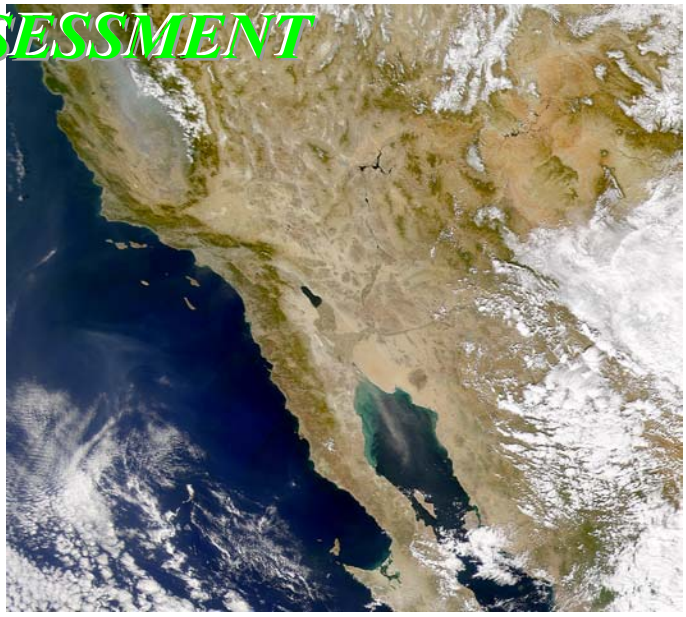
CALIFORNIA / BAJA CALIFORNIA INDUSTRIAL WASTEWATER MONITORING PRETREATMENT AND MINIMIZATION PROGRAM NEEDS ASSESSMENT



February 2002

CAL/EPA BORDER AFFAIRS UNIT

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
BORDER AFFAIRS UNIT

Governor Gray Davis
State of California

California Environmental Protection Agency
Border Affairs Unit

California / Baja California Industrial Wastewater Monitoring, Pretreatment and Minimization Program Needs Assessment

Winston H. Hickox
Agency Secretary

Nancy H. Sutley
Deputy Secretary for Policy
and Intergovernmental Relations

Ricardo Martinez
Assistant Secretary for Border Affairs

California Environmental Protection Agency
1001 I Street
Sacramento, California 95814

CAL/EPA BORDER AFFAIRS UNIT

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Prepared by R & G Associates

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California / Baja California
Industrial Wastewater Monitoring,
Pretreatment and Minimization Program
Needs Assessment
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I. INTRODUCTION

The California-Baja California Border Region[1] is a rapidly growing region on both sides of the border. In 1995 almost 10.6 million people lived along the border with 5.8 million living in the United States and 4.8 million living in Mexico. In California, Imperial and San Diego counties accounted for almost half of the U.S. border population and in Baja California, the cities of Tijuana, Tecate and Mexicali accounted for 37% of Mexico's 1995 border population.[2] If the current rates of population growth continue, the border population will double in 25 years.[3]

Likewise industrial development continues to increase along both sides of the border. In 1998 there were an estimated 3,051 maquiladora plants along the entire border.[4] In 2001, it was estimated that there were 800 of these plants on the Mexican side of the California-Baja California border in the Tijuana, Tecate and Mexicali municipalities.[5]

The states of Baja California and California have long recognized that the boundary between the two countries is a political boundary not an environmental boundary. Both states also recognize that environmental protection, economic vitality and development are interdependent. Consequently, California and Baja California have established a joint mission to promote a cleaner and more prosperous Border Region while maintaining a vibrant economy.

Governor Gray Davis has from the beginning of his administration engaged in frequent dialogue with the President of Mexico and the Governor of Baja California to further both economic and environmental goals. The Environmental Secretaries of California and Baja California have also created an

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[1] The Border Region comprises an area that extends approximately 100 km on either side of the border from the Pacific Ocean to the Texas-Louisiana state line.
[2] Paul Ganster, *The U.S. –Mexican Border Environment, A Road Map to a Sustainable 2020*, *Overview*, SCERP Monograph Series, no. 1, *Overview*, p. 5
[3] Paul Westerhoff, *Water Issues along the U.S.-Mexican Border*, ed. Paul Westerhoff Southwest Center for Environmental Research and Policy, Monograph Series, no.2, *Overview*, p. 1
[4] Ganster, p.11. Maquiladora plants are industries in the Mexican Border Region that are foreign owned.
[5] Solunet Info-Mex Inc., *The Complete Twin Plants Guide,* 2001 Edition,

atmosphere of coordination and cooperation between the two states by signing several Joint Agreements of Cooperation to address a variety of environmental issues in the California-Baja California Border Region.[6]

II. PURPOSE OF THE REPORT

On March 21, 2001 the Secretary of the California Environmental Protection Agency (Cal/EPA) and the Baja California Direccion General De Ecologia (DGE) signed the *Agreement of Cooperation on Industrial Wastewater Monitoring and Pretreatment Between the State of Baja California, Mexico and the State of California, United States of America* (Agreement).[7] The Agreement affirms the two states' commitment to work together to implement a three-year effort to coordinate technical assistance and capabilities related to monitoring, pretreatment, and minimization of the environmental impacts of industrial wastewaters in the Mexican cities of Tijuana, Tecate and Mexicali.

This report is to serve as a guide to identifying:

- A strategy for coordinating the participation of appropriate U.S. and Mexican municipal, state and federal government organizations for the development of a wastewater monitoring, pretreatment and technical assistance program
- Links between Cal/EPA Boards, Departments and Office with counterparts in the Mexicali, Tecate and Tijuana regions of Baja California
- Industrial dischargers, pollutants discharged, and receiving waters in the Mexicali, Tecate and Tijuana municipalities of Baja California
- Industrial wastewater worker training needs and opportunities
- Resources needed to monitor and analyze industrial wastewater

III. UNITED STATES AND MEXICAN GOVERNMENT ENVIRONMENTAL ORGANIZATIONS

The goal of the parties to the Agreement is to create a self-sustaining industrial wastewater monitoring, pretreatment and minimization program within the

[6] See Appendix A
[7] See Appendix B

three Baja California border cities of Tijuana, Tecate and Mexicali. Under the terms of the Agreement, the Director General de Ecologia[8] and the Cal/EPA Assistant Secretary for Border Affairs are to develop a Work Plan that includes identification of the wastewater monitoring, pretreatment and technical assistance needs of the Mexican authorities in the border region.

The Work Plan must be designed to match the needs of the Mexican authorities with the resources available to meet those needs. Over the course of the last several years much headway has been made at all levels of the regulatory and wastewater community to develop the bi-national relationships necessary to bring about open discussion based on a mutual level of trust.

Elections held in Mexico during 2001 resulted in a change of leadership of the Baja California Department of Ecology and the Commissions for Public Services, the principal agencies concerned with wastewater. Director Jorge Escobar Martinez, the new head of the Baja California Department of Ecology, has expressed his vision of expanding a culture of pollution prevention while increasing the skill sets of the employees of the Mexican agencies. The current atmosphere of cooperation between Baja California and California will serve to help realize the Director's vision of increased effectiveness of the environmental quality and public health institutions of Baja California.

Pursuant to federal and state law, California has implemented extensive wastewater industrial pretreatment programs on the U.S. side of the border. This positions California to assist Baja California in realizing the vision of Director Escobar Martinez by sharing its experience and expertise with environmental authorities in Mexico.

Any strategy for development of industrial pretreatment programs in the three Baja California cities must include both private sector plant cost-benefit analysis and training, and government regulatory oversight. A successful program will combine the elements of informing the private sector of the potential for cost savings, with governmental insistence that waste discharges meet Mexican norms[9]. Thus to the extent that the private sector understands its pollutant discharges and takes steps to prevent or minimize them in its economic self interest, less is the need for government compliance activity.

[8] English translation – Department of Ecology
[9] The Mexican legal term for regulations.

The myriad of environmental authorities in Mexico and California complicate a bi-national industrial wastewater pretreatment strategy. In both countries responsibilities for aspects of a pretreatment program are divided between federal, state and local government planning, permitting, enforcement and operational agencies.

Mexican Federal Institutions

The Secretariat of the Environment and Natural Resources (SEMARNAT)[10] is the primary federal agency responsible for the protection of the environment and the natural resources of Mexico. Wastewater discharged to the open "waters of Mexico" is regulated under permit from the National Water Commission (CNA), an arm of the SEMARNAT. The "waters of Mexico" include open drains, creeks, rivers, lakes, groundwaters, and the ocean.

The Attorney General's Office of Environmental Protection (PROFEPA) has federal environmental enforcement jurisdiction.

State of Baja California Institutions

The State of Baja California's Department of Ecology (DGE) regulates discharges to a sewerage collection system. Wastewater collection and treatment is operated in each municipality by state Public Service Commissions (CESP)[11] which are under the authority of the Baja California Secretariat of Human Settlements and Public Works (SAHOPE). Recent legislation elevates the Department of Ecology to Secretariat (Cabinet) status in Baja State Government.

Table I
Summary of Mexican Regulatory Authorities

Function	Waters of Mexico	Collection system
Water Quality Standards	SEMARNAT	SEMARNAT
Permitting	CNA	DGE
Collection and Treatment		CESP/SAHOPE
Monitoring	CNA/PROFEPA	DGE/CESP
Enforcement	PROFEPA	PROFEPA/DGE

[10] Glossary of acronyms – Appendix C
[11] Tijuana is served by CESPT, Tecate by CESPTE, and Mexicali by CESPM

Bi-National Organizations

International Boundary and Water Commission (IBWC)

The United States and Mexico have entered into a number of treaties dealing with boundary issues and trans-boundary water and wastewater impacts. The International Boundary and Water Commission oversees these treaty obligations. The IBWC is comprised of two separate sections. The Mexican Section is responsible to the Secretariat of Foreign Relations of Mexico. The United States Section is responsible to the Department of State of the United States.

Approximately one half of the wastewater flow from Tijuana is processed at the International Treatment Plant (ITP) operated by the United States Section of the IBWC. While this plant is located in California, the source of its influent is in Mexico. Binational operation issues are documented by Treaty Minutes. Treaty Minute No. 283 reflects the commitment of the two nations to assure efficient treatment of Tijuana sewerage in the International Treatment Plant by requiring Mexican industries to provide appropriate pre-treatment of wastewaters discharged.[12]

Both Sections of the IBWC are concerned with the quality of flows in the New River at Mexicali. Mexicali is a rapidly expanding center of commerce. This growth presents challenges to the present sewer collection and treatment system of the area. Under Treaty Minute 264, both Nations agree to work to prevent the discharge of domestic and industrial waste to the New River.[13] Treaty Minute No. 288 calls for the implementation of industrial pretreatment programs.[14]

North American Development Bank (NADBank) and the Border Environmental Cooperation Commission (BECC)

The North American Development Bank and its sister institution, the Border Environmental Cooperation Commission were created to facilitate construction of environment infrastructure in the border region.

[12] *Treaty Minute No. 283*, July 1990, Page 7
[13] *Treaty Minute No. 264*, August 1980, page 3
[14] *Treaty Minute No. 288*, October 1992, pages 3, 4, 6, 7

The NADBank's role is to facilitate financing for projects that have been approved by the BECC. In this role it may act as an advisor and financial strategist, an investment banker, and a lender.

The BECC's primary role is to assist in coordinating projects and to certify the technical and environmental feasibility of projects seeking financial assistance from the NADBank. In addition, BECC provides direct financial assistance from its Border Environmental Infrastructure Fund (BEIF). The two Agencies are in a position to stimulate industrial pretreatment as a condition of the certification or grants. In fact, the BECC has applied such a condition to a grant for improvements to the Tecate, Baja California water and wastewater systems.

The California Border Environmental Cooperation Committee (CalBECC)

The CalBECC was formed by a Joint Resolution of the Governors of California, Baja California and Baja California Sur in 1994. CalBECC has established state-to-state direct lines of communication at both cabinet and staff levels. The regular meetings of the Committee institutionalize the commitment to cross border dialog and provide a forum to educate each government on the organization, function and responsibilities of their respective environmental agencies. Discussions on environmental infrastructure projects, issues and barriers on both sides have resulted in joint support for numerous projects eventually certified by BECC. CalBECC also tracks and attends BECC and NADBank public meetings to ensure interests of the Californias are made known.

United States Federal Institutions

A comprehensive system of federal, state and local interests also govern wastewater in California. At the federal level, the U.S. Environmental Protection Agency (US EPA) has the primary role for insuring compliance with the federal Clean Water Act. However, US EPA has delegated program authority to the State of California to administer most provisions of the federal Clean Water Act within the State. Nevertheless, US EPA retains jurisdiction over violations of the Act and the U.S. Department of Justice may bring criminal action under its provisions. Additionally, US EPA distributes federal funds to the states to be used in revolving loan programs for wastewater infrastructure needs. The US

EPA also plays a critical environmental role in the Border Region pursuant to the La Paz Agreement between the USA and Mexico.[15] The Agreement essentially makes the US EPA the US coordinator for pursuing practical, legal, institutional, and technical measures for protecting the quality of the environment in the Border Region.

State of California Institutions

California Environmental Protection Agency (Cal/EPA)

Cal/EPA is a cabinet level Secretariat reporting directly to the Governor of California. The Agency oversees the activities of six regulatory boards, departments and office, two of which are directly responsible for wastewater regulatory programs in the Border Region. The Secretary has appointed an Assistant Secretary of Border Affairs to coordinate the border activities of the boards and departments of the Agency and to initiate new programs in cooperation with Baja California.

The Secretary and the Border Affairs Unit (BAU) have worked at the environmental policy level throughout the state and municipal levels of Baja California and beyond. The California Border Environmental Cooperation Committee has provided an institutional vehicle for continued policy level contact with leaders of California and Baja California as well as the State of Baja California Sur. The CalBECC process of communication has continued through successive Administrations on both sides of the border.

State Water Resources Board (SWRCB)

Water pollution control in California is regulated by the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCB). The State Water Resources Control Board and the Regional Water Quality Control Boards set water quality objectives and ensure both dischargers and the treatment system operators meet these objectives. Wastewater may be discharged according to Regional Board permits to land, to sewer systems or to open waters. Regional Boards may take enforcement actions, but criminal

[15] *Agreement for the Protection and Improvement of the Environment in the Border Area*, 1983

actions are reserved to the Attorney General or to the District Attorney's elected in each County and to the federal government.

The State Board is providing staff and resources to ensure Baja California is able to address wastewater impacts along the border. The Board is thus prepared to assist the Cal/EPA Border Affairs Unit maintain a clear understanding of California's interest in enhancing water quality crossing the border. The State Board has developed working relationships with the Baja California Department of General Ecology and other Mexican agencies responsible for water quality in Mexico. The Board provides a border-wide perspective on water quality issues. This perspective results in programs of coordination, funding, and assistance to the Regional Boards. Thus the Regional Boards are equipped to address site specific cross-border issues.

The two Regional Boards with border responsibilities are the Colorado River Regional Water Quality Control Board (Colorado River RWQCB) in Palm Desert and the San Diego Regional Water Quality Control Board (San Diego RWQCB) in San Diego.

In response to the impacts of regional growth along the border, the SWRCB has provided staff, technical assistance, training assistance, and resources to the City of San Diego. These resources have been used by the City to increase Mexico's ability to address water quality problems before they impact the waters of California. Additionally, the SWRCB has funded the development of Spanish language training materials to be used in Mexico. These training materials include manuals and videos appropriate to the level of technology employed along the border.

The SWRCB has assisted in developing an infrastructure "needs assessment" for the Border Region. This assessment catalogs potential projects for funding from NADBank, BECC or other sources. The SWRCB has also provided administrative and logistical support for cross border consultations including translation services and document preparation.

The SWRCB in conjunction with the San Diego RWQCB has funded the Tijuana Industrial Waste Monitoring and Pretreatment Program over the past four years. The SWRCB has provided approximately $400,000 in assistance to the City of San Diego for the provision of assistance with collection and analysis of wastewater samples, training in sampling and analytical techniques, and procurement of

laboratory and sampling equipment. The San Diego RWQCB has provided additional assistance as a result of a settlement agreement with the city of San Diego. Pursuant to the settlement agreement, the City of San Diego agreed to provide sampling, testing and training resources for the pretreatment program in Tijuana over a period of 3 years at a cost of $250,000.

Colorado River Regional Water Quality Control Board (Colorado River RWQCB)

Both the State Water Resources Control Board and the Colorado River Regional Board are members of the Binational Technical Advisory Committee for the Mexicali/New River Sanitation Project. The Committee commissioned a consultant to prepare a comprehensive monitoring study for Mexicali in 1997.[16] The consultant report proposed an industrial pretreatment program. Pursuant to recommendations in the report and findings obtained during monthly bi-national observation tours of discharges in the Mexicali area, the Regional Board requested the IBWC to establish monitoring sites at eight locations in Mexicali. The IBWC is currently operating two monitoring sites within Mexicali, but the balance of the proposed sites has not been implemented. In the absence of comprehensive data from sites within Mexicali, the Regional Board must rely on the limited data from the IBWC monitoring sites and from its own monitoring station on the New River, just inside the U.S. Border.

The bi-national monthly "Observation Tours" of the Mexicali wastewater system have resulted in regular contact with the Mexican agencies responsible for the sewage collection, treatment, and disposal system, which has enhanced bi-national cooperation and communication for the Mexicali-Imperial County area. The Regional Board is also sponsoring hands-on training of Mexican treatment plant operators at the City of Calexico wastewater facility. To date, four Mexican wastewater plant operators have been trained and certified to California standards for the operation and maintenance of wastewater plants. Also, twelve Mexican water plant operators have been certified at various levels by the California Department of Health Services for operation and maintenance of water treatment plants.

[16] CH2M Hill, *Assessment of the Industrial Discharges in Mexicali, Baja California*, and *Recommendations for the Implementation of an Industrial Pretreatment Program*, September 1997

The Colorado River Regional Board is also developing a Geographical Information System (GIS) for the Alamo and New Rivers Watersheds. The GIS will be used for water quality control and planning purposes. Both rivers originate within the Municipality of Mexicali. To the extent that data for the Mexican portions of the watersheds are available, the data will be incorporated in the GIS[17].

San Diego Regional Water Quality Control Board (San Diego RWQCB)

In conjunction with the City of San Diego, the San Diego RWQCB has an aggressive program to assist CESPT in developing a bi-national pretreatment and industrial waste monitoring program. The Regional Board required the City of San Diego to provide services in the amount of $250,000 as part of a settlement agreement thus providing funds for the Tijuana Program. In addition to collecting data this program also provides hands-on training for the CESPT staff.

The San Diego Regional Board has a further link with wastewater actions taken in Mexico in that the Board is the permitting authority for the International Treatment Plant operated by the IBWC. Water quality improvements on the Mexican side result in improvements in both the Tijuana River Estuary and the surf line north of the border. The participation of San Diego Regional Water Quality Control Board staff in the Bi-national Technical Group[18] illustrates the developing working relationships.

The San Diego RWQCB has also developed a working relationship with CESPTe in Tecate. The Board has funded a workplan by which the City of San Diego will provide training, sampling and analytical services designed to increase CESPTe's ability to detect and isolate pollution sources. In addition, laboratory and sampling equipment will be procured and/or donated based on need. This project will also gauge the effectiveness of the Tecate Wastewater Treatment Facility.

[17] The Regional Board currently has extensive water quality data for the New River as it crosses the Border in Calexico and hydraulic data on the sewage collection, treatment and disposal systems for Mexicali.
[18] Representatives of CESPT, DGE, IBWC Mexican and U.S. Sections, City of San Diego and the San Diego RWQCB.

In June 2001, the San Diego RWQCB unanimously adopted a resolution requesting $697,000 from the SWRCB to develop and implement an industrial waste pretreatment program in Tecate and to continue funding the Tijuana program. Three hundred eleven thousand dollars ($311,000) will be used to assist CEPSTe and three hundred eighty six thousand dollars ($386,000) will be used to continue the Tijuana program. The funds were approved and work for this program will begin in February of this year.

The San Diego Regional Board is managing a three-year SWRCB contract with San Diego State University to study discharge impacts to the binational Tijuana River Watershed. Under this contract, SDSU will develop a GIS-based remote sensing program to identify the sources, fates, and effects of waste discharges in the area. While the main thrust of this program will be on non-point sources, some point sources will also be included. The study will employ water sampling, remote terrestrial imaging and ocean imaging. During the first year, the study will concentrate on water sample analysis and remotely sensed imagery in the Campo-Tecate sub basin. The water sample analysis will focus on measuring fecal coliforms and heavy metals in Tecate Creek as it crosses the border. In subsequent years, the number of pollutants to be tested for and monitoring stations will be increased. In addition, the project will determine factors that affect the transport and fate of pollutants along the near shore of the Pacific Ocean.[19]

Department of Toxic Substances Control (DTSC)

The Department of Toxic Substance Control (DTSC), one of the six regulatory boards and departments under Cal/EPA is responsible for regulating hazardous waste and waste generating facilities, the cleanup of hazardous waste sites, the prevention of hazardous wastes and monitoring the transport of hazardous wastes across the border. In addition to California hazardous waste laws, the DTSC has been delegated responsibility for administering the federal hazardous waste management laws. Thus the DTSC may work with federal, state or local prosecutors in cases of regulatory and criminal violations of the waste laws of both the federal and state governments.

[19] SWRCB Contract No. 00-246-190-0 Exhibit A – Scope of Work

The DTSC works with local agencies to perform inspections and to provide education in hazardous waste management and pollution prevention. The DTSC does not have enforcement links with the Mexican government agencies, but does provide hazardous waste prevention and management training courses in the border cities. The DTSC performs inspections of trucks for hazardous materials at the border both for U.S. in-bound and out-bound trucks.

In developing these programs the DTSC has worked with US EPA, DGE and PROFEPA to reach out to the maquiladora industry. The Department's educational mission is focused on the generator of hazardous materials. Therefore the main recipients of training have been plant management and staff rather than government agencies. Its training is designed to foster the identification, safe handling, disposal and reduction of hazardous wastes.

The DTSC will deliver a series of sixteen courses this fiscal year. The course materials, while developed in English, have been translated into Spanish and will be delivered in Spanish by staff from the County of San Diego.

The Department believes more on-site training would be beneficial to the Mexican regulatory authorities. An example of such training would be to allow Mexican authorities to accompany DTSC staff inspecting California trucks at the border and at California plants. Expanded emphasis on agency to agency cooperation would serve to strengthen cross-border working relationships and could lead to a more self-sustaining Mexican training program. While the DTSC has provided training in all three cities, staff indicates it has the closest tie to Tijuana. Added emphasis on cross border agency training would expand the Tecate and Mexicali contacts.

DTSC has found the greatest interest in adopting hazardous waste reduction in situations where the cost benefit ratio is high and capital investment modest. In short, in the absence of an enforcement pressure, the plant operators are primarily motivated by the potential for financial benefit.

Publicly Owned Treatment Works (POTWs)

Sewer collection and treatment services are typically provided by municipalities such as the City of San Diego and the City of Calexico in the Border Region. The municipalities are issued operating permits from one of nine Regional Water Quality Control Boards and are responsible for meeting waste discharge

standards. In fulfillment of their obligations, municipalities monitor sewage collection, treatment, and disposal systems and as necessary establish industrial pretreatment programs for certain facilities that discharge to the public collection system.

IV. Industrial Dischargers in the Three Baja California Cities

The primary goal of an Industrial Pretreatment Program is to protect the sewage collection, treatment, disposal system; the personnel that deal with the system; and the environment. The Program also controls the loading of wastes to the collection system so the total volume of a municipality's wastes may be reliably treated at reasonable cost and to acceptable standards. The introduction of pollution prevention industrial processes and reduction of wastes on site can achieve this result before they are discharged to the public system. In a perfect world industrial facilities would be self-energized to reduce waste loading. However, in reality market competition tends to the inevitable cost-cutting which can lead to environmental degradation. Thus government must play a role to level the playing field so that competitors will not suffer disadvantages from more costly but superior environmental practices. For government to fulfill its role, the universe of industrial sources must be identified and characterized.

Mexicali

The Department of General Ecology, with assistance from Cal/EPA has catalogued industries through a computerized filing system. The DGE currently has issued waste discharge permits to 142 firms.[20] These firms represent a wide range of manufacturing and service industries. In addition to the firms under DGE Permit, the National Water Commission has issued a number of permits in the Mexicali area. These permits are listed in a study commissioned by the Binational Technical Advisory Committee for the Mexicali/New River Sanitation Project in 1997.[21] A review of the list of CNA permits suggests there are currently eight additional industrial plants discharging directly to the New River drainage in Mexicali at this time.

[20] DGE Permit file Data, 2001

[21] *Assessment of the Industrial Wastewater discharges in Mexicali, Baja California, and Recommendations for the Implementation of an Industrial Pretreatment Program*, CH2M Hill, September 1997

Both DGE and CNA have assigned Standard Industrial Classification (SIC) codes to the individual permit holders.[22] A review of the permits by major industry type reveals the manufacture of electrical components to be the leading industrial type. Table 2 summarizes the type and number of dischargers.

Table 2
Industrial Dischargers
by Industrial Classification and Number in Mexicali

Product Type	SIC Code	Number
Electrical Components	3600	34
Metal Work	3300, 3400	18
Machinery	3500 ,3700	18
Rubber & Plastics	3000	16
Wholesale Services	5000, 5100, 5500	14
Measuring & Control Devices	3800, 3900	12
Glass & Ceramic	3200	11
Paper Products	2600	4
Chemicals	2800	3
Services & Repair	7300, 7500	3
Wood/Furniture	2500	5
Other	N/A	4

Data in the consultant report[23] also suggest that a significant number of commercial facilities e.g., restaurants and auto shops, are currently discharging their wastes into the collection system and/or Mexican waters with minimal controls and/or oversight. These wastes also pose a threat to the collection, treatment, and disposal system; related personnel; and the environment when improperly treated and disposed off.

Recommended for further action:

- Permit data should be kept up to date

[22] *Handbook of Industrial Waste Composition in California*, California Department of Health Services, 1978.
[23] Op. cit.

- Industry types for permits which lack SIC codes should be determined
- Discharge volumes should be determined and added to the permit data base
- Various data bases such as CNA permits, DGE permits, CSESP customer lists, and proprietary sources such as *The Complete Twin Plants Guide*[24] should be cross-checked to insure that the full universe of dischargers and the types of discharge are catalogued
- A monitoring and surveillance program to determine the impact that commercial facilities may have on the collection system and Mexican waters should be developed
- Industry and commercial facilities environmental data should be made available for the Colorado River Regional Board GIS

Tecate

The Tecate CESPTe has developed an inventory of industrial firms discharging to the CESPTe sewer system. There are 123 firms listed including a brewery.[25] The brewery maintains its own treatment facility and discharges to Tecate Creek under CNA Permit. The Tecate inventory does not list SIC codes; however it does describe the industry group for most of the firms in the inventory. The most numerous industries are metalworking, electronics, plastics, ceramic and glass, textiles and wood products.

Table 3
Industrial Dischargers by
Industrial Type and Number in Tecate

Product Type	Number
Metal-Working	33
Electronics	21
Plastics	21
Ceramics/Glass	14

[24] Op. cit.
[25] *Feasibility Studies for the Reuse of Water, Management of Sludge from Wastewater Treatment Plant and Implementation of an Industrial Waste Pretreatment Program for Tecate*, CESPTe, August 1999

Product Type	Number
Textiles	10
Services	10
Wood Products	6
Food Products	2
Cosmetics	2
Other	4

Recommendations for further action:

- Permit data should be kept up to date
- Discharge volumes should be determined and added to the permit data base
- Various data bases such as CNA permits, DGE permits, CSESP customer lists, and proprietary sources such as *The Complete Twin Plants Guide*[26] should be cross-checked to insure that the full universe of dischargers and the types of discharge are catalogued
- A Geographic Information system with which to correlate sewer collector locations, individual plant locations and anticipated waste streams should be developed

Tijuana

Tijuana is the largest industrial center of the three border cities. The CESPT has been working with the State of California and the City of San Diego for several years to implement an industrial pretreatment program. The DGE computerized permit data lists 629 industrial permits in Tijuana.[27] Approximately 140 of the permits do not indicate a SIC code. Those permits with a SIC code were separated into major industry groups. The most numerous identifiable permits were for firms in electronics, industrial machinery, metal working, leather goods, rubber and plastics, chemicals and furniture sectors.

Table 4

[26] Ibid.
[27] DGE File Data, 2001

Industrial Dischargers by
Industrial Classification and Number in Tijuana

Product Type	SIC Code	Number
Electronics	3600	85
Industrial Machinery	3500, 3700	70
Metal Working	3300, 3400	67
Leather Goods	3100	59
Rubber & Plastic Goods	3000	55
Chemicals	2800	43
Furniture	2500	42
Misc. Manufacturing	3900	25
Glass & Ceramics	3200	24
Instruments & Controls	3800	10
Textile	2200, 2300	7
Other		8

Recommended Areas for further action:

- Permit data should be kept up to date
- Industry types for permits which lack SIC codes should be determined
- Discharge volumes should be determined and added to the permit data base
- Various data bases such as CNA permits, DGE permits, CSESP customer lists, and proprietary sources such as *The Complete Twin Plants Guide* should be cross-checked to insure that the full universe of dischargers and the types of discharge are catalogued
- A Geographic Information System with which to correlate sewer collector locations, individual plant locations and anticipated waste streams should be developed

V. Types of Industrial Pollutants

Mexicali

The Department of General Ecology has issued 142 waste discharge permits in Mexicali. These permits reflect the DGE's concern with oils and grease, heavy metals, organic chemicals, acidic and alkaline wastes and various residues from the electronics, metal working and paper industries.

From August 25 to October 5, 1997, CH2M Hill sampled for metal concentrations in raw sewage in Mexicali.[28] This testing was done from the influent to the Zaragoza and Gonzalez-Ortega lagoons and in the Colector Principal and Collector Nutrimex. These samples met the then current Mexican standards for discharge to surface waters. However, chromium, copper, lead, and selenium exceeded the objectives in the *California Inland Surface Water Plan*.[29] The CH2M Hill sampling resulted as "non-detect" for volatile organic constituents, persistent organic compounds and Base/Neutral/Acid extractable compounds.[30]

Tecate

CESPTe has received a grant from BECC to improve and expand the potable and waste water systems in Tecate. The grant requires CESPTe to implement a Pretreatment Plan.[31] The draft Environmental Assessment for this project and BECC correspondence identifies excessive loading from oils, grease, cyanide, copper and nickel in the Tecate waste stream.

Tijuana

The State of California and the City of San Diego have assisted CESPT and DGE with monitoring and analysis of the Tijuana system. Studies performed by the IBWC have identified organophosphates and surfactants as the primary cause of effluent toxicity at the International Treatment Plant.[32] The concentration of electronic and metal working industries permitted indicates the potential for a

[28] Op. Cit.
[29] *New River Pollution in Mexico*, Colorado Regional Water Quality Control Board, November 1998, p. 7-7. The *Plan for Toxics in Inland, Enclosed Bays, and Estuaries* supercedes the *California Inland Surface Waters Plan.*
[30] Ibid. p. 7-8
[31] *Draft Environmental Assessment*, Border Environmental Cooperation Commission Certification, June 22, 2000, p. 7 and 15
[32] *Binational Technical Group Report*, October 22, 2001

wide range of industrial wastes. Reference to the CA DTSC Reference Manual[33] would suggest the potential for solvents, acidic and alkaline solutions, oils and a wide range of metals such as aluminum, cadmium, chromium, copper, lead, nickel and zinc. The DGE permit data reveals concerns for oils and grease, heavy metals, organic chemicals, acidic and alkaline wastes and various process waters. The San Diego RWCQB has been informed by the DGE that enforcement actions were initiated in 2000 against Tijuana firms where discharge standards for pH, nickel, cyanide, solvents and organophosphates have been exceeded.

VI. POINTS OF DISCHARGE AND RECEIVING WATERS

Mexicali

All discharges in the Mexicali Valley ultimately reach the Salton Sea via the New River and its tributaries. The Colorado River Regional Water Quality Control Board staff estimate industrial sources account for approximately one fourth of the total volume of wastewater discharge in the Mexicali area. Treatment capacity is inadequate in this rapidly growing city. As much as one quarter of the waste collected by the sewer system is bypassed to the New River system without treatment. The bypassed waste flow is estimated to be in the range of 400 to 500 liters per second. In addition there are a limited number of other industrial discharges directly to the open tributaries of the New River.

In 1995, Mexicali began construction of the Mexicali/New River Sanitation Project. This Project is a 20-million gallon per day expansion of its treatment system and renovation/replacement of about 21 miles of sewer pipes. Completion of the Project is expected by 2004.

The balance of the collected flow is currently processed in one of two treatment facilities. The effluent from these facilities is released into the New River. Effluent from the Gonzalez-Ortega facilities is released to the Mexicali Drain, the main tributary to the New River in Mexicali. Effluent from the Zaragoza Lagoons is released into the New River via the International Drain at the International Boundary.

[33] *Handbook of Industrial Waste Composition in California*, California Department of Health Services, November 1978, beginning on p. 72.

A privately owned treatment facility is under construction near the Zaragoza Lagoons to provide water for cooling tower needs of a new electric generation complex. Excess water from this facility will be discharged to the New River at the International Boundary.

There is a potential for industrial discharge to the Alamo River if industrial growth continues to the east of the Mexicali. At this time there is a bi-national effort to prevent Alamo River flows from entering the United States. A weir and bypass system is in place to prevent flows from the Alamo River crossing into the U.S. However, the effectiveness of the weir system is compromised by trash accumulation at the diversion point and distance and slope from the diversion point to the weir. Hence, about 2 to 5 cubic feet per second of Alamo River flows cross the border into the U.S.

Tecate

CESPTe has informed staff of the San Diego RWQCB that virtually all industrial waste is discharged to the municipal collection system, septic systems, or in the case of the brewery, to its own treatment facility. Both the municipal facility and the brewery treatment facility discharge directly to Tecate Creek, which is a part of the Tijuana River Watershed.

Tijuana

It is estimated that nearly all of the industrial wastewater in Tijuana is discharged either directly to the collection system or captured in the low flow channel of the Tijuana River or the interceptor structures in Goat Canyon and Smugglers Gulch. The IBWC has proposed a diversion structure on the Tijuana River on the United States side of the border to ensure adequate collection of this segment of the waste stream. While this structure is planned as a back-up in case of the failure of the Mexican diversion, it could act to accommodate flows that exceed the capacity of the Tijuana diversion structure. However, the main purpose of this structure is to divert trash from the Tijuana River. The diversion structure does not add to the capacity of the IBWC treatment plant.

The system of low flow diversions is ineffective in high flow events. Any waste transported during such events passes untreated through the Tijuana River Estuary and to the surf line of the Pacific Ocean.

Treated wastewater effluent from the CESPT San Antonio de los Buenos Treatment Plant is discharged to the surf line of the Pacific Ocean. The present treatment capacity in the Tijuana area is insufficient to treat the total volume of wastewater generated in the region. As a result a portion of the flow received at the San Antonio de los Buenos Treatment plant is released to the surf line without treatment. This situation should be corrected by the completion of a funded upgrade and expansion project by CESPT.

Effluent from the International Treatment Plant is discharged off shore via the South Bay Ocean Outfall.

There are plans for construction of four water reclamation plants on the Tijuana collection system. When completed, these plants will produce up to 14 MGD. These plants will provide two fundamental advantages to CESPT. Besides a new source of usable water, the plants will increase available capacity to the lower reaches of the Tijuana collection system. They will also reduce pressures on the International Treatment Plant and the San Antonio de los Buenos Plant.

VII. AN INDUSTRIAL WASTEWATER PRETREATMENT PROGRAM STRATEGY

Both Baja California and California will benefit from an effective wastewater pretreatment program. Growth and economic activity is clearly stressing the holding capacity of the Border Region on the Mexican side of the border and California is impacted by insufficient treatment of wastewater originating in Mexico. An effective industrial wastewater pretreatment program would relieve some of the environmental pressures in both states.

The two states have differing resources and expertise with which to address the issues. While Baja California has adequate environmental laws and institutions in place, it has limited financial capital with which to build environmental infrastructure or to provide for adequate technical expertise to perform sophisticated monitoring and analysis. On the other hand, California has the financial and technical resources with which to assist Baja in meeting these needs. This suggests that a partnership between the countries is appropriate to develop and implement programs for mutual benefit. The importance of mutual ownership of the program cannot be overstated. Without a workable program that all parties expect to implement, there is a grave risk of wasted resources and effort.

The foundation for an effective industrial wastewater pretreatment program is a monitoring system designed to identify the type and origin of industrial discharges. The design of an effective industrial pretreatment program in the Border Region requires the cooperation and participation of organizations on both sides of the border.

A strategy of U.S. and bi-national institutions providing the initial financial and technical support to initiate an industrial pretreatment program and Mexican institutions providing personnel, regulatory oversight and revenue to sustain the program over time offers the best opportunity for success. This strategy envisions a gradual transition toward an independent, autonomous program operated, funded, regulated and sustained by Mexico. Achievement of these goals will clearly justify the initial capital investment of the U.S. and bi-national institutions and provide a significant return on that investment.

To implement this strategy, the U.S. would take the responsibility for the initial capital cost of the following.

- Determining the location and construction of monitoring stations
- Purchasing appropriate monitoring equipment
- Providing the initial training of Mexican personnel
- Providing the initial laboratory analysis of monitoring samples
- Providing the technical assistance to develop an industrial pretreatment program

Mexican federal, state and municipal institutions would take responsibility for developing sustainable revenue sources with which to gradually assume responsibility over a time certain for the following.

- Ongoing and new hire training
- Monitoring
- Laboratory analysis of monitoring samples
- Operations and Maintenance
- Pretreatment program for industries
- Setting industry standards
- Infrastructure needs, including laboratories and additional monitoring sites
- Permitting, compliance and enforcement

Table 5
Summary of Responsibilities for a Sustainable Pretreatment Program

Component	Responsible Agency	Funding Source
Identification of monitoring sites	IBWC Mexican Section, CESPs	State of CA, IBWC, CESPs
Monitoring equipment	IBWC Mexican Section, CESPs	State of CA, IBWC, NADBank, BECC
Construction of monitoring sites	IBWC Mexican Section, CESPs	US EPA, State of CA, IBWC, NADBank
Initial training of monitoring personnel	IBWC Mexican Section, DGE, CESPs	US EPA, State of CA
Laboratory analysis	IBWC, DGE, CESPs	US EPA, State of CA, IBWC, RWQCBs, City of San Diego
Monitoring station O&M	CESPs, DGE	SEMERNAT, PROFEPA, CNA, DGE, CESPs
Development of Pretreatment Program	DGE, CESPs	SEMERNAT, PROFEPA, CNA, DGE, CESPs
Sustainable revenue stream for O&M, pretreatment program, permitting & enforcement	SEMERNAT,PROFEPA, CNA, DGE, CESPs	To be determined
Future training of monitoring and lab personnel	CESPs, DGE	To be determined
Future laboratory analysis	CESPs, DGE	To be determined
Industrial inspections, self monitoring reports other regulatory activities	SEMARNAT, PROFEPA, CNA, CESPs, DGE	SEMARNAT, PRFEPA, CNA, CESPs, DGE
Enforcement actions	PROFEPA	PROFEPA, DGE

Siting of Monitoring Stations

Efforts to establish monitoring stations for domestic and industrial wastewaters in both the Tijuana and New River watersheds has been underway for some years. The San Diego RWQCB and the City of San Diego Wastewater Management Agency have expanded their assistance to the Public Service Commission of Tecate (CESPTe) in developing a pretreatment program to enhance the effectiveness of its wastewater treatment system. The initial monitoring effort of the influent and effluent streams at the Tecate Treatment Plant indicated significant levels of nickel, copper, chromium and zinc. Data obtained by San Diego State University identified similar compounds (cadmium, chromium, copper and nickel) in the Tecate Creek just downstream from the Tecate wastewater treatment facility.

The International Boundary and Water Commission, operators of the International Treatment Plant on the United States side of the border, has also expressed interest in participating in monitoring industrial effluent upstream from its plant. The ITP experiences consistent violations of chronic and acute toxicity effluent limits. As stated above, these violations have been attributed to organophosphates and surfactants (which could be from both industrial and residential sources in Tijuana). Additional work needs to be done in the Tijuana sewer collection system to identify sources of toxicity at the ITP. The State of California is working with Baja California through the Binational Technical Committee to address the toxicity concerns at the ITP.

There appears to be consensus between U.S. and Baja California environmental agencies on the monitoring system design for Tecate and Tijuana. In Mexicali, the Colorado River RWQCB has proposed monitoring sites but to date there has been no agreement to proceed beyond the current monitoring at two locations by the IBWC. Nevertheless, the growth of the industrial sector in Mexicali warrants progress on a program of industrial pretreatment. The decision to develop a more robust monitoring system is in the hands of the Mexican authorities and the State of California is committed to offering technical assistance.

The following monitoring sites are recommended for construction.

Tijuana[34]

- Influent at the San Antonio de los Buenoes plant site
- Punta Bandera influent at Pump Station 1 (Castillo Collector)
- International Treatment Pump influent at Pump Station #1 International Collector
- International Treatment Plant Effluent at point of discharge to South Bay Outfall
- Two or more "floating" sites which survey conditions in the collection system at different industrial locations

Tecate

- Influent and effluent at the Tecate Treatment Plant
- Mobile site which can sample at various locations on Tecate Creek
- Two or more "floating" sites that would survey conditions in the collection system at different industrial locations

Mexicali

- New River upstream of Xochmilco Lake
- Tula West Drain at Highway 2 downstream from Quipac
- Pump Station #4 bypass at the Mexicali II discharge to the Principal Collector
- Drain 134 upstream of Reforma Bridge
- Mexicali Drain, upstream of Pumping Plant No. 4[35]
- Phase I - 2 Floating sites that would survey conditions within the collection system in different industrial locations. This number should be expanded to five such units, as there are five collection zones in the City.

A strategy for an effective pretreatment program should include strict enforceable penalties. The government agencies must have leadership support to

[34] The IBWC US Section has developed a monitoring site plan for Tijuana and transmitted it to the IBWC Mexican Section. The plan has not been released to the public, nor was it made available for this report.

[35] The Gonzalez-Ortega facilities are scheduled to be abandoned within the next four years, therefore a monitoring station should be moved to monitor the Mexicali Drain at a location of about 100-200 feet upstream of Pumping Plant No. 4.

persuade effected sectors to participate. The "generator" community must value the potential for process savings in lieu of action to demand compliance with the Mexican norms. The public must appreciate the benefits of such a program so as to support the government against complaints of increased costs to both government and industry.

Periodically, program aspects should be reviewed for effectiveness. If milestones are not met, or if discharge quality does not improve, the cause should be determined, corrective steps taken and program improvements implemented. The sooner missteps are corrected, the sooner improvements will be realized.

VIII. INDUSTRIAL WASTEWATER WORKER TRAINING

A significant amount of wastewater process training has been provided and more is currently underway in both the Tijuana and New River watersheds. For example, the City of Calexico has worked with its Mexican counterparts to provide training and on-the-job instruction in the areas of overall wastewater operations. The City of San Diego has provided sufficient training to their Tijuana industrial pretreatment counterparts so that sample collection is shifting from City of San Diego staff to CESPT staff. The level of Mexican expertise has also increased regarding the monitoring and pretreatment functions. The CESPT staff has taken the lead in explaining the implications of test results to management and policy makers and in the development of future testing protocols.

The Mexican government indicates that migration of staff to the private sector has reduced their pool of trained employees. Thus there is a need for institutionalized training programs covering all functions of the industrial wastewater process. The training program should include language appropriate videos, manuals, course materials, classroom curricula and on the job instruction. Training must be provided initially and on a continuous basis if an effective monitoring and pretreatment system is to be sustained.

To maximize the value received from the California resources, the common needs of Mexicali, Tecate and Tijuana should be carefully identified and a flexible core training program developed taking advantage of the resources currently available. Additional site-specific training courses should be

developed covering process differences such as the different treatment systems employed at Tecate and Tijuana.

IX. CURRENT AND POTENTIAL RESOURCES FOR TRAINING, FUNDING AND MATERIALS

State Water Resources Control Board

The SWRCB has provided funding to California State University, Sacramento to develop Spanish language training manuals tailored to the needs of systems found in Baja California. The current work is far from a complete set of instructional material. Subsequent volumes would continue the work to date by the SWRCB.

California State University Sacramento

Dr. Ken Kerri of California State University Sacramento (CSUS) Department of Civil Engineering is known as the foremost authority on the development of wastewater training manuals in the U.S. He has developed Spanish language training manuals for Collection Systems, Wastewater Treatment Plant Operations and is currently working on manuals for pretreatment instruction. [36] In the current series on pretreatment, the manuals are designed to fulfill the needs of the workers at various levels of technical expertise and with various levels of resources. The manuals have been designed in collaboration with the Mexican authorities. The manuals will be most effective when used in conjunction with a comprehensive training program such as that described above. Thus workshops, videos, and classroom instruction should be combined to present the concepts developed in the manuals in an atmosphere that supports retained learning. On the job training following classroom work and continuing education are important to re-enforce the skills learned in the classroom training sessions.

US EPA staff has high praise for the work of Dr. Kerri, and regards the Spanish language materials developed at CSUS among the best materials available in the United States. US EPA Region IX may have discretionary funds that could be

[36] The various manuals have been funded either from SWRCB or USEPA funding sources

directed to fund further work on training materials through CSUS. These manuals are effective tools for wastewater operators along the entire border as well as the interior of Mexico.

US EPA

In 1994-95 the US EPA provided a series of 3-day pretreatment training sessions in Mexico. US EPA is currently working with the City of Phoenix to provide a two-day course to Mexican staff from the State of Sonora.

Border Environmental Cooperation Commission (BECC) and the North American Development Bank (NADBank)

The North American Free Trade Agreement created the Border Environmental Cooperation Commission and the North American Development Bank. These organizations are charged with reducing the environmental impacts of NAFTA on either side of the border. The high rate of industrial growth in the border cities has accelerated the training needs of Mexican wastewater personnel. Thus to mitigate the environmental impacts caused by this growth BECC and NADBank may be willing to provide financial support for the development of ongoing training programs and materials.

City of San Diego

The City of San Diego has provided training to Tijuana staff for several years and will be continuing to do so under a current contract with the San Diego RWQCB. The City has seen marked development in the skills of their Tijuana counterparts. Laboratory analysis skills are currently being taught. The contract with the City of San Diego also calls for training of Tecate staff as well.

The San Diego/Tijuana monitoring and pretreatment program is the most advanced of the three cities. As a result, training has been provided by the City of San Diego in sample collection techniques and has commenced on laboratory analytical techniques. Under the current Regional Board contract with the City of San Diego, training will be provided to enhance the skill of laboratory personnel in analytical skills, quality assurance and quality control. This training is designed to develop skills to a level that is equivalent to those employed in United States laboratories.

City of Calexico

With grants from the Colorado River Regional Board, the City of Calexico has provided on-site training to Mexicali wastewater operator staff. These operators have acquired the necessary skill to successfully pass the California Operators Certification test. Such training is developing a cadre of staff knowledgeable in the practices necessary to manage a functioning wastewater system in Mexicali.

California Department of Toxic Substances Control

DTSC has worked with US EPA to fund the development of pollution prevention training materials focusing on waste classification, storage and disposal. The materials are first developed in English and then translated into Spanish. The DTSC also conducts training with Mexican industrial facilities.

Training Opportunities

The City of San Diego has worked with funding assistance from the SWRCB to provide industrial monitoring and pretreatment technical assistance to the Department of Ecology and the CESPT in Tijuana.

Unlike Tijuana, Mexicali and Tecate have significant industrial discharges to "Waters of Mexico" which are under the jurisdiction of the National Water Commission (CNA). Therefore training opportunities in these two cities should be extended to CNA staff to expand the pretreatment ethic to the full spectrum of regulatory authorities in the two areas.

In light of the recent Baja California initiatives to extend greater local flexibility to the CESPT organizations, personnel from the Cities of Tecate and Mexicali should also be included in the next round of training.

The next US EPA training session will be in conjunction with the California Water Environment Association Conference to be held in Huntington Beach, California March 4-6, 2002. There will be three one-day courses offered. The first is entitled "Industrial Pretreatment Operator Training". This course will be offered with headphone translation available in Spanish. The second is entitled "Environmental Compliance Inspector Training." The third is entitled "EPA Basic Pretreatment Training". These programs are open to anyone wishing to

enroll. The Conference organizers are willing to extend the Spanish translation to all of the sessions if there are a number of attendees needing the service. During the course of the first two days of the conference there will also be various simultaneous panel discussions on particular Pretreatment issues and techniques.

The City of Tecate is working with the San Diego Regional Board to develop a work program of monitoring and pretreatment technical assistance. Under the work plan the City of San Diego is to provide CESPT staff training in field sampling techniques, laboratory training in the analytical methods that are equivalent to those in the United States, and treatment plant operations and safety. The Tecate training sessions will be open to Mexicali personnel. If a separate Mexicali program is developed, the City of San Diego should be encouraged to expand its bi-national training efforts to provide training in the Mexicali area. The travel costs will increase, but should be outweighed by the benefits gained in providing this more complex training south of the border.

There are high front-end costs in introducing and implementing the concepts of a monitoring and pretreatment training program. As a cadre of qualified staff is developed at the local level, training costs are reduced. For example in Tijuana, sample collection skills have been acquired but there is a need for further laboratory training. In contrast at Tecate both sampling and laboratory skill are lacking. In the current fiscal year the San Diego RWQCB has allocated approximately $75,000 for training at the two cities.

Experience at Tijuana indicates that training will be needed in the coming years until a sufficient core of employees is qualified to ensure skills are not lost by attrition. It is believed that a three-year program with expenditures in the range of $50,000 to $75,000 per year will be needed.

Mexicali

There may be opportunities for some Mexicali staff to participate in the next round of training. The Colorado River RWQCB should work with Mexicali to design a program tailored to their specific needs. Once a plan is designed, the Colorado River RWQCB will be in a position to request funding from the SWRCB. As with the cost of training programs, it is believed that the program should be conducted over a period of three years to ensure that an adequate

number of sufficiently trained personnel are available in the Mexicali area. Such a program will require a budget in the range of $50,000 to $75,000 per year. As noted above the inclusion of staff from CESPM, DGE, the City of Mexicali and CNA would be most effective.

X. RESOURCES NEEDED TO MONITOR AND ANALYZE INDUSTRIAL WASTEWATER

The strategy outlined above for the development of a monitoring and pretreatment program in Tijuana, Tecate and Mexicali proposes that the U.S. shoulder the initial capital and training costs of the monitoring and pretreatment system and Mexico shoulder the on-going costs.

The cost of operation and maintenance of the monitoring system, construction of or improvement to laboratories in Baja California, design and implementation of pretreatment standards and programs, continuing education of monitoring and pretreatment personnel, and enforcement laws and regulations are not within the scope of this analysis. However, these costs must ultimately be borne by Mexico. The Director of the Department of Ecology Jorge Escobar Martinez has expressed the realization that Mexican funding will be needed to sustain programs of pollution prevention.

Training Program Materials

The development of training materials designed for Monitoring and Pretreatment training in the Mexican Border area is under way. The SWRCB has provided $100,000 to Dr. Ken Kerri of CSUS to work with the Mexican agencies to develop both a training video and a training manual on industrial pretreatment. The video is nearly finished and the training manual is nearly completed. Two sections of the manual remain to be developed.

It is believed that training materials for laboratory technicians can be developed in cooperation with the CSUS and the City of San Diego. The development of the laboratory materials is estimated to cost in the range of $100,000 to $120,000. These materials would be useful not only in the Baja California border cities but also throughout Mexico.

Sampling Equipment Needs

Tijuana

Tijuana will need further equipment in future years as their pretreatment program matures. While no new equipment is recommended for this fiscal year, a city the size of Tijuana will need more mobile equipment in future years. Nevertheless, an equipment budget item of $10,000 should be provided by the San Diego RWQCB as a contingency reserve for either repairs to the existing equipment or additional mobile equipment if warranted by early test results.

Tecate

In the current budget year the San Diego RWQCB budget provides $15,000 for new equipment for three sampling stations. However, in order to provide a comprehensive analysis of the Tecate area, the purchase of an additional 24-hour composite sampler and auxiliary equipment is warranted. Therefore $10,000 should be allocated by the San Diego RWQCB for the purchase of an additional mobile sampler and to provide a contingency reserve of $5,000. This equipment will be used within the sewer system.

Mexicali

The IBWC is currently testing at two surface locations within Mexicali, and at two stations in the United States.[37] This is not sufficient for an industrial area with at least 150 industrial dischargers. In order to develop a more useful analysis of the waste stream loading and discharges to the New River, a more robust sampling system is needed. It is recommended the Colorado River RWQCB allocate $35,000 to acquire seven additional sampling devices for use in Mexicali.

Laboratory Equipment Needs

The level of chemical analysis desired will have a great bearing on the type and cost of laboratory equipment required. Primary wastewater analysis equipment is relatively inexpensive and therefore some assistance could be provided to the

[37] This testing is to ensure the water quality requirements of Treaty Minute No. 264 are met. They are not designed to meet the needs of a robust Industrial Pretreatment Program.

three CESP organizations to supplement their current inventory at modest expense.

However, for detailed organic chemical analysis, equipment costs are very expensive. For example, it is estimated that a gas chromatograph mass spectrometer may cost $250,000 per unit. A unit of this type will be needed if volatile organic compounds and pesticides are to be detected and quantified.

A regional solution to this problem is possible. A system where basic wastewater analysis is done locally and the more specialized testing is done at a regional laboratory, thereby sharing the cost of more expensive equipment is recommended. Such a regional laboratory could be constructed in the border region to serve the needs of the City of San Diego's South Bay Water Reclamation Plant, the International Treatment Plant and the Cities of Tijuana and Tecate.

Sampling and Analysis Needs

Tijuana & Tecate

The City of San Diego has developed a successful Industrial Monitoring and Pretreatment Program for the City over a period of some twenty years. Based on the experience of the City of San Diego a testing regime of every eight days is considered scientifically sound. The current budget for testing six sites on an eight-day basis is $240,000. The same eight-day schedule applied to Tecate with one fixed and three mobile sites would require a budget of approximately $200,000.

The IBWC International Treatment Plant management in San Diego has offered funding designed to identify chemicals of concern to their plant. In order for the plant to comply with the Clean Water Act, the ITP must find ways to reduce problem chemicals before they reach the plant. This involves isolating the chemicals of concern and then monitoring the system to determine their source.

The IBWC and the States of California and Baja California have complimentary needs and goals in the area of monitoring and pretreatment. All of the parties should work to eliminate duplicative efforts and benefit from the economics of cooperation. It should be noted that the ITP's needs may extend beyond

industrial discharges to domestic discharges to isolate the cause of their inability to comply with their operational permit.

Mexicali

The IBWC is currently conducting testing in the Mexicali area. This testing should be enhanced by a more comprehensive regime. In the first year of such an enhanced regime, the Colorado River RWQCB recommends testing on a 16-day basis at a total of seven sites. The first year of testing will determine baseline conditions in the Mexicali area. The data collected will dictate subsequent test scheduling both as to frequency and comprehensiveness. A budget of $200,000 should be allocated for the Mexicali testing.

XI. CONCLUSIONS

California and Baja California share a common concern for the impact industrial growth is having on the environmental quality of the Baja California-California Border Region. Water quality and water related pollution are significant issues on both sides of the border, principally for public health reasons on the Mexican side, and for both public health and ecological reasons on the U.S. side.

While the two States are somewhat different in government organizational structures, they are remarkably similar in their approach to environmental issues. The principal difference between the two states is economic. California and the U.S. enjoy a vigorous economy, strong environmental laws, and a well endowed regulatory system with which to address its environmental problems. Regrettably, Baja California does not enjoy the same level of resources with which to address its environmental problems. Thus a partnership between the countries with which to achieve mutual benefits appears most appropriate.

The facts outlined in this report strongly suggests that the California, bi-national, U.S. and Mexican agencies have the organizational interest, fundamental resources and political will with which to organize and coordinate effective pollution control programs in Baja California. Virtually every agency, federal, state and local, and on both sides of the border described in this report have some activity underway to address one or more elements of a pretreatment program. Cal/EPA is in a unique position to provide leadership in organizing these activities as well as the institutional, human, technological and financial

capital of these agencies to create a variety of focused, coordinated and effective environmental programs that serve the interests of all the parties.

The Cal/EPA has already achieved much with its leadership on negotiating the bi-national agreements referenced herein. The Agency's Border Affairs Unit has been remarkably successful in establishing working relationships with Cal/EPA's counterparts in Mexico and Baja California. Moreover, the Border Affairs Unit has provided active leadership in the organizations of Mexican and U.S. states in the Border Region outside California. Cal/EPA can build on this progress by focusing its leadership on careful planning and execution of a strategic plan.

XII. RECOMMENDATIONS

The following recommendations are in addition to those discussed in the context of the previous sections of this report. These recommendations are intended to support efforts currently underway to develop successful industrial monitoring, pretreatment and minimization programs in the Border Region.

1. Cal/EPA should assume the lead role in collaborating with other U.S., bi-national, state and local agencies

As outlined above, many U.S. agencies, federal, state, regional and local are engaged in a variety of activities to achieve pollution prevention and pretreatment objectives on the Mexican side of the border. California agencies have played a principle role in addressing pollution problems emanating in Baja California that seriously impact California's environment, particularly water pollution. Cal/EPA's Border Affairs Unit is in a position to identify and coordinate the focus and efforts of the several Cal/EPA Boards and departments. Moreover, this office has the stature and dedicated focus to provide effective leadership in partnering with US EPA, the IBWC, BECC, and municipal agencies to develop a comprehensive work plan to achieve results presently unrealized.

The following are but a few of the leadership opportunities for Cal/EPA.

US EPA has a rich background in industrial pretreatment. Cal/EPA should partner with US EPA Region IX to transfer this reservoir of expertise to both the regulatory agencies and industrial organizations within Mexico. Training conferences such as the one to be held in Huntington Beach, California referred

to above are vehicles for this transfer of knowledge. Cal/EPA should collaborate with US EPA to develop and present training opportunities for Mexico within the context of the workplan recommended above.

The SWRCB has in its Division of Water Quality a robust program of Industrial Pretreatment. This unit monitors the efforts of the regional boards and the POTWs in the area of industrial pretreatment. The Board should offer the experience and expertise from this program to assist Baja California. Success is built on experience and the staff of this unit is in a position to share useful knowledge with the Baja California Department of General Ecology.

US EPA has recently contracted with a consultant to develop a *Long Term Plan – The Master Plan for Potable Water and Wastewater Services for the Municipalities of Tijuana and Playas de Rosarito, Baja California, Mexico.*[38] Cal/EPA should monitor the work and progress of this effort to ensure that California's interests are included in the study.

The Border Environmental Cooperation Commission (BECC) has required the implementation of industrial pretreatment as a condition of construction grants from the Border Environmental Infrastructure Fund. Cal/EPA should negotiate inclusion of monitoring and laboratory equipment in facility construction grants. Moreover, since new equipment is only as good as the ability of its operators, the BECC should be requested to fund the initial training in the proper operation of the equipment in the grants as well. This could be done either through the California Border Environmental Cooperation Committee or through a request by the Tens States Alliance.

The National Water Commission (CNA) has regulatory control for waste discharged to Mexican surface waters. DGE and CESP have responsibility for discharges within the collections systems. This two-fold approach to waste discharge regulation requires the Mexican state and federal agencies to coordinate their efforts so that there are no gaps in the surveillance system. It is important that both federal and state employees have the necessary skills to carry out an effective pretreatment program.

Cal/EPA should ensure that all appropriate Mexican agencies have the opportunity to participate in the planning, training and execution of the

[38] *U.S. EPA Region IX Fact Sheet*, October, 2001

pretreatment workplan. There are multiple opportunities in the United States for staff in this field to increase their knowledge of new techniques and challenges. These opportunities should be extended to Mexican wastewater personnel.

The International Boundary and Water Commission (IBWC) is currently performing water quality sampling in the Mexicali area. A successful pretreatment program will require the expansion of testing both in the scope of chemicals investigated and in the number of sites. Cal/EPA should negotiate an agreement with IBWC to combine the testing programs of IBWC and the state agencies. This cooperation will provide the most complete testing at the least cost.

In addition, agreement should be reached between the states and IBWC on the contribution of IBWC to monitoring efforts in Tijuana. The IBWC's International Treatment Plant at the border is failing to meet its California discharge permit requirements. Contributions from IBWC should be sought to defray the cost of monitoring and pretreatment efforts in the eastern and central sections of Tijuana. The information gathered will be useful in reducing pollutants which may be the cause of the ITP failures. Again, Cal/EPA can play a central role in this collaboration.

2. Develop a work plan that addresses the interests of all parties

Utilizing the collaboration with other U.S. agencies described above, the Border Affairs Unit should lead the preparation of a work plan in collaboration with the Regional Water Quality Control Boards and the State Water Resources Control Board as contemplated by the *Agreement of Cooperation*.[39] This should be a collaborative effort addressing the interests of both the United States and Mexico. The BAU should convene interested parties from both sides of the border to begin the development of a coordinated work plan for environmental objectives.

The goal of the Agreement is the development of a self-sustaining industrial wastewater program in the California-Mexico Border Region within three years. But without a definitive plan, the goal and its timeline may be unattainable. The parties of interest must agree on the steps to transition from a series of yearly assistance projects to complete self-sustainability.

[39] *Agreement of Cooperation on Industrial Wastewater Monitoring and Pretreatment between the State of Baja California, Mexico and the State of California, United States of America* March 21, 2001. See Appendix B

The work plan should employ the strategy described in Section VII of this report whereby the U.S. agencies provide the initial funding, construction, and training for monitoring sites and analysis, and Mexico provides future funding, operations and maintenance of the program. The plan should create a process for reviewing progress, making adjustments and evaluating results. Finally, the plan should detail a process and time frame for the transfer of responsibility of the program from a shared basis to a program operated and sustained by Mexico.

3. **California should ask Mexico to demonstrate they have a plan for assuming the financial and operational maintenance of the program after the transition period**

   A successful strategy for addressing environmental problems must recognize that any offer of assistance by the U.S. must be tailored to the needs of each of the parties in order to formulate a successful long-term, sustainable program. Mexico needs financial and technical assistance to initiate a pretreatment program; California needs assurances that the investment of its resources will enjoy a return on the investment in environmental improvement. Before agreeing to finance infrastructure or training Mexican personnel, California should require Mexico to prepare a plan for securing adequate and sustainable revenue sources with which to operate and maintain the program and provide technical and ancilary services to support the system in the future.

4. **Assist Mexico in developing an outreach program to the Mexican industrial sector**

   A program of outreach to the Mexican industrial sector should be developed. The promotion of voluntary efforts by industry to reduce waste through changes in production processes and substitution of production materials will lesson the burden of monitoring, treatment and enforcement by the environmental agencies. While such a program must be implemented within Mexico, California and US EPA should be ready to advise and assist in the design of the outreach program if requested.

   Mexican agencies should work with Mexican industry associations to gain support for voluntary efforts. California agencies should encourage American

firms with Mexican affiliates or vendors to assist in this effort. All of the parties should explore the potential to introduce successful U.S. concepts such as "Best Available Technology" standards on a voluntary basis. In general, these standards require U.S. companies to adopt the best available pollution reduction technology when expanding their production capacity. While there is no suggestion that these should be made mandatory in Mexico, these industry specific standards would provide guidelines for cleaner industrial waste streams.

5. **Create an effective and creditable Mexican enforcement program**

   The true cost of environmental protection is carried by the regulated industry. In the long run this cost must be recovered in the price of their products. Competition from firms that are not incurring these costs undermines efforts of companies that do meet standards. Thus the Mexican agencies must have ample resources to carry out the enforcement aspect of their mission. If requested, California should offer technical assistance in the area of enforcement techniques. Participation by Mexican officials in the Cal/EPA Enforcement Training Seminar, participating with DTSC agents during industrial site inspections, working with the City of San Diego on industrial pretreatment inspections are examples of such assistance. Companies operating in the border cities must be confident that if they take care to meet the Mexican discharge standards they will not be put at a competitive disadvantage. They must also have confidence that companies that violate environmental rules will be held accountable.

6. **Develop a comprehensive, integrated training program including Spanish language training materials**

   The language barrier should not hinder effective training. Cal/EPA, US EPA and BECC should fund the production of Spanish language training materials to cover the full range of tasks required in a robust industrial pretreatment program. These materials must be produced with Mexican law and technology in mind. Thus they must not be mere translations of U. S. training materials. The initial cost for the development and production of these materials will be offset by the useful life of the materials. These materials will assist countless wastewater workers not only in Baja California, but also in cities all along the border and in the interior of Mexico.

7. **Expand the scope of training to Mexicali**

   A suitable partner should be selected to provide training in Mexicali. The City of San Diego would seem to be the logical choice. The work plan recommended above should take advantage of the considerable experience of the City of San Diego in training Tijuana and Tecate wastewater workers. The City of San Diego should be encouraged to expand its training program to Mexicali. The extra travel cost for City of San Diego staff to travel to Mexicali should be accounted for in the funding scheme of the workplan. However, there may be constraints to the City's ability or desire to expand to the Mexicali area. Therefore alternatives sources should be explored.

8. **Continue the existing on-the-job training of CESPM operators at the Calexico wastewater treatment plant**

   The on-the-job training efforts sponsored by the Colorado River RWQCB between CESPM and the City of Calexico are essential to enhance the operation and maintenance (O&M) of existing sewage infrastructure in Mexicali. The efforts pave the way for future technology transfer; ensure Mexico is self-reliable on O&M of its sewage infrastructure; improve communications in the Mexicali-Imperial County; and serve as cornerstone for the proper, long-term operation and maintenance of the new sewage infrastructure for Mexicali. Therefore, training should continue at least until the new infrastructure is completed in 2004.

9. **Emulate the Calexico Wastewater Treatment Plant training program in San Diego**

   The San Diego RWQCB should investigate the potential for the City of San Diego to provide on the job training to wastewater treatment plant operators from Tecate and Tijuana similar to that offered by the City of Calexico. The quality of wastewater crossing into the United States will be determined by the effectiveness of the Tecate and Tijuana treatment facilities. The effectiveness of these facilities will be determined by the skill of their operators. Tecate has already requested assistance in increasing the effectiveness of their facility. Tijuana is about to construct four new water reclamation facilities. These facilities will be similar to the San Diego South Bay reclamation plant. Therefore

there is a vast residual of knowledge that could be transferred by the City of San Diego.

10. The training assistance described in this report should be extended to the Ensenada CESP

The City of Ensenada is south of the Tijuana service area. However, its effluent is discharged to the Pacific Ocean and has the potential to move north and affect the near shore area of California. The addition of CESPE personnel would add little to the cost of the current training sessions in Tecate. The Border Affairs Unit working with the SWRCB and the San Diego RWQCB should invite the participation of staff from CESPE.

APPENDIX A

AGREEMENTS AND MEMORANDA OF UNDERSTING BETWEEN THE STATE OF CALIFORNIA, UNITED STATES OF AMERICA AND MEXICO

JOINT DECLARATION BETWEEN THE SECRETARIAT FOR ENVIRONMENT AND NATURAL RESOURCES OF THE UNITED MEXICAN STATES (SEMARNAT) AND THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY (CAL/EPA), IN ORDER TO CARRY OUT JOINT ACTIVITIES FOR THE CONSERVATION AND SUSTAINABLE DEVELOPMENT OF THE SEA OF CORTEZ REGION.

The Secretariat for Environment and Natural Resources of the United Mexican States (SEMARNAT) and the California Environmental Protection Agency of the State of California (Cal/EPA) of the United States of America and the Resources Agency of the State of California, of the United States of America, herein referred to as "the Parties".

WHEREAS, the protection and conservation of the Sea of Cortez Region (Region) and its related resources are of a joint concern to the United Mexican States and to the State of California;

TAKING INTO ACCOUNT, a long history of cooperation in environmental and natural resource matters of mutual interest between our agencies; as well as between the state of California, Baja California and Baja California Sur.

RECOGNIZING, the need to implement equitable strategies, respectful of the national sovereignty and the economic and social characteristics of the people of the Region;

The SEMARNAT, the California Environmental Protection Agency and the California Resources Agency declare that:

1. Through this Joint Declaration, they seek to strengthen the actions of cooperation, in order to jointly establish mechanisms for encouraging sustainable development of the Region.

2. These goals will be achieved according to the cooperative agreements between both countries, with the extensive participation of the public, private, and social sectors, as well as non-governmental organizations (NGO's), academics, among others.

3. The goals that are sought to be achieved in the Sea of Cortez Region include:

   a) Policy coordination related to the conservation of natural resources in the Region;

   b) Coordinating with other public organizations whose activities are related to the purpose of this Declaration;

c) Encouraging the development and implementation of economic and environmentally sustainable strategies, such as eco-tourism, that respect the integrity of the ecosystems in the Region;

d) Coordinating research about the physical, hydrological and biological conditions of the region;

e) Developing and exchanging of compatible information systems in order to support policy makers, local land administrators, and the general public so as to make informed decisions about conservation, and;

f) Promoting and supporting for initiatives and public participation programs;

g) Developing of environmental education programs, and the voluntary participation of the communities and social organizations interested in economic sustainable alternatives; and;

h) Working together in joint search for resources in the public and private sectors, intended for the development of each distinct action proposed here and achieve the goals identified herein; and;

i) The establishment of a work group, that will not duplicate existing efforts of other workgroups, whereby representatives of the State of California, the United Mexican States, that border the Sea of Cortez, and the SEMARNAT, as well as the non-governmental organizations (NGO's), academics and other interested groups in the development of joint studies and the development of recommendations for cooperative projects in the region.

On this 21st day of March of 2001 in Sacramento, California, duplicated in exact Spanish and in English text.

FOR THE ENVIRONMENT AND NATURAL RESOURCES SECRETARIAT OF MEXICO

Lic. Victor Lichtinger Waisman
Secretario

FOR THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Winston H. Hickox
Agency Secretary

FOR THE CALIFORNIA RESOURCES AGENCY

Mary D. Nichols
Agency Secretary

MEMORANDUM OF UNDERSTANDING

BETWEEN

The California Environmental Protection Agency

AND

The San Diego Natural History Museum

The California Environmental Protection Agency (Cal/EPA) and the San Diego Natural History Museum (Museum) have identified mutual goals as expressed by their Mission Statements.

The Mission of Cal/EPA is "to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality".

The Mission of the Museum is "to interpret the natural world through research, education, and exhibits; to promote understanding of the evolution and diversity of Southern California and the peninsula of Baja California; to inspire in all people respect for the environment."

Furthermore, the Vision of the California – Baja California Border Environmental Program is to develop "a standard of excellence for international cooperation and collaboration that focuses on environmental and natural resource issues to help ensure the future quality of a cleaner, safer, healthier, and more prosperous border."

In addition, Cal/EPA and the Secretariat for Environmental and Natural Resources of the United Mexican States (SEMARNAT) signed a Joint Declaration on March 21, 2001 "to carry out joint activities for the conservation and sustainable development of the Sea of Cortés Region". The goals of this Declaration include encouraging environmentally sustainable strategies, such as eco-tourism, coordinating research about the physical, hydrological and biological conditions, promoting and supporting public participation programs, developing environmental education programs, and coordinating with public organizations whose activities are related to the purpose of this declaration.

Recognizing a common mission, vision, and goals, Cal/EPA and the Museum agree to work together to promote environmental education, sound environmental practices, and biological research to promote healthy border ecosystems. This partnership includes, but is not limited to, cooperative efforts in the following areas:

Environmental Education

The goal of environmental education is to inspire the community to take responsibility for and to become good stewards of our environment. This can be accomplished through teacher training, public education programs, and business and professional training.

Public Programs

Exhibits, films, lectures, and other public programs are effective ways to reach the general public with information about water and air pollution, sustainable development, natural resource conservation, ecotourism opportunities, and political involvement.

Research

Research and planning are prerequisites to effective programs of conservation, environmental education, and business and political action. Biological research is needed to access the health of our ecosystems and determine effective action.

To this end, the California Environmental Protection Agency and the San Diego Natural History Museum endorse this Memorandum of Understanding with the firm belief that our institutions can further serve their missions in a creative, productive, and meaningful partnership that serves the best interests of our binational region, its residents and visitors.

For the California Environmental Protection Agency

Winston H. Hickox

For the San Diego Natural History Museum

Steven P. McDonald, President

MEMORANDUM OF UNDERSTANDING between the INSTITUTO DE SERVICIOS DE SALUD PÚBLICA DEL ESTADO DE BAJA CALIFORNIA, MEXICO and the ENVIRONMENTAL PROTECTION AGENCY OF THE STATE OF CALIFORNIA, UNITED STATES OF AMERICA, RELATIVE TO THE STUDY OF LEAD IN THE BAJA CALIFORNIA POPULATION

Whereas the INSTITUTO DE SERVICIOS DE SALUD PÚBLICA DEL ESTADO DE BAJA CALIFORNIA (ISESALUD) and the ENVIRONMENTAL PROTECTION AGENCY OF THE STATE OF CALIFORNIA (Cal/EPA) are fully committed to maintaining good relations and to promoting a favorable health environment. This MEMORANDUM OF UNDERSTANDING (MOU) is an initial step in the development of a working relationship between ISESALUD and Cal/EPA. This MOU begins with a study of exposure to lead in the population resident in the Baja California Border Region (Tijuana, Tecate, Mexicali, Rosarito, and Ensenada).

The responsibilities of both parties are described below:

California EPA:

1. Shall appoint a liaison person with the responsibilities:
   - Coordination of the activities set forth in the MOU.
   - Coordination with the ISESALUD liaison to evaluate the approach that is needed to implement the aspects referring to the study of lead.
   - Assignment of responsibilities through the development of a work plan for the study of exposure to lead.
   - Serve as the principal point of contact for the development of the study, supplementary modifications, and resolution of any disputes.
2. Cal/EPA shall provide support to the project so as to initiate the cooperative lead study.
3. Cal/EPA shall provide technical advice to the technicians of the Hospital General de Tijuana in lead analysis methodology.

ISESALUD:

1. Shall appoint a liaison person with the responsibilities:
   - Coordination of the activities set forth in the MOU.
   - Coordination with the Cal/EPA liaison to evaluate the approach that is needed to implement the aspects referring to the study of lead.
   - Assignment of responsibilities through the development of a work plan for the study of exposure to lead.
   - Serve as the principal point of contact for the development of the study, supplementary modifications, and resolution of any disputes.

2. Shall have research personnel available for the design of the epidemiological study.

3. Shall provide the personnel necessary for collection of samples.

4. Shall provide the personnel for the chemical analysis of the lead samples, previously trained by the County of San Diego Department of Health and Human Services.

5. Shall obtain the importation permission and all forms necessary for receiving the support.

Both Institutions:

1. ISESALUD and Cal/EPA shall work together to identify the population or groups that will participate in the study.

2. ISESALUD and Cal/EPA will design the study, analyze the results and write the final conclusions and recommendations.

3. Any scientific papers or publications resulting from such studies shall be published jointly. The authors shall be defined as the individuals who contributed to the study planning and/or its execution and analysis, as well as to the writing of the submitted paper.

Good Faith

Each party to this MOU agrees to assume good faith of all other parties as a general principle for the development and implementation of the study. All parties agree to notify all other parties of any problem that may arise, and to work together to foster a maximum level of confidence in the study. Both parties commit to act in good faith for the benefit of public health.

The contents of this Memorandum of Understanding having been read, the undersigned execute this Memorandum of Understanding on behalf of its parties. This Memorandum of Understanding shall take effect when it has been signed by all parties.

For the Instituto de Servicios de Salud Pública (ISESALUD) del Estado de Baja California

Dr. CARLOS ALBERTO ASTORGA OTHÓN

Director General

29-OCT-01

DATE

For the California Environmental Protection Agency

WINSTON H. HICKOX
for

Agency Secretary

October 30, 2001

DATE

For ISESALUD as an Honorary Witness:

Dr. ALFREDO GRUEL CULEBRO

Director of Health Regulation and Sanitation

29-10-01

DATE

For Cal/EPA as an Honorary Witness:

RICARDO MARTINEZ

Assistant Secretary for Border Affairs

October 30, 2001

DATE

MEMORANDUM OF UNDERSTANDING FOR THE PURPOSE OF PROMOTING SUSTAINABLE DEVELOPMENT IN THE BORDER REGION SIGNED BY THE ENVIRONMENTAL PROTECTION AGENCY OF THE STATE OF CALIFORNIA REPRESENTED HEREIN BY ITS SECRETARY, WINSTON H. HICKOX AND BY THE ECOLOGY GENERAL DIRECTORATE OF THE STATE OF BAJA CALIFORNIA, REPRESENTED HEREIN BY ITS GENERAL DIRECTOR, ADOLFO GONZALEZ CALVILLO

WHEREAS:

BOTH COUNTRIES HAVE STATED THEIR INTEREST IN MUTUALLY SUPPORTING EACH OTHER IN ENVIRONMENTAL ISSUES, THROUGH THE US-MEXICO ENVIRONMENTAL AGREEMENT, OR "LA PAZ AGREEMENT".

THAT THERE ARE ECOSYSTEMS OF WHICH BIO-GEOGRAPHICAL BOUNDARIES GO BEYOND THE COMMON BORDER AND THAT BOTH STATES SHARE NATURAL RESOURCES SUCH AS THE FLORA AND FAUNA, AS WELL AS THE WATER RESOURCES AND AIR BASINS.

THAT SHOULD THE ENVIRONMENT OR ITS NATURAL ELEMENTS IN A STATE BECOME ALTERED, IT WOULD HAVE A REPERCUSSION IN THE OTHER.

THAT IN THE PAST, COORDINATION ACTIONS HAVE BEEN CARRIED OUT BETWEEN BOTH STATES, IN THE FRAMEWORK OF THE BORDER XXI PROGRAM, THE BORDER ENVIRONMENT COOPERATION COMMISSION, THE BORDER GOVERNORS CONFERENCES, THE TEN STATE RETREAT, THE COMMISSION FOR ENVIRONMENTAL COOPERATION, THE CALIFORNIA BORDER ENVIRONMENTAL COOPERATION COMMITTEE, AND OTHERS.

THE ECOLOGY GENERAL DIRECTORATE STATES:

I.- THAT IT IS INTERESTED IN PARTICIPATING IN ACTIONS RELATED TO ENVIRONMENTAL PROTECTION ACTIVITIES AND PREVENTION OF POLLUTION IN THE BORDER REGION.

II.- THAT AMONG ITS AUTHORITIES, SOME OF THEM INCLUDE THE PREVENTION OF ENVIRONMENTAL EMERGENCIES, ENVIRONMENTAL CONTINGENCIES, THE POLLUTION OF THE ATMOSPHERE AND OF WATER BODIES, THE PROMOTION OF THE AWARENESS OF THE ECOLOGIC PRINCIPLES, CRITERIA AND PRECEPTS, AS WELL AS TO CARRY OUT INFORMATION AND ENVIRONMENTAL EDUCATIONAL PROJECTS.

THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY STATES:

I.- THAT THE MISSION OF THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY IS TO RESTORE, PROTECT AND ENHANCE THE ENVIRONMENT, TO ENSURE PUBLIC HEALTH, ENVIRONMENTAL QUALITY AND ECONOMIC VITALITY

II.- THAT WITHIN THE ORGANIZATIONAL STRUCTURE OF THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY ARE BOARDS, DEPARTMENTS AND OFFICES WITH RESPONSIBILITY FOR REGULATION OF AIR QUALITY, WATER QUALITY, SOLID WASTE DISPOSAL, TOXIC SUBSTANCES MANAGEMENT, PESTICIDE USE AND HUMAN AND ECOLOGICAL HEALTH PROTECTION

III.- THAT IN ORDER TO ACHIEVE ITS MISSION IN THE CALIFORNIA/BAJA CALIFORNIA BORDER REGION, THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY RECOGNIZES THE IMPORTANCE OF AND NEED FOR COMMUNICATION AND CLOSE COOPERATION WITH THE GOVERNMENT OF THE STATE OF BAJA CALIFORNIA INCLUDING THE DIRECCION GENERAL DE ECOLOGIA DEL ESTADO DE BAJA CALIFORNIA

IV- THAT THE STATE OF CALIFORNIA AND THE STATE OF BAJA CALIFORNIA HAVE WORKED SUCCESSFULLY TOGETHER IN THE PAST TO IMPROVE THE PUBLIC HEALTH AND ENVIRONMENT OF THE BORDER REGION, AND THAT IT IS IN THE BEST INTEREST OF OUR TWO STATES TO BUILD ON OUR HISTORY OF COOPERATION

BOTH PARTIES DECLARE:

THAT THEY HAVE DECIDED TO JOIN EFFORTS WITH THE PURPOSE OF CARRYING OUT COORDINATED ACTIONS TO PREVENT THE ECOLOGIC EMERGENCIES, ENVIRONMENTAL CONTINGENCIES, THE POLLUTION OF THE ATMOSPHERE AND WATER BODIES, TO PROMOTE SUSTAINABLE DEVELOPMENT, TO CARRY OUT PROJECTS OF ENVIRONMENTAL INFORMATION, EDUCATION, AND TRAINING.

CLAUSES:

FIRST.- TO LINK EFFORTS WITH EACH OTHER FOR A BETTER USE OF RESOURCES THROUGH MUTUAL ASSISTANCE. COORDINATE WORK AND EXCHANGE EXPERTISE AND INFORMATION BY CARRYING OUT SPECIFIC ACTIVITIES THAT WILL BE AGREED UPON IN ACCORDANCE WITH ENVIRONMENTAL PLANNING NEEDS AND ENVIRONMENTAL MANAGEMENT.

SECOND.- TO PROVIDE FOLLOW-UP ON SPECIFIC ACTIONS THAT MIGHT SUPERVENE, BOTH PARTIES DESIGNATE AS THEIR REPRESENTATIVES, MR. RICARDO MARTINEZ FOR THE ENVIRONMENTAL PROTECTION AGENCY AND MR. SAUL MARTIN DEL CAMPO FOR THE ECOLOGY GENERAL DIRECTORATE.

THIRD.- BOTH PARTIES COMMIT TO PROVIDE THEIR MANAGEMENT CAPABILITIES TO SEEK FINANCING SOURCES FOR THOSE ACTIONS TO BE JOINTLY CARRIED OUT UNDER THIS AGREEMENT.

FOURTH.- THE STAFF FROM BOTH PARTIES THAT PARTICIPATE IN THE PERFORMANCE OF THE ACTIONS CONTAINED HERETO SHALL CONTINUE TO REPORT TO THE AGENCY TO WHICH THEY ARE ASSIGNED, THEREFORE, NO BONDS OF LABOR RELATIONSHIP NATURE SHALL BE CREATED AMONG THE COMMISSIONED STAFF AND THE RECEIVING PARTY.

FIFTH.- THIS AGREEMENT SHALL HAVE DURATION OF SIX (6)YEARS AND MAY BE EXTENDED, MODIFIED, ADDED OR TERMINATED BY THE WILL OF EITHER OR BOTH PARTIES.

SIXTH.- THE PARTIES STATE THAT THIS AGREEMENT IS A PRODUCT OF GOOD FAITH, THEREFORE, THE CONFLICTS THAT MIGHT ARISE SHALL BE SOLVED BY THEIR DESIGNATED REPRESENTATIVES.

THIS AGREEMENT IS SIGNED IN DUPLICATE BOTH IN ENGLISH AND SPANISH VERSIONS IN THE CITY OF ENSENADA, BAJA CALIFORNIA, MEXICO ON THE 16TH DAY OF THE MONTH OF AUGUST OF THE YEAR TWO THOUSAND AND ONE.

FOR THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

WINSTON H. HICKOX
AGENCY SECRETARY

RICARDO MARTINEZ GARCIA
ASSISTANT SECRETARY
FOR BORDER AFFAIRS

FOR THE BAJA CALIFORNIA ECOLOGY GENERAL DIRECTORATE

ADOLFO GONZALEZ CALVILLO
DIRECTOR GENERAL

SAUL MARTIN DEL CAMPO BUSTAMANTE
DEPUTY DIRECTOR OF ENVIRONMENTAL
ANALYSIS AND MANAGEMENT

AGREEMENT OF COOPERATION BETWEEN THE STATE OF BAJA CALIFORNIA, MEXICO AND THE STATE OF CALIFORNIA, UNITED STATES OF AMERICA TO CARRY OUT A PILOT-SCALE VEHICLE EMISSIONS INSPECTION PROGRAM FOR THE CITY OF TIJUANA

WHEREAS, the administration of California Governor Gray Davis and the administration of City of Tijuana, are fully committed to maintaining good relationships and fostering favorable economic, educational and environmental protection goals. This Agreement of Cooperation (AOC) is an initial step in addressing the conservation, management and enhancement of natural and cultural resources, including air quality along the California - Mexico border.

WHEREAS, this is a voluntary agreement between the government of the City of Tijuana and the government of the State of California. This Agreement of Cooperation (AOC), sets forth the responsibilities and considerations between the two governments and their subordinate agencies or governmental entities. This agreement will set forth our intent to cooperatively implement a two-year pilot-scale motor vehicle Inspection and Maintenance (I/M) project for the City of Tijuana, Baja California. This pilot project is a first step in minimizing adverse cross-border impacts upon economic development, existing ecosystems, and shared natural resources.

WHEREAS, recognizing the desirability of a mutually beneficial trade and commerce partnership and an environmentally sound shared border region between California and Mexico, this agreement is intended to facilitate the transfer of California's core I/M environmental technology to Mexico. Air pollution knows no boundaries and the attainment of healthful air quality will benefit the border region as a whole.

WHEREAS, the state of California has developed a comprehensive vehicle Inspection and Maintenance (I/M) program that would be shared with the City of Tijuana. The I/M program includes a visual inspection to verify that all required emissions control systems are present; a functional inspection to verify that selected systems are functioning properly; and a tailpipe inspection to verify that the vehicle's emissions are within established standards.

WHEREAS, the State of California recognizes that the success of the Tijuana pilot-scale project requires adequate equipment, training and specialized facilities; and agrees to:

- Donate to the City of Tijuana a computerized Emissions Inspection System to measure tailpipe emissions, consisting of the emissions analyzer, and operating software.

- Facilitate training to the City of Tijuana Municipal Employees and assist in developing training manuals and procedures. Qualified City of Tijuana Municipal Employees, certified as instructors, will train new technicians in preparation for Tijuana's full-scale program of Vehicle Emissions Inspection.

- Assist the City of Tijuana in the planning and implementation of a Referee Center. Tijuana's Referee Center will be used in its future full-scale I/M Program to assist consumers in re-testing vehicles, answering questions and providing them with a Smog Check certificate.

NOW, THEREFORE, in consideration of mutual covenants and conditions herein contained, the parties do hereby agree as follows:

ROLES AND RESPONSIBILITIES

As an element of California-Baja California, Mexico's Border Strategic Environmental Plan, the California Environmental Protection Agency (Cal/EPA) Border Affairs Unit, State of Baja California, Mexico, and the Municipality of Tijuana, have identified the importance of establishing a vehicle Inspection and Maintenance (I/M) Program in California/Mexico's border regions. The purpose of this agreement is to allow California to provide technical expertise and resources to the City of Tijuana for the purpose of implementing a pilot-scale Inspection and Maintenance project. The successful completion of the pilot-scale project will enable the City of Tijuana to develop a comprehensive and self-sustaining I/M program.

A. State of California:

1. The Cal/EPA Border Affairs Unit or designee will be appointed the State's liaison whose responsibilities will include:

   - coordinating and administer the activities outlined in the Agreement of Cooperation.

   - coordinating with Mexico's liaison to evaluate the resources needed to implement the pilot project. A preliminary assessment will begin April 2001.

   - establishing a work plan, which may be referred to as technical addendums to the AOC, for the pilot-scale project.

   - functioning as the primary point of contact for the pilot project development, supplemental amendments and dispute resolution.

2. The Department of Consumer Affairs' Bureau of Automotive Repair (BAR) will donate emissions inspection equipment (hardware and software) to the City of Tijuana for use in establishing a pilot-scale I/M program for their gas powered public vehicles fleet. BAR will provide up to 10 units of such equipment, as deemed necessary by the State of California, to establish the pilot program.

3. The Air Resources Board (ARB) will provide necessary training in the inspection of diesel powered heavy-duty vehicles.

4. The BAR and Cal/EPA will train a sufficient number of City of Tijuana Municipal Employees to implement the pilot project. These employees will be trained to perform emissions tests, diagnose failed vehicles, repair failed vehicles, and retest repaired vehicles. Qualified employees will also be certified as instructors such that they will be able to train additional technicians in preparation for Tijuana's full-scale program of Vehicle Emissions Inspection.

5. BAR will assist in the development of training materials and procedures for the pilot project.

6. BAR will provide technical assistance for the planning and implementation of the referee station to be located in the City of Tijuana.

B. City of Tijuana:

The Mayor of the City of Tijuana, or designee will be appointed liaison whose responsibilities will include:

- coordinating and administer the activities outlined in the Agreement of Cooperation
- coordinating with California's liaison to evaluate the resources needed to implement the pilot project. A preliminary assessment will begin April 2001.
- delegating responsibilities by setting up a work plan for the pilot-scale project
- functioning as the primary point of contact for pilot project development, supplemental amendments and dispute resolution.

1. The City of Tijuana will provide a secure building for the emissions inspection equipment.

2. The City of Tijuana will provide a sufficient number of Municipal Employees to be trained as technicians and trainers in accordance with the California Smog Check Program. The training of these technicians will be accomplished using California's existing educational resources.

3. The City of Tijuana will take the lead in the development of training materials and procedures for the pilot project.

4. The City of Tijuana with technical assistance from BAR, commits to construct a referee station. Tijuana's Referee Center will initially be used to test gas powered public vehicles and ultimately be used in its future full-scale I/M Program to assist consumers in re-testing vehicles, answering questions and providing them with a Smog Check certificate.

5. After successful completion of the pilot-scale project, the City of Tijuana will develop a comprehensive and self-sustaining I/M program. The comprehensive I/M program will include (1) a visual inspection to make certain that all required emission control equipment is present; (2) a functional inspection of the ignition timing, emission warning lights, and exhaust gas recirculation systems; and (3) a tailpipe inspection of the actual exhaust emissions at idle and cruise conditions to ensure that they are within appropriate standards.

FOLLOW-UP

The Mexican Institute of International Cooperation of the Secretariat for Foreign Affairs, in an effort to provide quality as a major focal point in international cooperation to the Government of Mexico, will be notified with ample time by the involved parties on accomplishments made within the many activities contained within the Agreement, so that these may be presented to the Work Groups that meet within the Binational Committee of both nations. Additionally and within the responsibilities of the Binational Committee, aid in the importation of materials and equipment required for the execution of this agreement.

DISPUTE RESOLUTION

Any procedural disputes arising out of this Agreement shall be negotiated between the following Representatives, who shall act as liaisons for this AOC.

For the government of California: The Secretary for Environmental Protection

In the event a dispute arises involving the terms of this AOC, the liaisons shall meet and resolve the matter. This AOC is not intended to confer benefits upon, or be subject to enforcement by third parties.

AMENDMENT

This agreement may be amended at any time, or from time to time, by one or more written supplemental agreements, which shall be integrated into this agreement.

DURATION

Unless otherwise extended in writing, this agreement shall be in full force and effect for a period of two years. Any party may withdraw from this agreement 45 days following written notice to the other parties

GOOD FAITH

Each party to this agreement agrees to assume good faith of all other parties as a general principle for Tijuana's pilot motor vehicle maintenance and inspection program. All parties agree to notify one another if any problems arise and to work together to foster maximum confidence in the program. In the event that individual and several portions of this agreement are found to be in conflict with either state or federal law, regulations or policies, and, therefore, of no effect, the agreement will remain in effect without those provisions unless either party notifies the other party in writing that the entire agreement is terminated. The contents and legal scope of this Agreement having been read to the parties, they express that no error, bad faith, injury or any other defect of consent exist herein which would invalidate it, and they confirm and execute it in Sacramento, California, on March 21, 2001.

The undersigned hereby execute this Agreement of Cooperation on behalf of their parties. This Agreement takes effect when signed by all parties.

FOR THE CITY OF TIJUANA:

Lic. Francisco Arturo Vega
de Lamadrid, Mayor of Tijuana

FOR THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY:

Winston H. Hickox
Agency Secretary

FOR SEMARNAT AS AN HONORARY WITNESS:

Lic. Victor Lichtinger Waisman
Secretary

FOR THE CALIFORNIA STATE AND CONSUMER SERVICES AGENCY:

Aileen Adams
Agency Secretary

APPENDIX B

AGREEMENT OF COOPERATION ON INDUSTRIAL WASTEWATER MONITORING AND PRETREATMENT BETWEEN THE STATE OF BAJA CALIFORNIA, MEXICO AND THE STATE OF CALIFORNIA, UNITED STATES OF AMERICA

AGREEMENT OF COOPERATION ON INDUSTRIAL WASTEWATER MONITORING AND PRETREATMENT BETWEEN THE STATE OF BAJA CALIFORNIA, MEXICO AND THE STATE OF CALIFORNIA, UNITED STATES OF AMERICA

WHEREAS, the State of California and the State of Baja California are fully committed to maintaining good relationships and fostering favorable economic, educational and environmental protection goals. This Agreement of Cooperation (AOC) is an initial step in developing a coordinated California-Baja California regional plan for the monitoring, pretreatment and minimization of industrial waste waters generated in the cities of Mexicali, Tecate and Tijuana for the purpose of protecting the environment and public health along the California-Mexico border.

WHEREAS, this is a voluntary agreement between the government of the State of Baja California and the government of the State of California. This Agreement of Cooperation (AOC) sets forth the responsibilities and considerations between the two governments and their subordinate agencies. This agreement will set forth our intent to cooperatively implement a three year effort to coordinate the technical assistance capabilities of the California Environmental Protection Agency (Cal/EPA) and the State of California Water Resources Control Board with the goals and objectives of the Republic of Mexico and the State of Baja California related to monitoring, pretreatment, and minimization of industrial waste waters.

WHEREAS, recognizing the desirability of a mutually beneficial trade and commerce partnership and an environmentally sound shared border region between California and Mexico, this agreement is intended to facilitate the transfer of California's industrial wastewater monitoring, pretreatment and pollution prevention technology to Mexico. Water pollution knows no boundaries and monitoring, pretreatment and minimization of industrial wastewater will benefit the border region as a whole.

WHEREAS, the State of California Water Resources Control Board, working with the City of San Diego, has assisted the Direccion General de Ecologia del Estado de Baja California and the Comision Estatal de Servicios Publicos de Tijuana with the implementation of a comprehensive industrial wastewater monitoring program and development of industrial waste water worker training materials, this AOC anticipates a continuation of that program and its extension to the Cities of Mexicali and Tecate in a coordinated regional manner.

WHEREAS, the State of California Water Resources Control Board has not previously coordinated with or offered technical assistance to Mexico's Comision Nacional del Agua (National Water Commission), this AOC anticipates a new effort to include industrial wastewaters under the regulatory authority of the Republic of Mexico in a coordinated industrial wastewater program for the California-Mexico border region.

WHEREAS, the State of California recognizes that success of the coordinated industrial wastewater program requires adequate equipment, training and technical and analytical support:

- The State of California will work with the appropriate state and federal authorities in Baja California to identify the equipment needed for implementation of an effective industrial wastewater monitoring program

- The State of California will accept donations of previously used equipment, including computers and specialized wastewater monitoring and analytical equipment from state and local agencies within California and work with the appropriate state and federal authorities to arrange for transfer of such equipment to the appropriate authorities in Baja California.

- The State of California will work with the appropriate authorities in Baja California to identify the industrial wastewater worker training needs, including class room and "on the job" instructional needs, written procedures and manuals, and other special needs.

- The State of California will work with appropriate agencies in California, including the U S Environmental Protection Agency, the City of San Diego Metropolitan Wastewater Department and California State University, Sacramento to facilitate the development of the identified worker training materials.

- The State of California, working with the U S Environmental Protection Agency, the Regional Water Quality Control Board, the Colorado River Region Water Quality Control Board, San Diego Regional Water Quality Board, and local wastewater agencies, will assist the Cities of Mexicali, Tecate and Tijuana in the design and implementation of an industrial wastewater monitoring strategy and will work with the Republic of Mexico and the State of Baja California to identify resources needed to monitor and analyze industrial waste water.

NOW, THEREFORE, in consideration of mutual covenants and conditions herein contained, the parties do hereby agree as follows:

ROLES AND RESPONSIBILITIES

As an element of California-Baja California Border Strategic Environmental Plan, the Cal/EPA Border Affairs Unit and the State of Baja California, Mexico, have identified the importance of establishing an industrial wastewater monitoring, pretreatment and minimization program. The purpose of this agreement is to allow California to provide technical expertise and resources to the State of Baja California, the Cities of Mexicali, Tecate and Tijuana for the purpose of implementing comprehensive coordinated industrial wastewater monitoring, pretreatment and minimization program. The successful completion of the agreement will enable the development of a comprehensive and self-sustaining industrial wastewater program for the California-Mexico border region.

A. State of California:

1. The California Environmental Protection Agency, Assistant Secretary for Border Affairs or designee will be appointed liaison whose responsibilities will include:

   - coordinating and administer the activities outlined in the Agreement of Cooperation.

   - coordinating with Mexico's liaison to evaluate the resources needed to implement the industrial wastewater monitoring, pretreatment and minimization program. A preliminary assessment will begin in April 2001.

   - establishing a work plan, which may be referred to as technical addendums to the AOC, for the industrial wastewater monitoring, pretreatment and minimization program.

   - functioning as the primary point of contact for program development, supplemental amendments and dispute resolution.

2. The California Environmental Protection Agency, Border Affairs Unit (BAU), the State Water Resources Control Board, the Colorado River Regional Water Quality Control Board, and the San Diego Regional Water Quality Control Board will assist the State of Baja California in identification of industrial wastewater monitoring and analytical equipment needs in the California-Mexico border region.

3. The California Environmental Protection Agency BAU will seek the donation of the necessary specialized industrial wastewater monitoring and analytical equipment and facilitate the transfer of such equipment to the State of Baja California and appropriate wastewater authorities.

4. The California Environmental Protection Agency BAU will assist in identification of industrial wastewater worker training materials and opportunities.

5. The California Environmental Protection Agency BAU will offer a limited industrial wastewater worker training program based on the results of an on-going cooperative effort between the State of California Water Resources Control Board, the Direccion General de Ecologia del Estado de Baja California, the Comision Estatal de Servicios Publicos de Tijuana, the City of San Diego and California State University, Sacramento.

6. The California Environmental Protection Agency will assist in the design of industrial wastewater monitoring strategies for the Cities of Mexicali, Tecate, and Tijuana and will work with the appropriate authorities from the Republic of Mexico, the United States of America, the State of Baja California and local California agencies to identify and obtain the necessary monitoring and analytical resources.

7. The Department of Toxic Substances Control of the California Environmental Protection Agency will assist the State of Baja California with the identification of opportunities to work with industries in the California-Mexico border region to implement pollution prevention and minimization programs.

B. The State of Baja California, Mexico and the Estate Comissions for Public Services for the Cities of Mexicali, Tecate, and Tijuana:

1. The Secretary for SEMARNAT, or designee will be appointed liaison whose responsibilities will include:

   - Coordinating and administer the activities outlined in the Agreement of Cooperation.

   - Coordinating with California's liaison to evaluate the resources needed to implement the coordinated regional industrial wastewater monitoring, pretreatment and minimization program. A preliminary assessment will begin in April 2001.

- Assigning responsibilities by setting up a work plan for the industrial wastewater monitoring, pretreatment and minimization program.

- Functioning as the primary point of contact for pilot project development, supplemental amendments and dispute resolution.

2. The California Environmental Protection Agency, Border Affairs Unit or designee and the Direccion General de Ecologia del Estado de Baja California will establish communication with Mexico's National Water Commission (Comision Nacional de Agua) to identify opportunities for coordination and cooperation regarding industrial wastewater monitoring, pretreatment and minimization.

3. The Direccion General de Ecologia del Estado de Baja California will take the lead in identifying the industrial wastewater monitoring, pretreatment and minimization program needs for the State of Baja California and will work with the California Environmental Protection Agency and its Boards, Departments and Offices to facilitate the participation of the State of California in providing technical assistance to the State of Baja California and the Cities of Mexicali, Tecate and Tijuana.

4. The Cities of Mexicali, Tecate and Tijuana will contribute staff and other resources to assist the Direcion General del Estado de Baja California with identification of technical assistance needs.

5. After successful completion of the industrial wastewater monitoring pretreatment and minimization program, the State of Baja California, the Cities of Mexicali, Tecate and Tijuana will seek resources needed to support a comprehensive and self-sustaining industrial wastewater program.

DISPUTE RESOLUTION

Any procedural disputes arising out of this Agreement shall be negotiated between the following Representatives, who shall act as liaisons for this AOC.

For the government of Mexico: The Secretary for Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) or designee.

For the government of California: The Secretary for Environmental Protection

In the event a dispute arises involving the terms of this AOC, the liaisons shall meet and resolve the matter. This AOC is not intended to confer benefits upon, or be subject to enforcement by third parties.

AMENDMENT

This agreement may be amended at any time, or from time to time, by one or more written supplemental agreements, which shall be integrated into this agreement.

DURATION

Unless otherwise extended in writing, this agreement shall be in full force and effect for a period of three years. Any party may withdraw from this agreement 45 days following written notice to the other parties. Upon termination of this Agreement, all loaned equipment shall be returned to the appropriate California State agencies within sixty days.

GOOD FAITH

Each party to this agreement agrees to assume good faith of all other parties as a general principle for the development and implementation of a coordinated regional industrial monitoring, pretreatment and minimization program for the California-Mexico border region. All parties agree to notify one another if any problems arise and to work together to foster maximum confidence in the program. In the event that individual and several portions of this agreement are found to be in conflict with either state or federal law, regulations or policies, and, therefore, of no effect, the agreement will remain in effect without those provisions unless either party notifies the other party in writing that the entire agreement is terminated. The contents and legal scope of this Agreement having been read to the parties, they express that no error, bad faith, injury or any other defect of consent exist herein which would invalidate it, and they confirm and execute it in Sacramento, California, on March 21, 2001.

The undersigned hereby execute this Agreement of Cooperation on behalf of their parties. This Agreement takes effect when signed by all parties.

FOR THE DIRECCION GENERAL DE ECOLOGIA:

M.C. Adolfo Gonzalez Calvillo
Director

FOR THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY:

Winston H. Hickox
Agency Secretary

FOR SEMARNAT AS AN HONORARY WITNESS:

Lic. Victor Lichtinger Waisman
Secretario

FOR THE STATE WATER RESOURCES CONTROL BOARD:

Arthur G. Baggett, Jr.
Chair

APPENDIX C

GLOSSARY OF ACRONYMS

- **Glossary of Acronyms**

BECC	Border Environment Cooperation Commission – Binational
BEIF	Border Environment Infrastructure Fund – Binational
BAU	Border Affairs Unit, California Environmental Protection Agency – U.S.
CalBECC	California Border Environmental Cooperation Committee – Binational
Cal/EPA	California Environmental Protection Agency – U.S.
CNA	National Water Commission – Mexico
CSPE	State Commission for Public Works of Ensenada - Mexico
CESPM	State Commission for Public Works of Mexicali – Mexico
CESPT	State Commission for Public Works of Tijuana – Mexico
CESPTe	State Commission for Public Works of Tecate – Mexico
CRRWQCB	Colorado River Regional Water Quality Board – U.S.
CSUS	California State University Sacramento – U.S.
DGE	Department of Ecology of the State of Baja California – Mexico
DTSC	California Department of Toxic Substances Control – U.S.
GIS	Geographical Information System
ISESALUD	Institute for Public Health Services of the State of Baja California – Mexico
IBWC	International Water and Boundary Commission – Binational
ITC	International Treatment Plan – Binational
NADBank	North American Development Bank – Binational

POTW	Publicly Owned Treatment Works – U.S.
PROFEPA	Attorney General Office for Environmental Protection – Mexico
RWQCB	Regional Water Quality Control Board – U.S.
SAHOPE	Secretariat of Human Settlements and Public Works State of Baja California – Mexico
SDRWQCB	San Diego Regional Water Quality Control Board – U.S.
SEMARNAT	Secretariat of the Environment and Natural Resources – Mexico
SIC	Standard Industrial Classification
SWRCB	State Water Resources Control Board – U.S.
US EPA	United States Environmental Protection Agency – U.S.

The California Environmental Protection Agency