead	0.00	0.00	0.344	0.073	0.073	0.344	0.073
Mercury*	0.0205	0.0205	0.0105	0.0026	0.0026	0.0105	0.0026
Nickel	2.70	2.70	5.82	2.38	2.38	5.82	2.38
Selenium	0.00	0.00	0.040	0.011	0.011	0.040	0.011
Silver*	0.191	0.191	0.206	0.168	0.168	0.206	0.168
Zinc*	10.4	10.4	9.8	8.3	8.3	9.8	8.3
Cyanide	0.275	0.275	0.248	0.800	0.800	0.248	0.800
Non-Chlorinated Phenolic Compounds	0.277	0.277	0.100	0.10	0.10	0.100	0.10
Ammonia (as N)	742	742	468	468	468	468	468
Total HCH (Lindane)	0.00000	0.00000	0.00178	0.00056	0.00056	0.00178	0.00056

* Dilutions based on the following background values specified by the California Ocean Plan: arsenic, 3 ug/l; copper, 2 ug/l; mercury, 0.0005 ug/l; silver, 0.16 ug/l; and zinc, 8 ug/l.

**Table 5. Sediment Quality for SBOO Discharge
(Adapted from CH2M Hill, 1998: Table D-2)**

	Alt. 1A	Alts. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
	Advanced Primary	Advanced Primary	Activated Sludge	CM Aerated Ponds	CM Aerated Ponds	Activated Sludge	CM Aerated Ponds
Parameter	Sediment Concentration (mg/kg Dry Weight)						
Arsenic	0.05	0.05	0.12	0.12	0.12	0.12	0.12
Cadmium	0.07	0.07	0.05	0.02	0.02	0.05	0.02
Chromium	3.72	3.72	2.80	0.80	0.80	2.80	0.80
Copper	226	226	170	36	36	170	36
Lead	6.6	6.6	25.0	5.2	5.2	25.0	5.2
Mercury	0.81	0.81	1.51	0.31	0.31	1.51	0.31
Nickel	9.0	9.0	25.5	10.4	10.4	25.5	10.4
Selenium	0.01	0.01	0.03	0.05	0.05	0.03	0.05
Silver	9.0	9.0	12.1	2.4	2.4	12.1	2.4
Zinc	110	110	127	27.8	27.8	127	27.8
Total HCH (Lindane)	0.41	0.41	0.26	0.19	0.19	0.26	0.19

Table 6. Solids Load for SBOO Discharge

	Alt. 1A	Alts. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
2009 Conditions							
Total suspended solids (mg/L)	88	88	21	21	21	21	21
Effluent flow (mgd)	25	25	5	40	25	25	40
Solids load (kg/d)	8,327	8,327	397	3,179	1,987	1,987	3,179
Solids load relative to Alternative 1A	100%	100%	5%	38%	24%	24%	38%
2023 Conditions							
Total suspended solids (mg/L)	88	88	21	21	21	21	21
Effluent flow (mgd)	25	25	5	59	25	25	59
Solids load (kg/d)	8,327	8,327	397	4,690	1,987	1,987	4,690
Solids load relative to Alternative 1A	100%	100%	5%	56%	24%	24%	56%

Table 7. 2009 Effluent Concentration at Punta Bandera Shoreline Discharge

Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
40 mgd	40 mgd	65 mgd	51 mgd	25 mgd	65 mgd	40 mgd	40 mgd	25 mgd	65 mgd

Component	Discharge Composition by Volume									
CMA Aerated Pond Effluent						61.5%				
Facultative Lagoon Effluent	62.5%	62.5%	38.5%	49.0%	100.0%	38.5%	62.5%	62.5%	100.0%	38.5%
Advanced Primary Effluent			38.5%	21.6%						
Untreated Wastewater	37.5%	37.5%	23.1%	29.4%			37.5%	37.5%		61.5%

Parameter	Daily Average Concentration (ug/L)									
Arsenic*	3.28	3.28	2.74	2.98	3.28	2.38	3.28	3.28	3.28	3.28
Cadmium	0.58	0.58	0.39	0.47	0.20	0.13	0.58	0.58	0.20	0.82
Chromium	45.2	45.2	33.3	38.5	14.7	7.9	45.2	45.2	14.7	64.8
Copper*	123	123	106	114	42.0	20.8	123	123	42.0	175
Lead	9.6	9.6	5.9	7.5	2.0	1.9	9.6	9.6	2.0	14.4
Mercury*	0.070	0.070	0.075	0.073	0.027	0.018	0.070	0.070	0.027	0.098
Nickel	92.4	92.4	82.3	86.7	54.3	43.6	92.4	92.4	54.3	116.9
Selenium	0.97	0.97	0.60	0.76	0.50	0.50	0.97	0.97	0.50	1.27
Silver*	2.32	2.32	1.48	1.85	0.81	0.46	2.32	2.32	0.81	3.29
Zinc*	177	177	149	161	58	32	177	177	58	254
Cyanide	22.5	22.5	21.7	22.0	22.5	22.5	22.5	22.5	22.5	22.5
Non-Chlorinated Phenolic Compounds	12.6	12.6	9.0	10.6	2.9	2.9	12.6	12.6	2.9	18.8
Ammonia (as N)	30,600	30,600	40,831	36,337	30,600	30,600	30,600	30,600	30,600	30,600
Total HCH (Lindane)	0.075	0.075	0.046	0.059	0.024	0.024	0.075	0.075	0.024	0.108

Parameter	Daily Maximum Concentration (ug/L)									
Arsenic*	9.80	9.80	9.61	9.69	9.80	7.10	9.80	9.80	9.80	9.80
Cadmium	2.01	2.01	2.20	2.12	0.70	0.44	2.01	2.01	0.70	2.85
Chromium	136	136	106	119	44.1	23.6	136	136	44.1	195
Copper*	449	449	494	474	153	76	449	449	153.2	639
Lead	38.2	38.2	23.5	29.9	8.1	7.6	38.2	38.2	8.1	57.4
Mercury*	1.23	1.23	1.53	1.40	0.47	0.31	1.23	1.23	0.47	1.72
Nickel	594	594	469	524	349	280	594	594	349	751
Selenium	2.20	2.20	1.35	1.73	1.14	1.14	2.20	2.20	1.14	2.88
Silver*	9.1	9.1	6.85	7.8	3.17	1.82	9.1	9.1	3.17	12.9
Zinc*	447	447	371	405	146	82	447	447	146	640
Cyanide	80.0	80.0	59.8	68.7	80.0	80.0	80.0	80.0	80.0	80.0
Non-Chlorinated Phenolic Compounds	44	44	38	40	10	10	44	44	10	65
Ammonia (as N)	46,800	46,800	57,338	52,710	46,800	46,800	46,800	46,800	46,800	46,800
Total HCH (Lindane)	0.173	0.173	0.107	0.136	0.056	0.056	0.173	0.173	0.056	0.249

Table 8. 2023 Effluent Concentration at Punta Bandera Shoreline Discharge

Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
50 mgd	59 mgd	84 mgd	70 mgd	25 mgd	84 mgd	59 mgd	59 mgd	25 mgd	84 mgd

Component	Discharge Composition by Volume									
C.M. Aerated Pond Effluent						70.2%				
Facultative Lagoon Effluent	50.0%	42.4%	29.8%	35.7%	100.0%	29.8%	42.4%	42.4%	100.0%	29.8%
Advanced Primary Effluent			29.8%	15.7%						
Untreated Wastewater	50.0%	57.6%	40.5%	48.6%			57.6%	57.6%		70.2%

Parameter	Daily Average Concentration (ug/L)									
Arsenic	3.28	3.28	2.86	3.06	3.28	2.25	3.28	3.28	3.28	3.28
Cadmium	0.70	0.78	0.58	0.67	0.20	0.12	0.78	0.78	0.20	0.90
Chromium	55.4	61.7	47.5	54.2	14.7	6.9	61.7	61.7	14.7	71.9
Copper	150	166	140	153	42.0	17.8	166	166	42.0	194
Lead	12.1	13.6	9.5	11.5	2.0	1.9	13.6	13.6	2.0	16.1
Mercury	0.085	0.094	0.091	0.092	0.027	0.016	0.094	0.094	0.027	0.108
Nickel	105.1	112.9	98.9	105.5	54.3	42.1	112.9	112.9	54.3	125.7
Selenium	1.13	1.22	0.86	1.03	0.50	0.50	1.22	1.22	0.50	1.38
Silver	2.82	3.13	2.24	2.66	0.81	0.42	3.13	3.13	0.81	3.64
Zinc	217	241	200	220	58	29	241	241	58	281
Cyanide	22.5	22.5	21.8	22.2	22.5	22.5	22.5	22.5	22.5	22.5
Non-Chlorinated Phenolic Compounds	15.8	17.8	13.5	15.5	2.9	2.9	17.8	17.8	2.9	21.1
Ammonia (as N)	30,600	30,600	38,517	34,780	30,600	30,600	30,600	30,600	30,600	30,600
Total HCH (Lindane)	0.092	0.102	0.072	0.086	0.024	0.024	0.102	0.102	0.024	0.120

Parameter	Daily Maximum Concentration (ug/L)									
Arsenic	9.80	9.80	9.65	9.72	9.80	6.72	9.80	9.80	9.80	9.80
Cadmium	2.45	2.72	2.65	2.68	0.70	0.41	2.72	2.72	0.70	3.16
Chromium	167	185	148	165	44.1	20.7	185	185	44.1	216
Copper	548	608	595	601	153	65	608	608	153.2	707
Lead	48.2	54.3	38.1	45.8	8.1	7.5	54.3	54.3	8.1	64.4
Mercury	1.48	1.64	1.75	1.70	0.47	0.28	1.64	1.64	0.47	1.89
Nickel	676	726	590	654	349	271	726	726	349	808
Selenium	2.56	2.77	1.95	2.34	1.14	1.14	2.77	2.77	1.14	3.13
Silver	11.1	12.3	9.60	10.9	3.17	1.63	12.3	12.3	3.17	14.3
Zinc	547	608	502	552	146	73	608	608	146	709
Cyanide	80.0	80.0	64.4	71.8	80.0	80.0	80.0	80.0	80.0	80.0
Non-Chlorinated Phenolic Compounds	55	62	52	56	10	10	62	62	10	73
Ammonia (as N)	46,800	46,800	54,955	51,106	46,800	46,800	46,800	46,800	46,800	46,800
Total HCH (Lindane)	0.213	0.237	0.166	0.200	0.056	0.056	0.237	0.237	0.056	0.276

Table 9. Dilution Factors for Punta Bandera Discharge Based on 5-Year Simulation Results (Coastal Station S4 at the United States/Mexico Border)

	Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
2009 Flows	40 mgd	40 mgd	65 mgd	51 mgd	25 mgd	65 mgd	40 mgd	40 mgd	25 mgd	65 mgd
2023 Flows	50 mgd	59 mgd	84 mgd	70 mgd	25 mgd	84 mgd	59 mgd	59 mgd	25 mgd	84 mgd

Year 2009	Dilution Factors (volumen for dilution of one unit volume of effluent)									
January	137,931	137,931	38,388	104,712	1,666,667	38,388	137,931	137,931	1,666,667	38,388
February	173.0	173.0	78.3	98.4	210.5	78.3	173.0	173.0	210.5	78.3
March	---	---	---	---	---	---	---	---	---	---
April	8,838	8,838	1,334	5,200	13,680	1,334	8,838	8,838	13,680	1,334
May	92,593	92,593	13,746	26,631	138,889	13,746	92,593	92,593	138,889	13,746
June	69.6	69.6	32.5	41.8	84.3	32.5	69.6	69.6	84.3	32.5
July	65.5	65.5	29.5	39.0	79.3	29.5	65.5	65.5	79.3	29.5
August	57.2	57.2	26.1	34.6	69.1	26.1	57.2	57.2	69.1	26.1
September	48.5	48.5	22.1	31.9	58.0	22.1	48.5	48.5	58.0	22.1
October	666.2	666.2	216.4	357.5	865.7	216.4	666.2	666.2	865.7	216.4
November	200.5	200.5	89.6	116.8	242.2	89.6	200.5	200.5	242.2	89.6
December	162.0	162.0	76.4	104.0	195.5	76.4	162.0	162.0	195.5	76.4

Year 2023	Dilution Factors (volumen for dilution of one unit volume of effluent)									
January	104,712	59,524	9,033	28,531	1,666,667	9,033	59,524	59,524	1,666,667	9,033
February	98.4	87.1	53.0	72.7	210.5	53.0	87.1	87.1	210.5	53.0
March	---	---	---	---	---	---	---	---	---	---
April	5,200	1,747	908	1,461	13,680	908	1,747	1,747	13,680	908
May	26,631	17,746	5,739	16,584	138,889	5,739	17,746	17,746	138,889	5,739
June	41.8	36.0	22.0	29.6	84.3	22.0	36.0	36.0	84.3	22.0
July	39.0	32.7	22.4	27.0	79.3	22.4	32.7	32.7	79.3	22.4
August	34.6	28.8	20.3	24.3	69.1	20.3	28.8	28.8	69.1	20.3
September	31.9	24.6	19.5	20.4	58.0	19.5	24.6	24.6	58.0	19.5
October	357.5	253.6	208.1	197.0	865.7	208.1	253.6	253.6	865.7	208.1
November	116.8	99.6	65.4	82.9	242.2	65.4	99.6	99.6	242.2	65.4
December	104.0	83.7	65.1	69.6	195.5	65.1	83.7	83.7	195.5	65.1

Value used as critical dilution in the risk calculations.

* Data from Shore and Ocean Discharge Modeling Report (Parsons 2004: Appendix F).

Table 10. 2009 Water Quality at the USA/Mexico Border (Coastal Station S4)

	Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
2009 Average Flow	40 mgd	40 mgd	65 mgd	51 mgd	25 mgd	65 mgd	40 mgd	40 mgd	25 mgd	65 mgd
Critical Dilution	48.5	48.5	22.1	31.9	58.0	22.1	48.5	48.5	58.0	22.1
Effluent Contribution	2.06%	2.06%	4.53%	3.14%	1.72%	4.53%	2.06%	2.06%	1.72%	4.53%

Parameter	Daily Average Concentration (ug/L)									
Arsenic*	3.01	3.01	2.99	3.00	3.00	2.97	3.01	3.01	3.00	3.01
Cadmium	0.012	0.012	0.018	0.015	0.003	0.006	0.012	0.012	0.003	0.037
Chromium	0.93	0.93	1.51	1.21	0.25	0.36	0.93	0.93	0.25	2.94
Copper*	4.45	4.45	6.51	5.39	2.68	2.81	4.45	4.45	2.68	9.49
Lead	0.20	0.20	0.27	0.24	0.03	0.09	0.20	0.20	0.03	0.65
Mercury*	0.002	0.002	0.004	0.003	0.001	0.001	0.002	0.002	0.001	0.005
Nickel	1.91	1.91	3.72	2.72	0.94	1.97	1.91	1.91	0.94	5.29
Selenium	0.020	0.020	0.027	0.024	0.009	0.023	0.020	0.020	0.009	0.058
Silver*	0.20	0.20	0.22	0.21	0.17	0.17	0.20	0.20	0.17	0.30
Zinc*	11.4	11.4	14.1	12.7	8.8	9.1	11.4	11.4	8.8	18.6
Cyanide	0.46	0.46	0.98	0.69	0.39	1.02	0.46	0.46	0.39	1.02
Non-Chlorinated Phenolic Compounds	0.26	0.26	0.41	0.33	0.05	0.13	0.26	0.26	0.05	0.85
Ammonia (as N)	632	632	1,849	1,140	528	1,385	632	632	528	1,385
Total HCH (Lindane)	0.0015	0.0015	0.0021	0.0018	0.0004	0.0011	0.0015	0.0015	0.0004	0.0049

Parameter	Daily Maximum Concentration (ug/L)									
Arsenic*	3.14	3.14	3.29	3.20	3.12	3.18	3.14	3.14	3.12	3.29
Cadmium	0.042	0.042	0.100	0.066	0.012	0.020	0.042	0.042	0.012	0.129
Chromium	2.81	2.81	4.81	3.75	0.76	1.07	2.81	2.81	0.76	8.82
Copper*	11.0	11.0	23.3	16.4	4.6	5.2	11.0	11.0	4.6	29.6
Lead	0.79	0.79	1.06	0.94	0.14	0.34	0.79	0.79	0.14	2.60
Mercury*	0.025	0.025	0.067	0.043	0.008	0.014	0.025	0.025	0.008	0.075
Nickel	12.3	12.3	21.3	16.5	6.02	12.70	12.3	12.3	6.0	34.0
Selenium	0.045	0.045	0.061	0.054	0.020	0.052	0.045	0.045	0.020	0.130
Silver*	0.341	0.341	0.450	0.394	0.211	0.232	0.341	0.341	0.211	0.712
Zinc*	16.9	16.9	23.7	20.1	10.3	11.2	16.9	16.9	10.3	35.4
Cyanide	1.65	1.65	2.71	2.16	1.38	3.62	1.65	1.65	1.38	3.62
Non-Chlorinated Phenolic Compounds	0.90	0.90	1.70	1.26	0.17	0.45	0.90	0.90	0.17	2.96
Ammonia (as N)	966	966	2,596	1,654	807	2,119	966	966	807	2,119
Total HCH (Lindane)	0.0036	0.0036	0.0048	0.0043	0.0010	0.0025	0.0036	0.0036	0.0010	0.0113

* Dilutions based on the following background values specified by the California Ocean Plan: arsenic, 3 ug/l; copper, 2 ug/l; mercury, 0.0005 ug/l; silver, 0.16 ug/l; and zinc, 8 ug/l.

Table 11. 2023 Water Quality at the USA/Mexico Border (Coastal Station S4)

	Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
2023 Average Flow	50 mgd	59 mgd	84 mgd	70 mgd	25 mgd	84 mgd	59 mgd	59 mgd	25 mgd	84 mgd
Critical Dilution	31.9	24.6	19.5	20.4	58.0	19.5	24.6	24.6	58.0	19.5
Effluent Contribution	3.14%	4.06%	5.14%	4.90%	1.72%	5.14%	4.06%	4.06%	1.72%	5.14%

Parameter	Daily Average Concentration (ug/L)									
Arsenic*	3.01	3.01	2.99	3.00	3.00	2.96	3.01	3.01	3.00	3.01
Cadmium	0.022	0.032	0.030	0.033	0.003	0.006	0.032	0.032	0.003	0.046
Chromium	1.74	2.51	2.44	2.65	0.25	0.35	2.51	2.51	0.25	3.70
Copper*	6.50	8.42	8.77	9.04	2.68	2.77	8.42	8.42	2.68	11.4
Lead	0.38	0.55	0.49	0.56	0.03	0.10	0.55	0.55	0.03	0.83
Mercury*	0.0031	0.0041	0.0049	0.0048	0.0009	0.0013	0.0041	0.0041	0.0009	0.0058
Nickel	3.30	4.59	5.08	5.17	0.94	2.16	4.59	4.59	0.94	6.46
Selenium	0.035	0.050	0.044	0.050	0.009	0.026	0.050	0.050	0.009	0.071
Silver*	0.241	0.276	0.262	0.277	0.171	0.172	0.276	0.276	0.171	0.330
Zinc*	14.4	17.1	17.4	17.9	8.8	9.0	17.1	17.1	8.8	21.4
Cyanide	0.71	0.91	1.12	1.09	0.39	1.16	0.91	0.91	0.39	1.16
Non-Chlorinated Phenolic Compounds	0.50	0.72	0.69	0.76	0.05	0.15	0.72	0.72	0.05	1.08
Ammonia (as N)	960	1,244	1,979	1,703	528	1,572	1,244	1,244	528	1,572
Total HCH (Lindane)	0.0029	0.0042	0.0037	0.0042	0.0004	0.0012	0.0042	0.0042	0.0004	0.0061

Parameter	Daily Maximum Concentration (ug/L)									
Arsenic*	3.21	3.27	3.33	3.31	3.12	3.18	3.27	3.27	3.12	3.33
Cadmium	0.077	0.110	0.136	0.131	0.012	0.021	0.110	0.110	0.012	0.162
Chromium	5.23	7.53	7.59	8.10	0.76	1.07	7.53	7.53	0.76	11.10
Copper*	18.6	25.7	31.0	30.0	4.56	5.08	25.7	25.7	4.56	36.5
Lead	1.51	2.21	1.96	2.24	0.14	0.39	2.21	2.21	0.14	3.31
Mercury*	0.0456	0.0645	0.0858	0.0796	0.0084	0.0144	0.0645	0.0645	0.0084	0.0931
Nickel	21.2	29.5	30.3	32.0	6.02	13.91	29.5	29.5	6.0	41.5
Selenium	0.080	0.113	0.100	0.114	0.020	0.059	0.113	0.113	0.020	0.161
Silver*	0.492	0.634	0.621	0.660	0.211	0.232	0.634	0.634	0.211	0.850
Zinc*	24.4	31.4	32.1	33.4	10.3	11.2	31.4	31.4	10.3	42.3
Cyanide	2.51	3.25	3.31	3.51	1.38	4.11	3.25	3.25	1.38	4.11
Non-Chlorinated Phenolic Compounds	1.73	2.51	2.66	2.77	0.17	0.51	2.51	2.51	0.17	3.76
Ammonia (as N)	1,469	1,902	2,823	2,503	807	2,404	1,902	1,902	807	2,404
Total HCH (Lindane)	0.0067	0.0096	0.0085	0.0098	0.0010	0.0029	0.0096	0.0096	0.0010	0.0142

* Dilutions based on the following background values specified by the California Ocean Plan:
arsenic, 3 ug/l; copper, 2 ug/l; mercury, 0.0005 ug/l; silver, 0.16 ug/l; and zinc, 8 ug/l.

Table 12. Reference Values for Water and Sediment Quality

	6-Month Median (ug/L)	Daily Maximum (ug/L)	Acute Exposure (ug/L)	Chronic Exposure (ug/L)	Effects Range Low (mg/kg)	Effects Range Median (mg/kg)
Arsenic	8	32	360	190	8.2	70
Cadmium	1	4	3.9	1.1	1.2	9.6
Chromium	2	8	16	11	81	370
Copper	3	12	18	12	34	270
Lead	2	8	82	3.2	46.7	218
Mercury	0.04	0.16	2.4	N/A	0.15	0.71
Nickel	5	20	1400	160	20.9	51.6
Selenium	15	60	20	5	4	N/A
Silver	0.7	2.8	4.1	N/A	1	3.7
Zinc	20	80	120	110	150	410
Cyanide	1	4	22	5.2	N/A	N/A
Non-Chlorinated Phenolic Compounds	30	120	N/A	N/A	N/A	N/A
Ammonia (as N)	600	2400	-	-	N/A	N/A
Total HCH (Lindane)	0.004	0.008	2	0.08	N/A	N/A

N/A Not available.

* California Ocean Plan, Table B: Objectives for protection of marine aquatic life.

** USEPA water quality criteria for protection of freshwater biota. Ammonia criteria is pH and temperature dependent, and was not included in the risk assessment.

*** Effects levels from Long et al. (1995). Selenium value is a No Observed Adverse Effect Level from EPA (1996).

Table 13. Hazard Quotient at the Edge of the SBOO Mixing Zone

		Alt. 1A	Alt. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
		Advanced Primary	Advanced Primary	Activated Sludge	Aerated Lagoons	Aerated Lagoons	Activated Sludge	Aerated Lagoons

Parameter	2001 Ocean Plan Criteria (ug/L)	Hazard Quotient for Daily Average Concentration (unitless)						
		Alt. 1A	Alt. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
Arsenic	8	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Cadmium	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chromium	2	0.07	0.07	0.12	0.02	0.02	0.12	0.02
Copper	3	0.92*	0.92*	0.78	0.69	0.69	0.78	0.69
Lead	2	0.00	0.00	0.04	0.01	0.01	0.04	0.01
Mercury	0.04	0.03	0.03	0.03	0.02	0.02	0.03	0.02
Nickel	5	0.13	0.13	0.18	0.07	0.07	0.18	0.07
Selenium	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Silver	0.7	0.23	0.23	0.24	0.23	0.23	0.24	0.23
Zinc	20	0.45	0.45	0.43	0.40	0.40	0.43	0.40
Cyanide	1	0.20	0.20	0.07	0.23	0.23	0.07	0.23
Non-Chlorinated Phenolic Compounds	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ammonia (as N)	600	0.95*	0.95*	0.51	0.51	0.51	0.51	0.51
Total HCH (Lindane)	0.004	0.00	0.00	0.19	0.06	0.06	0.19	0.06

* While HQ values are below 1.0, criteria exceedances have been reported for ammonia and, to a lesser extent, for copper (SAIC, 2004).

Parameter	2001 Ocean Plan Criteria (ug/L)	Hazard Quotient for Daily Maximum Concentration (unitless)						
		Alt. 1A	Alt. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
Arsenic	32	0.10	0.10	0.09	0.09	0.09	0.09	0.09
Cadmium	4	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Chromium	8	0.07	0.07	0.09	0.01	0.01	0.09	0.01
Copper	12	0.64	0.64	0.27	0.19	0.19	0.27	0.19
Lead	8	0.00	0.00	0.04	0.01	0.01	0.04	0.01
Mercury	0.16	0.13	0.13	0.07	0.02	0.02	0.07	0.02
Nickel	20	0.14	0.14	0.29	0.12	0.12	0.29	0.12
Selenium	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Silver	2.8	0.07	0.07	0.07	0.06	0.06	0.07	0.06
Zinc	80	0.13	0.13	0.12	0.10	0.10	0.12	0.10
Cyanide	4	0.07	0.07	0.06	0.20	0.20	0.06	0.20
Non-Chlorinated Phenolic Compounds	120	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ammonia (as N)	2400	0.31	0.31	0.20	0.20	0.20	0.20	0.20
Total HCH (Lindane)	0.008	0.00	0.00	0.22	0.07	0.07	0.22	0.07

1.0 HQ values greater than 1.0 indicate a potential for adverse effects.

Table 14. Hazard Quotient for Sediments at the SBOO Discharge

Alt. 1A	Alts. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
Advanced Primary	Advanced Primary	Activated Sludge	CMA Lagoons	CMA Lagoons	Activated Sludge	CMA Lagoons

	Solids Load Relative to Alternative 1A (No Action Alt.)						
Year 2009	100%	100%	5%	38%	24%	24%	38%
Year 2023	100%	100%	5%	56%	24%	24%	56%

Parameter	Guideline (mg/kg)	Hazard Quotient for Effects Range-Low (unitless)						
		Alt. 1A	Alts. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
Arsenic	8.2	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cadmium	1.2	0.06	0.06	0.04	0.02	0.02	0.04	0.02
Chromium	81	0.05	0.05	0.03	0.01	0.01	0.03	0.01
Copper	34	6.6	6.6	5.0	1.0	1.0	5.0	1.0
Lead	47	0.14	0.14	0.53	0.11	0.11	0.53	0.11
Mercury	0.15	5.4	5.4	10.1	2.1	2.1	10.1	2.1
Nickel	20.9	0.43	0.43	1.22	0.50	0.50	1.22	0.50
Selenium	4	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Silver	1	9.0	9.0	12.1	2.4	2.4	12.1	2.4
Zinc	150	0.73	0.73	0.85	0.19	0.19	0.85	0.19

Parameter	Guideline (mg/kg)	Hazard Quotient for Effects Range-Median (unitless)						
		Alt. 1A	Alts. 1B	Alt. 3	Alt. 4-I	Alt. 5A	Alt. 5B	Alt. 6
Arsenic	70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cadmium	9.6	0.01	0.01	0.01	0.00	0.00	0.01	0.00
Chromium	370	0.01	0.01	0.01	0.00	0.00	0.01	0.00
Copper	270	0.84	0.84	0.63	0.13	0.13	0.63	0.13
Lead	218	0.03	0.03	0.11	0.02	0.02	0.11	0.02
Mercury	0.71	1.14	1.14	2.13	0.44	0.44	2.13	0.44
Nickel	51.6	0.17	0.17	0.49	0.20	0.20	0.49	0.20
Selenium	n/a							
Silver	3.7	2.43	2.43	3.27	0.65	0.65	3.27	0.65
Zinc	410	0.27	0.27	0.31	0.07	0.07	0.31	0.07

1.0 HQ values greater than 1.0 indicate a potential for adverse effects.

Table 15. Hazard Quotient at the USA/Mexico Border (Coastal Station S4) for 2009 Conditions

Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
40 mgd	40 mgd	65 mgd	51 mgd	25 mgd	65 mgd	40 mgd	40 mgd	25 mgd	65 mgd

Parameter	2001 Ocean Plan Criteria (ug/L)	Hazard Quotient for Daily Average Concentration (unitless)									
		Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
Arsenic	8	0.38	0.38	0.37	0.37	0.38	0.37	0.38	0.38	0.38	0.38
Cadmium	1	0.01	0.01	0.02	0.01	0.00	0.01	0.01	0.01	0.00	0.04
Chromium	2	0.47	0.47	0.75	0.60	0.13	0.18	0.47	0.47	0.13	1.47
Copper	3	1.48	1.48	2.17	1.80	0.89	0.94	1.48	1.48	0.89	3.16
Lead	2	0.10	0.10	0.13	0.12	0.02	0.04	0.10	0.10	0.02	0.33
Mercury	0.04	0.05	0.05	0.09	0.07	0.02	0.03	0.05	0.05	0.02	0.12
Nickel	5	0.38	0.38	0.74	0.54	0.19	0.39	0.38	0.38	0.19	1.06
Selenium	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Silver	0.7	0.29	0.29	0.31	0.30	0.24	0.25	0.29	0.29	0.24	0.42
Zinc	20	0.57	0.57	0.70	0.63	0.44	0.45	0.57	0.57	0.44	0.93
Cyanide	1	0.46	0.46	0.98	0.69	0.39	1.02	0.46	0.46	0.39	1.02
Phenolic Compounds	30	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.03
Ammonia (as N)	600	1.05	1.05	3.08	1.90	0.88	2.31	1.05	1.05	0.88	2.31
Total HCH (Lindane)	0.004	0.39	0.39	0.52	0.46	0.10	0.27	0.39	0.39	0.10	1.22

Parameter	2001 Ocean Plan Criteria (ug/L)	Hazard Quotient for Daily Maximum Concentration (unitless)									
		Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
Arsenic	32	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Cadmium	4	0.01	0.01	0.02	0.02	0.00	0.00	0.01	0.01	0.00	0.03
Chromium	8	0.35	0.35	0.60	0.47	0.10	0.13	0.35	0.35	0.10	1.10
Copper	12	0.92	0.92	1.94	1.36	0.38	0.43	0.92	0.92	0.38	2.46
Lead	8	0.10	0.10	0.13	0.12	0.02	0.04	0.10	0.10	0.02	0.33
Mercury	0.16	0.16	0.16	0.42	0.27	0.05	0.09	0.16	0.16	0.05	0.47
Nickel	20	0.61	0.61	1.06	0.82	0.30	0.63	0.61	0.61	0.30	1.70
Selenium	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Silver	2.8	0.12	0.12	0.16	0.14	0.08	0.08	0.12	0.12	0.08	0.25
Zinc	80	0.21	0.21	0.30	0.25	0.13	0.14	0.21	0.21	0.13	0.44
Cyanide	4	0.41	0.41	0.68	0.54	0.34	0.91	0.41	0.41	0.34	0.91
Phenolic Compounds	120	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.02
Ammonia (as N)	2400	0.40	0.40	1.08	0.69	0.34	0.88	0.40	0.40	0.34	0.88
Total HCH (Lindane)	0.008	0.45	0.45	0.60	0.53	0.12	0.31	0.45	0.45	0.12	1.41

1.0 HQ values greater than 1.0 indicate a potential for adverse effects.

Table 16. Hazard Quotient at the USA/Mexico Border (Coastal Station S4) for 2023 Conditions

Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
50 mgd	59 mgd	84 mgd	70 mgd	25 mgd	84 mgd	59 mgd	59 mgd	25 mgd	84 mgd

Parameter	2001 Ocean Plan Criteria (ug/L)	Hazard Quotient for Daily Average Concentration (unitless)									
		Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
Arsenic	8	0.38	0.38	0.37	0.38	0.38	0.37	0.38	0.38	0.38	0.38
Cadmium	1	0.02	0.03	0.03	0.03	0.00	0.01	0.03	0.03	0.00	0.05
Chromium	2	0.87	1.25	1.22	1.33	0.13	0.18	1.25	1.25	0.13	1.85
Copper	3	2.17	2.81	2.92	3.01	0.89	0.92	2.81	2.81	0.89	3.79
Lead	2	0.19	0.28	0.25	0.28	0.02	0.05	0.28	0.28	0.02	0.41
Mercury	0.04	0.08	0.10	0.12	0.12	0.02	0.03	0.10	0.10	0.02	0.14
Nickel	5	0.66	0.92	1.02	1.03	0.19	0.43	0.92	0.92	0.19	1.29
Selenium	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Silver	0.7	0.34	0.39	0.37	0.40	0.24	0.25	0.39	0.39	0.24	0.47
Zinc	20	0.72	0.86	0.87	0.89	0.44	0.45	0.86	0.86	0.44	1.07
Cyanide	1	0.71	0.91	1.12	1.09	0.39	1.16	0.91	0.91	0.39	1.16
Non-Chlorinated Phenolic Compounds	30	0.02	0.02	0.02	0.03	0.00	0.00	0.02	0.02	0.00	0.04
Ammonia (as N)	600	1.60	2.07	3.30	2.84	0.88	2.62	2.07	2.07	0.88	2.62
Total HCH (Lindane)	0.004	0.72	1.04	0.92	1.06	0.10	0.31	1.04	1.04	0.10	1.54

Parameter	2001 Ocean Plan Criteria (ug/L)	Hazard Quotient for Daily Maximum Concentration (unitless)									
		Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
Arsenic	32	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Cadmium	4	0.02	0.03	0.03	0.03	0.00	0.01	0.03	0.03	0.00	0.04
Chromium	8	0.65	0.94	0.95	1.01	0.10	0.13	0.94	0.94	0.10	1.39
Copper	12	1.55	2.14	2.58	2.50	0.38	0.42	2.14	2.14	0.38	3.04
Lead	8	0.19	0.28	0.24	0.28	0.02	0.05	0.28	0.28	0.02	0.41
Mercury	0.16	0.29	0.40	0.54	0.50	0.05	0.09	0.40	0.40	0.05	0.58
Nickel	20	1.06	1.48	1.52	1.60	0.30	0.70	1.48	1.48	0.30	2.08
Selenium	15	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.01
Silver	2.8	0.18	0.23	0.22	0.24	0.08	0.08	0.23	0.23	0.08	0.30
Zinc	80	0.31	0.39	0.40	0.42	0.13	0.14	0.39	0.39	0.13	0.53
Cyanide	4	0.63	0.81	0.83	0.88	0.34	1.03	0.81	0.81	0.34	1.03
Non-Chlorinated Phenolic Compounds	120	0.01	0.02	0.02	0.02	0.00	0.00	0.02	0.02	0.00	0.03
Ammonia (as N)	2400	0.61	0.79	1.18	1.04	0.34	1.00	0.79	0.79	0.34	1.00
Total HCH (Lindane)	0.008	0.83	1.20	1.07	1.22	0.12	0.36	1.20	1.20	0.12	1.77

1.0 HQ values greater than 1.0 indicate a potential for adverse effects.

Table 17. Hazard Quotient for Exposure of Tijuana River Biota (Alternative 1A)

	Untreated Wastewater Concentration (ug/L)		Freshwater Quality Criteria (ug/L)		Hazard Quotient (unitless)	
	Daily Average	Daily Maximum	Chronic Exposure	Acute Exposure	Chronic Exposure	Acute Exposure
Arsenic	3.28	9.8	190	360	0.0	0.0
Cadmium	1.2	4.2	1.1	3.9	1.1	1.1
Chromium	96.2	289	11	16	8.7	18.1
Copper	258	942	12	18	21.5	52.3
Lead	22.1	88.3	3.2	82	6.9	1.1
Mercury	0.143	2.5	0.012	2.4	11.9	1.0
Nickel	156	1003	160	1400	1.0	0.7
Selenium	1.75	3.97	5	20	0.4	0.2
Silver	4.84	19	N/A	4.1	-	4.6
Zinc	376	948	110	120	3.4	7.9
Cyanide	22.5	80	5.2	22	4.3	3.6
Non-Chlorinated Phenolic Compounds	28.8	100	N/A	N/A	-	-
Total HCH (Lindane)	0.16	0.37	0.08	2	2.0	0.2

1.0

HQ values greater than 1.0 indicate a potential for adverse effects.

Table 18. Number of Potential Exceedances of Water Quality Indicators

		Number of Parameters Exceeding Reference Criteria									
		Alt. 1A	Alt. 1B	Alt. 2	Alt. 3	Alt. 4-I	Alt. 4-II	Alt. 5A	Alt. 5B	Alt. 6	Alt. 7
2009 Conditions											
SBOO Discharge (edge of mixing zone)											
Daily Average Criteria		0	0	0	0	0	0	0	0	0	0
Daily Maximum Criteria		0	0	0	0	0	0	0	0	0	0
Punta Bandera Discharge (at the border)											
Daily Average Criteria		2	2	2	2	0	2	2	2	0	6
Daily Maximum Criteria		0	0	3	1	0	0	0	0	0	4
<i>Number of Potential Exceedances</i>		2	2	5	3	0	2	2	2	0	10
2023 Conditions											
SBOO Discharge (edge of mixing zone)											
Daily Average Criteria		0	0	0	0	0	0	0	0	0	0
Daily Maximum Criteria		0	0	0	0	0	0	0	0	0	0
Punta Bandera Discharge (at the border)											
Daily Average Criteria		2	4	5	6	0	2	4	4	0	7
Daily Maximum Criteria		2	3	4	5	0	1	4	4	0	5
Tijuana River Discharge (at the border)											
Acute Exposure		9	0	0	0	0	0	0	0	0	0
Chronic Exposure		6	0	0	0	0	0	0	0	0	0
<i>Number of Potential Exceedances</i>		20	8	9	11	0	3	8	8	0	13

APPENDIX F

COST ESTIMATES FOR ALTERNATIVES

**DRAFT
SUPPLEMENTAL
ENVIRONMENTAL IMPACT STATEMENT**

**Clean Water Act Compliance
at the
South Bay International Wastewater Treatment Plant**

**APPENDIX F
COST ESTIMATES FOR ALTERNATIVES**

December 2004

TABLE OF CONTENTS

ACRONYMS	F-II
1.0 ALTERNATIVE DESCRIPTIONS	F-1
2.0 ASSUMPTIONS	F-5
3.0 COST SUMMARY FOR ALTERNATIVES	F-7
4.0 REFERENCES CITED	F-9

FIGURES

Figure F-1. Comparison of Present Value, Capital Cost and Annual O&M Costs for Alternatives.....	F-8
--	-----

TABLES

Table F-1. Summary of Capital Cost, Annual O&M Cost, and Present Value	F-7
Table F-2. Alternative 1 Option A.....	F-10
Table F-3. Alternative 1 Option B.....	F-11
Table F-4. Alternative 2.....	F-13
Table F-5. Alternative 3.....	F-14
Table F-6. Alternative 4 Option A Discharge Option I	F-16
Table F-7. Alternative 4 Option A Discharge Option II	F-18
Table F-8. Alternative 4 Option B Discharge Option I	F-21
Table F-9. Alternative 4 Option B Discharge Option II	F-23
Table F-10. Alternative 4 Option C Discharge Option I	F-26
Table F-11. Alternative 4 Option C Discharge Option II	F-28
Table F-12. Alternative 5 Option A.....	F-31
Table F-13. Alternative 5 Option B-1	F-33
Table F-14. Alternative 5 Option B-2.....	F-35
Table F-15. Alternative 6 Option A.....	F-37
Table F-16. Alternative 6 Option B.....	F-39
Table F-17. Alternative 7.....	F-41

ACRONYMS

Acronym	Definition
CESPT	Comision Estatal de Servicios Publicos de Tijuana (State Commission of Public Services, Tijuana)
CMA	completely mixed aeration
ENR	Engineering News-Record
EPA	United States Environmental Protection Agency
IWTP	International Wastewater Treatment Plant
LLP	limited liability corporation
mgd	million gallons per day
MOU	Memorandum of Understanding
NPDES	National Pollutant Discharge Elimination System
OCC	original conveyance channel
O&M	operations and maintenance
PCL	parallel conveyance line
PERC	primary effluent return connection
PLWTP	Point Loma Wastewater Treatment Plant
RCL	rehabilitated conveyance line
SABWWTP	San Antonio de los Buenos Wastewater Treatment Plant
SBIWTP	South Bay International Wastewater Treatment Plant
SBOO	South Bay Ocean Outfall
SEIS	Supplemental Environmental Impact Statement
SBWRP	South Bay Water Reclamation Plant
USIBWC	United States Section, International Boundary and Water Commission

The United States Section of the International Boundary and Water Commission (USIBWC) is evaluating the potential environmental impacts of sewage treatment and disposal alternatives at the South Bay International Wastewater Treatment Plant (SBIWTP). The SBIWTP and its system of canyon collectors prevent dry weather flows of raw sewage from flowing across the border into the Tijuana River Valley, Tijuana Estuary and south San Diego beaches. The SBIWTP treats an average of 25 million gallons per day (mgd) of raw sewage originating from Tijuana and then discharges the treated advanced primary effluent approximately 3.5 miles out into the Pacific Ocean through the South Bay Ocean Outfall (SBOO). Alternatives under consideration address modifications in current sewage treatment levels and ocean disposal over a 20-year period, as well as changes in routing of the effluent for disposal south of the United States/Mexico border, at Punta Bandera, Baja California.

This appendix presents preliminary cost estimates for alternative treatment and discharge options considered. Capital and annual operating and maintenance (O&M) costs were estimated, and were used to calculate a present value for each alternative. These preliminary cost estimates should be considered order-of-magnitude cost estimates (+50%, -30%), and are provided for making relative comparisons between alternatives.

1.0 ALTERNATIVE DESCRIPTIONS

The following are brief descriptions of each of the alternatives that highlight the major new or modified components.¹ The preliminary cost estimates contain a summary of the flows directed to each key conveyance and treatment plant.

ALTERNATIVE 1: NO ACTION (OPERATION OF SBIWTP AS ADVANCED PRIMARY FACILITY)

Alternative 1 – Option A (USIBWC Continues Operating SBIWTP as Advanced Primary Facility and Mexico Does Not Rehabilitate Its Original Conveyance Channel)

In this alternative, the SBIWTP would continue to operate, providing advanced primary treatment, and all treated effluent is discharged through the SBOO. This alternative requires additional O&M at the parallel conveyance line (PCL) pump station to carry the required 50 mgd capacity.

Alternative 1 – Option B (USIBWC Continues Operating SBIWTP as Advanced Primary Facility and Mexico Rehabilitates Its Original Conveyance Channel)

In this alternative, the SBIWTP would continue to operate, providing advanced primary treatment, and all treated effluent is discharged through the SBOO. The original conveyance channel (OCC) would be renovated (RCL) to carry more wastewater for disposal at Punta Bandera. This alternative requires construction and operation of the new RCL pump station and pipeline in Mexico.

¹ For detailed descriptions of the alternatives, please refer to Chapter 2 of the Draft SEIS.

ALTERNATIVE 2: OPERATE SBIWTP AS ADVANCED PRIMARY FACILITY WITH ALL EFFLUENT TREATED AT THE SBIWTP RETURNED TO MEXICO

In Alternative 2, the SBIWTP would continue to operate, providing advanced primary treatment, and all effluent would be returned to Mexico via the primary effluent return connection (PERC) for discharge at Punta Bandera. In this alternative, none of the SBIWTP effluent would be discharged through the SBOO. For this alternative, the OCC would be renovated (RCL) to carry more wastewater. This alternative requires construction and operation of a new RCL pump station and pipeline in Mexico.

ALTERNATIVE 3: OPERATE SBIWTP AS ADVANCED PRIMARY FACILITY AND CONVEY 14 MGD OF THE SBIWTP EFFLUENT TO THE CITY OF SAN DIEGO FACILITIES WITH REMAINDER OF THE SBIWTP EFFLUENT RETURNED TO MEXICO

In Alternative 3, the SBIWTP would continue to operate, providing advanced primary treatment, and 14 mgd of primary effluent would be sent to San Diego City treatment facilities: the Point Loma Wastewater Treatment Plant (PLWTP) and the South Bay Water Reclamation Plant (SBWRP). The remaining 11 mgd of SBIWTP effluent would be returned to Mexico via PERC for discharge at Punta Bandera. This alternative includes renovation of the OCC through construction and operation of the RCL pump station and pipeline in Mexico. This alternative would also include the construction of a pipeline to convey primary effluent to the SBWRP, and a parallel sludge return line, along with necessary interconnections to existing pipelines and facilities. Capacity fees and discharge fees would have to be paid to the City of San Diego. Another key factor for this alternative would be getting cooperation/approval from the City of San Diego.

ALTERNATIVE 4: PUBLIC LAW 106-457 (SECONDARY TREATMENT FACILITY IN MEXICO)

Alternative 4 Option A – Operation of SBIWTP as Advanced Primary Facility with Secondary Treatment of the SBIWTP Effluent in Mexico, Discharge Option I – Discharge through the SBOO

In Alternative 4 Option A, Discharge Option I, the SBIWTP would continue to operate providing advanced primary treatment, and all effluent would be pumped to Mexico for secondary treatment. The secondary treatment effluent would return to the United States and be discharged through the SBOO. This alternative also provides for treatment in Mexico of an additional 34 mgd of wastewater originating from Mexico that is also discharged through the SBOO. The key components for this alternative are the construction of the public law treatment plant and the pump stations and pipelines necessary to convey the advanced primary effluent from the

SBIWTP to the Public Law 106-457 treatment plant for secondary treatment, and then back to the SBOO for discharge.

Alternative 4 Option A – Operation of SBIWTP as advanced Primary Facility with Secondary Treatment of the SBIWTP Effluent in Mexico, Discharge Option II – Discharge at Punta Bandera

This alternative is the same as Alternative 4 Option A, Discharge Option I, with the exception that the secondary effluent would stay in Mexico for discharge at Punta Bandera. In addition to the public law treatment plant and influent conveyance, this alternative requires construction and operation of an effluent conveyance to a new RCL line and pump station.

Alternative 4 Option B – Cease Operation of SBIWTP, Conduct all Primary and Secondary Treatment in Mexico, Discharge Option I – Discharge through the SBOO

In Alternative 4 Option B, Discharge Option I, the SBIWTP would cease operations, and primary and secondary treatment for 59 mgd would be conducted at the public law treatment plant in Mexico. All secondary effluent would be piped back to the United States and discharged through the SBOO. The key components for this alternative are the construction of the public law treatment plant and the pump stations and pipelines necessary to convey wastewater to the public law treatment plant and to convey the effluent to the SBOO.

Alternative 4 Option B – Cease Operation of SBIWTP, Conduct all Secondary Treatment in Mexico, Discharge Option II – Discharge at Punta Bandera

This alternative is the same as Alternative 4 Option B, Discharge Option I, with the exception that the secondary effluent would stay in Mexico for discharge at Punta Bandera. In addition to the public law treatment plant and influent conveyance and pump station, this alternative requires construction and operation of an effluent conveyance pipeline and a new RCL line and pump station.

Alternative 4 Option C – Bajagua LLC, Proposal - Operation of SBIWTP as advanced Primary Facility, Secondary Treatment in Mexico, Discharge Option I – Discharge through the SBOO

In Alternative 4 Option C, Discharge Option I, the SBIWTP would continue to operate providing advanced primary treatment, and all effluent would be piped to Mexico for secondary treatment in the Bajagua-proposed treatment plant. The secondary effluent would be returned to the United States and discharged through the SBOO. This alternative also provides for treatment in Mexico of an additional 34 mgd wastewater originating from Mexico that is also discharged through the SBOO. The key components for this alternative are the construction of the Bajagua treatment plant and the pump stations and pipelines necessary to convey the advanced

primary effluent from the SBIWTP to the Bajagua treatment plant, and then back to the SBOO for discharge.

Alternative 4 Option C – Bajagua LLC, Proposal - Operation of SBIWTP as advanced Primary Facility, Secondary Treatment in Mexico, Discharge Option II – Discharge at Punta Bandera

This alternative is the same as Alternative 4C, Discharge Option I, with the exception that the secondary effluent would stay in Mexico for discharge at Punta Bandera. In addition to the Bajagua treatment plant and influent conveyance and pump station, this alternative requires construction and operation of an effluent conveyance pipeline, new RCL line and pump station.

ALTERNATIVE 5: SECONDARY TREATMENT IN THE UNITED STATES AT THE SBIWTP

Alternative 5 Option A – Completely Mixed Aeration (CMA) Ponds at SBIWTP

In this alternative, the SBIWTP continues operation, but ferric chloride addition is discontinued so that only primary treatment is provided. A completely mixed aerated pond system is constructed to provide secondary treatment for the primary wastewater produced by SBIWTP. The 25 mgd secondary effluent is then discharged through the SBOO. Improvements are also required for the OCC (RCL), including construction of the RCL pump station and pipeline.

Alternative 5 Option B-1 – Activated Sludge Secondary Treatment with Flow Equalization

In this alternative, the SBIWTP continues to provide advanced primary treatment, and an activated sludge system is constructed to provide secondary treatment for the advanced primary wastewater produced by SBIWTP. The secondary effluent is then discharged through the SBOO. Improvements are also required for the OCC (RCL), including construction of the RCL pump station and pipeline. To accommodate the large variation in flows, a 7 million gallon equalization tank would reduce the flow variability to the secondary treatment train.

Alternative 5 Option B-2 – Activated Sludge Secondary Treatment with Expanded Capacity

In this alternative, the SBIWTP continues to provide advanced primary treatment, and an activated sludge system is constructed to provide secondary treatment for the advanced primary wastewater produced by SBIWTP. The secondary effluent is then discharged through the SBOO. Improvements are also required for the OCC (RCL), including construction of the RCL pump station and pipeline. To accommodate the large variation in flows the secondary train is suitably expanded.

ALTERNATIVE 6: SECONDARY TREATMENT IN THE UNITED STATES AND MEXICO

Alternative 6 Option A – CMA Ponds at SBIWTP and the Public Law Treatment Plant in Mexico

This alternative is a combination of Alternative 5 Option A and Alternative 4. In this alternative, the SBIWTP continues to operate, but ferric chloride addition is discontinued so that only primary treatment is provided. A completely mixed aerated pond system is constructed to provide secondary treatment for the primary wastewater produced by SBIWTP. A Public Law 106-457 treatment plant would be constructed in Mexico to provide secondary treatment for flows beyond the capacity of the SBIWTP and SABWWTP. The secondary effluent from both the pond system and the public law treatment plant is then discharged through the SBOO.

Alternative 6 Option B – Activated Sludge System at SBIWTP and the Public Law Treatment Plant in Mexico

This alternative is a combination of Alternative 5 Option B and Alternative 4, and is the same as Alternative 6 Option A with the exception that an activated sludge system is constructed instead of the completely mixed aerated pond system at the SBIWTP to provide secondary treatment.

ALTERNATIVE 7: SBIWTP CLOSURE/SHUTDOWN

In Alternative 7, the SBIWTP would cease operation, and no wastewater flows originating in Mexico would be discharged through the SBOO. For this alternative, the OCC would be renovated (RCL) to carry more wastewater. This alternative requires construction and operation of a new RCL pump station and pipeline.

2.0 ASSUMPTIONS

The costs developed in this appendix are the costs for new facilities necessary to implement the alternative considered without regard to the source of financing (United States or Mexico). For example, facilities to be built in Mexico will have construction and O&M costs associated with the utilization of Mexican labor.

All preliminary cost estimates are shown in United States dollars. Costs obtained from, or developed in, Mexican pesos have been converted to United States dollars at the rate of 1 dollar = 11.35 pesos.

The preliminary capital cost estimates are investment cost estimates, and include construction cost, as well as costs for engineering, administration, and land. The preliminary capital cost estimates do not include contingency for site-related construction unknowns nor for the limitations in costing of alternatives at such an early stage of development. Capital costs do not include existing infrastructures that do not require significant modification or expansion. In general, O&M costs have been included for new or significantly expanded infrastructures. O&M costs have

been included for the existing SBIWTP, since the operating scenarios for the SBIWTP vary for the different alternatives.

The present value calculation is based on a 20-year period of analysis, an inflation rate of 2 percent, and a discount rate of 6 percent. The useful life of structures is estimated to be greater than the 20-year analysis period, and the useful life of equipment is estimated to be 20 years. It is also assumed that the expenditure for structures and equipment is made in year zero, and no subsequent outlays for structures or equipment are made.

The preliminary annual cost for O&M is assumed to remain constant (in 2004 dollars) for the 20-year analysis period. It is assumed there is no salvage value at the end of the 20-year analysis period. Costs for National Pollutant Discharge Elimination System (NPDES) permit compliance and ocean monitoring have been isolated from the general O&M cost, and are shown separately. The level of the O&M effort was assumed to remain constant with 2 percent annual inflation.

The cost for land (lease or purchase) is accounted for in the preliminary cost estimates for the land intensive components such as treatment works. Easement acquisition costs are not specifically included for pipeline components.

The costs for construction of components in the United States consider use of local labor pool and material prices (Los Angeles area), and likewise, the costs for construction of components in Mexico consider the use of the local labor pool and material prices (Tijuana area). The average hourly labor costs were identified in References 1 and 5 and were updated to November 2004 as follows: United States labor at \$29.36 per hour (U.S. dollars) and Mexican labor at \$4.96 per hour (U.S. dollars). The costs are a blend of categories and include fringes.

Cost information for the alternatives was taken mainly from previous studies related to regional wastewater management. Many of the components included in the SEIS alternatives have been considered in previous studies. Where possible, capital and O&M cost estimates for entire assemblies, such as treatment plants or lift stations were taken and incorporated into the present estimates. In other places, it was only possible to take cost estimates for portions of scenarios addressed in the previous studies. In many cases it was necessary to scale the costs up or down to reflect differences in capacity used for the original study and this Draft SEIS. Information provided directly from the USIBWC also was an important source regarding O&M costs for the SBIWTP and costs related to discharge to City of San Diego treatment plants. When costs were unavailable for similar components in the previous studies, preliminary estimates of cost were generated based on EPA cost estimation data and equations and/or Parsons professional judgment and experience with similar installations.

Some of the Draft SEIS alternatives are more fully developed than others. Final design and NEPA documentation have been completed for Alternative 5 Options A and B-1. Therefore, each alternative may take a different path to completion (i.e., possibly resulting in a different project delivery method). The uncertainties inherent in the level of project development and project delivery methods may have an impact on final costs.

3.0 COST SUMMARY FOR ALTERNATIVES

A summary of capital costs, annual O&M costs and present value is provided on Table F-1. A comparison of these costs is shown on Figure F-1. Costs shown herein are preliminary draft estimates provided for information only. Tables F-2 through F-17 provide a detailed breakdown of preliminary component costs for each alternative.

DISCLAIMER: These preliminary estimates are intended solely to provide a comparison of estimated relative costs associated with alternatives considered in the Draft SEIS. These preliminary estimated costs are draft estimates and do not purport to precisely forecast exact monetary values for the alternatives under consideration in the Draft SEIS. The alternatives being considered involve significant and complex construction projects in the United States and/or Mexico and projections as well as projected future annual O&M costs over a 20-year period. The actual capital and projected annual O&M costs associated with the individual alternatives will depend upon numerous factors that may influence costs, including design and engineering expenses, equipment, materials, labor and personnel costs, market conditions, construction materials availability or lack thereof, subcontracts, overhead, taxes, insurance, location, future energy, water and other utility costs, future maintenance and repair costs, financing costs, currency exchange rates, land acquisition costs, permitting and regulatory requirements and other variables, contingencies and factors. Construction, operation and maintenance of any facilities will be contingent upon the availability of necessary funding.

Table F-1. Summary of Capital Cost, Annual O&M Cost, and Present Value

Alternative	Flow (mgd)			Capital Cost (\$M)	Annual O&M Cost (\$M)	Present Value (\$M)
	Advanced Primary*	Secondary	Remaining Flows			
1A	50.0	--	34	\$0.0	\$9.4	\$128.6
1B	50.0	--	34	\$37.1	\$8.9	\$158.9
2	50.0		34	\$45.7	\$10.3	\$186.8
3	45.0	5	34	\$82.8	\$15.3	\$292.7
4A Discharge Option I	25.0	59	--	\$137.4	\$14.8	\$340.0**
4A Discharge Option II	25.0	59	--	\$179.8	\$19.6	\$448.5**
4B Discharge Option I	25.0	59	--	\$172.4	\$12.3	\$340.9**
4B Discharge Option II	25.0	59	--	\$214.7	\$17.2	\$449.5**
4C Discharge Option I	25.0	59	--	\$133.8	\$14.8	\$336.1**
4C Discharge Option II	25.0	59	--	\$177.9	\$19.6	\$446.5**
5A	25.0	25	34	\$63.9	\$12.5	\$235.0
5B-1	25.0	25	34	\$124.5	\$15.5	\$336.0
5B-2	25.0	25	34	\$131.5	\$15.5	\$343.6
6A	25.0	59	--	\$122.9	\$15.7	\$337.1
6B	25.0	59	--	\$183.6	\$18.6	\$438.1
7	25.0		59	\$45.7	\$5.9	\$126.6

* Includes 25 mgd treated at San Antonio de Los Buenos WTP in Mexico.
** Present value costs do not include total annual outlays (refer to cash flow summaries for actual costs).

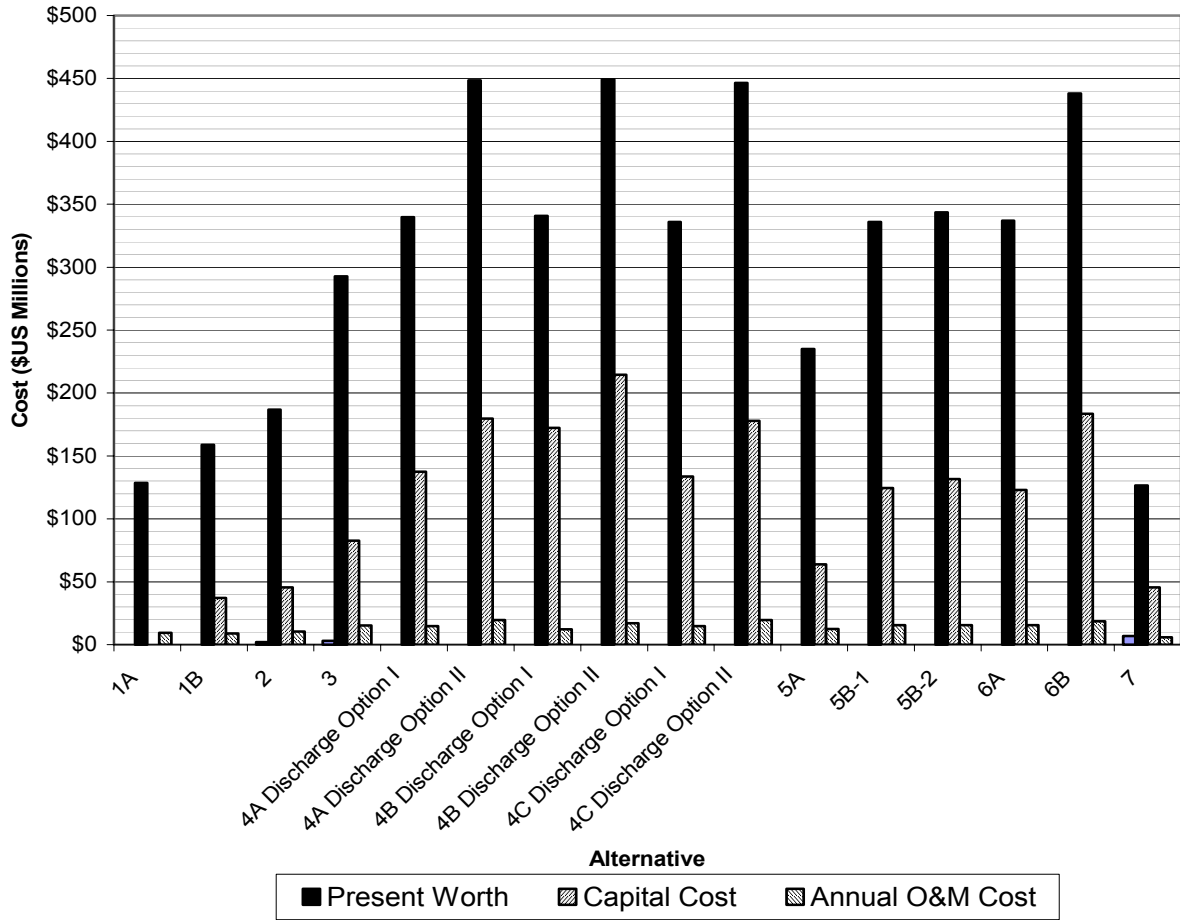


Figure F-1. Comparison of Present Value, Capital Cost and Annual O&M Costs for Alternatives

4.0 REFERENCES CITED

The primary references used for generation of the preliminary cost estimates include the following:

Reference 1. Supplemental Environmental Impact Statement for the International Boundary and Water Commission South Bay International Wastewater Treatment Plant Long Term Treatment Options, CH2M Hill, January 1998 (Draft) and March 1999 (Final).

Reference 2. 1999 Drinking Water Infrastructure Needs Survey, EPA, 1999.

Reference 3. Bajagua Wastewater Treatment and Water Reclamation Project, Bajagua Project LLC, September 2001.

Reference 4. CESPT Potable Water and Wastewater Master Plan for Tijuana and Playas de Rosario, Volume I, CDM, February 2003.

Reference 5. Identification and Evaluation of Disposal Alternatives for the Treated Wastewater Effluents of Tijuana Wastewater Effluents of Tijuana Municipality, Baja California Mexico, CSI Ingenieros, June 2004.

Reference 6. Engineering News-Record (ENR) index for Los Angeles area, McGraw Hill Construction available at <http://enr.construction.com>.

Table F-2. Alternative 1 Option A

Alternative 1: No Action (Operation of SBIWTP as Advanced Primary Facility)

Alternative 1A: SBIWTP would continue to provide advanced primary treatment for average flows of 25mgd and peak flow of 50mgd until secondary treatment facilities are constructed.

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; SBOO=25 ; PCL=50¹ ; RCL=0; Pt. Band.=50 ; River=9

SBIWTP Primary Treatment Facility	
Capital Cost of SBIWTP Primary Treatment Facility ² (2004 \$US)	\$0
Annual O&M SBIWTP Primary Treatment Facility ³ (\$US/Year)	\$5,000,000
NPDES Permit and Oceanographic Monitoring (\$US/Year)	\$600,000
Tijuana Pump Station	
Annual O&M Tijuana Pump Station ⁴ (\$US/year)	\$3,800,000

Total Capital Cost (\$US) =	\$0
Total Annual O&M (\$US) =	\$9,400,000

1. Maximum flows the PCL has been able to carry have been significantly less than the 50 mgd design capacity.
2. No capital costs are included for the SBIWTP and SBOO since they are existing and significant modification is not required.
3. Annual O&M cost for SBIWTP as reported by IBWC.
4. Additional O&M cost has been added to account for PCL carrying 25 mgd more than in the other considered alternatives.

Cash Flow Summary (Alt 1A)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$0		\$0	\$0
1		\$9,400,000	\$9,588,000	\$9,045,283
2		\$9,400,000	\$9,779,760	\$8,703,952
3		\$9,400,000	\$9,975,355	\$8,375,501
4		\$9,400,000	\$10,174,862	\$8,059,444
5		\$9,400,000	\$10,378,360	\$7,755,314
6		\$9,400,000	\$10,585,927	\$7,462,661
7		\$9,400,000	\$10,797,645	\$7,181,051
8		\$9,400,000	\$11,013,598	\$6,910,068
9		\$9,400,000	\$11,233,870	\$6,649,310
10		\$9,400,000	\$11,458,548	\$6,398,393
11		\$9,400,000	\$11,687,718	\$6,156,944
12		\$9,400,000	\$11,921,473	\$5,924,607
13		\$9,400,000	\$12,159,902	\$5,701,037
14		\$9,400,000	\$12,403,100	\$5,485,903
15		\$9,400,000	\$12,651,162	\$5,278,888
16		\$9,400,000	\$12,904,186	\$5,079,685
17		\$9,400,000	\$13,162,269	\$4,887,999
18		\$9,400,000	\$13,425,515	\$4,703,546
19		\$9,400,000	\$13,694,025	\$4,526,053
20		\$9,400,000	\$13,967,906	\$4,355,259
Total (\$US)	\$0	\$188,000,000	\$232,963,182	\$128,640,896

Table F-3. Alternative 1 Option B

**Alternative 1B: SBIWTP would continue to provide advanced primary treatment for average flows of 25 mgd and peak flows of 50mgd until secondary treatment facilities are constructed
Improve/rebuild RCL to avoid dry-weather flows to the Tijuana River**

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; SBOO=25 ; PCL=25 ; RCL=34 ; Pt. Band.=59 ; River=0

SBIWTP Primary Treatment Facility	
Capital Cost ¹ (2004 US\$)	\$0
O&M SBIWTP Primary Treatment Facility (US\$/Year)	\$5,000,000
NPDES Permit and Oceanographic Monitoring (\$US/Year)	\$600,000
RCL Improvement Cost	
3500 HP Pump Station (34 mgd) ³ (2004 US\$)	\$9,504,147
Pipelines construction ² (Dia=1.4m) (2004 US\$)	\$23,650,660
Engineering, supervision and project administration, 12% (2004 US\$)	\$3,978,577
Pump Station O&M ³ (US\$/year)	\$3,057,715
Pipelines O&M at 1% of construction cost (US\$/year)	\$236,507
Total Capital Cost (\$US) =	\$37,133,384
Total Annual O&M (\$US) =	\$8,894,221

1. No capital costs are included for the SBIWTP and SBOO since they are existing and significant modification is not required.
2. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.
3. Cost based on cost equations from Reference 4 Appendix R Section 6.

Table F-3. Alternative 1 Option B (Cont'd)

Cash Flow Summary (Alt 1B)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$37,133,384		\$37,133,384	\$37,133,384
1		\$8,894,221	\$9,072,106	\$8,558,590
2		\$8,894,221	\$9,253,548	\$8,235,625
3		\$8,894,221	\$9,438,619	\$7,924,846
4		\$8,894,221	\$9,627,391	\$7,625,796
5		\$8,894,221	\$9,819,939	\$7,338,030
6		\$8,894,221	\$10,016,338	\$7,061,123
7		\$8,894,221	\$10,216,665	\$6,794,666
8		\$8,894,221	\$10,420,998	\$6,538,263
9		\$8,894,221	\$10,629,418	\$6,291,536
10		\$8,894,221	\$10,842,006	\$6,054,120
11		\$8,894,221	\$11,058,846	\$5,825,662
12		\$8,894,221	\$11,280,023	\$5,605,826
13		\$8,894,221	\$11,505,624	\$5,394,285
14		\$8,894,221	\$11,735,736	\$5,190,727
15		\$8,894,221	\$11,970,451	\$4,994,851
16		\$8,894,221	\$12,209,860	\$4,806,366
17		\$8,894,221	\$12,454,057	\$4,624,994
18		\$8,894,221	\$12,703,138	\$4,450,466
19		\$8,894,221	\$12,957,201	\$4,282,524
20		\$8,894,221	\$13,216,345	\$4,120,919
Total (\$US)	\$37,133,384	\$177,884,428	\$257,561,694	\$158,852,598

Table F-4. Alternative 2

**Alternative 2: Operate SBITWP as Advanced Primary Facility with Treated Flows
Conveyed to Mexico**

Year: 2023

Average Flows (mgd): Total=84 ; SBIWTP=25 ; SABWTP=25 ; SBOO=0 ; PCL=25 ; RCL= 59 ; Pt. Band.=84

SBIWTP Primary Treatment Facility	
Capital Cost (2004 US\$)	\$0
O&M Cost ^{3,4} (\$US/Year)	\$5,000,000
RCL Improvement Cost	
5900 HP Pump Station (59 mgd) ²	\$14,807,284
RCL pipelines construction ¹ (Dia=1.8m)	\$25,959,991
Engineering, supervision and project administration, 12%	\$4,892,073
Pump Station O&M ² (\$US/Year)	\$5,055,273
Pipelines O&M at 1% of construction cost (US\$/year)	\$259,600
Total Capital Cost (\$US) =	\$45,659,348
Total Annual O&M (\$US) =	\$10,314,873

1. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.

2. Cost based on cost equations from Reference 4 Appendix R Section 6.

3. O&M cost reduced to reflect no need for ocean monitoring program.

4. Does not consider agreements for sharing the use of the outfall with the City of San Diego.

Cash Flow Summary (Alt 2A) (\$US)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$45,659,348		\$45,659,348	\$45,659,348
1		\$10,314,873	\$10,521,170	\$9,925,632
2		\$10,314,873	\$10,731,593	\$9,551,080
3		\$10,314,873	\$10,946,225	\$9,190,662
4		\$10,314,873	\$11,165,150	\$8,843,844
5		\$10,314,873	\$11,388,453	\$8,510,114
6		\$10,314,873	\$11,616,222	\$8,188,978
7		\$10,314,873	\$11,848,546	\$7,879,960
8		\$10,314,873	\$12,085,517	\$7,582,603
9		\$10,314,873	\$12,327,227	\$7,296,467
10		\$10,314,873	\$12,573,772	\$7,021,129
11		\$10,314,873	\$12,825,247	\$6,756,180
12		\$10,314,873	\$13,081,752	\$6,501,230
13		\$10,314,873	\$13,343,387	\$6,255,901
14		\$10,314,873	\$13,610,255	\$6,019,829
15		\$10,314,873	\$13,882,460	\$5,792,666
16		\$10,314,873	\$14,160,110	\$5,574,074
17		\$10,314,873	\$14,443,312	\$5,363,732
18		\$10,314,873	\$14,732,178	\$5,161,327
19		\$10,314,873	\$15,026,822	\$4,966,560
20		\$10,314,873	\$15,327,358	\$4,779,143
Total (\$US)	\$45,659,348	\$206,297,450	\$301,296,106	\$186,820,460

Table F-5. Alternative 3

Alternative 3: Operate SBIWTP with City of San Diego Connections

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; SBOO=0¹ ; SBWRP=5 ;

PLWTP= 9 ; PCL=25 ; RCL=45 ; Pt. Band.=70

SBIWTP Primary Treatment Facility	
Capital Cost	\$0
Annual O&M ⁸ (\$US/Year)	\$5,000,000
NPDES Permit and Oceanographic Monitoring (\$US/Year)	\$600,000
Capital Cost	
	Cost of 2004 ²
4600 HP Pump Station (45 mgd) ⁴	\$11,986,507
RCL Pipelines construction ³ (Dia=1.6m)	\$24,805,326
Engineering, supervision and project administration, (12%) ³	\$4,415,020
New 3200 feet of 30-in pipeline to convey treated or screened effluent from SBIWTP to SBWRP ⁵	\$680,906
New 3500 feet of 8-in return primary and secondary waste sludge pipeline from SBWRP to SBIWTP ⁵	\$192,395
Interconnection for 30-in pipeline	\$300,000
Interconnection for 8-in pipeline	\$250,000
Interconnection to South Bay interceptor	\$200,000
Capacity fee to City of San Diego ⁷	\$40,000,000
Total Connection Cost (2004 \$US)	\$82,830,153

Table F-5. Alternative 3 (Cont'd)

O&M and Annual fees	
Pump Station O&M ⁴	\$3,978,062
O&M for two new lines (1% of construction cost)	\$256,786
Advanced Primary at PLWTP ⁶ (9mgd)	\$3,000,000
Secondary Train at SBWRP ⁶ (5mgd)	\$2,500,000

Total Capital Cost (\$US) =	\$82,830,153
Total Annual O&M (\$US) =	\$15,334,848

1. SBOO receives up to 5 mgd from the project flows indirectly via SBWRP.
2. Costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74.
3. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.
4. Cost based on cost equations from Reference 4 Appendix R Section 6.
5. Cost estimation based on Reference 2 Appendix A-12.
6. Cost calculated based on contract fee rates for emergency discharge to PLWTP.
7. USIBWC and the City of San Diego have previously signed on a yearly basis a Memorandum of Understanding (MOU) that includes user rates for the USIBWC's short-term use, in the event of an emergency, of the City's existing connection from the SBIWTP to the PLWTP. This is a preliminary estimate that assumes a new agreement would need to be negotiated to provide for daily use of the City's facilities, and that the new agreement would include lower user rates but would also include an annual capacity fee.
8. Does not consider agreements for sharing the use of the outfall with the City of San Diego.

Cash Flow Summary (Alt 3)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$82,830,153		\$82,830,153	\$82,830,153
1		\$15,334,848	\$15,641,545	\$14,756,174
2		\$15,334,848	\$15,954,376	\$14,199,338
3		\$15,334,848	\$16,273,463	\$13,663,514
4		\$15,334,848	\$16,598,932	\$13,147,909
5		\$15,334,848	\$16,930,911	\$12,651,762
6		\$15,334,848	\$17,269,529	\$12,174,337
7		\$15,334,848	\$17,614,920	\$11,714,928
8		\$15,334,848	\$17,967,218	\$11,272,855
9		\$15,334,848	\$18,326,563	\$10,847,464
10		\$15,334,848	\$18,693,094	\$10,438,126
11		\$15,334,848	\$19,066,956	\$10,044,234
12		\$15,334,848	\$19,448,295	\$9,665,207
13		\$15,334,848	\$19,837,261	\$9,300,482
14		\$15,334,848	\$20,234,006	\$8,949,520
15		\$15,334,848	\$20,638,686	\$8,611,803
16		\$15,334,848	\$21,051,460	\$8,286,829
17		\$15,334,848	\$21,472,489	\$7,974,118
18		\$15,334,848	\$21,901,939	\$7,673,208
19		\$15,334,848	\$22,339,978	\$7,383,653
20		\$15,334,848	\$22,786,777	\$7,105,025
Total (\$US)	\$82,830,153	\$306,696,957	\$462,878,552	\$292,690,640

Table F-6. Alternative 4 Option A Discharge Option I

Alternative 4A Discharge Option I : Public Law 106-457 (Secondary Treatment Facility in Mexico)

Discharge Option I (Sec. eff. Discharged through SBOO)

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; Public Law=59 ; SBOO=59 ; PCL=25 ; RCL=0 ;

Pt. Band.=25

SBIWTP Primary Treatment Facility	
Capital Cost (2004 \$US)	\$0
Annual O&M (\$US/Year)	\$5,000,000
NPDES Permit and Oceanographic Monitoring (\$US/Year)	\$600,000

Project Cost	
	59 MGD Facility 2004 US\$ ^{1,3}
Public Law 106-457 Treatment Plant + Influent Pump Station + Influent Conveyance	\$107,540,000
Effluent Conveyance	\$15,182,435
Engr/Legal/Admin (12%)	\$14,726,692
Total Project Costs	\$137,449,127
Annual Operating Cost	
Pump Station/ Pipelines (US\$/year)	\$2,600,000
Treatment Plant (US\$/year) ²	\$6,600,000

Total Capital Cost (\$US) =	\$137,449,127
Total Annual O&M (\$US) =	\$14,800,000

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74
2. Operating costs include lease of land for the 20-year period.
3. Cost scaled using a ratio of costs for equivalent plants sized for each of the design flows. The cost for each plant used to determine the ratio was calculated using EPA published cost curves for wastewater treatment unit processes.

Table F-6. Alternative 4 Option A Discharge Option I (Cont'd)

Cash Flow Summary (Alt 4A Discharge Option I)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$137,449,127		\$137,449,127	\$137,449,127
1		\$14,800,000	\$15,096,000	\$14,241,509
2		\$14,800,000	\$15,397,920	\$13,704,094
3		\$14,800,000	\$15,705,878	\$13,186,958
4		\$14,800,000	\$16,019,996	\$12,689,337
5		\$14,800,000	\$16,340,396	\$12,210,494
6		\$14,800,000	\$16,667,204	\$11,749,721
7		\$14,800,000	\$17,000,548	\$11,306,335
8		\$14,800,000	\$17,340,559	\$10,879,681
9		\$14,800,000	\$17,687,370	\$10,469,127
10		\$14,800,000	\$18,041,117	\$10,074,066
11		\$14,800,000	\$18,401,940	\$9,693,912
12		\$14,800,000	\$18,769,979	\$9,328,104
13		\$14,800,000	\$19,145,378	\$8,976,100
14		\$14,800,000	\$19,528,286	\$8,637,380
15		\$14,800,000	\$19,918,851	\$8,311,441
16		\$14,800,000	\$20,317,228	\$7,997,801
17		\$14,800,000	\$20,723,573	\$7,695,998
18		\$14,800,000	\$21,138,044	\$7,405,583
19		\$14,800,000	\$21,560,805	\$7,126,127
20		\$14,800,000	\$21,992,021	\$6,857,216
Total (\$US)	\$137,449,127	\$296,000,000	\$504,242,222	\$339,990,113
Annual payments of equal present value. (\$US)				\$29,641,888

Table F-7. Alternative 4 Option A Discharge Option II

Alternative 4A Discharge Option II : Public Law 106-457 (Secondary Treatment Facility in Mexico)

Discharge Option II (Discharge sec. eff. at Punta Bandera)

Year: 2023

Average Flows (mgd): Total=84 ; SBIWTP=25 ; SABWTP=25 ; Public Law=59 ; SBOO=0 ; PCL=25 ;

RCL=59 ; Pt. Band.=84

SBIWTP Primary Treatment Facility	
Capital Cost	\$0
Annual O&M ^{5.7} (\$US/Year)	\$5,000,000

Project Cost	
	59 MGD Facility 2004 US\$ ^{1.8}
Public Law 106-457 Treatment Plant + Influent Pump Station + Influent Conveyance	\$107,540,000
Engr/Legal/Admin (12%)	\$12,904,800
Total Project Costs (\$US)	\$120,444,800

Table F-7. Alternative 4 Option A Discharge Option II (Cont'd)

Pump Station and Pipeline transport treated secondary eff. to Punta Bandera (RCL)	
	2004 US\$
5900 HP Pump Station (59 mgd) ⁴	\$14,807,284
RCL pipelines construction (Dia=1.8m) + interconnection to Public Law Treatment Plant ^{2,3}	\$38,193,849
Engineering, supervision and project administration, 12% ²	\$6,360,136
Annual Operating Cost	
	US\$/year
Pump Station RCL O&M ⁴	\$5,055,273
RCL pipeline O&M (1% of construction cost)	\$381,938
Pump Station to Public Law Treatment Plant	\$2,600,000
Public Law Treatment Plant ⁶	\$6,600,000
Total Operating Cost	\$14,637,211
Total Capital Cost (\$US) =	\$179,806,069
Total Annual O&M (\$US) =	\$19,637,211

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74.
2. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.
3. Cost was extracted from Reference 5 Appendix IIIB, Table III-B-3 pipe section 1,2,6,and 7.
4. Cost based on cost equations from Reference 4 Appendix R Section 6.
5. O&M cost reduced to reflect no need for ocean monitoring program.
6. Operating cost includes leasing of land for 20-year period.
7. Does not consider agreements for sharing the use of the outfall with the City of San Diego.
8. Cost scaled using a ratio of costs for equivalent plants sized for each of the design flows. The cost for each plant used to determine the ratio was calculated using EPA published cost curves for wastewater treatment unit processes.

Table F-7. Alternative 4 Option A Discharge Option II (Cont'd)

Cash Flow Summary (Alt 4A Discharge Option II)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$179,806,069		\$179,806,069	\$179,806,069
1		\$19,637,211	\$20,029,955	\$18,896,184
2		\$19,637,211	\$20,430,554	\$18,183,121
3		\$19,637,211	\$20,839,166	\$17,496,965
4		\$19,637,211	\$21,255,949	\$16,836,702
5		\$19,637,211	\$21,681,068	\$16,201,355
6		\$19,637,211	\$22,114,689	\$15,589,983
7		\$19,637,211	\$22,556,983	\$15,001,682
8		\$19,637,211	\$23,008,123	\$14,435,581
9		\$19,637,211	\$23,468,285	\$13,890,842
10		\$19,637,211	\$23,937,651	\$13,366,659
11		\$19,637,211	\$24,416,404	\$12,862,257
12		\$19,637,211	\$24,904,732	\$12,376,889
13		\$19,637,211	\$25,402,826	\$11,909,836
14		\$19,637,211	\$25,910,883	\$11,460,409
15		\$19,637,211	\$26,429,101	\$11,027,940
16		\$19,637,211	\$26,957,683	\$10,611,792
17		\$19,637,211	\$27,496,836	\$10,211,347
18		\$19,637,211	\$28,046,773	\$9,826,013
19		\$19,637,211	\$28,607,709	\$9,455,220
20		\$19,637,211	\$29,179,863	\$9,098,419
Total (\$US)	\$179,806,069	\$392,744,222	\$666,481,300	\$448,545,264
Annual payments of equal present value. (\$US)				\$39,106,221

Table F-8. Alternative 4 Option B Discharge Option I

Alternative 4B Discharge Option I: Public Law Facility (Secondary Treatment in Mexico Only)

Discharge Option I (Sec. eff. Discharged through SBOO)

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=0 ; SABWTP=25 ; Public Law=59 ; SBOO=59 ;

PCL=25 ; RCL=0 ; Pt. Band.=25 mgd

SBIWTP Primary Treatment Facility	
O&M (Mothballing and security services of plant)	\$600,000
NPDES Permit and Oceanographic Monitoring (\$US/Year)	\$600,000
Public Law Project Cost	
	59 MGD Facility escalated to 2004 price ^{1,3}
Public Law 106-457 Treatment Plant + Influent Pump Station + Influent Conveyance	\$138,729,650
Effluent Conveyance	\$15,182,435
Engr/Legal/Admin (12%)	\$18,469,450
Total Project Costs (\$US)	\$172,381,535

Table F-8. Alternative 4 Option B Discharge Option I (Cont'd)

Public Law Annual Operating Cost (US\$/year)	
Pump Station/ Pipelines to Public Law Treatment Plant	\$2,600,000
Public Law Treatment Plant ²	\$8,514,000

Total Capital Cost (\$US) =	\$172,381,535
Total Annual O&M (\$US) =	\$12,314,000

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74.
2. Operating cost of complete primary and secondary plant includes leasing of land for 20-year period.
3. Cost scaled using a ratio of costs for equivalent plants sized for each of the design flows. The cost for each plant used to determine the ratio was calculated using EPA published cost curves for wastewater treatment unit processes.

Cash Flow Summary (Alt 4B Discharge Option I)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$172,381,535		\$172,381,535	\$172,381,535
1		\$12,314,000	\$12,560,280	\$11,849,321
2		\$12,314,000	\$12,811,486	\$11,402,177
3		\$12,314,000	\$13,067,715	\$10,971,906
4		\$12,314,000	\$13,329,070	\$10,557,872
5		\$12,314,000	\$13,595,651	\$10,159,461
6		\$12,314,000	\$13,867,564	\$9,776,085
7		\$12,314,000	\$14,144,915	\$9,407,177
8		\$12,314,000	\$14,427,814	\$9,052,189
9		\$12,314,000	\$14,716,370	\$8,710,597
10		\$12,314,000	\$15,010,697	\$8,381,895
11		\$12,314,000	\$15,310,911	\$8,065,597
12		\$12,314,000	\$15,617,129	\$7,761,235
13		\$12,314,000	\$15,929,472	\$7,468,358
14		\$12,314,000	\$16,248,061	\$7,186,533
15		\$12,314,000	\$16,573,023	\$6,915,343
16		\$12,314,000	\$16,904,483	\$6,654,387
17		\$12,314,000	\$17,242,573	\$6,403,278
18		\$12,314,000	\$17,587,424	\$6,161,645
19		\$12,314,000	\$17,939,173	\$5,929,130
20		\$12,314,000	\$18,297,956	\$5,705,389
Total (\$US)	\$172,381,535	\$246,280,000	\$477,563,303	\$340,901,109
Annual payments of equal present value. (\$US)				\$29,721,313

Table F-9. Alternative 4 Option B Discharge Option II

Alternative 4B Discharge Option II (Discharge sec. eff. at Punta Bandera)

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=0 ; SABWTP=25 ; Public Law=59 ; SBOO=0 ;

PCL=25 ; RCL=59 ; Pt. Band.=84

SBIWTP Primary Treatment Facility	
O&M (Mothballing and security services) ⁷	\$600,000
Public Law Project Cost	
	59 MGD Facility escalated to 2004 price ^{1,8}
Public Law 106-457 Treatment Plant + Influent Pump Station + Influent Conveyance	\$138,729,650
Engr/Legal/Admin (12%)	\$16,647,558
Total Project Costs (\$US)	\$155,377,208

Table F-9. Alternative 4 Option B Discharge Option II (Cont'd)

Pump Station and Pipeline transport treated secondary eff. to Punta Band.	
	Cost of 2004
5900 HP Pump Station (59 mgd) ⁵	\$14,807,284
RCL pipelines construction (Dia=1.8m) + interconnection to Public Law Treatment Plant ^{3,4}	\$38,193,849
Engineering, supervision and project administration, 12% ³	\$6,360,136
Annual Operating Cost (US\$/year)	
Pump Station RCL O&M ⁵	\$5,055,273
RCL pipeline O&M (1% of construction cost)	\$381,938
Pump Station/Pipelines to public law treatment plant ¹	\$2,600,000
Treatment Plant ^{1, 6}	\$8,514,000

Total Capital Cost (\$US) =	\$214,738,477
Total Annual O&M (\$US) =	\$17,151,211

1. Cost based on Bajagua Proposal of Public Law Facility
2. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74.
3. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.
4. Cost was extracted from Reference 5 Appendix IIIB, Table III-B-3 pipe section 1,2,6,and 7.
5. Cost based on cost equations from Reference 4 Appendix R Section 6.
6. Operating costs include lease of land for the 20-year period.
7. Does not consider agreements for sharing the use of the outfall with the City of San Diego.
8. Cost scaled using a ratio of costs for equivalent plants sized for each of the design flows. The cost for each plant used to determine the ratio was calculated using EPA published cost curves for wastewater treatment unit processes.

Table F-9. Alternative 4 Option B Discharge Option II (Cont'd)

Cash Flow Summary (Alt 4B Discharge Option II)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$214,738,477		\$214,738,477	\$214,738,477
1		\$17,151,211	\$17,494,235	\$16,503,996
2		\$17,151,211	\$17,844,120	\$15,881,203
3		\$17,151,211	\$18,201,002	\$15,281,913
4		\$17,151,211	\$18,565,022	\$14,705,237
5		\$17,151,211	\$18,936,323	\$14,150,322
6		\$17,151,211	\$19,315,049	\$13,616,348
7		\$17,151,211	\$19,701,350	\$13,102,523
8		\$17,151,211	\$20,095,377	\$12,608,088
9		\$17,151,211	\$20,497,285	\$12,132,311
10		\$17,151,211	\$20,907,231	\$11,674,488
11		\$17,151,211	\$21,325,375	\$11,233,942
12		\$17,151,211	\$21,751,883	\$10,810,019
13		\$17,151,211	\$22,186,920	\$10,402,094
14		\$17,151,211	\$22,630,659	\$10,009,562
15		\$17,151,211	\$23,083,272	\$9,631,843
16		\$17,151,211	\$23,544,937	\$9,268,377
17		\$17,151,211	\$24,015,836	\$8,918,627
18		\$17,151,211	\$24,496,153	\$8,582,075
19		\$17,151,211	\$24,986,076	\$8,258,223
20		\$17,151,211	\$25,485,797	\$7,946,592
Total (\$US)	\$214,738,477	\$343,024,222	\$639,802,381	\$449,456,261
Annual payments of equal present value. (\$US)				\$39,185,646

Table F-10. Alternative 4 Option C Discharge Option I

Alternative 4C Discharge Option I: Bajagua LLC Proposal - Operation of SBIWTP as Advanced Primary Facility, Secondary Treatment in Mexico

Discharge Option I (Sec. eff. Discharged through SBOO)

Year: 2023

Average Flows (mgd): Total=84 ; SBIWTP=25 ; SABWTP=25 ; Public Law=59 ; SBOO=59 ; PCL=25 ; RCL=0 ;

Pt. Band.=25

SBIWTP Primary Treatment Facility			
Capital Cost			\$0
Annual O&M (\$US/Year)			\$5,000,000
NPDES Permit and Oceanographic Monitoring (\$US/Year)			\$600,000
Project Cost¹			
	50 MGD Facility (Year 2000 price)	Scaled to 59 MGD Facility (Year 2000 price)	59 MGD Facility escalated to 2004 price ²
Preliminary Expenses	\$12,100,000	\$13,558,775	\$15,699,047
Bajagua Treatment Plant	\$32,360,000	\$36,261,320	\$41,985,220
Influent Pump Station	\$3,795,000	\$4,252,525	\$4,923,792
Influent Conveyance	\$11,350,000	\$12,718,355	\$14,725,966
Effluent Conveyance	\$11,700,000	\$13,110,551	\$15,180,070
Engr/Legal/Admin	\$8,500,000	\$9,524,760	\$11,028,256
Subtotal Direct Costs	\$79,805,000	\$89,426,286	\$103,542,351
Interest During Construction	\$3,611,000	\$4,046,342	\$4,685,063
Bank Fees	\$900,000	\$1,008,504	\$1,167,698
Working Capital	\$500,000	\$560,280	\$648,721
Debt Service Reserve	\$3,900,000	\$4,370,184	\$5,060,023
Subtotal Indirect Costs	\$8,911,000	\$9,985,310	\$11,561,505
Contingency	\$2,500,000	\$2,801,400	\$3,243,605
Permits and Fees	\$2,500,000	\$2,801,400	\$3,243,605
Developer Fee at 10%	\$9,372,000	\$10,501,888	\$12,159,625
Total Project Costs (\$US)	\$103,088,000	\$115,516,283	\$133,750,690

Table F-10. Alternative 4 Option C Discharge Option I (Cont'd)

Annual Operating Cost¹			
	50 MGD (Year 2000 price)	Scaled to 59 MGD (Year 2000 price)	Cost escalated to 2004 ^{2,4}
Pump Station/ Pipelines : Bajagua WWTP			
Electric Power	\$741,000	\$830,335	\$961,404
Operation	\$61,000	\$68,354	\$79,144
Maintenance	\$286,000	\$320,480	\$371,068
Bajagua Wastewater Treatment Plant			
Electric Power	\$3,002,000	\$3,363,921	\$3,894,921
Operation	\$340,000	\$380,990	\$441,130
Maintenance	\$1,337,000	\$1,498,189	\$1,734,680
Land Lease	\$1,312,000	\$1,470,175	\$1,702,244
Total Operating Cost³	\$7,079,000	\$7,932,444	\$9,184,591

Total Capital Cost (\$US) =	\$133,750,690
Total Annual O&M (\$US) =	\$14,784,591

1. Cost based on Reference 3.
2. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74
3. Operating costs include lease of land for the 20-year period.
4. Cost scaled using a ratio of costs for equivalent plants sized for each of the design flows. The cost for each plant used to determine the ratio was calculated using EPA published cost curves for wastewater treatment unit processes.

Cash Flow Summary (Alt 4C Discharge Option I)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$133,750,690		\$133,750,690	\$133,750,690
1		\$14,784,591	\$15,080,283	\$14,226,682
2		\$14,784,591	\$15,381,889	\$13,689,826
3		\$14,784,591	\$15,689,526	\$13,173,229
4		\$14,784,591	\$16,003,317	\$12,676,126
5		\$14,784,591	\$16,323,383	\$12,197,782
6		\$14,784,591	\$16,649,851	\$11,737,488
7		\$14,784,591	\$16,982,848	\$11,294,564
8		\$14,784,591	\$17,322,505	\$10,868,354
9		\$14,784,591	\$17,668,955	\$10,458,227
10		\$14,784,591	\$18,022,334	\$10,063,577
11		\$14,784,591	\$18,382,781	\$9,683,820
12		\$14,784,591	\$18,750,436	\$9,318,392
13		\$14,784,591	\$19,125,445	\$8,966,755
14		\$14,784,591	\$19,507,954	\$8,628,387
15		\$14,784,591	\$19,898,113	\$8,302,787
16		\$14,784,591	\$20,296,075	\$7,989,475
17		\$14,784,591	\$20,701,997	\$7,687,985
18		\$14,784,591	\$21,116,037	\$7,397,872
19		\$14,784,591	\$21,538,358	\$7,118,707
20		\$14,784,591	\$21,969,125	\$6,850,077
Total (\$US)	\$133,750,690	\$295,691,824	\$500,161,904	\$336,080,804
Annual payments of equal present value. (\$US)				\$29,301,057

Table F-11. Alternative 4 Option C Discharge Option II

Alternative 4C Discharge Option II (Discharge sec. eff. at Punta Bandera)

Year: 2023

Average Flows (mgd): Total=84 ; SBIWTP=25 ; SABWTP=25 ; Public Law=59 ; SBOO=0 ; PCL=25 ; RCL=59 ;

Punta Bandera=84

SBIWTP Primary Treatment Facility			
Capital Cost			\$0
Annual O&M ^{6,8}			\$5,000,000
Project Cost			
	50 MGD Facility (Year 2000 price)	Scaled to 59 MGD Facility (Year 2000 price)	59 MGD Facility escalated to 2004 price ^{1,9}
Preliminary Expenses	\$12,100,000	\$13,558,775	\$15,699,047
Bajagua Treatment Plant	\$32,360,000	\$36,261,320	\$41,985,220
Influent Pump Station	\$3,795,000	\$4,252,525	\$4,923,792
Influent Conveyance	\$11,350,000	\$12,718,355	\$14,725,966
Engr/Legal/Admin	\$8,500,000	\$9,524,760	\$11,028,256
Subtotal Direct Costs	\$68,105,000	\$76,315,735	\$88,362,280
Interest During Construction	\$3,611,000	\$4,046,342	\$4,685,063
Bank Fees	\$900,000	\$1,008,504	\$1,167,698
Working Capital	\$500,000	\$560,280	\$648,721
Debt Service Reserve	\$3,900,000	\$4,370,184	\$5,060,023
Subtotal Indirect Costs	\$8,911,000	\$9,985,310	\$11,561,505
Contingency	\$2,500,000	\$2,801,400	\$3,243,605
Permits and Fees	\$2,500,000	\$2,801,400	\$3,243,605
Developer Fee at 10%	\$9,372,000	\$10,501,888	\$12,159,625
Total Project Costs (\$US)	\$91,388,000	\$102,405,732	\$118,570,620

Table F-11. Alternative 4 Option C Discharge Option II (Contd)

Pump Station and Pipeline transport treated secondary eff. to Punta Band.			
			2004 US\$
5900 HP Pump Station (59 mgd) ⁵			\$14,807,284
RCL pipelines construction (Dia=1.8m) + interconnection to Public Law Treatment Plant ^{3,4}			\$38,193,849
Engineering, supervision and project administration, 12% ³			\$6,360,136
Annual Operating Cost			
			2004 US\$
Pump Station RCL O&M ⁵			\$5,055,273
RCL pipeline O&M (1% of construction cost)			\$381,938
Pump Station/ Pipelines ¹ to Bajagua WWTP	50 MGD (Year 2000 price)	Scaled to 59 MGD (Year 2000 price)	Cost escalated to 2004 US\$ ¹
Electric Power	\$741,000	\$830,335	\$961,404
Operation	\$61,000	\$68,354	\$79,144
Maintenance	\$286,000	\$320,480	\$371,068
Bajagua Wastewater Treatment Plant ^{1,7}	50 MGD (Year 2000 price)	Scaled to 59 MGD (Year 2000 price)	Cost escalated to 2004 US\$ ²
Electric Power	\$3,002,000	\$3,363,921	\$3,894,921
Operation	\$340,000	\$380,990	\$441,130
Maintenance	\$1,337,000	\$1,498,189	\$1,734,680
Land Lease	\$1,312,000	\$1,470,175	\$1,702,244
Total Operating Cost (\$US)	\$7,079,000	\$7,932,444	\$9,184,591

Total Capital Cost (\$US) =	\$177,931,889
Total Annual O&M (\$US) =	\$19,621,802

1. Cost based on Reference 3.
2. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74.
3. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.
4. Cost was extracted from Reference 5 Appendix IIIB, Table III-B-3 pipe section 1,2,6,and 7.
5. Cost based on cost equations from Reference 4 Appendix R Section 6.
6. O&M cost reduced to reflect no need for ocean monitoring program.
7. Operating cost includes leasing 204 acres for 20-year period.
8. Does not consider agreements for sharing the use of the outfall with the City of San Diego.
9. Cost scaled using a ratio of costs for equivalent plants sized for each of the design flows. The cost for each plant used to determine the ratio was calculated using EPA published cost curves for wastewater treatment unit processes.

Table F-11. Alternative 4 Option C Discharge Option II (Contd)

Cash Flow Summary (Alt 4C Discharge Option II)

Inflation Rate = 2 %
 Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$177,931,889		\$177,931,889	\$177,931,889
1		\$19,621,802	\$20,014,238	\$18,881,357
2		\$19,621,802	\$20,414,523	\$18,168,853
3		\$19,621,802	\$20,822,814	\$17,483,236
4		\$19,621,802	\$21,239,270	\$16,823,491
5		\$19,621,802	\$21,664,055	\$16,188,642
6		\$19,621,802	\$22,097,336	\$15,577,750
7		\$19,621,802	\$22,539,283	\$14,989,911
8		\$19,621,802	\$22,990,069	\$14,424,254
9		\$19,621,802	\$23,449,870	\$13,879,942
10		\$19,621,802	\$23,918,867	\$13,356,171
11		\$19,621,802	\$24,397,245	\$12,852,164
12		\$19,621,802	\$24,885,190	\$12,367,177
13		\$19,621,802	\$25,382,894	\$11,900,491
14		\$19,621,802	\$25,890,551	\$11,451,416
15		\$19,621,802	\$26,408,362	\$11,019,287
16		\$19,621,802	\$26,936,530	\$10,603,465
17		\$19,621,802	\$27,475,260	\$10,203,334
18		\$19,621,802	\$28,024,765	\$9,818,303
19		\$19,621,802	\$28,585,261	\$9,447,801
20		\$19,621,802	\$29,156,966	\$9,091,280
Total (\$US)	\$177,931,889	\$392,436,046	\$664,225,239	\$446,460,212
Annual payments of equal present value. (\$US)				\$38,924,437

Table F-12. Alternative 5 Option A

Alternative 5 Option A: Completely Mixed Aeration (CMA) Ponds at SBIWTP

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; SBOO=25 ; Punta Bandera=59 ; PCL=25 ; RCL=34

SBIWTP Primary Treatment Facility

Capital Cost ¹	\$0
Annual O&M ² (\$US/Year)	\$4,242,223
NPDES Permit and Oceanographic Monitoring (\$US/Year)	\$600,000

1. No capital costs are included for the SBIWTP and SBOO since they are existing and significant modification is not required.
2. The O&M cost has been reduced to account for doing primary treatment instead of advanced primary treatment, see Reference 1.

RCL Improvement Cost

3500 HP Pump Station (34 mgd) ¹ (2004 US\$)	\$9,504,147
Pipelines construction ² (Dia=1.4m) (2004 US\$)	\$23,650,660
Engineering, supervision and project administration, 12% (2004 US\$)	\$3,978,577
Pump Station O&M ¹ (US\$/year)	\$3,057,715
Pipelines O&M at 1% of capital cost (US\$/year)	\$236,507

1. Cost based on cost equations from Reference 4 Appendix R Section 6.
2. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.

Capital Cost of 25 MGD Modified CMA Pond System^{1,2,7} (Secondary Treatment)

Item	Structure ³	Equipment ⁴	Subtotal	Engineering Legal & Admin. 25%	Total Capital Cost	Total Capital Cost escalated to 2004 US\$ ⁶
Ponds	\$11,081,000	\$3,171,000	\$14,252,000	\$3,563,000	\$17,815,000	\$21,986,628
Distribution Structures	\$121,000	\$74,000	\$195,000	\$49,000	\$244,000	\$301,136
Pump Stations	\$139,000	\$127,000	\$266,000	\$66,000	\$332,000	\$409,742
Control Building ⁵	\$323,000	\$2,284,000	\$2,607,000	\$652,000	\$3,259,000	\$4,022,140
TOTALS (\$US)	\$11,664,000	\$5,656,000	\$17,320,000	\$4,330,000	\$21,650,000	\$26,719,646

Notes:

1. Construction costs from Reference 1 adjusted to the ENR Construction Cost Index for Los Angeles for August 1997 of 6631.
2. Construction costs include "Contractors Operations Costs", taxes, and contractor's profits. "Contractors Operation costs" include bonds, permits, insurance, mobilization, staffing, running the project, coordination, temporary facilities, etc
3. Structure includes grading, concrete, site civil and mechanical such as piping
4. Equipment includes metals, finishes, wood and plastics, equipment, instrumentation and control I & C and electrical.
5. Control Building includes emergency generator standby power
6. Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74
7. Costs for land included for pond system.

Annual Operating Costs for Secondary Train^{1,2,3}

Alternative	Secondary Treatment ⁴	Equalization Basin	Solids Treatment ^{5,6}	Total Operating Cost	Total O&M Cost escalated to 2004 US\$ ⁷
Alternative 5A	\$1,521,000	\$0	\$2,020,000	\$3,541,000	\$4,370,174

Notes:

1. All operating costs from Reference 1 are relative to August 1997.
2. The cost of power is estimated at \$0.10/kWh
3. Labor is estimated at an average rate of \$61,060 per year including salary burden for 2080 annual hours of work.
4. Includes all costs of secondary treatment including thickening of waste activated sludge and the annualized cost of sludge removal from ponds.
5. Includes the cost of sludge thickening, dewatering, and treatment using lime stabilization, but does not include the cost of thickening of waste activated sludge or the cost of sludge removal from ponds.
6. Does not include the cost of sludge disposal in Mexico
7. Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74

	Cost escalated to 2004 US\$
Total Capital Cost (\$US) =	\$63,853,029.46
Total Annual O&M (\$US) =	\$12,506,618.77

Table F-12. Alternative 5 Option A (Cont'd)

Cash Flow Summary (Alt 5A)

Inflation Rate = 2 %
 Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$63,853,029		\$63,853,029	\$63,853,029
1		\$12,506,619	\$12,756,751	\$12,034,671
2		\$12,506,619	\$13,011,886	\$11,580,532
3		\$12,506,619	\$13,272,124	\$11,143,531
4		\$12,506,619	\$13,537,566	\$10,723,021
5		\$12,506,619	\$13,808,318	\$10,318,378
6		\$12,506,619	\$14,084,484	\$9,929,005
7		\$12,506,619	\$14,366,174	\$9,554,326
8		\$12,506,619	\$14,653,497	\$9,193,785
9		\$12,506,619	\$14,946,567	\$8,846,850
10		\$12,506,619	\$15,245,498	\$8,513,007
11		\$12,506,619	\$15,550,408	\$8,191,761
12		\$12,506,619	\$15,861,417	\$7,882,638
13		\$12,506,619	\$16,178,645	\$7,585,180
14		\$12,506,619	\$16,502,218	\$7,298,947
15		\$12,506,619	\$16,832,262	\$7,023,515
16		\$12,506,619	\$17,168,907	\$6,758,477
17		\$12,506,619	\$17,512,286	\$6,503,440
18		\$12,506,619	\$17,862,531	\$6,258,027
19		\$12,506,619	\$18,219,782	\$6,021,875
20		\$12,506,619	\$18,584,178	\$5,794,634
Total (\$US)	\$63,853,029	\$250,132,375	\$373,808,530	\$235,008,630

Table F-13. Alternative 5 Option B-1

Alternative 5B-1: Activated Sludge Secondary Treatment at SBIWTP (with Equalization Tank)

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; SBOO=25 ; Punta Bandera=59 ; PCL=25 ; RCL=34

SBIWTP Primary Treatment Facility

Capital Cost ¹	\$0
Annual O&M ²	\$5,000,000
NPDES Permit and Oceanographic Monitoring (2004 \$US)	\$600,000

1. No capital costs are included for the SBIWTP and SBOO since they are existing and significant modification is not required.
2. Do not reduce O&M cost since advanced primary treatment will continue per Reference 1.

RCL Improvement Cost

3500 HP Pump Station (34 mgd) ¹ (2004 US\$)	\$9,504,147
Pipelines construction ² (Dia=1.4m) (2004 US\$)	\$23,650,660
Engineering, supervision and project administration, 12% (2004 US\$)	\$3,978,577
Pump Station O&M ¹ (US\$/year)	\$3,057,715
Pipelines O&M at 1% of capital cost (US\$/year)	\$236,507

1. Cost based on cost equations from Reference 4 Appendix R Section 6.
2. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.

Capital Cost of 25-mgd Peak Flow Activated Sludge Facilities^{1,2,8} (Secondary Treatment)

Item	Structure ³	Equipment ⁴	Subtotal	Engineering Legal & Admin. 25%	Total Capital Cost	Total Capital Cost escalated to 2004 US\$ ⁷
Activated Sludges ⁵	\$17,559,000	\$9,046,000	\$26,605,000	\$6,651,000	\$33,256,000	\$41,043,351
Secondary Sedimentation	\$9,905,000	\$6,071,000	\$15,975,000	\$3,994,000	\$19,969,000	\$24,645,016
Dissolved Air Flotation	\$1,075,000	\$879,000	\$1,954,000	\$488,000	\$2,442,000	\$3,013,828
Sludge Storage	\$1,245,000	\$438,000	\$1,684,000	\$421,000	\$2,105,000	\$2,597,915
Standby Power	\$222,000	\$787,000	\$1,009,000	\$252,000	\$1,261,000	\$1,556,281
Support Facilities ⁶	\$4,857,000	\$994,000	\$5,851,000	\$1,463,000	\$7,314,000	\$9,026,674
Equalization Facilities	\$3,125,000	\$439,000	\$3,564,000	\$891,000	\$4,455,000	\$5,498,200
TOTALS (\$US)	\$37,988,000	\$18,654,000	\$56,642,000	\$14,160,000	\$70,802,000	\$87,381,264

Notes:

1. Construction costs from Reference 1 adjusted to the ENR Construction Cost Index for Los Angeles for August 1997 of 6631.
2. Construction costs include "Contractors Operations Costs", taxes, and contractor's profits. "Contractors Operation costs" include bonds, permits, insurance, mobilization, staffing, running the project, coordination, temporary facilities, etc
3. Structure includes grading, concrete, site civil and mechanical such as piping
4. Equipment includes metals, finishes, wood and plastics, equipment, instrumentation and control I & C and electrical.
5. Activated sludge includes activated sludge tanks with anoxic selectors and a blower facility with 4 blowers.
6. Support facilities include extension of yard piping, power and site work related to the construction of the proposed facilities
7. Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74
8. Cost for land not included since plant would be constructed on land already owned and part of the SBIWTP site.

Annual Operating Costs for Secondary Train^{1,2,3}

Alternative	Secondary Treatment ⁴	Equalization Basin	Solids Treatment ^{5,6}	Total Operating Cost	Total O&M Cost escalated to 2004 US\$ ⁷
Alternative 5B-1	\$2,466,000	\$33,000	\$2,817,000	\$5,316,000	\$6,560,815

Notes:

1. All operating costs from Reference 1 are relative to August 1997.
2. The cost of power is estimated at \$0.10/kWh
3. Labor is estimated at an average rate of \$61,060 per year including salary burden for 2080 annual hours of work.
4. Includes all costs of secondary treatment including thickening of waste activated sludge and the annualized cost of sludge removal from ponds.
5. Includes the cost of sludge thickening, dewatering, and treatment using lime stabilization, but does not include the cost of thickening of waste activated sludge or the cost of sludge removal from ponds.
6. Does not include the cost of sludge disposal in Mexico
7. Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74

Table F-13. Alternative 5 Option B-1 (Cont'd)

		Cost escalated to 2004 US\$
Total Capital Cost (\$US) =		\$124,514,647
Total Annual O&M (\$US) =		\$15,455,036

Cash Flow Summary (Alt 5B-2)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$124,514,647		\$124,514,647	\$124,514,647
1		\$15,455,036	\$15,764,137	\$14,871,827
2		\$15,455,036	\$16,079,419	\$14,310,626
3		\$15,455,036	\$16,401,008	\$13,770,602
4		\$15,455,036	\$16,729,028	\$13,250,957
5		\$15,455,036	\$17,063,609	\$12,750,921
6		\$15,455,036	\$17,404,881	\$12,269,754
7		\$15,455,036	\$17,752,978	\$11,806,745
8		\$15,455,036	\$18,108,038	\$11,361,207
9		\$15,455,036	\$18,470,199	\$10,932,482
10		\$15,455,036	\$18,839,603	\$10,519,936
11		\$15,455,036	\$19,216,395	\$10,122,957
12		\$15,455,036	\$19,600,723	\$9,740,959
13		\$15,455,036	\$19,992,737	\$9,373,375
14		\$15,455,036	\$20,392,592	\$9,019,663
15		\$15,455,036	\$20,800,444	\$8,679,298
16		\$15,455,036	\$21,216,453	\$8,351,778
17		\$15,455,036	\$21,640,782	\$8,036,616
18		\$15,455,036	\$22,073,597	\$7,733,348
19		\$15,455,036	\$22,515,069	\$7,441,523
20		\$15,455,036	\$22,965,371	\$7,160,711
Total (\$US)	\$124,514,647	\$309,100,721	\$507,541,708	\$336,019,933

Table F-14. Alternative 5 Option B-2

Alternative 5B-2: Activated Sludge Secondary Treatment at SBIWTP (with Expanded Secondary Train)

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; SBOO=25 ; Punta Bandera=59 ; PCL=25 ; RCL=34

SBIWTP Primary Treatment Facility

Capital Cost ¹	\$0
Annual O&M ²	\$5,000,000
NPDES Permit and Oceanographic Monitoring (2004 US\$)	\$600,000

1. No capital costs are included for the SBIWTP and SBOO since they are existing and significant modification is not required.
2. Do not reduce O&M cost since advanced primary treatment will continue per Reference 1.

RCL Improvement Cost

3500 HP Pump Station (34 mgd) ¹ (2004 US\$)	\$9,504,147
Pipelines construction ² (Dia=1.4m) (2004 US\$)	\$23,650,660
Engineering, supervision and project administration, 12% (2004 US\$)	\$3,978,577
Pump Station O&M ¹ (US\$/year)	\$3,057,715
Pipelines O&M at 1% of capital cost (US\$/year)	\$236,507

1. Cost based on cost equations from Reference 4 Appendix R Section 6.
2. Cost based on Reference 5 Appendix IIIB, Table III-B-3 with adjustment to account for difference in diameter.

Capital Cost of 25-mgd Peak Flow Activated Sludge Facilities^{1,2,8} (Secondary Treatment)

Item	Structure ³	Equipment ⁴	Subtotal	Engineering Legal & Admin. 25%	Total Capital Cost	Total Capital Cost escalated to 2004 US\$ ⁷
Activated Sludges ⁵	\$17,991,000	\$9,269,000	\$27,260,000	\$6,815,000	\$34,075,000	\$42,054,131
Secondary Sedimentation	\$13,430,000	\$8,231,000	\$21,661,000	\$5,415,000	\$27,076,000	\$33,416,218
Dissolved Air Flotation	\$1,075,000	\$879,000	\$1,954,000	\$488,000	\$2,442,000	\$3,013,828
Sludge Storage	\$1,246,000	\$438,000	\$1,684,000	\$421,000	\$2,105,000	\$2,597,915
Standby Power	\$296,000	\$1,050,000	\$1,346,000	\$337,000	\$1,683,000	\$2,077,098
Support Facilities ⁶	\$5,540,000	\$1,135,000	\$6,675,000	\$1,669,000	\$8,344,000	\$10,297,863
Additional Land	--	--	--	--	\$550,000	\$678,790
Hazardous Waste Remediation	--	--	--	--	\$226,000	\$278,921
TOTALS (\$US)	\$39,578,000	\$21,002,000	\$60,580,000	\$15,145,000	\$76,501,000	\$94,414,763

Notes:

1. Construction costs from Reference 1 adjusted to the ENR Construction Cost Index for Los Angeles for August 1997 of 6631.
2. Construction costs include "Contractors Operations Costs", taxes, and contractor's profits. "Contractors Operation costs" include bonds, permits, insurance, mobilization, staffing, running the project, coordination, temporary facilities, etc
3. Structure includes grading, concrete, site civil and mechanical such as piping
4. Equipment includes metals, finishes, wood and plastics, equipment, instrumentation and control I & C and electrical.
5. Activated sludge includes activated sludge tanks with anoxic selectors and a blower facility with 4 blowers.
6. Support facilities include extension of yard piping, power and site work related to the construction of the proposed facilities
7. Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74
8. Cost for land not included since plant would be constructed on land already owned and part of the SBIWTP site.

Table F-14. Alternative 5 Option B-2 (Cont'd)

Annual Operating Costs for Secondary Train^{1,2,3}

Alternative	Secondary Treatment ⁴	Equalization Basin	Slids Treatment ^{5,6}	Total Operating Cost	Total O&M Cost escalated to 2004 US\$ ⁷
Alternative 5B-2	\$2,529,000	\$0	\$2,817,000	\$5,346,000	\$6,597,840

Notes:

1. All operating costs from Reference 1 are relative to August 1997.
2. The cost of power is estimated at \$0.10/kWh
3. Labor is estimated at an average rate of \$61,060 per year including salary burden for 2080 annual hours of work.
4. Includes all costs of secondary treatment including thickening of waste activated sludge and the annualized cost of sludge removal from ponds.
5. Includes the cost of sludge thickening, dewatering, and treatment using lime stabilization, but does not include the cost of thickening of waste activated sludge or the cost of sludge removal from ponds.
6. Does not include the cost of sludge disposal in Mexico
7. Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74

		Cost escalated to 2004 US\$
Total Capital Cost (\$US) =		\$131,548,147
Total Annual O&M (\$US) =		\$15,492,061

Cash Flow Summary (Alt 5B-2)

Inflation Rate = 2 %

Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$131,548,147		\$131,548,147	\$131,548,147
1		\$15,492,061	\$15,801,902	\$14,907,455
2		\$15,492,061	\$16,117,940	\$14,344,909
3		\$15,492,061	\$16,440,299	\$13,803,592
4		\$15,492,061	\$16,769,105	\$13,282,702
5		\$15,492,061	\$17,104,487	\$12,781,468
6		\$15,492,061	\$17,446,577	\$12,299,148
7		\$15,492,061	\$17,795,508	\$11,835,029
8		\$15,492,061	\$18,151,419	\$11,388,425
9		\$15,492,061	\$18,514,447	\$10,958,673
10		\$15,492,061	\$18,884,736	\$10,545,138
11		\$15,492,061	\$19,262,431	\$10,147,208
12		\$15,492,061	\$19,647,679	\$9,764,295
13		\$15,492,061	\$20,040,633	\$9,395,831
14		\$15,492,061	\$20,441,445	\$9,041,271
15		\$15,492,061	\$20,850,274	\$8,700,091
16		\$15,492,061	\$21,267,280	\$8,371,786
17		\$15,492,061	\$21,692,625	\$8,055,869
18		\$15,492,061	\$22,126,478	\$7,751,874
19		\$15,492,061	\$22,569,007	\$7,459,351
20		\$15,492,061	\$23,020,388	\$7,177,866
Total (\$US)	\$131,548,147	\$309,841,219	\$515,492,807	\$343,560,126

Table F-15. Alternative 6 Option A

Alternative 6A: Secondary Treatment in the United States and in Mexico

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; Public Law=34 ; SBOO=59 ; PCL=25 ; Punta Bandera=25

US Facilities (CMA Pond)

SBIWTP Primary Treatment Facility

Capital Cost ¹ (2004 \$US)	\$0
Annual O&M ² (\$US/Year)	\$4,242,223
NPDES Permit and Oceanographic Monitoring (\$US/Year)	\$600,000

1. No capital costs are included for the SBIWTP and SBOO since they are existing and significant modification is not required.

2. The O&M cost has been reduced to account for doing primary treatment instead of advanced primary treatment, see Reference 1.

Capital Cost of 25 MGD Modified CMA Pond System^{1,2,7} (Secondary Treatment in US)

Item	Structure ³	Equipment ⁴	Subtotal	Engineering Legal & Admin. 25%	Total Capital Cost	Total Capital Cost escalated to 2004 US\$ ⁶
Ponds	\$11,081,000	\$3,171,000	\$14,252,000	\$3,563,000	\$17,815,000	\$21,986,628
Distribution Structures	\$121,000	\$74,000	\$195,000	\$49,000	\$244,000	\$301,136
Pump Stations	\$139,000	\$127,000	\$266,000	\$66,000	\$332,000	\$409,742
Control Building ⁵	\$323,000	\$2,284,000	\$2,607,000	\$652,000	\$3,259,000	\$4,022,140
TOTALS (\$US)	\$11,664,000	\$5,656,000	\$17,320,000	\$4,330,000	\$21,650,000	\$26,719,646

Notes:

- Construction costs from Reference 1 adjusted to the ENR Construction Cost Index for Los Angeles for August 1997 of 6631.
- Construction costs include "Contractors Operations Costs", taxes, and contractor's profits. "Contractors Operation costs" include bonds, permits, insurance, mobilization, staffing, running the project, coordination, temporary facilities, etc
- Structure includes grading, concrete, site civil and mechanical such as piping
- Equipment includes metals, finishes, wood and plastics, equipment, instrumentation and control I & C and electrical.
- Control Building includes emergency generator standby power
- Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74
- Costs for land included for pond system.

Annual Operating Costs for Secondary Train^{1,2,3}

Alternative	Secondary Treatment ⁴	Equalization Basin	Solids Treatment ^{5,6}	Total Operating Cost	Total O&M Cost escalated to 2004 US\$ ⁷
O&M for secondary CMA	\$1,521,000	\$0	\$2,020,000	\$3,541,000	\$4,370,174

Notes:

- All operating from Reference 1 costs are relative to August 1997.
- The cost of power is estimated at \$0.10/kWh
- Labor is estimated at an average rate of \$61,060 per year including salary burden for 2080 annual hours of work.
- Includes all costs of secondary treatment including thickening of waste activated sludge and the annualized cost of sludge removal from ponds.
- Includes the cost of sludge thickening, dewatering, and treatment using lime stabilization, but does not include the cost of thickening of waste activated sludge or the cost of sludge removal from ponds.
- Does not include the cost of sludge disposal in Mexico
- Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74

Total Capital Cost (\$US) in US =	\$26,719,645.75
Total Annual O&M (\$US) in US =	\$9,212,397.37

Table F-15. Alternative 6 Option A (Cont'd)

Mexico Facilities

Project Cost	
	34 MGD Facility Scaled down from Alt 4A ^{1,2}
Public Law Treatment Plant	\$46,932,581
Influent Pump Station	\$5,503,991
Influent Conveyance	\$16,461,212
Effluent Conveyance	\$16,968,825
Engr/Legal/Admin	\$10,303,993
Total Project Costs in Mexico	\$96,170,602
Annual Operating Cost (US\$/year)	
Pump Station/ Pipelines to Public Law Treatment Plant (34mgd)	\$1,842,826
Public Law Treatment Plant	4,600,000
Total Operating Cost	6,442,826
Total Capital Cost (\$US) in Mexico =	\$96,170,602
Total Annual O&M (\$US) in Mexico =	\$6,442,826

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74
2. Cost scaled using a ratio of costs for equivalent plants sized for each of the design flows. The cost for each plant used to determine the ratio was calculated using EPA published cost curves for wastewater treatment unit processes.

	Escalated to 2004 US\$ ¹
Total Capital Cost of Alternative 6 (\$US)	\$122,890,248
Total Annual Cost of Alternative 6 (\$US)	\$15,655,223

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74

Cash Flow Summary (Alt 6)

Inflation Rate = 2 %
Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$122,890,248		\$122,890,248	\$122,890,248
1		\$15,655,223	\$15,968,328	\$15,064,460
2		\$15,655,223	\$16,287,694	\$14,495,990
3		\$15,655,223	\$16,613,448	\$13,948,972
4		\$15,655,223	\$16,945,717	\$13,422,595
5		\$15,655,223	\$17,284,632	\$12,916,082
6		\$15,655,223	\$17,630,324	\$12,428,683
7		\$15,655,223	\$17,982,931	\$11,959,676
8		\$15,655,223	\$18,342,589	\$11,508,367
9		\$15,655,223	\$18,709,441	\$11,074,089
10		\$15,655,223	\$19,083,630	\$10,656,199
11		\$15,655,223	\$19,465,303	\$10,254,079
12		\$15,655,223	\$19,854,609	\$9,867,132
13		\$15,655,223	\$20,251,701	\$9,494,788
14		\$15,655,223	\$20,656,735	\$9,136,494
15		\$15,655,223	\$21,069,869	\$8,791,720
16		\$15,655,223	\$21,491,267	\$8,459,957
17		\$15,655,223	\$21,921,092	\$8,140,714
18		\$15,655,223	\$22,359,514	\$7,833,517
19		\$15,655,223	\$22,806,704	\$7,537,913
20		\$15,655,223	\$23,262,838	\$7,253,463
Total (\$US)	\$122,890,248	\$313,104,467	\$510,878,614	\$337,135,138

Table F-16. Alternative 6 Option B

Alternative 6B: Secondary Treatment in the United States and in Mexico (Based on 25 MGD Peak plus Equalization Tank)

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=25 ; SABWTP=25 ; Public Law=34 ; SBOO=59 ; PCL=25 ; Punta Bandera=25

US Facilities (Activated Sludge)

SBIWTP Primary Treatment Facility

Capital Cost ¹ (2004 \$US)	\$0
Annual O&M ² (\$US/Year)	\$5,000,000
NPDES Permit and Oceanographic Monitoring (\$US/Year)	\$600,000

1. No capital costs are included for the SBIWTP and SBOO since they are existing and significant modification is not required.
2. Do not reduce O&M cost since advanced primary treatment will continue per Reference 1.

Capital Cost of 25-mgd Secondary Activated Sludge Facilities in US^{1,2,8}

Item	Structure ³	Equipment ⁴	Subtotal	Engineering Legal & Admin. 25%	Total Capital Cost	Total Capital Cost escalated to 2004 US\$ ⁷
Activated Sludges ⁵	\$17,559,000	\$9,046,000	\$26,605,000	\$6,651,000	\$33,256,000	\$41,043,351
Secondary Sedimentation	\$9,905,000	\$6,071,000	\$15,975,000	\$3,994,000	\$19,969,000	\$24,645,016
Dissolved Air Flotation	\$1,075,000	\$879,000	\$1,954,000	\$488,000	\$2,442,000	\$3,013,828
Sludge Storage	\$1,245,000	\$438,000	\$1,684,000	\$421,000	\$2,105,000	\$2,597,915
Standby Power	\$222,000	\$787,000	\$1,009,000	\$252,000	\$1,261,000	\$1,556,281
Support Facilities ⁶	\$4,857,000	\$994,000	\$5,851,000	\$1,463,000	\$7,314,000	\$9,026,674
Equalization Facilities	\$3,125,000	\$439,000	\$3,564,000	\$891,000	\$4,455,000	\$5,498,200
TOTALS (\$US)	\$37,988,000	\$18,654,000	\$56,642,000	\$14,160,000	\$70,802,000	\$87,381,264

Notes:

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for August 1997 of 6631.
2. Construction costs include "Contractors Operations Costs", taxes, and contractor's profits. "Contractors Operation costs" include bonds, permits, insurance, mobilization, staffing, running the project, coordination, temporary facilities, etc
3. Structure includes grading, concrete, site civil and mechanical such as piping
4. Equipment includes metals, finishes, wood and plastics, equipment, instrumentation and control I & C and electrical.
5. Activated sludge includes activated sludge tanks with anoxic selectors and a blower facility with 4 blowers.
6. Support facilities include extension of yard piping, power and site work related to the construction of the proposed facilities
7. Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74
8. Cost for land not included since plant would be constructed on land already owned and part of the SBIWTP site.

Annual Operating Costs for Secondary Train^{1,2,3}

	Secondary Treatment ⁵	Equalization Basin	Solids Treatment ^{6,7}	Total Operating Cost	Total Operating Cost escalated to 2004 US\$ ⁸
O&M for secondary activated sludge (\$US)	\$2,466,000	\$33,000	\$2,817,000	\$5,316,000	\$6,560,815

Notes:

1. All operating costs are relative to August 1997.
2. The cost of power is estimated at \$0.10/kWh
3. Labor is estimated at an average rate of \$61,060 per year including salary burden for 2080 annual hours of work.
4. Not Used
5. Includes all costs of secondary treatment including thickening of waste activated sludge and the annualized cost of sludge removal from ponds.
6. Includes the cost of sludge thickening, dewatering, and treatment using lime stabilization, but does not include the cost of thickening of waste activated sludge or the cost of sludge removal from ponds.
7. Does not include the cost of sludge disposal in Mexico
8. Total capital cost adjusted to the ENR Construction Cost Index for Los Angeles for November 2004 of 8183.74

Total Capital Cost (\$US) in USA =	\$87,381,264
Total Annual O&M (\$US) in USA =	\$12,160,815

Table F-16. Alternative 6 Option B (Cont'd)

Mexico Facilities

Project Cost	
	34 MGD Facility Scaled down from Alt 4A ^{1,2}
Public Law Treatment Plant	\$46,932,581
Influent Pump Station	\$5,503,991
Influent Conveyance	\$16,461,212
Effluent Conveyance	\$16,968,825
Engr/Legal/Admin	\$10,303,993
Total Project Costs in Mexico	\$96,170,602
Annual Operating Cost (US\$/year)	
Pump Station/ Pipelines to Public Law Treatment Plant (34mgd)	\$1,842,826
Public Law Treatment Plant	4,600,000
Total Operating Cost	6,442,826
Total Capital Cost (\$US) in Mexico =	\$96,170,602
Total Annual O&M (\$US) in Mexico =	\$6,442,826

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74
2. Cost scaled using a ratio of costs for equivalent plants sized for each of the design flows. The cost for each plant used to determine the ratio was calculated using EPA published cost curves for wastewater treatment unit processes.

	Escalated to 2004 US\$ ¹
Total Capital Cost of Alternative 6 (\$US)	\$183,551,866
Total Annual Cost of Alternative 6 (\$US)	\$18,603,641

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74

Cash Flow Summary (Alt 6)

Inflation Rate = 2 %
Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$183,551,866		\$183,551,866	\$183,551,866
1		\$18,603,641	\$18,975,713	\$17,901,616
2		\$18,603,641	\$19,355,228	\$17,226,084
3		\$18,603,641	\$19,742,332	\$16,576,043
4		\$18,603,641	\$20,137,179	\$15,950,532
5		\$18,603,641	\$20,539,922	\$15,348,625
6		\$18,603,641	\$20,950,721	\$14,769,432
7		\$18,603,641	\$21,369,735	\$14,212,095
8		\$18,603,641	\$21,797,130	\$13,675,789
9		\$18,603,641	\$22,233,073	\$13,159,722
10		\$18,603,641	\$22,677,734	\$12,663,128
11		\$18,603,641	\$23,131,289	\$12,185,274
12		\$18,603,641	\$23,593,915	\$11,725,453
13		\$18,603,641	\$24,065,793	\$11,282,983
14		\$18,603,641	\$24,547,109	\$10,857,210
15		\$18,603,641	\$25,038,051	\$10,447,504
16		\$18,603,641	\$25,538,812	\$10,053,258
17		\$18,603,641	\$26,049,588	\$9,673,890
18		\$18,603,641	\$26,570,580	\$9,308,838
19		\$18,603,641	\$27,101,992	\$8,957,561
20		\$18,603,641	\$27,644,031	\$8,619,540
Total (\$US)	\$183,551,866	\$372,072,813	\$644,611,793	\$438,146,441

Table F-17. Alternative 7

Alternative 7: SBIWTP Closure/Shutdown

Year: 2023

Average Flows (mgd) : Total=84 ; SBIWTP=0 ; SABWTP=25 ; PCL=25 ; RCL=59 ; SBOO=0 ; Pt. Band.=84

SBIWTP Primary Treatment Facility	
O&M (Mothballing and security services of plant) ¹	\$600,000

1. Does not consider agreements for sharing the use of the outfall with the City of San Diego.

RCL Improvement Cost	
5900 HP Pump Station (59 mgd) ²	\$14,807,284
RCL pipelines construction ¹ (Dia=1.8m)	\$25,959,991
Engineering, supervision and project administration, 12%	\$4,892,073
Pump Station O&M ²	\$5,055,273
Pipelines O&M at 1% of capital cost (US\$/year)	\$259,600

Total Capital Cost (\$US) =	\$45,659,348
Total Annual O&M (\$US) =	\$5,914,873

1. Construction costs adjusted to the ENR Construction Cost Index for Los Angeles for Nov. 2004 of 8183.74

Cash Flow Summary (Alt 7)

Inflation Rate = 2 %

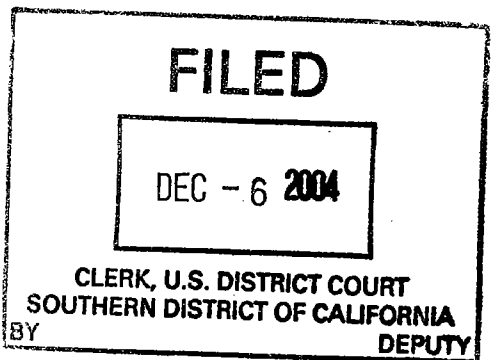
Discount Rate = 6 %

Year	Structure and Equipment	Operating Costs	Total Annual Outlays	Present Value
0	\$45,659,348		\$45,659,348	\$45,659,348
1		\$5,914,873	\$6,033,170	\$5,691,670
2		\$5,914,873	\$6,153,833	\$5,476,890
3		\$5,914,873	\$6,276,910	\$5,270,215
4		\$5,914,873	\$6,402,448	\$5,071,339
5		\$5,914,873	\$6,530,497	\$4,879,967
6		\$5,914,873	\$6,661,107	\$4,695,818
7		\$5,914,873	\$6,794,329	\$4,518,617
8		\$5,914,873	\$6,930,216	\$4,348,103
9		\$5,914,873	\$7,068,820	\$4,184,024
10		\$5,914,873	\$7,210,197	\$4,026,136
11		\$5,914,873	\$7,354,401	\$3,874,206
12		\$5,914,873	\$7,501,489	\$3,728,010
13		\$5,914,873	\$7,651,518	\$3,587,330
14		\$5,914,873	\$7,804,549	\$3,451,959
15		\$5,914,873	\$7,960,640	\$3,321,697
16		\$5,914,873	\$8,119,852	\$3,196,350
17		\$5,914,873	\$8,282,249	\$3,075,733
18		\$5,914,873	\$8,447,894	\$2,959,667
19		\$5,914,873	\$8,616,852	\$2,847,982
20		\$5,914,873	\$8,789,189	\$2,740,511
Total (\$US)	\$45,659,348	\$118,297,450	\$192,249,510	\$126,605,572

APPENDIX G

COURT ORDER SETTING COMPLIANCE SCHEDULE

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28



**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF CALIFORNIA**

PEOPLE OF THE STATE OF CALIFORNIA, Ex
Rel. THE REGIONAL WATER QUALITY
CONTROL BOARD, SAN DIEGO REGION,

Plaintiff,

v.

ARTURO DURAN, an individual in his capacity
as Commissioner of the INTERNATIONAL
BOUNDARY AND WATER COMMISSION,
UNITED STATES SECTION, et al.,

Defendants.

Case No. 01-CV-0270-BTM(JFS)
ORDER SETTING COMPLIANCE
SCHEDULE

On December 5, 2003, this Court granted Plaintiff California Regional Water Quality Control Board, San Diego Region's ("Regional Board") Motion For Summary Judgment re: liability of Defendant International Boundary and Water Commission, United States Section ("USIBWC") in the above referenced action. The Court found Plaintiff had established liability against the USIBWC under the Federal Water Pollution Control Act ("Clean Water Act"), and the California Porter-Cologne Water Quality Control Act ("Porter-Cologne Act") based upon USIBWC's ongoing discharges from the International Wastewater Treatment Plant ("IWTP") through the South Bay Ocean Outfall. The Court found that USIBWC's discharges violate, and will continue to violate, effluent limitations based on secondary treatment requirements, and for acute and chronic toxicity, contained in waste discharge requirements for the IWTP, Order No. 96-50, as amended [National

1 Pollutant Discharge Elimination System Permit No. CA 0108928[("Order No. 96-50") issued by
2 the Regional Board.

3 The parties have submitted a statement of stipulated facts that includes a statement that
4 presently, advanced primary treatment of sewage from Mexico at the IWTP provides substantial
5 mitigation of the previous uncontrolled discharges of raw, untreated sewage to waters of the United
6 States. Any action by the Court at this time that would require USIBWC to discontinue the existing
7 level of advanced primary treatment at the IWTP would be detrimental to public health, water
8 quality, and the environment despite the fact that USIBWC will continue to violate effluent limits
9 based on secondary treatment and effluent limits for toxicity until USIBWC provides secondary
10 treatment or takes alternative measures to avoid violation of Order No. 96-50. Therefore, this Court
11 finds that it is in the interest of the public health, water quality, and environment of the state of
12 California to establish a schedule by which USIBWC can come into compliance with the effluent
13 limitations contained in Order No. 96-50.

14 Accordingly, it is **ORDERED** that:

15 1. Plaintiff is entitled to an injunction under both federal and state law compelling
16 USIBWC to comply with the effluent standards and limitations based on secondary treatment and
17 relating to acute and chronic toxicity contained in Order No. 96-50.

18 2. USIBWC shall achieve full compliance with all effluent standards and limitations
19 contained in Order No. 96-50 not later than September 30, 2008. USIBWC shall achieve compliance
20 by providing secondary treatment of its effluent, or otherwise meeting the requirements contained
21 in Order No. 96-50.

22 3. USIBWC shall publish the Draft Supplemental Environmental Impact Statement
23 ("SEIS") for Clean Water Act Compliance for the IWTP not later than December 31, 2004, and shall
24 publish the Final SEIS not later than August 1, 2005.

25 4. USIBWC shall issue a Record of Decision not later than October 1, 2005 defining
26 the project(s), and identifying one or more feasible alternative projects, that USIBWC shall
27 implement to achieve compliance with the effluent standards and limitations in Order No. 96-50.

28 ///

1 5. USIBWC shall, on or before October 15, 2005, generate a "Critical Path Schedule"
2 for its project(s) utilizing Critical Path Management Method ("CPMM") software to define, track,
3 and report the design and construction phases of the project(s) selected in the Record of Decision
4 to achieve compliance. The Critical Path Schedule for the project(s) shall include a listing and
5 description of design and construction tasks that are required to construct, operate and manage the
6 selected project(s) to completion on a day-to-day basis. Each task shall be described and assigned
7 a duration in days, an early start and late start date, an early finish and late finish date, and shall be
8 depicted in a graphic logic network representation to clearly show the tasks' relationships to the
9 overall project and the Critical Path Schedule for completion of the project. A sufficient number of
10 tasks shall be included in the listing to ensure that the current status of the overall project(s) shall be
11 clearly depicted on a daily basis, so that interested persons can determine whether the project is
12 ahead of, or behind, schedule, and the reasons for any deviations from the Critical Path Schedule.
13 The Critical Path Schedule shall be kept up to date at least daily to ensure that it reflects the
14 projected early and late start and finish dates for all tasks and for the project(s) accurately.

15 (a) The Critical Path Schedule shall include the following deadlines:

- 16 i. Award contract(s) for design and construction of facilities and notice
17 to proceed with construction of facilities not later than December 19, 2005.
- 18 ii. Initiate design phase, if necessary, not later than December 19, 2005.
- 19 iii. Commence construction phase of project(s) not later than September
20 15, 2006.
- 21 iv. Complete construction phase of project(s) not later than August 24,
22 2008.
- 23 v. Achieve full compliance with applicable effluent standards and
24 limitations not later than September 30, 2008.

25 6. USIBWC shall submit the Critical Path Schedule to the Court for purposes of
26 reviewing the schedule's reasonableness.

27 7. If the Critical Path Schedule developed by USIBWC reveals that USIBWC can
28 accomplish the tasks set forth in paragraph 5 above materially sooner than the deadlines delineated,

1 the Regional Board may ask the Court to exercise its discretion to impose earlier deadlines.

2 8. As soon as the Critical Path Schedule is established and until the selected project(s)
3 is/are completed, USIBWC shall provide to the Regional Board and the Court internet-web-based
4 real-time access to the Critical Path Schedule and all CPMM information developed or relied upon
5 by USIBWC.

6 9. USIBWC shall rely on the CPMM to direct and manage the project(s) needed to
7 achieve compliance with Order 96-50 and shall utilize expeditious project management principles
8 to promote completion of the project(s) and compliance with Order No. 96-50 in the shortest
9 possible time. The tasks and dates contained in the Critical Path Schedule shall serve as an integral
10 means for ensuring compliance with the deadlines set forth in paragraph 5 above, or with any
11 modifications thereafter imposed by the Court.

12 10. If USIBWC fails to meet dates contained in the Critical Path Schedule, USIBWC
13 shall promptly make adjustments to return the project(s) to schedule. If USIBWC fails to meet the
14 dates contained in the Critical Path Schedule that might cause USIBWC to miss any of the deadlines
15 set forth in paragraph 5 above, or with any modifications imposed by the Court, USIBWC shall,
16 within 10 days, meet and confer with the Regional Board regarding adjustments to the schedule of
17 work to meet the deadlines in paragraph 5 above. USIBWC and the Regional Board shall
18 immediately notify the Court of any scheduled meet and confer as described above and thereafter
19 shall notify the Court of the outcome of the meet and confer. If, after meeting and conferring with
20 the Regional Board as described above, the Regional Board determines that USIBWC will fail to
21 meet, or if USIBWC fails to meet, any of the deadlines set forth in paragraph 5 above, or any
22 modifications imposed by the Court, the Regional Board can seek relief from the Court, including
23 but not limited to, coercive penalties. USIBWC can assert any and all defenses.

24 11. USIBWC has consistently achieved removal of not less than 75 percent of TSS from
25 the wastewater treated at the IWTP using advanced primary treatment. USIBWC shall remove not
26 less than 75 percent of TSS at any time as required by applicable effluent limitations. USIBWC shall
27 continue to manage the advanced primary treatment process at IWTP to optimize TSS removal above
28 75 percent while working to complete the project(s) needed for USIBWC to achieve compliance with

1 Order No. 96-50. Within 60 days from the entry of the Court's order, USIBWC shall commence an
2 optimization study utilizing an independent third party to determine how additional TSS can be
3 removed from the effluent from the IWTP. If the optimization study reveals that additional TSS can
4 be removed from the effluent, USIBWC and the Regional Board shall meet and confer regarding
5 methods for achieving additional TSS removal. If the parties cannot agree, the Regional Board can
6 request any appropriate relief from the Court.

7 12. Plaintiff is a substantially prevailing party in this lawsuit and USIBWC shall pay
8 Plaintiff reasonable attorneys' fees and costs.

9 13. The claim for coercive penalties is by stipulation of the parties withdrawn without
10 prejudice and may be raised as set forth in paragraph 10.

11 14. This Order shall be a final judgment for equitable relief for all of Plaintiff's claims.
12 The Court retains jurisdiction to enforce the terms of this Order.

13 *M* **IT IS SO ORDERED.** *The clerk shall enter this as a final judgment*

14
15 Date: 12-06-2004

Barry T. Moskowitz
The Honorable Barry T. Moskowitz
United States District Judge

17 I hereby affirm and certify on 12-6-04
18 That the foregoing document is a full, true and correct copy of the original on file in my office and in my custody.

19 CLERK, U.S. DISTRICT COURT
20 SOUTHERN DISTRICT OF CALIFORNIA

21 *Shirley*