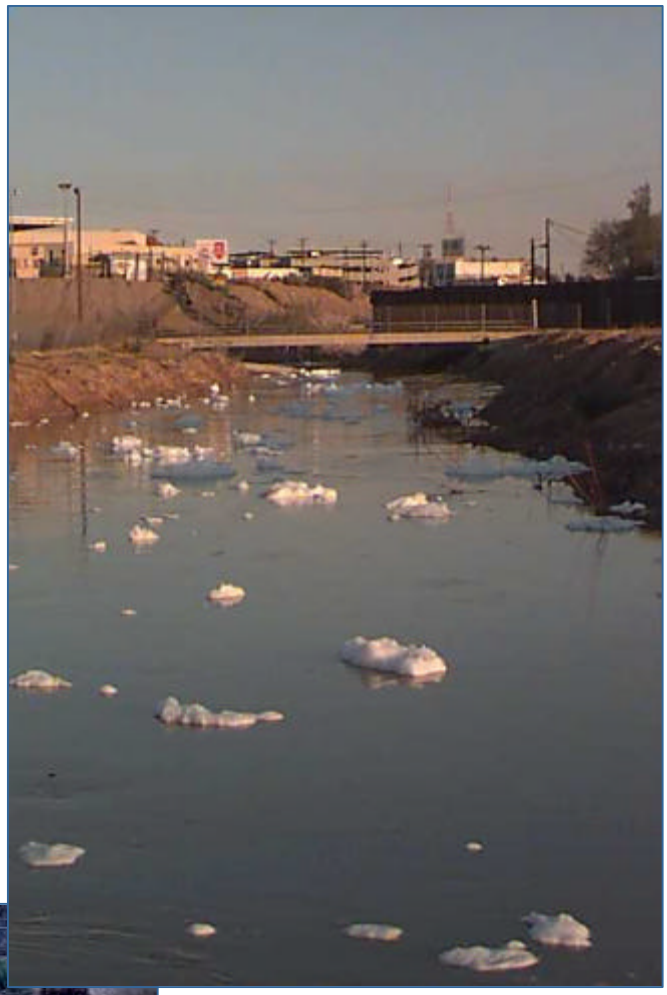
California Regional Water Quality Control Board

New River Pollution in Mexico



A Historical Overview

by

Phil Gruenberg
Executive Officer

December 1998

"...Being realistic, I strongly doubt any one body of government, spurred by even the most enthusiastic leaders, will accomplish a satisfactory and positive conclusion to the New River dilemma. But, if the right people, and for the right reasons, collectively come together from Imperial County, the state of California and our federal government, and each shoulders the responsibility that common decency and financial ability would dictate, we might in our lifetimes, see such a project take place..."

Imperial Valley Press, 1992

Table of Contents

List of Figures

LIST OF FIGURES

LIST OF FIGURES

List of Tables

Introduction

FOREWORD

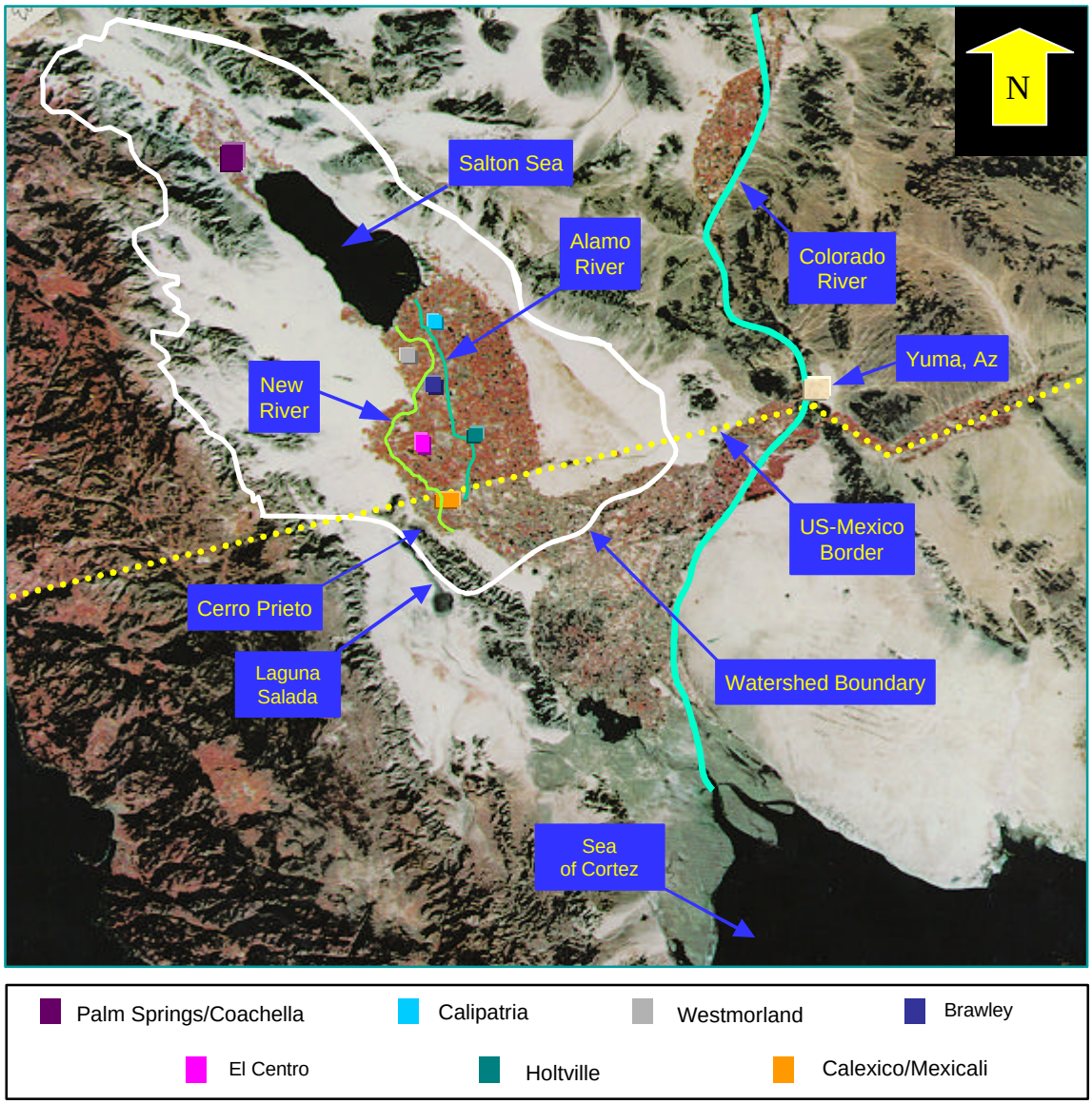
The present day channel of the New River was created in 1905-07 when the Colorado River washed out diversionary works, and the entire Colorado River flow coursed into the Salton basin creating the New and Alamo River channels and the present Salton Sea, thus the name "new" river. The New River channel that was created is approximately 60 miles in length and up to 2/3 of a mile in width within the United States. Within Mexico this natural channelway is discernible for about 13 miles. Following its creation, the New River has been primarily used to convey agricultural drainage from the Imperial and Mexicali Valleys with the inception of irrigated agricultural production in the early 1900's. It also has conveyed treated sewage, and most importantly, raw sewage largely originating from the border city of Mexicali in Mexico. It would not seem an exaggeration to refer to the New River as the most severely polluted river of its size within the United States.

The early history of New River pollution is sketchy, but it is believed to be closely aligned with population growth. In 1920, the total population of Mexicali was only 6,200 people. In 1955, it was estimated that raw sewage from approximately 25,000 people was being discharged into the New River from Mexicali. In 1975, the population jumped to over 100,000 people. The present population of Mexicali is reported as 438,377 by Mexico, but some believe it is much greater—approaching 1 million. A focal point of early complaints regarding New River pollution was odor. In the early fifties, the stench of the river near the boundary, particularly at night, was oftentimes overpowering. Beginning around 1956, the flows of the New River at the boundary increased considerably due to development of agricultural drainage return flows from Mexicali Valley. This dilution water temporarily alleviated the odor problem, but in the sixties the problem became increasingly noticeable as sewage loading increased with the population. Similarly, due to the recent industrial growth in Mexicali, industry is now believed to also be an increasingly significant source of New River pollution.

At present, the New River flow is approximately 200 cubic feet per second (cfs) at the United States/Mexico International Boundary. Its flow at the outlet to the Salton Sea is approximately 800 cfs, which makes it one of the two main tributaries to the Salton Sea--the other main tributary being the Alamo River. These surface waters are within the Salton Sea watershed,

which is a transboundary watershed that includes the Coachella and Imperial Valleys in the United States and a portion of the Mexicali Valley in Mexico. Figure I-1, below, shows the watershed and its major metropolitan areas.

Figure I-1: Salton Sea Transboundary Watershed



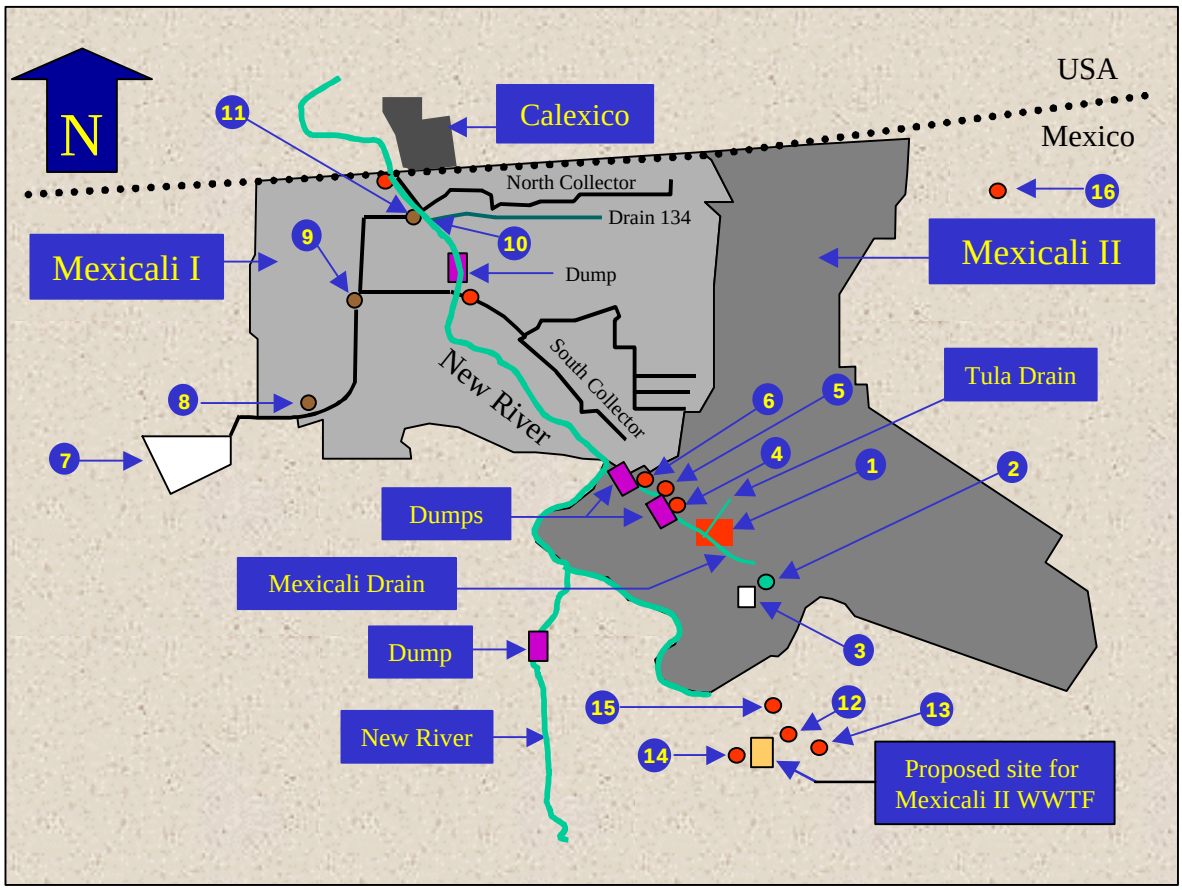
The history of New River pollution is rife with frustration and anger. As the pollution became increasingly noticeable in the 1960's, affected United States communities demanded prompt action from Mexico and responsible U.S. agencies to clean up the river, and became upset when it was not forthcoming. Under the intense attacks, the responsible Mexican and United States officials were pressured into making promises they could not fulfill, further fueling the fires of discontent. That the magnitude involved in correcting the New River problem had been grossly underestimated clearly did not help matters. It was not until the mid 1980's that the extent of the problem was finally recognized, and Mexico and the United States began to work cooperatively to address the problem.

Although this report was prepared to specifically cover Mexico's pollution of the New River, it also bears mention that the track record of New River pollution control within the United States has not always been a great deal better. Even into the 1960's some United States cities were still discharging raw sewage into the river. Three Imperial County dumps were located in the floodplain of the New River (and still are) and until rechannelization of the river were just as bad as similar dumps in Mexicali. Further, for a long time New River pollution from Mexico seemed a ready excuse for polluters on the United States side desiring to continue business as usual. To some extent, the feeling that the New River is as good a place as any to dump anything and everything still prevails for some people on both sides of the border.

For sewage service purposes, the Mexicali metropolitan area is divided into the Mexicali I and Mexicali II areas. Mexicali I includes most of the old, well established neighborhoods to the west, and the existing sewage collection and treatment system in the city, excluding the Gonzalez-Ortega system. In terms of wastewater treatment facilities (WWTF), Mexicali I refers to the existing Zaragoza lagoons. The Mexicali II service area includes the new residential and industrial development to the east and the Gonzalez-Ortega lagoons. However, in terms of WWTFs, Mexicali II refers to the proposed new WWTF. This proposed WWTF is to be located to the south of Mexicali and would treat the sewage from the Mexicali II service area, including the sewage currently being handled by the Gonzalez-Ortega lagoons.

Much of the recent history of New River pollution in Mexico deals with the main sewage infrastructure (e.g., pumping plants and principal sewer lines) within the Mexicali I area and the discharges of wastes from the industrial facilities in Mexicali. Figure I-2, on the next page, shows the Mexicali I and II service areas, key sewage infrastructure, the New River and its main tributaries in Mexicali, and key industries that currently or formerly discharged into the watershed.

Figure I-2: Mexicali Sewage Service Areas and Sewage Infrastructure Network



1. Industrial Area: Hidrogenadora Nacional (Conasupo), Quimica Organica, Quipac, Vitromex
2. Gonzalez-Ortega Lift Station
3. Gonzalez-Ortega Lagoons
4. Kenmex
5. Colector Mexicali II bypass
6. Colector Nutrimex bypass
7. Zaragoza Lagoons
8. Pumping Plant No. 3
9. Pumping Plant No. 1
10. Drain 134
11. Pumping Plant No. 2 and Right Bank Lift Station
12. Hog farm discharge
13. Steel recycling plant
14. Salughterhouse discharge
15. Maseca
16. Fabrica de Papel San Francisco (paper mill)

AUTHOR'S REMARKS

This report provides a general historical overview of New River pollution originating in Mexico. In general, the report follows a chronology of significant events. Viewpoints/opinions of the author and specific explanations are presented with footnotes. Documentation of the pollution prior to 1960 is sketchy, so this overview primarily covers the subsequent period. Photographic documentation prior to 1975 is also sparse.

The California Regional Water Quality Control Board, Colorado River Basin Region, has been actively involved in the cleanup of the New River and has been a significant force in molding the proceedings—both good and otherwise. Thus, to suggest that this document is without bias would be stretching the truth. Quotes can be taken out of context, judging which events are important enough to report is subject to disagreement, and the photographs selected were among many. Nevertheless, I have attempted to present this history in an unbiased fashion, through the extensive use of quotes from letters, reports, and news clippings. The photos speak for themselves.

The origins of photos used cannot be absolutely verified, other than Regional Board staff involved in the New River issue took most of them. Aerial photos from 1975 originated from State Water Resources Control Board staff. The author and a companion took the photos from August 1975 while not on state business. It is likely that a few photos are copies obtained from the Yuma office of the United States International Boundary and Water Commission (IBWC).

In general, I elected to depersonalize the history by using only the names of elected officials and high ranking appointees, although clearly there are individuals within agencies and citizens who should merit special recognition. The preparation of the recent history was particularly challenging since most of the described events relate to actively involved persons/agencies for which it is important that the spirit of cooperation remain to expedite the river cleanup. Therefore, the recent history contains a less personal viewpoint and more excerpted material. Jose L. Angel, principal engineer at the Regional Board involved in Border pollution control, prepared Chapter 7 of this report.

I did not address general border pollution control efforts unless those events specifically focused on the river or became a strong independent driving force in the river's cleanup. Therefore, there is little or no reference to several very important events—in particular the creation of the North American Free Trade Agreement, the Integrated Environmental Plan for the border area, the Border Environmental Cooperation Commission, California Border Environmental Cooperation Commission, and the North American Development Bank.

CLOSING REMARKS

During the past decade, the willingness of Mexico to accept U.S. economic and technical assistance and work in partnership with U.S. agencies in addressing New River pollution has been key in defining progress in the New River cleanup effort. It took dozens of years and untold efforts to build the current working relationship among the agencies and governments involved in the New River cleanup--a relationship that is crucial in reaching a final solution. Whether the U.S. takes full advantage of this cooperation will determine whether a solution to the problem is achieved. Political instability between competing political parties in Mexico may also have a substantial bearing on future progress.

This report is intended to serve as guidance to those who find themselves involved in the effort to clean up the New River. The report should periodically be updated until the day when the river cleanup is complete.

1

THE EARLY YEARS (PRE 1975)

MUCH DISCUSSION, BUT LITTLE ACTION

Under provisions of the 1944 Water Treaty with Mexico, the governments of the United States and Mexico agreed to give preferential attention to the solution of all border sanitation problems. The International Boundary and Water Commission[1] (IBWC) was first authorized by the two governments to study pollution of the New River from Mexico.

Studies to correct the New River problem in 1947 and 1948 resulted in the recommendation by IBWC that a joint plant be constructed in the United States to treat the sewage of the cities of Calexico[2] and Mexicali. This proposed project was deferred for further independent studies by the Mexican government to determine the feasibility of constructing a plant in Mexico for treatment of Mexicali sewage only. Following completion of independent studies, it was recommended that a joint plant be constructed on the International Boundary, situated partially in Mexico and partially in the United States, to treat the sewage of both Mexicali and Calexico. It was the opinion of the U.S. IBWC that the cost of wastewater works constructed for treatment of Mexicali sewage along with the costs of operation and maintenance of such works be borne entirely by Mexico.

In 1955, the Government of Mexico suggested the construction of a wastewater treatment plant at a site 2.4 miles south of the International Boundary, and tentatively recommended that Calexico sewage also be treated at the Mexican plant, but that Calexico pay an amount commensurate with its quantity of sewage. Calexico indicated it was unable to participate in a joint plant in Mexico and expressed a preference for separate plants built in each country. In 1956, the Mexican Government announced its intention to construct sewage treatment facilities in Mexico to serve the City of

---

1 The International Boundary Commission (IBC) was created on March 1, 1889 by a Treaty between the United States and Mexico. A 1944 treaty created the International Boundary and Water Commission, which replaced the IBC. The IBWC has primary responsibility for coordinating transboundary water issues and border sanitation projects affecting both the U.S. and Mexico. Both the United States and Mexico have commissioners appointed to IBWC. Within Mexico, IBWC is called "Comision Internacional de Limites y Aguas" (CILA).

2 Calexico is a border city of over 25,000 people (January 1997). The New River courses from the City of Mexicali, Mexico, through the Calexico city limits and onward some 60 miles to its terminus in the Salton Sea.

Mexicali. No final date for completion of construction was given.

On December 13, 1957, the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Board)[1], adopted Resolution No. 57-27 generally requiring cleanup of all California waterways discharging to the Salton Sea.[2] Accordingly, it became increasingly important to press for cleanup of untreated sewage discharged to the New River from Mexicali. Both the United States Embassy in Mexico and the U.S. Section of IBWC increased representations to the Mexican Government for New River cleanup. The Mexican authorities responded with plans for construction of sewage treatment facilities pending availability of funds. Shortly thereafter, some funding was apparently appropriated (at least one occasion), but it had to be diverted for other emergencies.

On November 30, 1961, the Regional Board adopted Resolution No. 61-21 entitled Pollution of Fresh Waters by Raw Sewage from Mexicali, Mexico. This Resolution entreated the U.S. State Department to *"…exercise every power and facility under its jurisdiction to obtain a successful correction of Mexicali's raw sewage disposal, at the earliest possible date, such that this problem of pollution and nuisance from Mexicali is brought to a conclusion."*

Although Mexico recognized its responsibility for treatment of sewage discharges to New River, it was not until late 1961 when assurance was received from the Mexican Ministry of Foreign Relations that funds would be available to begin work on sewage treatment facilities on or about January 1, 1962.

On March 30, 1962, Carlos Rubio Parra, State Director of Public Works for the State of Baja California, announced that Governor Esquivel (Governor of Baja California) would discuss financing a sewage treatment facility for Mexicali.[3] The announcement further stated that sewage pipes were

---

[1] The Regional Board is the California State agency responsible for water pollution control within the Colorado River and Salton Sea watershed of California. The office headquarters were formerly located in Indio, California, but were moved to Palm Desert, California in 1976.

[2] The Salton Sea is a landlocked body of water located below sea level. It is California's largest inland waterbody, and of great importance as a wildlife refuge and recreational attraction.

[3] Mexicali and Tijuana are the largest cities within the State of Baja California in Mexico. Tijuana is also located on the border and also presents a severe water pollution issue for California.

being installed, and that sewage would be pumped to oxidation ponds south of the City and reused for irrigation. The estimated cost of the project was 25 million pesos (then equivalent to $2,000,000 U.S. dollars). The project was scheduled for completion in 1963.

On October 3, 1962, the Regional Board Chair appeared before the California Subcommittee on Bay and Water Pollution of the Assembly Interim Committee on Natural Resources, Planning, and Public Works, and requested assistance in the abatement of pollution by Mexicali. The Chair made the following statement:

> *"For years our Regional Board and other local agencies have urged various United States Federal agencies to do what they can to end the Mexicali discharge of raw sewage and brewery wastes into California. To date, these requests have resulted in only vague promises and no action. It is our understanding that the Mexican Government has now lowered the priority for correction of this discharge. We therefore consider it necessary to bring this problem to your attention."*

On October 22, 1962, a conference was held in El Centro[1] to address establishment of an effective program to obtain correction of raw waste discharges from the City of Mexicali, Mexico. J.F. Friedkin[2], U.S. IBWC Commissioner, was present at the conference and explained the role of IBWC in solving border sanitation problems as follows:

> *"The International Boundary and Water Commission was established to settle border disputes. The Commission is composed of two commissioners, one each from the United States and from Mexico. As more intensified development took place along the border, it also became necessary to settle issues on water and flood control. Thus the word 'water' was included in the Commission title. In the late thirties, sanitation problems became included in the Commission's agenda.*
>
> *"The Commission's work is to receive complaints from the public, to investigate facts concerning the complaints, and to recommend necessary corrective actions to*

1 El Centro is the largest city in California's Imperial County, and is located approximately 10 miles north of Calexico.

2 Joseph F. Friedkin served as U.S. IBWC Commissioner from April 1, 1962 to February 1, 1986.

the respective federal governments. In the case of joint ventures along the border, when agreements are reached between the two governments, the Commission provides cost estimates and other necessary information. When correction requires construction in one country only, the Commission's efforts mainly involve persuasion, urging, and recommendations.

"The Mexican Government has given repeated attention to the problem of providing a sewage treatment plant for Mexicali. They have made engineering plans for the project. Their present such plans are for construction of a sewage treatment plant in Mexicali in 1963. In order to ensure fulfillment of these plans, we must continue to urge them into action. Since Mexico's funds are limited, its policy is to assign first priority to water supply, with sanitation as a second priority.

"The Commission will continue to urge Mexico to move ahead with its plans for construction. However, it is necessary to understand the great problems which face Mexico, none the least of which is the lack of sufficient funds to provide for construction of many necessary projects.

"The Regional Board and the people of the area involved must continue to urge the Department of State, and keep in touch with the Commissioner as to what the Commission can do from the Federal level. It is most necessary to impress upon Mexican authorities the urgent and critical need for this sanitation project and to keep urging the State Department from both local and California State levels.

Figure 1: New River at International Boundary in 1962

"It is necessary to bring to the forefront the tremendous growth of Imperial Valley and Salton Sea with their great recreational values and potentials. Great emphasis should be placed upon the necessity to protect the present beneficial water uses, and to make it possible for development. In this one respect, the Regional Board's Executive Officer's report should be strengthened as much as possible.

"The Board must substantiate the need for urgency of the project. The Commission will submit the report to the State Department, and request that it pursue this item through diplomatic channels. This is the first approach. A second approach is for the Calexico Chamber of Commerce to urge on a local basis.

"The Board and Calexico residents must continue urging the Commissioner, and continue pressuring our government in Washington. Correction of such a sanitation problem is one of the main jobs of the Commissioner."

On November 4, 1962, the following New River pollution problems were cited in a Resolution adopted by the Isaak Walton League of America, Inc.:

- **Bacterial levels over 100,000 times the Imperial County[1] contact standards.**
- **Recorded cases of typhoid fever to children playing in the New River.**
- **Production of foul odors in the Calexico area.**
- **Plainly visible sewage solids.**
- **Impossibility of utilizing the river as a recreational site.**

The Resolution stated that these problems were attributed to the discharge of raw sewage and brewery waste from Mexicali. The Resolution requested the United States Congress to cooperate with allied agencies in the rapid achievement of critically needed emergency relief from pollution originating in the City of Mexicali, Mexico, and in attaining a timely permanent solution to said long-standing international problem.

---

[1] Imperial County, located in the southeastern corner of California, encompasses all of the United States New River flow and about 3/4 of the Salton Sea. The remaining portion of the Salton Sea is within Riverside County, California.

1

THE EARLY YEARS (PRE 1975)

Much Discussion, But Little Action

THE FIRST PUMPING AND TREATMENT FACILITIES

In February 1963, it was learned that the one million pesos ($80,000 U.S. dollars) allotted for construction of the Mexicali sewage treatment facilities had been withdrawn. The Mexico Section of the IBWC attempted to have the funds replaced and still expressed hope that the project could be completed by December 1963. Mexico's engineers for the project stated that their plan included pumping plants, a long outfall line, and a large area for oxidation ponds south of Mexicali. They further stated that the ponds were designed to provide secondary treatment, and the effluent would be used for agricultural purposes and would not be discharged to the New River.

Assembly Joint Resolution No. 27, dated March 12, 1963, which was modified after the November 4, 1962, Isaak Walton League Resolution, was submitted to and passed by the California State Assembly, but was later defeated in the State Senate. The intent of the Resolution was to bring the New River problem to the attention of the Congress and President of the United States.

On August 13, 1964, Mexican officials announced that construction of treatment facilities would begin. The project plans were to pump sewage to a natural ground depression 15 kilometers south of Mexicali for treatment and reuse for irrigation.[1] The project was to be completed within one year. However, by January 1, 1965, a U.S. IBWC engineer estimated that construction of the Mexicali treatment facilities was only 30 percent complete. The scheduled date of completion, which was contingent upon funding, was estimated to be December 1965. But in January 1965, funding was suspended from the project. The Mexican engineers were confident, however, that other funding would soon become available and construction would be completed in 1965.

Figure 2: Construction of Pumping Plant No. 2 underway (Dec 1964)

[1] **This location was scrapped, and shortly thereafter an alternative location west of the city and approximately 8 kilometers southwest from the river's entry into the United States was selected. The treatment plant design called for primary and secondary lagoons. All sewage would have to be pumped to the location.**

THE EARLY YEARS (PRE 1975)

The First Pumping and Treatment Facilities

On February 15, 1965, the Imperial County Board of Supervisors adopted a Resolution requesting that *"…any and all action possible be taken that a sewer treatment plant be constructed for domestic and industrial wastes from the City of Mexicali, Baja California, Mexico…"*

No funding was made available to complete construction of the Mexicali sewage treatment facilities during 1965. Mexican officials expressed hope that funds would be appropriated during 1966 to complete the project. Approximately 7 million pesos ($560,000 U.S. dollars) had been spent on the construction already completed, and it was estimated that about 36 million pesos ($2.9 M U.S. dollars) more would be needed to complete the work. It was estimated that should the funding become available, the construction would require 18 months.

As of June 1966, funding was still unavailable. The Mexican government was aware of the situation and promised to take special steps to ensure prompt completion. The IBWC considered that *"…the prospects for early completion of the Mexicali works are favorable."* **However, essentially no work was done during 1966; the project was estimated to be only 20 to 30 percent complete.**

On January 16, 1967, the Mexican government informed the United States Government that funds for the Mexicali sewage disposal system were included in the 1967 budget. Completion of the project was seemingly assured by at least 1968.

During 1968-69, there was concern expressed about industrial waste and septic tank discharges to the New River from Mexicali. Complaints were also registered of visible foam at the boundary and relatively extreme amounts of methylene blue active substances (detergent) detected in the water. Mention was made of discharges of wastewater from a soap factory[1].

[1] **This soap factory, named La Jabonera Del Pacifico, was located within Mexicali's Anderson-Clayton industrial complex and was closed around 1980.**

As of May 1969, the Mexicali sewage treatment project was about 70 percent complete. Pumping Plant No. 2 was apparently approaching completion, and work on Pumping Plant No. 1 was underway[1]. The Mexican authorities reported that progress was slow due to a shortage of funds, and that much of the available funding was used to replace low quality pipe which had been laid previously. A total of 5,500,000 pesos ($440,000 U.S. dollars) had been allotted for the project and additional funds were proposed for 1970.

On May 5, 1969, Imperial County officials reported the existence of Salmonella B and C bacteria in the New River, *"…which represents a considerable health hazard to the County, and especially to persons utilizing the Salton Sea for water contact sports and even fishing…".* **The salmonella was attributed to vast amounts of disease-carrying sewage dumped into the New River from Mexicali.**

[1] Two major pump stations were to be utilized to convey sewage to the lagoons. Pumping Plant No. 2, located about one mile south from the International Boundary, was designed for conveyance of sewage from the North Collector. Pumping Plant No. 1, located about two miles southwest of Pumping Plant No. 2, was designed for conveyance of sewage from the South Collector and the sewage from Pumping Plant No. 2 (see Figure I-2, page xi for reference).

Figure 3

Figure 4

Figure 5

Figure 6

Figures 3 through 6: Construction of Mexicali's sewage collection and treatment system underway (Jun 1969)

On May 28, 1969, in response to Regional Board staff concerns addressed in April 1968, the U.S. IBWC acknowledged that the following situations pertinent to the New River in Mexico existed:

"1. Foam

Reports of inspections by our engineers in May 1968 and in subsequent months indicated some foam at times of inspection. The new treatment plant is expected to alleviate this problem.

"2. Chemicals

In early 1968, there were some waste chemicals in the New River waters, but our investigation disclosed that these were not due to industrial wastes but to the effluent from geothermal wells, which because of an accident in the ponding dikes, flowed for a short time into New River. This was immediately corrected.

"3. Industrial Wastes

Our investigations in May and June 1968, disclosed that there were some plant wastes, including breweries,[1] discharging to New River. We have protested to Mexican authorities and they advise that the soap and chemical plants have been instructed to dispose of wastes by means other than New River or treat their wastes prior to discharge.

"4. Septic Tank Trucks

We confirmed your report that septic tank trucks were dumping into New River at the Boundary, and in May 1968, protested to the Mexican Commissioner. In July 1968, our Field Engineer confirmed that such operations had been stopped. We learned, however, that there had been some dumping again in October 1968, and we again protested to Mexico. The Mexican authorities then designated dumping

1 One major brewery discharged to New River. It permanently closed around 1970 due to an unresolved labor strike.

areas in Mexico beyond the limits of the drainage to New River for the trucks. Since then, our inspections have reported no dumping."

On June 25, 1969, United States authorities inspected the progress of construction on Mexicali's sewage treatment project and reported that:

- **Pumping Station No. 2 was in the final stages of completion.**
- **Pumping Station No. 1 was in the initial stages of construction (funding was available).**
- **Most of the sewer lines were completed, though it could not be ascertained just how much of the city was actually served by feeder sewer lines to the pond site.**
- **No construction of the oxidation ponds had begun, awaiting a final grant from the Mexican Federal Government.**
- **An outfall line serving the southeast portion of Mexicali was incomplete and awaiting funding from State of Baja California sources.**

The outflow of sewage from the oxidation ponds (estimated to be about 42 cfs) was to be used for irrigation. Mexican officials predicted that the whole system would be operational by mid-1970, pending availability of funds for the oxidation ponds.

On July 6, 1970, United States officials again inspected progress on the Mexicali sewage treatment project and reported that:

- **Considerable progress had been made on Pumping Plant No. 1.**
- **The oxidation ponds were under construction.**
- **Mexican officials indicated that the entire system would be operational by November, 1970.**
- **No further progress had been made on intercepting raw sewage discharges from scattered subdivisions: the Mexican authorities stated that a collection system for these discharges would be dependent upon state rather than federal funding, and that no funds were presently available.**

Figure 7

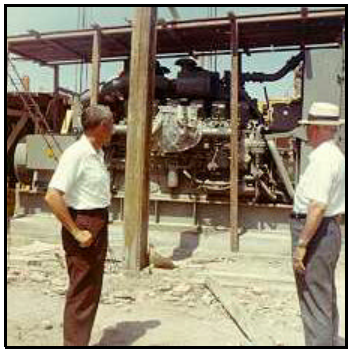


Figure 8

Figure 9

Figure 10

Figure 11

Figures 7 through 11: Pumping Plant/Treatment System Construction (Jul 1970)

In 1972, the State Water Resources Control Board (State Board)[1] requested aid from the United States Environmental Protection Agency (EPA)[2] in ending the Mexicali discharge of raw sewage to the New River. The State Board summarized the current problem as follows:

> *"Mexicali has had stabilization ponds under construction for 20 years. The pond effluent would be used for irrigation purposes. We are informed that the City of Mexicali intends to complete its ponds shortly; however, the pond capacity corresponds to a population equivalent to 100,000 people, the population of Mexicali when construction began 20 years ago. The present population of Mexicali is approximately 300,000 people."*

In July 1972, it was reported that the Mexicali sewage disposal project was complete, thus eliminating an estimated 70 percent of the sewage flow into the New River. Additional collection works were under construction. These works reportedly would eliminate an additional 15 percent of the sewage from Mexicali, and were scheduled for completion by December 31, 1972. This would result in elimination of 85 percent of the sewage. Elimination of the remaining 15 percent would require additional collection lines, which the Mexican authorities advised would be dependent upon funding, but should be completed by December 31, 1973.[3] An estimated $4 million U.S. dollars had been spent by Mexico on the entire project to date.

A binational inspection of the Mexicali sewage treatment facilities was conducted on August 21, 1972, and the following findings were reported:

- **Two sewage pumping stations were in operation.**
- **Two of the six sewage stabilization ponds were full, and a third was being filled.**
- **Construction of additional sewage interceptors was underway and would be operational by January 1, 1973, according to Mexican officials.**

---

1 The State Board is responsible for water pollution control and water rights within the State of California. The State Board oversees water quality control among nine Regional Boards within the State.

2 EPA is the United States federal agency responsible for environmental protection at the national level.

3 These overly optimistic estimates did not materialize, largely because of multitudes of unanticipated problems leading to chronic failure of portions of the sewage collection system.

As of June 1973, the South Collector (one of the two largest sewage collector systems in Mexicali) was still not constructed, although the interceptor collecting sewage from two subdivisions was completed. Work was suspended on the South Collector until suitable pipes[1] could be located. Several interceptors were under construction, which would divert additional sewage flows to the stabilization ponds. All of the above projects were fully financed and upon completion would reportedly result in the elimination of all sewage into the New River from Mexicali sources. Effluent from the ponds was to be used to form a recreational lake for Mexicali.

During October 1974, several requests were made suggesting that President Ford discuss the Mexicali sewage discharge into New River with President Echeverria of Mexico during an upcoming meeting. This suggestion was made in a Regional Board letter dated October 17, 1974, along with the following observation:

> *"During the past few decades, and also presently, the raw sewage from the City of Mexicali is discharged through several outfall pipes directly into New River. Sewage solids are clearly visible in New River, in the Calexico area."*

On April 23, 1975, State Board staff reported the following aerial observations of the Mexicali Valley[2]:

> *"Heretofore the Mexicali Municipal Disposal Plant had been blamed for the pollution in New River. From the air it appears this is an erroneous assumption. Two major sources of pollutants showed up. The first and probably most serious was the garbage and trash disposal area for Mexicali (Mexico).[3] All garbage and trash was being dumped in a large depressed area in the flood plain of the river. A large lake, black in color, existed in the middle of the dump area. A channel connecting the lake and the river had been constructed which permitted the lake to drain as garbage and trash were shoved into the lake.*

---

1 Most of the pipe used during this period was apparently concrete.

2 Around this time, the lagoon noted in the above photograph was apparently the City's principal garbage dump location.

3 This dump, located in the Bella Vista area, closed shortly after July 1975. The closure may have resulted from complaints by the U.S. A new municipal dumpsite was opened further upstream in the New River floodplain, but apparently did not become known to U.S. agencies until 1983.

"The second major source of pollution was a bright red discharge entering the river through a pipe, of unknown origin.[1] Several industrial sites were located within a mile or so of this discharge.

Figure 12: Overview of Mexicali (Jul 1975)

"In addition to these two sources of pollution, it appeared that many smaller and intermittent discharges were coming from homes, yards, and businesses that backed onto the river. Pictures taken on this flight will be prepared for the Regional Board."

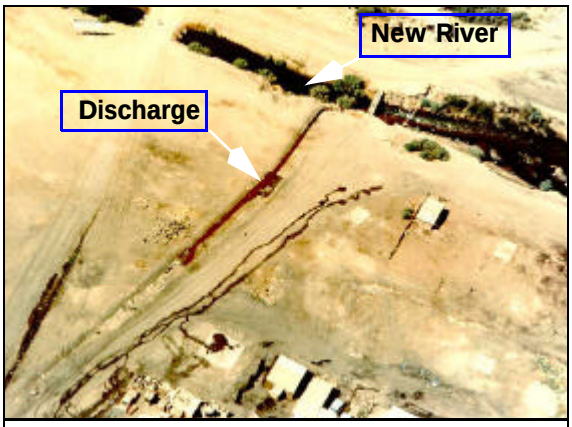


Figure 13: Slaughterhouse discharge into New River (Jul 1975)

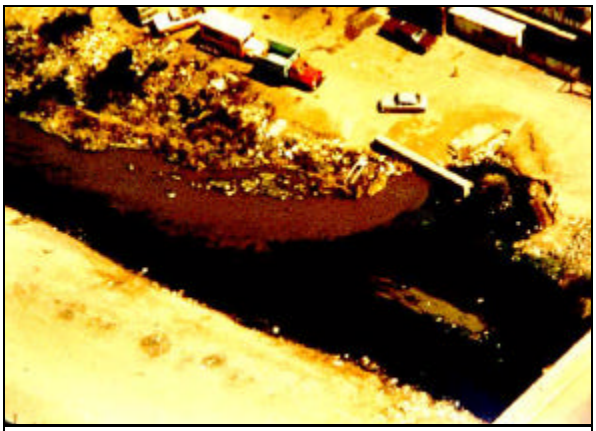


Figure 14: Discharge from Drain 134 into New River (Jul 1975)

[1] **The bright red discharge described was later determined to be a discharge of blood and related wastes from a city slaughterhouse. This slaughterhouse remained in operation until some time around 1993, when it closed.**

On May 30, 1975, California Assembly Joint Resolution 30 was introduced memorializing the President and the Secretary of State to seek an executive agreement with the Mexican government to provide assistance in implementing wastewater treatment in Mexican cities which discharge wastes into international streams. This Resolution was passed by the Assembly on March 15, 1976.

On June 4, 1975, the City of El Centro, California, adopted Resolution No. 75-20 expressing support for the City of Brawley's contention that, until the necessary steps were taken by the City of Mexicali to divert the flow of its untreated or partially treated sewage into the New River, the construction of secondary treatment facilities by the City of Brawley would be a waste of taxpayers' money. Shortly thereafter, the City of Calipatria went on record formally protesting the discharge of pollutants into the New River by the City of Mexicali.[1]

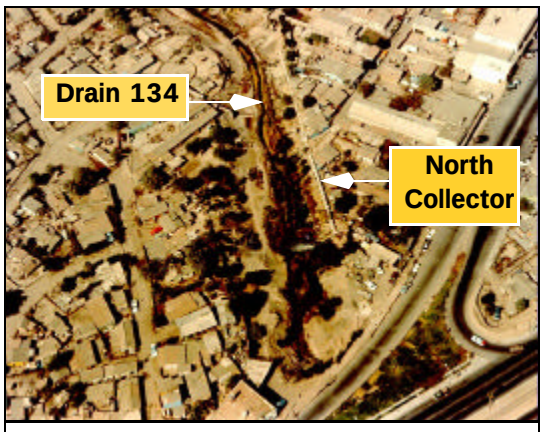


Figure 15: Discharge from North Collector into Drain 134 (Jul 1975)[2]

[1] All of these California cities are located within 40 miles of Mexicali in/near the New River watershed (see map shown in Figure I-1, page x).

[2] Drain 134 is a significant tributary to New River, which courses through the heart of the City. During the 90's, the open drain was replaced with an underground pipeline.

1

THE EARLY YEARS (PRE 1975)

The First Pumping and Treatment Facilities

DOCUMENTING THE PROBLEM (MID/LATE 1970's)

2

WATER QUALITY MONITORING

In 1975, Regional Board staff conducted the first comprehensive 24-hour water quality monitoring of the New River at the border. Prior to this, routine sampling was conducted primarily by the California Department of Water Resources, but focused more on general mineral analyses than measuring pollution in general. The U.S. Geological Survey (USGS) prior to 1975 also conducted sporadic water quality sampling (which included analyses for pesticides/metals)

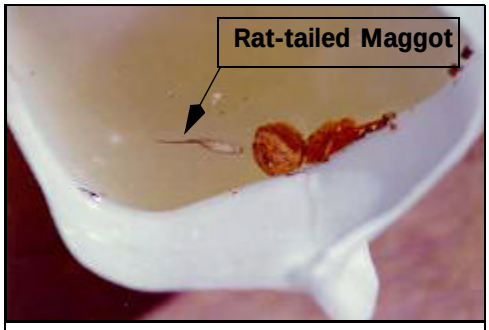


Figure 16: Sample of New River water at International Boundary (1975)

By 1975, it became apparent from analyses of New River water at the International Boundary that Mexicali's sewage collection and treatment facilities had not kept pace with the city's rapidly expanding population, which increased from 130,000 in 1950 to approximately 500,000 in 1975.

Figure 17: Drain 134 (Aug 1975)

On June 12, 1975, the Regional Board adopted Resolution No. 75-39 entitled <u>An International Sanitary and Water Pollution Problem Being Caused by the City of Mexicali, Mexico</u>, which requested that the State Board bring the matter to the attention of the Legislature and Governor of California. It also requested that strong representations be made to the Congress and to the President of the United States to take such actions as necessary to obtain correction of the Mexicali sewage disposal problem into the New River. The Resolution stated that Mexicali's discharge of raw sewage:

> *"1. causes high fecal coliform bacterial counts which averaged 2.3 million fecal coliform colonies per 100 milliliters of New River water sample during the period*

of October 1974 through March 1975, which is a gross unsanitary condition and health hazard to the people of Imperial Valley;

"2. deprives the river water of oxygen content, thereby producing nuisance conditions;

"3. makes sewage solids plainly visible in the river water; and

"4. makes it impossible to plan the development of attractive recreational features along New River."

On June 26, 1975, a binational inspection of the Mexicali sewerage facilities was coordinated by IBWC.[1] It was noted that the South Collector was still under construction and should be completed in about a year. The Mexican officials explained that Mexico was seeking a loan from the World Bank to complete the diversion of all untreated sewage from the New River. Effluent from the stabilization ponds was being discharged into the New River and not being used for irrigation as originally proposed. It was explained to the Mexican officials that under U.S. EPA regulations, United States communities are required to provide secondary treatment of wastewater prior to discharge. Stabilization ponds were considered to provide only primary treatment.[2]

Figure 18: Outhouse over the New River (Aug 1975)[3]

Figure 19: Raw sewage spill from North Collector (Aug 1975)

[1] Before/during 1985, the binational inspections that the Regional Board was invited to participate in were conducted infrequently and rigidly organized as to duration and scope. The focus was entirely on progressive actions, and not on visiting existing or new problem sites.

[2] At present, lagoon treatment is considered acceptable under the Clean Water Act for small communities under specified conditions - biochemical oxygen demand not exceeding 65 mg/l and suspended solids not exceeding 95 mg/l. Effluent meeting these standards may be considered as equivalent to secondary treatment.

[3] Before/during this period, the existence of outhouses was commonplace, although few are presently in use along the river.

On August 13, 1975, the U.S. State Department offered Mexico a loan to cover the cost of constructing an adequate wastewater treatment facility. Mexico did not accept the loan. Two months later, it was learned that the Governor of Baja California received $4,000,000 pesos from the Mexican federal government for completion of the South Collector and to begin construction of another sewage collector. Upon completion of the South Collector, waste discharges from a slaughterhouse would supposedly be picked up.

In a letter dated October 25, 1975, IBWC Commissioner J.F. Friedkin stated that:

> *"It is believed important to emphasize that the problem today and in recent years is not the treatment works, but the collection works in Mexicali which only Mexico can repair."*

A November 3, 1975, letter from the California Governor's Office to the U.S. State Department cited three potential alternative solutions to the Mexicali sewage disposal problem:

> *"1. The United States can construct wastewater treatment facilities in California adjacent to the border to clean up the pollution created in Mexico.*
>
> *"2. The United States can provide funding to the Mexican government for construction of wastewater treatment facilities in Mexico.*
>
> *"3. The United States can share the costs of construction of a joint treatment facility with the Mexican government. The International Boundary and Water Commission may be an appropriate agency to facilitate a joint project."*

In a letter dated November 16, 1975, the United States Section of the IBWC advised that no assurances could be given that Mexico would agree to provide secondary treatment of

Figure 20

Figure 21

Figure 22

Figures 20 through 22: Raw sewage spills into New River (Aug 1975)

discharges into the New River as required by the U.S. Clean Water Act. This letter was sent in response to a Regional Board letter dated October 16, 1975, requesting that water pollution control in Mexicali be commensurate with that of cities in the Imperial Valley discharging to New River.

On February 12, 1976, notification was received from the Mexican government that treatment works for Mexicali were to be built without regard to cost on a priority basis, and that, by July 1976, works would provide for collection and treatment of 90 percent of the city's sewage. Upon completion of these works, efforts would be concentrated on collection and treatment of the other 10 percent of the untreated sewage discharged into the New River.

Figure 23: Discharge from a soap factory caused this discoloration of the New River at International Boundary (Aug 1975)

In a February 13, 1976, letter from the State Board Chair to the U.S. State Department, it was stated that the reason for the slow progress in resolving the Mexicali/New River problem was a lack of high-level attention. It was proposed that either a high-level person be appointed to provide direction to the U.S. Section of IBWC in formulating a program for correction of the problems resulting from Mexicali's wastewater discharge, or that the State Department appoint someone to do so. A target date of June 30, 1976 was proposed in the letter at which time an active program for resolution of the issue should have been determined. The letter further suggested that the two governments begin active negotiations by January 1, 1977, whereby a mutually agreeable solution could be reached by January 1, 1978, and that immediate implementation of this solution be undertaken by the Mexican government. It was also recommended that a state and federal advisory group be organized to evaluate and report the progress made on the problem.

On February 14, 1976, the Secretary of Hydraulic Resources of Mexico, Leandro Rovirosa Wade, and Governor Castellanos of Baja California met with Commissioner Friedkin to discuss the Mexicali sanitation problem. Secretary Rovirosa Wade and Governor Castellanos promised that flows of polluted waters from Mexicali into the New River would end by January 1, 1977. At the meeting, Mexican engineers discussed the upcoming completion of the South Collector and other collection systems, which would provide for the collection and treatment of all sanitary wastes from Mexicali.

In April 1976, an advisory committee from United States public agencies was formed to work with the Department of State and IBWC to resolve the sanitation problems at Mexicali and Tijuana. Designated members of the committee were:

- **W. Don Maughan, Vice-Chair, State Water Resources Control Board,**
- **Leonard Burtman, Executive Officer, San Diego Regional Board,**
- **Arthur Swajian, Executive Officer, Colorado River Basin Regional Board, and**
- **Clyde Eller, Chief Surveillance and Analysis Division, Environmental Protection Agency, Region IX.**

Commissioner Friedkin chaired the group. The first meeting was held on April 20, 1976, in Calexico with all members present. Mexican officials were also present at the meeting. Commissioner Friedkin stated that he viewed *"the committee as providing a useful means by which the U.S. Section of the Commission can keep the authorities from the State of California informed as to the efforts being made to solve the problem, and the federal government can receive the input of the California authorities to solve the problem."* **Commissioner Friedkin brought the advisory group members up-to-date on the Mexicali sewage situation. He stated that the most urgently needed project was to divert untreated sewage flows, which were discharged into the New River, to oxidation ponds. He mentioned that this was the last year for the present administration in Mexico, and suggested that urging Mexico to complete the work promised be continued. Mexican officials at the meeting stated that all untreated sewage flows originating in Mexicali would be stopped from crossing the International Boundary into the United States by the end of 1976. On the subject of industrial waste discharges, Commissioner Friedkin stated that this problem, if it continued to exist, be approached with the next Mexican administration. The committee was informed that sampling and analyses of waters of the New River near the Boundary was being augmented by the U.S. Section of IBWC, which was collecting two samples each month for analyses of coliform content and total dissolved solids. One sample per month was to be collected and split, one-half being given to the Mexican Section for analysis. A tour[1] of progress to date in Mexicali then followed. The following field observations were noted:**

- **All pumping plants were operational.**
- **Progress was observed on the construction of all collection lines.**
- **The South Collector line had been completed since March 30, 1976, though construction of its subcollector was still underway.**

---

1 **These tours were organized well in advance and tended to de-emphasize problem areas.**

- **The oxidation ponds were in full operation.**
- **Effluent from the ponds was being discharged to a channel which flowed by gravity to the Wisteria Pumping Plant, where it was lifted into another channel, which conveyed it to the New River.[1]**

After the field tour, the group reconvened in Calexico. Commissioner Friedkin proposed that a monthly report by the U.S. Section of IBWC be sent to the committee after each joint monthly visit to the project by IBWC engineers of the United States and Mexican Section. The report would describe the progress of the project and results of samples taken at the oxidation ponds at the International Boundary. The need for establishing water quality standards for all streams crossing the International Boundary was expressed. Commissioner Friedkin reported that the Commission was considering an agreement between the two governments on the quality of streams crossing the International Boundary. The need for a long-range solution to the problem was also discussed. Further, reuse of the pond effluent in Mexico, as originally proposed by Mexican authorities, was suggested. Commissioner Friedkin stated that, from his talks with Mexican officials, the reasons why the pond effluent was not being reused was a lack of funding and acceptance by local farmers.

[1] The Wisteria Pumping Plant was used to convey Mexicali's effluent to the New River until 1978 when its use was discontinued and the effluent was channeled into the river by gravity flow.

Figure 24

Figure 25

Figure 26

Figure 27

Figures 24 through 27: During this period, there were considerable discharges of raw sewage from residential development, such as this, located within the New River floodplain. Although some of this development in the floodplain still exists, most has now been eliminated (Aug 1975).

Figure 28

Figure 29

Figure 30

Figure 31

Figures 28 through 31: Discharges of garbage and sewage into Drain 134. The Drain is now piped through this area (Aug 1975).

Figure 32

Figure 33

Figure 34

Figure 35

Figures 32 through 35: The Mexicali municipal dump. Garbage was dumped into this lagoon, which drained into the New River (Aug 1975)

DOCUMENTING THE PROBLEM (MID/LATE 1970'S)

Water Quality Monitoring

REGIONAL BOARD MONITORING PROGRAM

In 1976, Regional Board staff began regular monitoring of the water quality of the New River at the International Boundary, along with documenting visual observations. This monitoring and observation has continued to the present, although the frequency has varied from weekly to quarterly, and has ranged from grab sampling to 24-hour sampling/observation. The objectives of the monitoring/observation were considered to be (and presently remain) the following:

- **Determining the extent of pollution and keeping Mexico accountable for it.**
- **Informing United States federal agencies of specific contaminants requiring control measures.**
- **Gauging the progress of corrective actions/projects in Mexico.**
- **Determining compliance with water quality standards and treaty agreements.**
- **Determining the presence of new pollutants.**
- **Assisting in determining necessary corrective actions.**
- **Demonstrating to Mexico that the United States is greatly concerned about the conditions of the river.**
- **Assessing the public health hazard so that appropriate warnings are issued.**

Figure 36: New River emptying into Salton Sea (Aug 1977)

On June 15, 1976, the Imperial Irrigation District Board of Directors[1] adopted Resolution No. 37-76 which requested "*the assistance of all recipients of this Resolution in encouraging the Country of Mexico to consider diverting into the Laguna Salada[2] area of Baja California a major*

1 Imperial Irrigation District is the water agency serving the Imperial Valley with conveyance of irrigation water from the Colorado River and also from drainage.

2 The Laguna Salada is an extensive landlocked basin which is normally dry. Its nearest point is located approximately 10 miles southwest of Mexicali and is entirely within Mexico, as shown by Figure I-1, on page x.

portion of those waters of New River which originate in Mexico and to also consider any other water conservation measures which could lower the level of Salton Sea."

On August 1, 1976, a progress report prepared by U.S. IBWC on construction of wastewater collection systems in Mexicali included the following observations:

- **Additional pipe had been laid on the South Collector.**
- **A 24-inch sewer line from the Pemex plant and the Molinero Del Valle (milling operation) were connected to the sub-South Collector.**
- **A collection system, including a pumping plant, was under construction for a slaughterhouse discharge.**
- **Pumping Plants No. 1 and 2 were in full operating condition.**
- **It was reported that barring unforeseen developments, it appeared certain all principal sources of raw sewage into New River, Mexicali, will have been stopped by December 1976, or before.**

During the six-month period from October 1976 to April 1977, Regional Board staff reported the following conditions in the New River at the International Boundary:

- **Plainly visible sewage solids.**
- **Dead animals (including dogs, cats, and poultry).**
- **Considerable refuse (including tires, bottles and vegetable wastes).**
- **Oil[1] (290 mg/l reported by the Regional Board lab from an April 6, 1977 sample).**
- **Slug flow of white/gray discharge, including at times particulate matter and/or globules**

Figure 37: Soap factory (Apr 1978)

1 **The source of this oil remains unknown.**

on surface[1] (observed on 17 occasions from October 1976, with a maximum reported BOD of 960 mg/l).

- **Slug flow of gold-colored, yellow discharge (observed on March 9, 1977).**

On January 14, 1977, a joint inspection by United States and Mexico representatives in Mexicali revealed that the collection system had been extended, and the necessary connections had been made to stop the discharge of sewage from a number of outfalls to the New River. However, a serious break occurred in a section of a main collector, and raw sewage was being diverted to the New River. The Mexican Commissioner stated that repairs would require about four months.

On May 9, 1977, the Regional Board attempted to make arrangements for an investigative inspection of the New River pollution problem in Mexicali. However, Bill Ericson of the IBWC office in Yuma[2] explained that Mexicali officials prefer that inspections be made by IBWC personnel only, and therefore Regional Board staff were not granted permission to cross the border. However, Mr. Ericson told the Regional Board that he would make an inspection and report his findings to the Board.

An article in the May 19, 1977, Imperial Valley Press stated that:

"Recent measurements of water quality in the New River at the International Boundary have shown the water is one-third to one-half as foul as the liquid found in a raw sewage pipe, with bacterial count of 35,000 times higher than that allowed by the United States Environmental Protection Agency."

On June 15, 1977, the Regional Board requested that the IBWC participate in the U.S. Clean Water Act Section 208 (non-point source pollution) studies as the agency responsible for developing a management plan to control pollution of the New and Alamo Rivers from flows originating in Mexico. Commissioner Friedkin stated that the best management plan was already under consideration by IBWC and would consist of a formal agreement with Mexico to control the quality of waters, including the New and Alamo Rivers, which cross the International Boundary. Commissioner Friedkin further stated that the plan would have to be supplemented by monitoring and follow-up procedures.

---

[1] The source of the white/gray discharge was most likely a previously mentioned soap factory, shown in Figure 37. These slug flows usually lasted about 30 minutes.

[2] IBWC maintains a field office in Yuma, Arizona, which is its closest IBWC office to the New River. CILA maintains a field office in Mexicali.

On August 10, 1977, U.S. IBWC reported the following observations of the treatment facilities in Mexicali:

- **Pumping Plant No. 2 was in full operation.**
- **Raw sewage from two small collectors was discharging to New River due to overloading of the two temporary pumps at the site (new pumps were to be installed, though no definite date was given).**
- **The slaughterhouse and railroad yard discharges were flowing untreated to New River due to problems with the pumps.**

On August 17, 1977, a storm apparently did considerable damage to the Mexicali sewage treatment system.[1] It was reported by U.S. IBWC that:

- **Raw sewage from the entire northeast area of Mexicali was discharged from the wasteway of the North Collector into New River.**
- **Problems were occurring at Pumping Plant No. 2, which apparently lessened the pumps' capability to pump sewage to the stabilization ponds.**
- **Pumps at two small collectors were inoperable with raw sewage discharged to New River.**
- **The slaughterhouse and railroad yard discharges continued to be discharged untreated to the New River.**

No dates were suggested as to when the above discrepancies would be corrected.

Following the August 17, 1977, storm damage, the United States government offered Mexico technical and financial assistance in correcting the problems with the Mexicali sewage disposal system. The Mexican government rejected any technical or financial assistance from the United States stating that the technical assistance was neither desired nor needed, and that all construction would be funded by Mexico. The United States Department of State intended to continue calling attention to the Mexican government of the discharge of untreated sewage from Mexicali to the United States.

An October 4, 1977 progress report from U.S. IBWC stated that new pumps had been installed, eliminating the discharge of sewage from several small outfalls into the New River. It also stated that a slaughterhouse and surrounding housing area sharing the same sewer collector were

1 **Tropical storm Doreen.**

continuing to discharge untreated wastes into New River, while awaiting installation of a grinder for the slaughterhouse wastes.

On October 26, 1977, the State Board advised the Governor's Office of steps that might be taken to alleviate the problems in Mexicali. The State Board recommended that the Mexican government be offered technical assistance and possibly federal grants for continuing efforts. Also recommended was support of negotiation through the IBWC for specific agreements to establish water quality standards for the New River at the International Boundary. The two most serious problems to be addressed were said to be breakdowns in the sewer system and direct discharge of untreated industrial wastes.

Figure 38: Overview of Mexicali's sewage treatment lagoons (Apr 1978)

On November 9, 1977, Regional Board staff and the U.S. IBWC met at the International Boundary and agreed from joint observation that sewage solids and industrial wastewaters were present in the New River at that time.[1]

Figure 39: Discharge of industrial wastewater to Drain 134 (May 1978)

A Regional Board staff report for April/May, 1978, contained the following:

> *"Raw sewage continues to be discharged to the New River from Mexicali. Quantities of sewage solids observed have varied considerably from hour to hour, indicating that although most of the sewage flows may be connected to the City's collection system, periodic overloading occurs resulting in increased discharge of raw sewage to the river.*
>
> *"Industrial wastes continue to be discharged to the river as evidenced by changes in water*

[1] **Prior to this observation, there had been considerable difference of opinion between the Regional Board staff and IBWC staff as to the extent of the pollution problem at the International Boundary based on visual observations. IBWC staff maintained that the pollution was much less than Regional Board staff was reporting.**

color and field/laboratory analyses.[1] *A slug flow of dark gray/brown water was observed on three occasions on May 17, 1978 and once on May 25, 1978. Dissolved oxygen content decreased during the duration of these slug flows. Other industrial type discharges noted include yellow/gray sludge and discharges of petroleum products.*

"Solid wastes continue to be discharged to the river including tires, dead animals, and vegetable wastes.

"Dissolved oxygen content of the New River downstream from the International Boundary continues to be depressed and resulted in anaerobic conditions in a five to six mile stretch downstream from the International Boundary on May 10, 1978. These conditions indicate that inadequately treated wastes from Mexico continue to be discharged to the river."

In June 1978, sewage treatment facilities in Mexicali were almost totally incapacitated, and roughly 70 percent of the city's sewage flowed into California without any treatment. It was learned that the two major pumping plants and standby pumps failed.

A July 3, 1978, letter from California Governor Jerry Brown to U.S. Secretary of State Cyrus Vance stated that:

"In the last few days the sewage treatment facilities in the City of Mexicali, Mexico, have again broken down and roughly 70 percent of the city's sewage is flowing into California entirely without treatment. This most recent development underscores the fact that efforts over the last two years to find means to abate water pollution at the International Border have failed to achieve a solution.

"Both federal and state officials working on the problem have suggested that the surest and promptest way to stop the discharge of raw sewage from Mexicali into the United States would be to offer Mexico either a long-term, low-interest loan or a grant. I urge that you consider seriously making such financing available and that, in any event, you take all steps necessary to eliminate promptly this major threat to public health."

Another letter, dated July 5, 1978, from Senator Alan Cranston to Secretary of State Cyrus Vance carried a similar message with a request to halt the most recent discharge of untreated waste and to develop a detailed proposal for a long-term solution to the problem.

---

1 The discharge of industrial wastewater into Drain 134, shown in Figure 39, reportedly had a pH of 9.5 and chemical oxygen demand of 2,600 mg/l.

Several weeks later, a reply to Governor Brown's and Senator Cranston's letters from the U.S. Department of State acknowledged that polluted water from Mexico was entering the United States via the New River. It was stated that the Mexican government had rejected previous loan offers from the United States, so funding in Mexico was apparently adequate to complete the job. The U.S. Department of State stated the actual problem as follows:

> *"Mexican officials have concluded that part of the problem has been the diffusion of responsibility among state, local and federal agencies. They have again promised to resolve it, and state they will concentrate responsibility in a single federal agency. We are hopeful that the results will soon be apparent."*

The letter of reply from the State Department further explained that long-range plans were being developed to cope with the situation as follows:

> *"Commissioner Friedkin, U.S. International Boundary and Water Commission, in 1976 proposed to his Mexican colleagues consideration of a general agreement to be concluded under the 1944 Water Treaty to implement the provision in that treaty committing the two governments to give preferential attention to the solution of all border sanitation problems. The Mexican Commissioner concurred. Since then, Commissioner Friedkin, with the assistance of a technical board, has drafted such an agreement and has discussed it with representatives of the four States sharing the border with Mexico, including California, as well as with other federal agencies. After some revision of the draft agreement, he is meeting again with representatives of those States and U.S. EPA on July 28. If, as expected, the State representatives approve the draft, the Department will undoubtedly propose it to the Mexican government.*
>
> *"This proposed agreement could offer three significant advantages. It would set objectives in specific terms, assign to the International Commission [1] a direct and continuing responsibility for making recommendations, and where necessary, supervising the construction and operation of a joint project, engaging the Mexican government (rather than local authorities) directly in day-to-day planning and operations. Judging from experience in the handling of other border problems through the Commission, we believe that such an agreement, if it can be concluded, would assist greatly in achieving the solution of border sanitation problems envisioned in the Water Treaty."*

---

1 **Refers to International Boundary and Water Commission.**

DOCUMENTING THE PROBLEM (MID/LATE 1970'S)

Regional Board Monitoring Program

NEW RIVER POSTING

In a July 5, 1978, letter, Kirkham W. Campbell of the California State Department of Health Services recommended that, due to the presence of raw sewage, the New River should be posted as a public health hazard. On November 13, 1978, the first of 50 signs was posted along the New River near Calexico warning the public to stay away from the contaminated water. A press conference in Calexico followed. At the press conference, a USGS hydrologist, who had tested the New River water for the past four years, stated that the pollution was the worst he had ever witnessed, and his monthly reports on the river's condition had been met with disbelief and shock by his colleagues. A spokesman for the State Board called the New River "*the most visual manifestation of pollution in California.***" The Imperial County Health Director termed the river "***an open sewer***". During the conference, tires, garbage, and human feces were observed floating on the surface of the river.**

On November 14, 1978, all pumps in the Mexicali sewage system were back in operation, and reportedly, about 95 percent of the sewage influent was being diverted to the oxidation ponds. Several weeks later, a levee that contained the effluent channel broke, and raw sewage was again discharged into the New River through emergency standby facilities. Repairs were reportedly in progress.

In a letter dated November 22, 1978, Dr. Lee Cottrell, Imperial County Health Officer, stated that mosquitoes in the New River area were checked and found to harbor an encephalitis virus considered to be infectious to humans. Dr. Cottrell also reported that a child was hospitalized following contact with New River water. The illness was diagnosed as shigella, a bacterium that had previously been isolated from the New River. Dr. Cottrell warned of the possibility of epidemics of typhoid, salmonella, or dysentery for as long as the New River remained contaminated. Several alternatives were listed in the letter to abate the New River health hazard as follows:

> *"Get Mexicali to repair present sewage treatment facilities, and guarantee their constant function in the future. Minimal standards should be the Clean Water Act of 1977.*
>
> *"Have the United States Government build and maintain a treatment plant on the U.S. side of the International Boundary. This is not a situation to be taken lightly, as the water is 100 percent reclaimable and could be used for recreational facilities, including fishing and swimming, and could be used as a source of household water in the future if this is necessary. It's (the river) flow to the Salton Sea would also assist in the desalting of that body of water.*

"Directing the flow of the New River back to Mexico for treatment and use as they see fit."

In correspondence dated December 4, 1978, the Regional Board Chairman alerted the State Board to serious ongoing problems with Mexicali's sewage and industrial waste discharges, and urged the State Board to continue pressing the State Department for corrective action. Some excerpts from the correspondence follow:

"During the past several years, the Regional Board has made the following observations of conditions of pollution and contamination in the New River at the International Boundary which indicate the discharge of considerable quantities of untreated industrial wastes, in addition to untreated sewage, from the City of Mexicali, in Mexico:

"1. Slug flows of white/gray discharge observed on 39 occasions;

"2. Surface oil observed on 22 occasions;

"3. Floating white particulate matter observed on 20 occasions;

"4. Floating yellow sludge observed on 10 occasions (since August 1978);

"5. Gray sludge observed on eight occasions;

"6. Tar-like globules observed on six occasions;

"7. Slug flows of dark gray water observed on four occasions;

Figure 40: Slug from soap factory (Aug 1975)

"8. Slug flows of red/brown discharge observed on three occasions;

"9. Slug flows of turbid (silt colored) discharge observed on two occasions; and

"10. Slug flow of gold-colored discharge observed on one occasion.

"These conditions are generally associated with a substantial increase in COD, BOD, suspended and settleable solids, and turbidity of the river water. The dissolved oxygen content is usually depressed and the pH is variable.

"Under these circumstances, we believe that some industries in Mexicali are discharging industrial wastes directly to the New River, and apparently with little or no treatment. It does not seem unreasonable to request the Mexican authorities to determine which industries are conducting these discharges, along with investigation of the quantities and pertinent quality characteristics of the wastes and the degree of waste treatment, if any. In view of the resulting heavy pollutant load upon the New River, we request elimination of these discharges; and we also request controls by Mexico to assure that future similar conditions will not result in the Alamo River.

"We also note that Mexicali's sewerage system does not include standby facilities in the event of power outage or other pumping plant failures. Their present fail-safe procedure is to divert the sewerage flow to New River. This means that large-scale discharges of untreated sewage and industrial wastes can recur at any time that major trouble develops in the city's wastewater pumping system. We request that this be corrected."

On December 13, 1978, the Regional Board held a special meeting to hear presentations concerning the status of the pollution and contamination in the New River from wastes discharged from Mexicali, and to review possible alternative procedures for obtaining corrections. Commissioner Friedkin and an EPA representative also attended the meeting. Regional Board staff reported the following:

"Regional Board data collected to date indicates the following conditions in the New River at the International Boundary:

"1. Presence of raw sewage as evidenced by coliform counts in the millions [MPN/100 ml], BOD averaging about 40 mg/l, COD averaging about 130 mg/l; and visual observations of sewage solids, toilet paper, and other materials of sanitary sewage origin.

"2. Presence of industrial wastes, as evidenced by BOD levels up to 960 mg/l of river water; COD levels to 1,204 mg/l; abrupt changes in turbidity, settleable and suspended solids, and pH; plus visual observations of oil, sludge, particulate matter, and changes in water color.

"3. Depressed dissolved oxygen content during most of the year with anaerobic conditions generally present during the summer.

"The above-described conditions are consistently apparent since the sampling program began a few years ago. The data and visual observations indicate that the

quantity of raw sewage in the river has been somewhat variable during this period, probably corresponding with improvements or breakdowns in the Mexicali wastewater treatment facilities. Slug flows of suspected industrial waste discharges have been observed frequently during the past two years. During the last three months these discharges have particularly been in evidence, and seem to indicate increased industrial activity in Mexicali."

At the meeting, Commissioner Friedkin outlined some of the circumstances which made the problem difficult to correct:

"1. Mexico is a sovereign nation. The only reasonable means we have of getting Mexico to do what we feel they should do is by urging, by persuasion, and by negotiation.

"2. The Mexican government does not have the financial ability to provide public works, such as we have in the United States. Mexico is now and has been for several years undergoing severe economic crises.

"3. Mexico is a proud nation. For many years, Mexico has not accepted any outright grants. The United States has offered financial assistance on this problem, but Mexico has declined.

"4. All land in the vicinity of Mexicali drains to New River. The flow path is northward across the border, through the Imperial Valley, to the Salton Sea.

"5. The City of Mexicali has had a very fast rate of growth in population during the past 20 years."

Commissioner Friedkin also said that the Department of State and IBWC had sent letters to corresponding authorities in Mexico urging correction of the problem for the past two years. He explained that he had been meeting with Mexican representatives and engineers to consider corrective works needed and time schedules. Mr. Friedkin listed the following alternatives for a permanent solution of the problem:

- **Transport of New River water in Mexico to Laguna Salada.**
- **Treatment of New River on the United States side of the Boundary.**
- **Reuse of New River water within Mexico.**

During the meeting, Mr. Friedkin was asked if an alternative course would be to bring the problem before an international tribunal to investigate the possibility of a violation of international law.

Commissioner Friedkin said this would be an alternative, but it would be preferable to resolve the problem through negotiation as international settlements can involve extremely long delays and other drawbacks.

A Regional Board member mentioned the possibility of a suit against the United States government for not filing suit in International Court against Mexico. The Regional Board decided that at its next meeting, it would consider the possibility of forwarding a Resolution to the State Board suggesting such action. W. Don Maughan, State Board Vice-Chairman stated during the meeting that one of the most effective steps in solving the problem would be a signed agreement with Mexico. The agreement would determine what quality of water should cross the Boundary and establish a time schedule to meet that quality. The time schedule would include additional time for pump repairs and other potential problems. Additionally, he said the problem should be brought to the attention of Congress and the President of the United States. Several persons at the meeting questioned the credibility of Mexican authorities handling the problem.

A December 18, 1978, article in Time Magazine concerning the New River stated that *"when it crosses into the United States from Mexico at the town of Calexico, it is so loaded with filth, ranging from parts of animal carcasses to human feces, that even hard-nosed health officials are sickened by the sight and odor."* **The editorial board of Time Magazine reportedly classified the New River as the most polluted river in the United States.**

A January 5, 1979, letter from the State Board was sent to a number of Senators, Congressmen, Assemblymen, and government officials urging a major diplomatic effort to clean up the New River including "*a personal discussion between the Presidents of the two Countries during their February meeting, stronger pressure from the United States State Department, and more vigorous efforts from the International Boundary and Water Commission."*

Assembly Joint Resolution No. 6, dated January 8, 1979, as authored by California Assemblyman David Kelley, memorialized "*the President of the United States to discuss the subject of the pollution of New River personally with President Portillo of Mexico during their meeting to be held in February 1979, and urge the appropriate agencies and officials of the United States and the Government of Mexico to cooperate fully to improve New River water quality***." The Resolution was passed by the Assembly 70-4 and shortly afterward by the State Senate. It was then given a formal Resolution number by the California Secretary of State and forwarded to President Carter and other federal officials. The Resolution contained the following:**

> *"The New River which flows across the border between California and Mexico through Calexico and several other Imperial Valley communities enroute to the Salton Sea is contaminated with raw and partially treated sewage and industrial wastes*

entering at Mexicali, Mexico, the Capitol of Baja California Norte.The burgeoning population of Mexicali, economic hardship, mechanical malfunction, earthquake damage, and tropical storms have combined to complicate the efforts of the Mexican government to adequately treat such pollutants with the result that state and county public health officials in California are seriously concerned about the threat of disease posed by the contaminated water…. Governor Roberto de la Madrid of Baja California has given assurances that necessary repairs to Mexicali's sewage pumping station will be carried out as a high priority project; and the City of Mexicali is planning to build additional oxidation ponds, but, even at full operation, the city's sewage treatment system is inadequate and dated, many residences and businesses are not hooked up to the system, and industrial polluters continue to dump wastes into the river…The problem of New River pollution has plagued California the past quarter century and can be expected to remain as a serious health hazard in view of the fact that Mexicali's population is expected to double in the next decade…Although there have been long-standing and earnest efforts by federal, state, and local officials and the Mexican government to deal with the contamination of New River, and such efforts must continue, the problem has reached such proportions that it should be the subject of discussions at the highest levels of government."

In a January 10, 1979, letter to President Carter from Senators Cranston, Deconcini, Goldwater, and Hayakawa; and Congressmen Burgener and Udall; the President was asked to discuss border sanitation problems, including the New River problem, with President Lopez Portillo of Mexico. The letter stated that "*in spite of individual efforts we have made to persuade the Mexican government to deal with these conditions, little headway has been made".*

WATER QUALITY STANDARDS (LATE 1970'S, MID-1980'S)

3

ARGUING FOR THE STANDARDS

In a January 11, 1979 memorandum, William Attwater, Chief Counsel of the State Board, advised Regional Board members that:

"At your Board meeting of December 13, 1978, you requested a legal review of the possibility of a lawsuit against the United States for failure to abate the pollution of the New River and Alamo River as a result of discharges of waste in Mexico. While the United States has not been effective in solving this pollution problem, I believe that litigation by the State against the United States would be ineffective, time-consuming and expensive. Therefore, I would recommend that such litigation not be requested."

A January 15, 1979, letter from the Regional Board Chairman requested that the New River pollution problem be made a part of President Carter's agenda for the upcoming meeting with President Portillo of Mexico, and that a suggested topic of the meeting "*would be a treatment agreement with Mexico on the quality of water that should come across the Border, and a time schedule to meet that quality, including time schedules for corrections in the event of breakdown."* **The letter was sent to Senators Cranston, Hayakawa, and Craven; Congressman Burgener, Assemblyman Kelley, Secretary of State Vance, and President Carter. Some excerpts from the letter follow:**

Figure 41: Raw sewage bypass from North Collector to Drain 134 (May 1978)

"Although Mexico has installed pump stations and stabilization ponds to provide an intermediate level of sewage treatment (when these facilities are operating) prior to the discharge to New River, there are no standby facilities in the event of power

WATER QUALITY STANDARDS (LATE 1970'S, MID-1980'S)

3

ARGUING FOR THE STANDARDS

In a January 11, 1979 memorandum, William Attwater, Chief Counsel of the State Board, advised Regional Board members that:

"At your Board meeting of December 13, 1978, you requested a legal review of the possibility of a lawsuit against the United States for failure to abate the pollution of the New River and Alamo River as a result of discharges of waste in Mexico. While the United States has not been effective in solving this pollution problem, I believe that litigation by the State against the United States would be ineffective, time-consuming and expensive. Therefore, I would recommend that such litigation not be requested."

A January 15, 1979, letter from the Regional Board Chairman requested that the New River pollution problem be made a part of President Carter's agenda for the upcoming meeting with President Portillo of Mexico, and that a suggested topic of the meeting "*would be a treatment agreement with Mexico on the quality of water that should come across the Border, and a time schedule to meet that quality, including time schedules for corrections in the event of breakdown."* **The letter was sent to Senators Cranston, Hayakawa, and Craven; Congressman Burgener, Assemblyman Kelley, Secretary of State Vance, and President Carter. Some excerpts from the letter follow:**

Figure 41: Raw sewage bypass from North Collector to Drain 134 (May 1978)

"Although Mexico has installed pump stations and stabilization ponds to provide an intermediate level of sewage treatment (when these facilities are operating) prior to the discharge to New River, there are no standby facilities in the event of power

WATER QUALITY STANDARDS (LATE 1970'S, MID-1980'S)

3

ARGUING FOR THE STANDARDS

In a January 11, 1979 memorandum, William Attwater, Chief Counsel of the State Board, advised Regional Board members that:

"At your Board meeting of December 13, 1978, you requested a legal review of the possibility of a lawsuit against the United States for failure to abate the pollution of the New River and Alamo River as a result of discharges of waste in Mexico. While the United States has not been effective in solving this pollution problem, I believe that litigation by the State against the United States would be ineffective, time-consuming and expensive. Therefore, I would recommend that such litigation not be requested."

A January 15, 1979, letter from the Regional Board Chairman requested that the New River pollution problem be made a part of President Carter's agenda for the upcoming meeting with President Portillo of Mexico, and that a suggested topic of the meeting "*would be a treatment agreement with Mexico on the quality of water that should come across the Border, and a time schedule to meet that quality, including time schedules for corrections in the event of breakdown."* **The letter was sent to Senators Cranston, Hayakawa, and Craven; Congressman Burgener, Assemblyman Kelley, Secretary of State Vance, and President Carter. Some excerpts from the letter follow:**

Figure 41: Raw sewage bypass from North Collector to Drain 134 (May 1978)

"Although Mexico has installed pump stations and stabilization ponds to provide an intermediate level of sewage treatment (when these facilities are operating) prior to the discharge to New River, there are no standby facilities in the event of power

WATER QUALITY STANDARDS (LATE 1970'S, MID-1980'S)

3

ARGUING FOR THE STANDARDS

In a January 11, 1979 memorandum, William Attwater, Chief Counsel of the State Board, advised Regional Board members that:

"At your Board meeting of December 13, 1978, you requested a legal review of the possibility of a lawsuit against the United States for failure to abate the pollution of the New River and Alamo River as a result of discharges of waste in Mexico. While the United States has not been effective in solving this pollution problem, I believe that litigation by the State against the United States would be ineffective, time-consuming and expensive. Therefore, I would recommend that such litigation not be requested."

A January 15, 1979, letter from the Regional Board Chairman requested that the New River pollution problem be made a part of President Carter's agenda for the upcoming meeting with President Portillo of Mexico, and that a suggested topic of the meeting "*would be a treatment agreement with Mexico on the quality of water that should come across the Border, and a time schedule to meet that quality, including time schedules for corrections in the event of breakdown."* **The letter was sent to Senators Cranston, Hayakawa, and Craven; Congressman Burgener, Assemblyman Kelley, Secretary of State Vance, and President Carter. Some excerpts from the letter follow:**

Figure 41: Raw sewage bypass from North Collector to Drain 134 (May 1978)

"Although Mexico has installed pump stations and stabilization ponds to provide an intermediate level of sewage treatment (when these facilities are operating) prior to the discharge to New River, there are no standby facilities in the event of power

WATER QUALITY STANDARDS (LATE 1970'S, MID-1980'S)

3

ARGUING FOR THE STANDARDS

In a January 11, 1979 memorandum, William Attwater, Chief Counsel of the State Board, advised Regional Board members that:

"At your Board meeting of December 13, 1978, you requested a legal review of the possibility of a lawsuit against the United States for failure to abate the pollution of the New River and Alamo River as a result of discharges of waste in Mexico. While the United States has not been effective in solving this pollution problem, I believe that litigation by the State against the United States would be ineffective, time-consuming and expensive. Therefore, I would recommend that such litigation not be requested."

A January 15, 1979, letter from the Regional Board Chairman requested that the New River pollution problem be made a part of President Carter's agenda for the upcoming meeting with President Portillo of Mexico, and that a suggested topic of the meeting "*would be a treatment agreement with Mexico on the quality of water that should come across the Border, and a time schedule to meet that quality, including time schedules for corrections in the event of breakdown."* **The letter was sent to Senators Cranston, Hayakawa, and Craven; Congressman Burgener, Assemblyman Kelley, Secretary of State Vance, and President Carter. Some excerpts from the letter follow:**

Figure 41: Raw sewage bypass from North Collector to Drain 134 (May 1978)

"Although Mexico has installed pump stations and stabilization ponds to provide an intermediate level of sewage treatment (when these facilities are operating) prior to the discharge to New River, there are no standby facilities in the event of power

4

CHANGING OF THE GUARD (MID 1980'S)

AN UNANNOUNCED VISIT

A January 13, 1983, letter from the Regional Board Chair alerted Senator Pete Wilson about the severe New River pollution and made the following request:

Figure 50: Conasupo, a vegetable oil processing plant (Nov 1982)

"Our Regional Board would certainly appreciate whatever assistance you can provide to clean up this gross sanitation problem in New River. It would seem very opportune if, on his next meeting with President de la Madrid of Mexico, President Reagan could perhaps impress upon the President of Mexico the need for concerted action to clean up this gross pollution and sanitation problem. Since the aforementioned meeting between Presidents Carter and Portillo produced at least paper agreements, perhaps the next meeting between Presidents Reagan and de la Madrid can set the stage for construction of physical facilities, for training of facility operators, and for Mexico's enforcement of industrial waste ordinances."

A translation of Mexico's Environmental Protection Code of December 1981 contains the following:

"Article 21. It is prohibited to discharge into collection systems, rivers, basins, channels, reservoirs, and other repositories or streams of water, or to allow to seep into the soil, untreated waste water containing pollutants, waste, radioactive materials, or any other substance harmful to human health or to flora, fauna, or property." [1]

Figure 51: Discharge from Conasupo (Nov 1982)

1 If this translation is correct, it is assumed that the prohibition to discharge into collection systems pertains to industrial/toxic waste.

From this it was apparent that Mexican law was not deficient in addressing water pollution, but that there was a lack of enforcement.

On May 20, 1983, the Regional Board sent a letter to the California Department of Health Services requesting:

> *"…that the New River be placed on the State Priority List pursuant to the Comprehensive Environmental Responses Compensation and Liability Act of 1980 (CERCLA), P.L. 95-570, so that New River may thereby become eligible for funding assistance from the State and Federal hazardous substance response fund. The Regional Board feels strongly that the immensity of the pollution and contamination problem presented by the hazardous substances in the New River demands that every possible remedy be pursued."*

A letter from the U.S. IBWC Commissioner to Congressman Al McCandless contained the following:

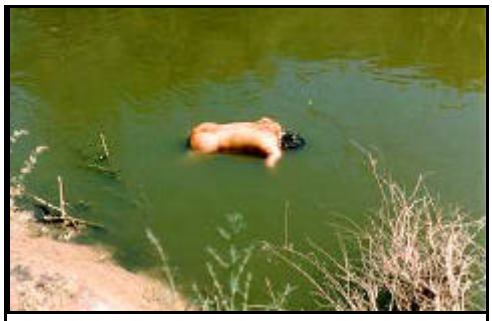


Figure 52: Murder victim in New River (Jun 1983)

"In the many years that this Commission has dealt with the problems of pollution of the New River, the Mexican government has never denied a responsibility for the border sanitation problem originating in Mexicali and has undertaken remedial works which have alleviated the problem. In 1976, Mexico completed expansion of the Mexicali collection works and construction of sewage treatment facilities. In the following three years the works were beset by breakdowns. In 1980, following the agreement between the two governments through this Commission, referred to by Mr. Gummer, improvements were effected in the operations which resulted in near compliance in 1981 with the interim standards agreed upon. However incident to the exploding population of Mexicali and breaks in the Mexicali system, the pollution in New River has again exceeded the interim standards creating serious health hazards to the peoples in the area. Since January 1, 1983, the pollution counts in New River (in terms of fecal coliforms) have exceeded the interim standard by 200 to 300 percent. The record of pollution counts is shown graphically on the enclosed chart.

"In an effort to resolve the Mexicali problem and the similar problem at Tijuana, I have made repeated representations to my counterpart the Commissioner for the

Mexican Section of this Commission urging corrective action by the Mexican authorities. At the higher level of government, the United States Ambassador to Mexico, John Gavin, has made repeated representations to the Foreign Secretary of Mexico urging the earliest possible corrective action. The difficulty as Mr. Gummer stated is that resolution of the problems requires action by the Mexican government involving expenditure of funds. With its serious economic conditions, such action is very hard for Mexico to undertake. Because of this situation, this office, the office of Mexican Affairs in the Department of State, and Ambassador Gavin are exploring options for arranging for the needed actions for solution of the problem."

During the week of July 1983, two Regional Board staff members conducted an unannounced field investigation of the New River pollution problem in Mexicali.[1] Some of the significant findings/recommendations appearing in the report are excerpted below:

"During this investigation, raw sewage was being bypassed directly to the New River at locations where both the north and south collectors cross the river. The discharge near the north collector was located approximately 50 yards north of Pumping Plant 2…and was estimated at 3 cfs. The reason for this bypass is unknown[2]. Approximately 5 cfs of raw sewage was being bypassed directly to the New River from the south collector at the Calle Mar Baltico crossing. Again, no reason was apparent for the bypass, other than pumping plant incapacity.

Figure 53: Rural home disposing of sewage into Drain (Jul 1983)

"Other discharges of raw sewage to the New River that were noted during this investigation include:

"An overflowing manhole at Avenida Baja California crossing (about 1/4 mile south of the International Boundary) discharging approximately 60 gpm to New River;

"Approximately 1/2 - 1 cfs discharged from a pipe to Drain 134 near the confluence with New River;

1 The decision to conduct this unannounced surveillance appears to have succeeded in shaking things up regarding the New River issue and in getting the attention of the appropriate authorities.

2 This discharge of raw sewage resulted from collector line problems within a segment of the city and was being conveyed via the city's stormwater system.

CHANGING OF THE GUARD (MID 1980'S)

An Unannounced Visit

"Between the Calle Marina and Independencia crossings (about 1 1/2 miles south of the International Boundary) approximately 20 gpm discharged to New River from housing to the east;

"About a 20 gpm discharge to New River from a pipe south of Avenida independencia crossing (about two miles south of the International Boundary);

"A discharge of approximately 20 gpm to Laguna Mexico (part of New River) from a housing development located just east of Club Campestre;

"An approximately 20 gpm discharge from an outlying residential area to a New River tributary drain southeast of Gonzalez Ortega;

"Residential development in the southeastern portion of Mexicali is located adjacent to a drain tributary to the New River. About 100 residences border the drain. A number of small wastewater discharges emanate from some of these residences and flow into the drain.

"On one occasion, a septic tank pumper was observed discharging septic wastes into a drain tributary to the New River.

Figure 54: Septage hauler discharging wastes into New River tributary (Jul 1983)

Figure 55: Discharge line from septage hauler (Jul 1983)

"The most notable toxic waste discharge to the New River emanates probably from Quimica Organica[1], a plant involved in at least the manufacture of PCNB[2], a fungicide, and also reportedly captan (fungicide), thiram (fungicide), propanil (herbicide), a nematocide, and certain rubber products[3]. Liquid wastes from the plant are being discharged at two points.

"Other industrial waste discharges to the New River and tributaries, which were observed, are the following:

> *"An oily, red/brown discharge of about 15 gpm apparently emanates from one of several nearby agrichemical industries. This is in Industrial Zone IV. No analyses of this discharge have been conducted.[4]*

Figure 56: Discharge from Quimica Organica (Jul 1983)

> *"Quimicas Industrias (industrial chemicals) had discharged solid chemical wastes on the bank of the drain.*
>
> *"A paper mill, Fabrica de Papel San Francisco SA de CV, discharges about 200 gpm of milky liquid wastes from two pipes to a drain. Dead fish were observed miles downstream from the discharge. Possible wastes in the discharge include sulfite, chlorine, pesticide (slime inhibitor), and other toxic substances.*
>
> *"A cotton gin, Sociedad Cooperativa LEA, discharges a black, oily substance from its cotton seed oil processing.*

---

1 This plant produced pesticides and chemicals for rubber products. It was closed in 1992 reportedly because of air quality violations.

2 Pentachloronitrobenzene.

3 The rubber-related products referenced were actually the production of chemicals used in processing rubber products.

4 This discharge has not been recorded since this observation and is believed to have been eliminated or relocated.

Figure 57: Fabrica de Papel San Francisco, SA de CV (Jul 1983)

Figure 58: Discharge from Fabrica de Papel San Francisco, SA de CV (Jul 1983)

Figure 59: Mexicali City dump, located in the channel of the Mexicali Drain just west of San Felipe Highway crossing (Jul 1983)

Figure 60: Drains tributary to New River are often used for deposition of refuse (Jul 1983)

"The main Mexicali dump was formerly located adjacent to the New River, several miles south from the International Boundary. The dump has since been relocated further upstream to the east of Laguna Xochimilco, within the flood plain of a major tributary[1] to the New River. The flow in this tributary is somewhat ponded at the dump site, and is situated such that refuse is dumped directly into the water. The flow through the dump site is about 20 cfs. The water is black, obviously anaerobic, and foul-smelling. Numerous city garbage trucks were observed utilizing the dump.

"Other, small dumping sites are widespread throughout the New River watershed, particularly in populated areas. In the rural areas, dumping was less severe and was limited largely to household garbage, agricultural refuse, and tires.

"In several tributary drains near Industrial Zone IV[2], domestic animals (hogs, cows, poultry) are confined in small pens situated near the edge of the water. Wastes from the pens slough off directly into the drain water. In some instances the animals had access to the water. An estimated 50 such operations exist in this area (each containing from about five to fifty animals).

"During the survey, several dairies were observed in the New River watershed. By far the largest of these, Lechera Mexicana SA de CV, was observed discharging about 1 cfs of yellow/brown liquid to a drain. One particularly large hog farm (estimated to have capacity for over 1,000 animals), apparently flushes hog manure directly from the pens to an adjacent drain which then flows several miles downstream into the New River.

Figure 61: Waste discharge from a hog farm into New River tributary (Jul 1983)

Figure 62: Confined animal facilities located adjacent to New River tributaries (Jul 1983)

1 **The major tributary referred to is the Mexicali Drain.**

2 **Industrial Zone IV is located in the southeastern portion of Mexicali.**

"The only packing house discharge noted was from a large slaughterhouse, Planta Leobardo Lechuga Cruz, located south of Mexicali on the San Felipe Highway. Hogs and cattle are slaughtered at the plant. Wastes from the plant are apparently periodically pumped from a sump to an adjacent drain.

Figure 63: Slaughterhouse waste discharged to New River tributary south of Mexicali (Jul 1983)

"This drain flows about two miles before emptying into the New River. The discharge pipe from the slaughterhouse could not be located, but was believed to be within a 1-2 foot thick crust of solid waste (manure) which covered the surface of the drain about a 100-yard distance. The liquid in the drain flows beneath the crust and was black, obviously anaerobic, and foul smelling. A local resident was questioned about the discharge and asked why the government allowed such discharges. He replied that Mexicali government officials owned the slaughterhouse.

"A significant portion of the New River flow (about 30 cfs) emanates from Mexico's geothermal development at Cerro Prieto. Apparently toxic substances are present in this suspected geothermal wastewater, since there was no aquatic animal life observed in the drainage ditch, for at least five miles downstream of Cerro Prieto. Further downstream, dead fish were observed.

"It was apparent from this investigation that there is no simple solution to cleaning up the New River in Mexico. For Mexico to bring the New River up to standards for comparable streams in the United States (i.e. Alamo River) the Mexican government will have to correct <u>at least</u> the following problems:

"1. All point source discharges of raw sewage to the river must be eliminated...

"2. Pumping Plants 1 and 2 must be operated such that no raw sewage, under any circumstances, is bypassed to New River.

"3. The sewage treatment lagoons must be upgraded to provide secondary treatment.

"4. Toxic industrial wastes discharged to the sewer system must be segregated from domestic wastes and treated separately.

"5. The Mexicali dump must be relocated such that any waters tributary to the New River do not course through it.

"6. The residences situated along the banks of the river system (south of the zoo), the southeastern portion of the City, and south of Industrial Zone IV must be relocated away from the water.

"7. Wastes from the hog farm, slaughterhouse, and dairy, as identified in this report, must not be allowed to discharge to the river system.

"8. Industrial wastes, including those from Quimica Organica, Conasupo, and the paper mill, must be kept out of the river system.

"9. The hog and cattle pens situated on the banks of the river system must be relocated, to prevent the discharge of wastes to the water.

"10. Geothermal wastewaters must be rerouted away from the New River.

"11. Deteriorating sewer pipelines along the north and south collectors must be replaced so that raw sewage discharges of New River from resultant breaks are eliminated.

Figure 64: Discharge from Qumica Organica (Jul 1983)

"12. Septic tank waste haulers must be prevented from discharging wastes to the New River system.

"It was noted during the survey that the most significant pollution of the river system occurs within the city limits, and also from the tributary drain flowing through the Mexicali dump and Industrial Zone IV. However, about 2/3 of the river's cumulative flow in Mexico is from the relatively unpolluted water flowing from the area south of Laguna Xochimilco. Although some undesirable upstream wastes are discharged from the hog farm and slaughterhouse, it appeared that the river system upstream of Laguna Xochimilco could assimilate these wastes through natural biological processes, particularly with the substantial detention time in Laguna Mexico and Laguna Xochimilco. Incidentally, Laguna Mexico and Laguna Xochimilco were being utilized by swimmers, although signs warning against body contact in Laguna

Xochimilco were posted. The environmental impacts from the suspected geothermal wastewater discharge, upstream from these two lakes, is unknown.

"In comparison to the relatively unpolluted river condition upstream of Laguna Xochimilco, the tributary flow from the Mexicali dump and Industrial Zone IV is grossly polluted. This tributary flow is characterized by an obviously anaerobic condition and a foul, pungent odor. There was no evidence of aquatic life in the tributary other than a gray fungus (bacterial slime). The flow in this tributary was estimated at about 15-20 cfs and is substantially composed of concentrated industrial wastewaters.[1]

"Downstream from Laguna Xochimilco the river is further polluted from numerous discharges of raw sewage. A significant tributary, Drain 134, enters the river near the International Boundary. It appears that the flow in Drain 134 is almost entirely composed of raw sewage and industrial wastewater.[2] Drain 134 apparently varies in flow considerably, which was estimated at 2-15 cfs

Figure 65

Figure 66

Figures 65 and 66: A tributary of the Mexicali Drain, which courses through an industrialized area in the southeastern portion of the City (Jul 1983)

"To bring the New River into full compliance with the standards set forth in Minute No. 264 to the Mexican American Water Treaty, will predictably be a costly process.

1 A significant portion of the flow includes sewage effluent from the Gonzalez-Ortega treatment lagoons.

2 Drain 134 also reportedly conveys wastewater from the city's domestic water treatment facility.

Much of these costs upon government budgets could be averted if the Mexican government would undertake vigorous regulatory actions against the industrial discharges.

"At a minimum, the 12 problems cited in the preceding discussion must be corrected. Therefore, the first step is to determine if the Mexican government is willing, and is financially able to proceed with the necessary corrective works and/or actions. If so, a time schedule should be drawn up. It is mandatory that one-day inspection tours be conducted on at least a quarterly basis to determine compliance not only with a time schedule, but with all of the standards in Minute 264. These inspection tours should be conducted jointly by the International Boundary and Water Commission, the Regional Board, and appropriate Mexican officials. These would not be the standard tours of the waste treatment plants, but would be thorough and critical inspections of the problem areas described in this report, and progress (if any) in correcting them.

"If it becomes evident that Mexico is unable to correct the 12 problems listed in the preceding section, then other approaches to correcting the New River problem will need to be investigated.

"Minute 264 should be viewed, at best, as only an initial effort to obtain a preliminary standard of corrections to a grossly polluted and contaminated waterway and environment. An updated Minute is needed which is far more definitive in standards, regulatory control, joint monitoring and surveillance, and periodic conferences. It is imperative that the California Regional Water Quality Control Board, Colorado River Basin Region, be made a full participant, along with the International Boundary and Water Commission, in the establishment of standards, monitoring and surveillance, joint inspections in Mexicali, and conference with Mexican regulatory agencies."

On July 21, 1983, the Director of the California Department Health Services sent a letter to the U.S. IBWC requesting corrective action on the New and Tijuana River pollution problem.

A July 31, 1983, article in the San Diego Union discussed industrial pollution impacting the New River, some of which is excerpted below:

"A Mexican chemical plant that received technical advice from a U.S. firm is pouring toxic wastes and suspected carcinogens into a ditch that flows into California's New River, tests conducted by the San Diego Union show.

"C.P. Dario Lopez, director of the Mexicali pesticide and rubber manufacturing plant

Quimica Organica, said his company is aware of its discharge, but received advice on handling the chemicals from the B.F. Goodrich Company of Akron, Ohio…Goodrich officials, contacted in Ohio, said they are aware the chemicals may be dangerous and that they did issue proper precautions on handling the chemicals, but emphasized that Quimica Organica never asked Goodrich for assistance on environmental matters...Quimica Organica's discharge, which California Officials estimated at up to 300 gallons per minute, was observed spewing fuming fluids that one day appeared bright orange at midday and milky pink in early evening. On another day it is brownish gray…On June 21, the Union obtained a half-gallon sample of the bright organic discharge and asked a Sorrento Valley laboratory, S-Cubed, to analyze the contents. The analysis revealed high levels and flakes of sediment of 2,2' dithiobis (benzothiazole), called DTB or MBTS, a substance used sometimes in pesticides, but primarily in the tire and rubber industry to strengthen raw rubber…The Union's chemical analysis also showed levels of other substances used in the pesticide and rubber industries that may be toxic, such as toluene, benzothiazole, and suspected carcinogens benzothiazolethiole ethylbenze and chloroform. The lab said the samples also contained either aniline or methyl pyridine, both under federal review for possible adverse effects on human health…Companies in Mexicali have been pressured by both Mexican and U.S. authorities to clean up their discharges, but progress has not been as fast as American environmental officials have wished, in part because of Mexican economic conditions…At Quimica Organica, Lopez said, Mexican authorities have authorized his chemical discharge even though he said he has been told the plant's waste waters do not meet Mexican government standards. He said Quimica Organica has promised to build a treatment plant by December to take care of the problem as part of a major expansion project…California over the years has tried unsuccessfully to stop the high levels of human waste that Mexicali sends, untreated, into the New River…But because of the sensitive nature of border relations, local and EPA pollution officials said they left the matter of those representing U.S. interests on the International Boundary and Water Commission, an agency set up in 1889 to deal with water and subsequently, pollution problems… Art Swajian, the water board's executive officer, said his agency at first did not investigate the problem because its officials did not understand the seriousness of the situation. They also feared it would appear to be 'spying' on another country, he said."

A letter of August 4, 1983, was received from the California Department of Health Services denying consideration of Superfund action on the New River as follows:

"We have reviewed your request to Mr. Peter Rank to place the New River on the State Superfund Priority List for remedial action. The Department has concluded that the New River should not be ranked and considered for Superfund action. This

policy decision is based on the fact that the origination of the problem is in Mexico, therefore, the expenditure of California chemical industry funds to clean up a problem originating in Mexico would not be an appropriate use of such funds… We believe that this problem should be solved through the International Boundary and Water Commission."

On August 25, 1983, Assemblyman Steve Peace sent a letter to the State Department of Health Services expressing disappointment "*to learn of your department's denial to place the New River on the State's Superfund priority list. The State of California must protect its citizens from the number one polluted river. I am hopeful that we can work together in this endeavor in the near future."*

A letter of September 7, 1983, from the Regional Board Chair to Fitzhugh Green, Associate Administrator, Office of International Activities within the U.S. Environmental Protection Agency, conveyed the following:

"We are informed that you are leading the EPA's role as National Coordinator for the United States under Article 8, et. seq. of the 'Agreement Between the United States of America and the United Mexican States on Cooperation for the Protection and Improvement of the Environment in the Border Area', which was signed by the two Presidents in La Paz during their August 12-14, 1983, meeting. For many years, this California Regional Water Quality Control Board (Regional Board) has been working with the United States Commissioner on the International Boundary and Water Commission towards correction of pollution and contamination in New River that is caused by the discharge of sewage and other wastes from the City of Mexicali in Mexico. We would also like to work with you and your representatives in this important endeavor."[1]

A letter to the Regional Board was received from the U.S. IBWC dated September 13, 1983, which conveyed the following:

"Your letter referred to the draft copy of the 'Water Quality Investigation of New River Watershed in Mexico,' made unilaterally by the Executive Officer of your staff. My understanding is that the investigation was made without prior notice to or approval of Mexican authorities. I can only advise that I do not believe that this type of surreptitious action by a U.S. agency in Mexico can contribute to obtaining the cooperation of Mexican authorities to solve the problem. As to the technical

[1] The 1983 "La Paz Agreement" expanded U.S. EPA's responsibility in border environmental issues considerably.

findings, the effects of the several sources of pollution reported have, of course, long been reflected by the records analyses of samples taken at the boundary by the Board's staff and by this Section, and the Mexican authorities are aware of the problems. As to the corrective measures needed, they too are well understood on both sides."

On September 20, 1983, the City of Calexico adopted a Resolution entitled Finding and Declaring an Urgent Need to Rejuvenate and Clean the Polluted State of the New River.

In a letter dated September 26, 1983, the Regional Board Chair replied to IBWC's letter of September 13, 1983:

"In regards to the investigation made by our staff into Mexicali, I cannot concur with your definition of the procedures by which the field work was conducted. Your representative was with our staff on the initial trip.[1] In their investigations our staff did not enter any area where the public is normally excluded. We especially expedited the investigation so that Congressman Duncan Hunter could have the information prior to the meeting of the two Presidents. Also, many of the staff's findings are in direct derogation of assurances that we had previously received from your office."

A letter dated September 30, 1983, directed to the Regional Board's Executive Officer was received from U.S. EPA and discussed the following:

"Because of the high priority which both the EPA and the Regional Water Quality Control Board (RWQCB) have given to the solution of border sanitation problems in the Mexicali/Calexico area, we would like to reaffirm the importance of our agencies working closely with each other as we proceed with solutions to this problem.

"We intend to maintain existing lines of communication established between our Region and the RWQCB in our construction grants, permitting, and compliance activities when dealing with border sanitation problems, and to establish any new lines of communication as the situation requires and as the EPA and RWQCB deem appropriate."

A letter of October 25, 1983, from State Senator Speraw to U.S. Senator Wilson contained the following:

---

1 This was not part of the five-day investigation in July 1983, but a prior, very brief visit conducted as routine IBWC business on which a Regional Board staff member was invited to accompany.

"I am writing to urge your personal support for urgency action to mitigate gross contamination of the New River flowing into the Imperial Valley from sources south of the international border at Calexico-Mexicali.

"It should be clear to everyone that the high levels of chronic contamination in the river will not be mitigated south of the border on the basis of 'good neighborliness' alone. Firm economic, diplomatic and resource management pressures must be exerted from Washington if serious public health hazards in the Imperial Valley are to be averted."

Some excerpts from testimony by Senator Wilson for a November 17, 1983, Regional Board public hearing regarding New River pollution includes the following:

"In 1979, after Presidents Jimmy Carter and Jose Lopez Portillo signed a Joint Communique which mentioned the issue of border sanitation problems, there was much hope that a solution might be at hand. Later that same year, Minute 261 was signed and expectations were again raised.

"In 1980, Minute 264 was signed which specifically stated that of all the border sanitation problems the 'New River is the most urgent and should be the first to be resolved for the benefit of the health and well-being of the citizens of both countries.' Citizens of the Imperial Valley were justifiably hopeful.

"The sad truth, however, is that little has changed in the time since those agreements were signed.

"There is no simple solution to the problem. It will require further study, hearings, negotiations, probably legislation and, no doubt, federal funds. I do not have a facile solution to propose to you today. But I do pledge myself to work with you and the people of Imperial County to help solve the problem. I will continue working with Congressman Hunter and Senator Cranston to ensure that whatever steps are needed at the federal level are taken."

A news article in the Imperial Valley Press described the November 17, 1983, Regional Board public hearing on New River pollution thusly:

"The experts agreed Thursday the New River was a mess, but they couldn't agree how to clean it up...That a unified effort is needed to clean up the river was a commonly expressed thought at the hearing...But everybody seemed to have a little different approach to tackling the thorny problem: force Mexico to clean it up; aid Mexico to clean it up; divert it so it doesn't cross the border; clean it up after it

crosses the border."

In a February 23, 1984, letter from the Regional Board's Executive Officer to the State Board, the following concerns were cited:

> *"As you are aware, the United States Environmental Protection Agency (EPA) has been designated as the lead agency in the United States to coordinate the resolution of international environmental problems with Mexico. Considering that the EPA has had this designation since August 1983, and considering the track record of the predecessor federal agency, the United States Section of the International Boundary and Water Commission (IBWC) in working towards correction of the problem of New River pollution from Mexico, we are becoming concerned about future progress in resolving the New River problem under EPA. We are also becoming concerned about the extent of Regional Board participation that the EPA plans to allow."*

A letter of reply dated March 2, 1984, from the State Board Executive Director stated:

> *"…we do not feel that actual physical representation by the Regional Board in discussions between the United States and Mexico is either necessary or desirable. The problem with the New River is an international problem not within the ability of the State of California to solve. The solution to this problem clearly rests with the United States and the Mexican governments. The negotiations which will occur will be largely diplomatic and will generally be conducted in either Mexico City or Washington, D.C. Whether we like it or not, our fate is in the hands of the federal officials which clearly have responsibility for achieving a solution.* [1]

A letter dated March 14, 1984, from the Imperial County Health Officer stated:

> *"The New River originates in Mexico, crossing the United States border in the Calexico area, and flowing approximately 50 miles to discharge into the Salton Sea. The course through Imperial County represents a 50 mile sewage conveyor, and is offensive to the senses of a human being…Sewage treatment in Mexicali is nonexistent. The system, when working, and it is doubtful to me that it ever has, represents a primary treatment concept which is not good enough for any river discharge…The health hazard is the most potentially explosive aspect of the river. The State Department of Health Virology Laboratory has isolated a wide spectrum of*

1 The State Board has gradually changed its position on this, and is now, along with the Regional Board, a key player in United States/Mexico discussions on New River pollution abatement at both the technical and policy level.

disease causing virus, including polio, during their surveillance. The California Regional Water Quality Board Colorado River Basin Region, has conducted monitoring programs through the State Water Resources Control Board 'Toxic Substance Monitoring Program' for the past six years and have found extensive pesticide pollution. Some of their recent samplings indicate the presence of substantial quantities of a wide variety of volatile organic toxicants. A number of the detected toxicants are on the EPA's list of priority pollutants. Many are known carcinogens."

On March 22, 1984, U.S. EPA conveyed to the Regional Board a preliminary proposed action plan for resolving the New River pollution which contained the following suggested alternatives:

1. *Treat entire flow of the New River to secondary.*

2. *Conveyance facilities to carry wastewater south to Laguna Salada (out of the New River watershed).*

3. *Establish culvert through Calexico to marshland with disinfection, low water dams, and a scientific marsh system plan.*

4. *Instream treatment employing aeration and chlorination.*

5. *Land treatment/overland flow with irrigation of cotton fields.*

A letter dated May 4, 1984, from Senator Wilson to the Administrator of U.S. EPA addressing New River pollution stated the following:

"It is my understanding that there are several options which could be implemented to address the immediate situation but that a final study and analysis has yet to be done. I hereby request that the Environmental Protection Agency undertake, as soon as possible, a study to determine cost and technical information on the various options, and consult with the State Department to reach a decision on priority funding to reduce the impending health hazard…This problem should be solved by Mexico. As a practical matter, it appears that the prospects for timely Mexican action are dim for many reasons, not the least of which is the state of Mexico's economy. This does not mean that the United States should be solely responsible for funding any eventual solution. But neither does it mean that Mexico's inability or unwillingness to discharge its obligation excuse the federal government from its obligation to protect the people of the Imperial Valley. The federal government has an obligation to act in order to provide them relief that is already overdue and to take whatever action is required to secure equity from Mexico."

CHANGING OF THE GUARD (MID 1980'S)

An Unannounced Visit

In may 1984, a lengthy article The Open Sewer appeared in San Diego Magazine. The following excerpt from that article offers a viewpoint as to why border pollution control efforts were failing:

> *"The Mexican federal government, which finances construction and maintenance of all major public works, readily admits its responsibility for the pollution of the New River and Tijuana River and has voiced its concern for the potential health hazard to the people of both countries. But it is also made it clear that Mexico's nearly bankrupt economy gives dim chance of any long-term solution to the border pollution problem in the immediate future. At the same time, Southern California's only other life net, federal aid, was pulled out from under it when the Reagan Administration refused the allotment of any federal monies to clear up the problem on this side of the border... The Reagan Administration is relying entirely on the impoverished Mexican government to solve this border problem. When asked what would be done if Mexico was unable to cope with the pollution problem, officials in the State Department and the Environmental Protection Agency (newly ordained by Reagan as the new negotiating agency) were unable to provide an answer other than to say negotiations would continue. This, in effect, leaves the border situation in the same limbo it has languished in for 40 years, a sort of diplomatic Mexican standoff with Southern California waiting for someone to make the first move. And this leads some critics to doubt the federal government's sincerity in finding a solution."*

At an initial meeting between the U.S. EPA and Mexico's Secretary of Education and Urban Development (SEDUE)[1] on May 29 and 30, 1984, Mexican officials conveyed the following information on efforts in Mexicali to address New River pollution:

> *"Within two months, SEDUE will issue permits to identified chemical firms which will require that they cease discharge to the New River. The compliance deadline, however, is not for an additional 13 months while the economic impacts on the companies is assessed.*
>
> *"A new location for the landfill will be sought. Solid waste is handled by the municipality, however, and although SEDUE will support this effort, they will not be the lead agency in this effort.*

[1] SEDUE was created in 1983 as the primary responsible agency for environmental protection in Mexico. It was replaced in 1992 by the Secretariat of Social Development (SEDESOL). In December 1994, a reorganization shifted much of the environmental responsibility to a new federal agency, the Secretariat of the Environment, Natural Resources, and Fisheries (SEMARNAP). Within SEMARNAP exists two important divisions - the National Water Commission (CNA) and the federal environmental enforcement branch (PROFEPA).

"Rehabilitation work is continuing on the municipal sewage oxidation lagoons. Dredging, aeration, and improvements to pumping station No. 1 are projected to be complete by the end of the calendar year. SARH [Secretary of Agriculture and Hydraulic Resources] has made a decision to use the effluent for agricultural irrigation and plans to build irrigation channels in 1985. The municipality has proposed that SARH take over complete operation of the lagoons but this proposal has not yet been accepted.

"An increase in credit for potable water and for rehabilitation and expansion of the existing sewer lines in Mexicali is being sought from BANOBRAS. Any assistance from the U.S. in obtaining this loan would be appreciated."

In a June 29, 1984, letter to U.S. IBWC, the Regional Board's Executive Officer expressed the following concerns regarding industrial discharges into the New River from Mexicali:

Figure 67: Oily waste discharge from Sociedad Coperativa LEA, a cotton processing facility (1986)

"To adequately quantify all the different toxics discharged by Mexico to New River would be a major undertaking in itself, let alone attempting to gauge the adverse impacts of all of these substances upon humans, both individually and cumulatively. It is our belief that it would be much less costly to control point source discharges of toxic substances in Mexico than it would be to conduct studies to validate beyond question what the impacts of the discharges are to beneficial uses of receiving waters.

"For many years, this Regional Board has requested from the Mexican government (through IBWC) a simple list of the industries discharging to New River in Mexico.[1] *Mexico's refusal to comply with this very reasonable informational request, led us to believe that the problem may be worse than initially anticipated. As you are aware, last year we conducted very brief field surveys that provided some information on the types of pollutants being discharged by Mexicali industries. During the survey, several industrial discharges were observed that could not be investigated as to source or type. Recently, we proposed some monitoring in Mexicali that was designed to provide further information on the subject. Again, another reasonable request was rejected.*

"If Mexico would be willing to provide accurate and complete information as to the types and quantities of industrial wastes discharged to the river, and to allow us to

1 **In 1997, the list of industries was finally received.**

access into the Mexicali area to conduct scientific investigations, we would certainly be willing to work with the Mexican personnel. But, our position must remain in accordance with that which is stated in Minute 264:

> *'The waters of the river shall be free of untreated domestic and industrial waste waters.'*

"We view the discharges from Quimica Organica and Conasupo, for example, as violations of Minute 264 regardless of what the downstream impacts may be."

In a July 31, 1984, letter to U.S. EPA, the Regional Board's Executive Officer conveyed the following regarding correction of the New River problem:

"…the most practical and cost-effective solutions to the problem involve corrective measures instituted within Mexico. These include either point source control of wastes or diversion of all or portions of Mexico's New River flow to Laguna Salada or other sites within Mexico… As for total and final corrective solutions to the problem by the United States, with no cooperation from Mexico, there are only three known alternatives:

"Diversion of the river's flow at the International Boundary to the Colorado River downstream of Morelos Dam, or downstream of San Luis, Arizona.

"Damming the flow of the river back into Mexico (may be technically possible, but it is doubtful that this would ever be achieved).

"Conventional treatment of the river in the United States (this alternative could only be recommended if the river could consistently be treated to an acceptable level, but due to a lack of source control in Mexicali this may be difficult, if not impossible).

"Other suggested United States alternative measures, such as wetlands or stabilization pond treatment, represent only partial and temporary remedies to the problem at best."

In an August 10, 1984, transmittal to the U.S. EPA, the Regional Board's Executive Officer recommended that the following be accomplished in Mexicali as part of a phased approach to addressing New River pollution:

"Phase I

"Elimination of all point source pollutant discharges to the New River including

those from:

"A. Quimica Organica/Conasupo/Fabrica de Papel S.F./dairies, slaughter-houses, etc.

"These industries must eliminate or adequately treat wastes which are now being discharged to the river.

"Cost: None to Mexican government [1] moderate to industries involved

"B. City Dump

"The dump must be relocated to high, dry ground at a site which does not permit wastes to enter the New River or its tributaries.

"Cost: Minimal

"C. Septic Tank Pump Trucks

"A proper disposal site needs to be established for the discharge of these wastes, with adequate enforcement to ensure that no further discharge to New River or its tributaries occurs.

"Cost: Low

"D. Animal Pens

"To prevent the discharge of animal manure into the New River and its tributaries, all livestock pens situation adjacent to the river must be relocated away from the water.

Cost: None to Mexican government; low-moderate to private landowners.

"E. Cerro Prieto

"Discharges of geothermal wastes need to be rerouted away from the

1 Since the Mexican government apparently owned some of these operations, this cost impact is not totally correct.

New River watershed. The elevation at Cerro Prieto is such, that this could easily be accomplished.

"Cost: Low

"Phase II

"A. Upgrade and expand sewer collection system to convey all of city's unconnected sewers [1]

"Cost: Moderate-High

"B. Replace deteriorating pipeline of sewer collection system

"Cost: Moderate-high

"C. Install standby pumps to make collection system fail-safe.

"Cost: Moderate

"Phase III

"A. Upgrade sewage treatment to secondary.

"This could possibly be accomplished by expanding the lagoon system, industrial waste control/pretreatment, installation of aerators, and a general O&M program.

"Cost: Moderate-high

"B. Sewer or relocate all unsewered residences situated along the river and its tributaries.

"Cost: Moderate"

1 Many of these unconnected sewers we now know are stormwater drains, which are used for raw sewage conveyance when problems (collapsed/clogged lines and failed pumps) develop within the city's collection system.

A Regional Board staff report summarizing New River conditions during sampling/observation on August 29, 1984, contained the following which should be considered not atypical[1] of river conditions for this period:

> *"The New River was sampled on this date for a 10-hour period. The flow averaged about 415 cfs until the late afternoon when it increased to 442 cfs. BOD was 22 mg/l, which is the highest level recorded during the past year. COD was 68 mg/l. Dissolved oxygen content averaged 0.2 mg/l, which indicates grossly polluted conditions. Fecal coliform levels ranged from 1,300,000 MPN/100 ml to 9,200,000 MPN/100 ml. During the sampling, the river color varied from shades of gray, green, and brown. Considerable sewage solids were observed in addition to dead fish, vegetable refuse, animal entrails, condoms, a tire, dead bird, and other debris. From 0930 to 0945 considerable quantities of tar-like globules were observed on the surface of the river. A foul odor was noted at times during the sampling period."*

In a December 17, 1984 letter to U.S. EPA, the City of Calexico requested the following actions regarding the New River pollution:

> *"Channelization and enclosure of the New River flow through the Calexico area along with the wetlands/holding basins treatment facilities should provide for a partial solution to the New River pollution problem and particularly benefit the community of Calexico, due to the elimination of the health hazards currently created by the New River."*

A December 1984 report prepared by Regional Board Staff entitled <u>Preliminary Study of Fate of Selected Pollutants Discharged from Mexicali, Mexico to the New River</u> contained the following findings:

> *"…data indicates that organic loading from Mexicali is adversely impacting the New River from the International Boundary to the Salton Sea. The lowest dissolved oxygen content of the river usually occurs near Brockman Road, approximately 10 miles downstream from the International Boundary, and from this point the river begins a slow recovery--which is aided by mechanical aeration from three drop structures and a weir. Despite this slow recovery process, it is apparent that Mexicali's organic wastes are still causing some oxygen depression at the river's outlet to the Salton Sea…*

---

[1] The flow was somewhat atypical because of increased flows in the Colorado River. The increased flows began around 1983 and continued for a few years thereafter.

> *"…concentrations of fecal coliform decline significantly during the 60 hours time of travel between the International Boundary and the Salton Sea. The most marked decrease in fecal coliform occurs between Worthington and Keystone Roads (approximately 24 hours time of travel from the International Boundary)…Concentrations of metals in New River tend to increase downstream of the International Boundary, thus suggesting that agricultural drainage is the most significant source of input."* [1]

In February 1985, a California bill was introduced, AB 1012, which would attempt to secure State funding to address border pollution.

During 1985, the Regional Board hired Kennedy Jenks Engineers to prepare a New River Abatement Alternatives Workplan under a $50,000 contract. The report was finalized in November, and contained the following recommendation:

> *"The recommended approach envisions concurrence of interested parties (both U.S. and Mexico) on the general abatement strategy followed by simultaneous investigations of both U.S. and Mexican actions required. Accomplishment of these objectives can be performed in three phases of which Phases 2 and 3 are subdivided into studies of U.S. and Mexican actions respectively:*
>
> > *"Phase 1A -- Development of General Abatement Strategy*
> >
> > *"Phase 2A -- Development of Viable Abatement Alternatives (U.S.)*
> >
> > *"Phase 2B -- Development of Viable Abatement Alternatives (Mexico)*
> >
> > *"Phase 3A – Evaluation of Abatement Alternatives and Development of Implementation Plan (U.S.)*
> >
> > *"Phase 3B -- Evaluation of Abatement Alternatives and Development of Implementation Plan (Mexico)*
>
> *"At this time, the three phases are estimated to cost a minimum of between $400,000 and $650,000 and would require about two years to complete."*

On March 1, 1985, the California Assembly Select Committee on International Water Treatment and Reclamation made the following recommendations:

---

1 Although the New River at the border has long been reputed to be severely polluted with heavy metals, testing has not verified that condition, with the possible exception of mercury.

"Provision must be made for extensive epidemiological studies in both the Tijuana and New River/Salton Sea population areas to unequivocally determine the disease transmission potential of contact with the sewage and industrial wastewater contamination in these areas.

"Provision of the requisite authority, staff and funding to adequately assess the toxic contamination of both the New River and the Salton Sea. This is to include sediment as well as species testing.

"Implement a Sentinel Flock Testing Program at various points along the New River and Salton Sea to assess the encephalitis disease potential.

"It is recommended that the State of California take the lead in developing a 'defensive' system to comply with its responsibility to protect the health, economy and environment of California's citizens. This initiative by the State will be the precursor to implementation of such a plan; the responsibility of which should be taken on by local governing entities (including but not limited to the City of San Diego and Imperial County Board of Supervisors) and the Federal Government.

"To integrate the goals of saving the Salton Sea, realizing water conservation goals in the Imperial Valley, and controlling the sewage and toxic waste contamination emanating from Mexican sources."

4

CHANGING OF THE GUARD (MID 1980'S)

An Unannounced Visit

THE BINATIONAL NEW RIVER INSPECTIONS

Beginning in 1986, Regional Board staff was invited to participate in a joint inspection of New River in Mexicali with local IBWC personnel.[1] Significant findings from this inspection included the discovery of:

- **Relocation of the City dump within a southerly tributary of the New River near Laguna Mexico.**
- **Pumping of geothermal wastewater out of the New River watershed.**
- **A major slaughterhouse discharge from within the city[2].**

During a binational inspection[3] of March 12, 1986, a hazardous waste disposal site[4] was visited west of Mexicali, outside of the New River watershed. Some excerpts from a staff report follow:

> *"The next site visited was the hazardous waste disposal site located approximately 10 miles west of Mexicali. A dirt road leading to the site had a padlocked cable across it with a sign that said Peligro (danger) with a skull and cross bones. Therefore, we had to walk a short distance to the site. Because the area was fenced and locked we could not get inside the actual dumping area, although it was fully visible from outside the fence. The dump was larger than I had anticipated, covering perhaps five acres. Thousands of drums had been disposed of along with some evidence of liquid waste discharge/spillage/leakage to the ground. Sandoval said that*

---

[1] The binational spirit of cooperation with Regional Board staff has continued, and regularly scheduled inspections with IBWC continue to this day. With the exception of gaining entry within industrial discharge complexes and private property, there essentially has been open and unlimited access to New River pollution sites in Mexicali. This degree of cooperation with Mexico is delicate, however, and is clearly subject to curtailment.

[2] Apparently the same discharge discovered by State Board staff during aerial surveillance in 1975.

[3] From this point on, binational inspections will refer to Mexicali tours in which the Regional Board staff was invited to participate.

[4] This disposal site is primarily of interest in that it was closed shortly following this visit, and although it was indicated that two new disposal areas would be located in the Mexicali area, to my knowledge that never happened. The serious question remaining is the whereabouts of disposal of all the locally generated hazardous waste.

Figure 68

Figure 69

Figures 68 and 69: The Mexicali City dump was relocated to this site south of Club Campestre. The dump was located within a tributary drain to New River (Jun 1986)

the site was intended for both empty and full containers, plus liquid waste. Labeling on a few of the drums I observed was that of both pesticides and industrial chemicals ¾ many in English, some in Spanish. Strong chemical odors were present."

A March 12, 1986 letter from U.S. EPA to the Regional Board Chair contained the following:

"Dick Reavis, EPA, reports that Mexico is unable at this time to obtain matching funds to the $600,000 the United States is offering toward solution of pollution to the New River."

A letter dated June 23, 1986, from the Regional Board's Executive Officer to U.S. EPA cited the following concerns and requested a response:

"Regional Board staff has become aware of several problems in Mexicali, Baja California, which significantly impact the water quality of the New River at the International Boundary that urgently need correcting. These problem areas are as follows:

"1. The Mexicali municipal dump was moved from the flood plain of a New River tributary into the flood plain of another New River tributary, with absolutely no regard toward preventing pollution of the New River. We presume that this relocation was directed by Secretario de Desarollo Urbano y Ecologia (SEDUE). (We were initially optimistic that the August

14, 1983, Presidential agreement would be a major step toward realizing a solution to the New River problem. However, we must conclude, that to date, SEDUE's progress in addressing the New River pollution problem has been very disappointing.)

"2. Continuous discharge to the river of considerable volumes of slaughterhouse wastes from one of Mexicali's largest slaughterhouses, including solids and blood.

"3. Continuous discharge of untreated industrial waste waters from Conasupo and Quimica Organica to the New River.

"4. The lack of a designated site for liquid waste haulers (septic tanks and some petroleum products) to dispose of waste. There is evidence that such wastes continue to be dumped into New River and its tributaries."

Figure 70

Figure 71

Figures 70 and 71: Cerro Prieto's wastewater is normally piped to these evaporation basins for mineral extraction (Jan 1986)

Figure 72

Figure 73

Figure 72 and 73: Wastewater from Cerro Prieto geothermal field. At times, wastewater has spilled over this weir and thence courses into the New River (Jan 1986)

In November, 1986, State Senator Bergeson reported the following:

"On September 30, 1986, Governor George Deukmejian signed into law SB 1745 which will provide $150,000 for a feasibility assessment of the alternative solutions to pollution in the New and Alamo Rivers. The significance of this assessment is that it is the first step towards defining which of the alternatives defined is the most feasible to implement. As author of the bill, I believe this initial step will allow other steps to follow… Specifically, the funds will be used to address a) the development of a general abatement strategy which includes a detailed analysis of feasible alternatives, b) the collection and review of water quality and health effects data, which shall include an investigation of the extent of pollution in the cities of Calexico, Brawley, and Seeley, and at other Imperial County sites affected by sewer and toxic flows from Mexicali, Mexico, and c) a cost analysis of environmental impact reporting requirements and planning of pilot impact studies."

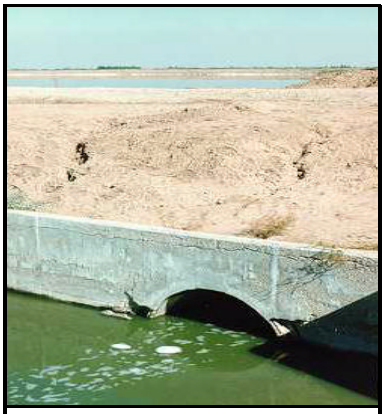


Figure 74: Effluent from Mexicali sewage treatment lagoons (Nov 1986)

On December 28, 1986, the CBS television program "60 Minutes" aired a segment on New River pollution. The focus was on waste discharges from Mexicali.

5

A COOPERATIVE APPROACH (LATE 1980'S)

TREATY MINUTE NO. 274 (ADDING PUMPING/TREATMENT WORKS)

In a January 30, 1987, letter U.S. IBWC announced plans for a joint $1.2 million dollars New River cleanup project as follows:

"The United States Section of the International Boundary and Water Commission (IBWC) has available from appropriations by the United States Congress, an amount of $600,000 to be used in a new joint project with the Mexican Government to improve the quality of the New River where it crosses the international boundary.

"Based on this authority, the United States Section has conducted discussions through the IBWC with the Mexican Section for a joint project on the basis of three criteria: 1) that the project be under the supervision of the International Boundary and Water Commission, 2) that the project result in a significant improvement in the water quality of the New River at the International Boundary, and 3) that the cost be shared equally between the United States and Mexico.

"We believe that while the combined $1.2 million joint project will provide an improvement in water quality by reducing the discharge of untreated sewage into the New River, considerable additional measures are necessary to provide the solution to this long-standing problem, some of which Mexico has underway."

Figure 75: Gonzalez-Ortega sewage treatment lagoons (Nov 1986)

Figure 76: Discharge of wastes from a sesame seed processing facility (Nov 1986)

On March 24, 1987, the Regional Board's Executive Officer announced that James M. Montgomery Engineers, Inc., had been selected to prepare a report addressing New River pollution abatement plus the creation of a technical work group as follows:

"We have recently selected a firm, James M. Montgomery Engineers, Inc., to prepare a report for abating the pollution levels in the New and Alamo Rivers as per California Senate Bill No. 1745. To assist Montgomery Engineers in the preparation of this report, we suggest that a New River Project Technical Work Group be formed. Specifically, it is envisioned that the work group would discuss technical matters concerning the various alternate corrective measures which Montgomery Engineers would be considering."

An April 7, 1987, letter from U.S. IBWC to the Regional Board stated the following:

"As you know, the U.S. Section has the responsibility under the 1944 Water Treaty to deal with Mexico for the solution of the Border Sanitation problems, so that any meaningful pursuit to reduce pollution in Mexico in the Alamo and New Rivers must be through the International Boundary and Water Commission. The International Boundary and Water Commission has long practiced that each Section deal with those interests in its own country; it would not be appropriate to seek Mexican participation in the work group. However, as we have practiced in the past and as it may be appropriate, I would be pleased to seek from Mexico, visits by the work group to the Mexicali sanitation works."

Figure 77: Discharge from City slaughterhouse (Nov 1986)

Figure 78: Pumping Plant No. 1 (Nov 1986)

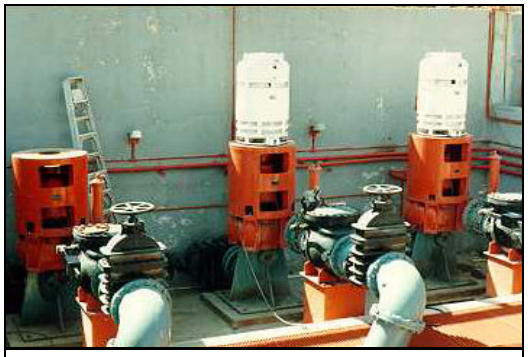


Figure 79: Pumping Plant No. 2 (Mar 1987)

On May 13, 1987, Minute Treaty Agreement No. 274 entitled Joint Project for Improvement of the Quality of the Waters of the New River at Calexico, California -- Mexicali, Baja California became effective and in general provided for the following:

Figure 80: Effluent from Mexicali sewage treatment lagoons (Mar 1987)

"The agreement provides for construction by Mexico, in Mexicali, and undertaking of three features, construction of a new pumping plant, acquisition of two standby pumps and motors for existing pumping plants, and acquisition of sewer line cleaning equipment to be carried out at an estimated cost of $1.2 million dollars U.S. currency, of which the U.S. will provide $600,000. The features are designed to provide but a small improvement in the water quality of the New River at the international boundary, and therefore, we recognize that the features contribute but a small part to the overall problem of contamination in the New River, resulting from waste water discharges in Mexicali, Baja California."

The agreement also provided:

"That upon completion of the features considered in the jointly funded project, the Government of Mexico through the Government of the State of Baja California operate and maintain the constructed works, and carry out the preventative maintenance program for the collectors and pumping plants."

On August 6, 1987, a letter from the Regional Board's Executive Officer to U.S. IBWC cited the following concerns:

Figure 81: Distribution system for effluent irrigation from Mexicali sewage treatment lagoons (Mar 1987)

"According to the Yuma office of IBWC, 8-10 mgd of raw sewage is presently being bypassed from Mexicali's North Collector to the New River. Apparently this bypass began over a month ago because of a break in the North Collector line. It was our understanding that Mexico would correct this problem promptly, but according to the most recent information received, it now appears that the necessary repairs will be delayed indefinitely, pending availability of

funds. Please keep us appraised of this most serious situation, and impress upon Mexico our concern…In a related matter, we have been advised that Mexico intends to replace sections of the deteriorated North Collector pipeline as funding becomes available, until the entire line is reconstructed. During the construction work, raw sewage would reportedly be bypassed to the New River. Although we commend Mexico's resolve to upgrade the North Collector, we question if it is necessary to bypass raw sewage during the construction. Would it not be more effective to lay new pipeline parallel to the old line, thus avoiding any sewage bypass?"

A Regional Board staff report covering a binational inspection in Mexicali on November 2, 1987, contained the following:

"In summary, there appears to be very little reason for optimism that conditions will improve in the New River in the near future, based on this inspection. To the contrary a myriad of problems are apparent which could rapidly lead to a substantial decline in the quality of New River water at the boundary. I seriously question the extent of Mexico's intent to resolve New River pollution problems, based on the present deplorable condition of the sewage collection system, pumps, and treatment system, and also on the present indiscriminate and intentional disposal of solid waste into the river channel."

Figure 82: Sewage lagoon expansion at Gonzalez-Ortega (Jul 1987)

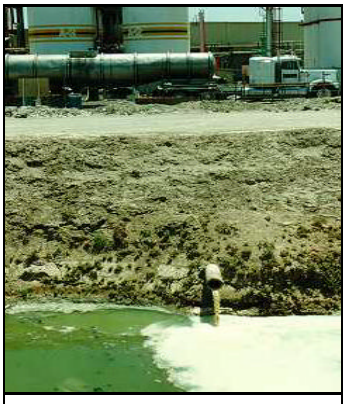


Figure 83: Discharge from Conasupo (Jul 1987)

In a November 18, 1987 letter from U.S. EPA to the Regional Board, the difficulty in pursuing correction of Mexicali's pollution within the United States was expressed thusly:

"We, of course, recognize the difficulty and futility of trying to treat the flows of an

entire river, the task seeming futile when one considers how much easier it would be to stop the pollution at its source. We understand the sense of frustration that has resulted from trying to get Mexico to deal with its pollution problems. Nonetheless, we still feel that the only feasible solution to the problem lies in abating the pollution at its source and are encouraged by recent progress that has been achieved in the Tijuana/San Diego area. Our hope is that with new leadership at the International Boundary and Water Commission and rekindled interest from the State of California and EPA, sensible and economically feasible solutions within Mexico can be attained."

In a January 26, 1988 transmittal letter, the State Board submitted the following comments to State Senator Bergeson:

Figure 84: Construction of treatment works at Quimica Organica (Jul 1987)

"I am transmitting a copy of a Phase I Report on Pollution Abatement for the New River which was prepared in accordance with your legislation, Chapter 1468, Statutes of 1986. The report, prepared by James M. Montgomery, Consulting Engineers, recommends implementation of specific control measures beginning with a screening facility near the International Boundary to remove trash and debris from the entire flow of the New River. Additional control measures include chlorination for disinfection, aeration to eliminate septic conditions and fencing to restrict public access to the New River through the City of Calexico... As an alternative to chlorination, we believe that wetlands treatment and sedimentation within the channel of the New River can offer a low cost and environmentally sound method of pathogen and organics removal. Such treatment should be piloted in the New River channel over a two-year period. The preliminary construction estimate for all the proposed facilities recommended in the New River Report is $41,000,000 in 1987 dollars. In accordance with these recommendations, we request that $325,000 be made available as soon as possible for Phase II study of chlorination, aeration and wetlands treatment and $1.2 million for the design of a screening facility and preparation of an Environmental Impact Report."

A similar letter was mailed to U.S. EPA requesting attention to this problem.

Figure 85: Wastewater basins at Fabrica de Papel S.F. (Jul 1987)

Figure 86: Discharge from Fabrica de Papel S.F. (Feb 1988)

In a May 10, 1988 letter, the Chair of the Regional Board expressed the following concerns to the Administrator of U.S. EPA:

"Although initial efforts by the EPA to address the New River pollution problem with Mexico seemed promising, the apparent lack of any significant progress over the past several years is disappointing, and continues to be a growing concern to our Board…our routine monitoring of New River water quality near the International Boundary shows fecal coliform levels extending into the millions of MPN/100 ml of sample, and sewage solids are often plainly visible in the river water…In view of this concern, the Board requested that I forward a letter to you requesting a status report on the EPA-SEDUE endeavors in regards to New River, and what your plans are for at least the immediate future, as well as the current long-term actions proposed to be taken to meet the objectives/goals expected under the Presidential Agreement. We also request your forthright responses to the following questions:

"1. Does SEDUE have the resolve and authority to bring about significant abatement of New River pollution in Mexico? If so, why do major sewage and industrial waste problems remain unresolved? For example: does SEDUE have any authority to control industrial waste discharges, to correct the sewerage problems, and to relocate the garbage dump at a location away from New River and its tributaries, including dry washes?

"2. Does a realistic framework exist within the August 14, 1983, Agreement to obtain significant correction of the New River pollution problem?

"3. Specifically, what are EPA's future plans to address the New River problem; and what resources will be allocated to follow through with those plans?

"4. Is there a time frame that EPA-SEDUE is working under to produce the necessary corrective actions expected under the Presidential Agreement?" [1]

A June 27, 1988, letter from U.S. EPA to the Regional Board Chair reported the following:

Figure 87: Conasupo plant (Apr 1988)

"EPA has reviewed the pollution problems in the New River caused by Mexicali municipal and industrial waste discharge with SEDUE at several past Water Work Group meetings under the 1983 Agreement. SEDUE has expressed its commitment to correcting these problems, and offered a number of tentative schedules, but for various reasons, including the unavailability of funding, have delayed putting adequate controls in place. They have acknowledged their own frustration over these problems, for public health reasons. A new environmental law passed in January 1988 should expand SEDUE's programs and enforcement capabilities."

An overview of the New River pollution in Mexicali was prepared by U.S. IBWC in August, 1988, and contained the following:

Figure 88: Discharge from Conasupo (Apr 1988)

"The main treatment system went into operation in 1976 with 8 lagoons. In 1981, 5 additional lagoons were placed in operation. In 1985, Mexico cleaned one primary lagoon. All 13 of the Mexicali lagoons have been in use since July 1986…This system usually receives about 21 mgd and was designed to treat 23 mgd. Effluent does not meet EPA secondary treatment standards. Appropriate industrial waste-water pretreatment, sludge removal, internal flow distribution changes, and chlorination would each improve effluent quality…In 1984, effluent from the Mexicali lagoons was experimentally applied to 20 acres. They are currently irrigating about 120 acres of barley and wheat. There are plans to eventually reuse all of the effluent for crop irrigation. Possible obstacles to these plans include salinity buildup in the soils, increased disease potential from mixing the effluent with canal water and reluctance of the farmers to use it.

---

1 **The Presidential Agreement is the August 14, 1983 La Paz Agreement.**

Figure 89: Color difference in effluent from Mexicali lagoons indicates disparity of treatment in lagoon cells (Apr 1988)

Figure 90: Replacement of worn pump at Pumping Plant No. 1 as part of joint U.S./Mexico $1.2M project (Feb 1988)

"Southeast of Mexicali, four new aerated lagoons were constructed and placed into service for the Gonzales-Ortega area in December, 1980. This system, with a design capacity of 0.3 mgd, quickly became overloaded. The present flow is about 3 mgd.

"In June 1987, Mexico began construction of four additional aerated lagoons at this site, which will increase the treatment capacity to 3 mgd. As of June 1988, all earthwork was completed and an internal piping system installed.

Figure 91: Overflowing sewer manhole (Apr 1988)

"Collected sewage enters Pumping Plant No. 2 by gravity and by the small Right Bank Pumping Plant delivering flows from the North Collector. Pumping Plant No. 2 lifts the sewage to Pumping Plant No. 1, which in turn lifts that load and other inflows to the main oxidation lagoons. Both pumping plants have suffered numerous breakdowns with resultant bypasses of untreated sewage to New River. Motors, pumps, and valves are being rehabilitated under IBWC Minute No. 274…The Mexicali sewage collection system is in need of rehabilitation and expansion. The North Collector system which is a major collector serving the northeast area of Mexicali has suffered numerous breakdowns. Mexico is currently replacing 8,800 feet of that collector line with 42" PVC pipe and work was estimated to be 50% complete on July 20, 1988. Whenever the North Collector is out of service, flow of approximately 12 mgd is dumped untreated from it to Drain 134, thence to the New River. There are numerous small discharges of untreated sewage to New River and its associated drains wherever the collector lines are overloaded, blocked or unsewered.

Figure 92: Raw sewage bypassing at Pumping Plant No. 2 (Oct 1988)

Figure 93: Raw sewage coursing through Mexicali streets before spilling into New River (Oct 1988)

"A solids separating screen was installed at the municipal slaughterhouse in 1979; however, it became inoperable in February 1985. During its outage, the waste material from the slaughterhouse including blood, guts, and other animal parts were discharged directly to New River…As a result of a diplomatic note sent from the United States Department of State to Mexico's Secretariat of Foreign Relations on July 9, 1987, Mexico installed a new solids separator and pumping system at the slaughterhouse. This new system went into operation November 16, 1987. The solids are hauled away and the liquid waste goes to the sewer.

"(Quimica Organica)--First stage treatment works were completed in November 1984. Second stage treatment works (oxidation lagoon) were completed in December 1987 and are now in operation. According to Mexican officials, work was completed in June, 1988 of an on-site treatment facility begun in late 1987. As of July 1988, this facility is not in operation.

"In 1985, Mexico relocated a dump from the banks of New River, which eliminated a direct-pollution problem. However, a new dump has been started about one mile from the old dump on a drain to New River which will result in water pollution problems similar to its predecessor. SEDUE has rechanneled drain flow to the extreme southside of the area and covered some of the area with clay material; dumping continues on top of this clay layer."

Figure 94

Figure 95

Figures 94 and 95: North Collector sewer pipe replacement project (Jun 1988)

In a progress report received from the U.S. IBWC Commissioner Gunaji[1] it was reported that:

"Dedication ceremonies for all Minute No. 274 facilities held on November 29, 1988, were attended by both Commissioners of the IBWC along with other officials from both countries. Under this project, rehabilitation of Pumping Plant No. 2 has been completed and the bypass stopped. Wetwell construction at the new Pumping Plant No. 1A is about 60% complete. Approximately 80% of the discharge pipe to convey the sewage from Pumping Plant No. 1A to the lagoons has been installed. SEDUE officials advise that construction will be completed by the end of December."

Figure 96: Construction of Pumping Plant No. 1A--now Pumping Plant No. 3 (Oct 1988)

In a transmittal letter of January 31, 1989, State Board staff made recommendations for addressing a wide array of New River pollution problems in Mexicali, some of which are summarized below:

- **Mexicali Drain wastewater should be collected and diverted into treatment lagoons proposed south of Mexicali.**
- **Drain 134 should be diverted into the Mexicali sewer collector system.**

1 **Narendra N. Gunaji served as U.S. IBWC Commissioner from April 27, 1987 to May 31, 1994.**

- **Foam suppression needs to be addressed either by rehabilitating and maintaining a system in Mexico or constructing a facility in Calexico.**
- **Abandon the overloaded Gonzalez-Ortega lagoons and treat the wastewater at the proposed Mexicali II treatment plant.**
- **Implement improvements at the Mexicali I lagoons including flow distribution, water quality monitoring, debris removal, overload prevention, and irrigation reuse.**
- **Construct a Mexicali II treatment plant adequate to handle cumulative wastewater flow for 20 years.**

On February 27, 1989, State Senate Bill (SB) 663 was introduced, which if adopted, would appropriate $250,000 from California's General Fund to the State Board for allocation to the Regional Board to prepare a phase II workplan, as prescribed, for abating the pollution levels in the New River and the Alamo River, to be completed by January 1, 1991[1].

In a March 28, 1989, letter, the Regional Board's Executive Officer recommended some redirection in the proposed phase II effort as follows:

Figure 97: New River at International Boundary (Oct 1988)

"Since Montgomery Engineers, Inc. prepared the Phase I New River pollution abatement workplan, significant events have occurred ¾- most notably the implementation of a $1.2 million joint United States/Mexico project to construct corrective pollution control works within Mexicali. We have always been of the opinion that source control and implementation of corrective measures within Mexico is a vastly more efficient way of correcting the New River problem than attempting to treat the entire river flow within California. Because of the events that have transpired, I suggest that the focus of the Phase II workplan be shifted from that of the Phase I workplan in view of the now apparent potential for correcting all or most of the problem within Mexico... In the Phase I workplan, Montgomery Engineers, Inc. recommended the following projects for implementation:

> *"Constructing a screening facility for New River at or near the International Boundary.*

[1] **SB 663 did not advance, therefore the funding for this effort did not materialize.**

Figure 98

Figure 99

Figures 98 and 99: Renovation of Pumping Plant No. 2 underway (Oct 1988)

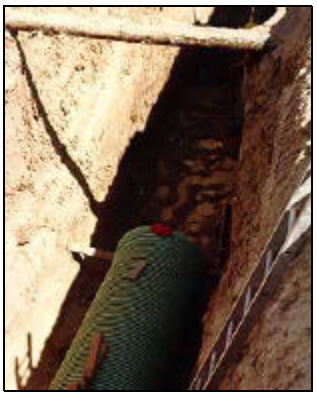


Figure 100

Figure 101

Figures 100 and 101: Replacement of concrete sewer lines with PVC pipe along North Collector (Oct 1988)

"Redirecting Mexico's portion of the Alamo River into the New River watershed.[1]

"Disinfection and aeration of the entire New River flow within California near the International Boundary.

1 **The flow in the Alamo River from Mexico is small - only about 2-5 cfs.**

"Development and evaluation of a pilot wetlands project to determine effectiveness in treating New River water.

"Although we are not unsupportive of these projects, at this time we believe that the need for the screening facility is less than it was previously, due to the potential now for source control in Mexico. We remain highly supportive of the Alamo River redirection, but believe that the project could most expeditiously be implemented within Mexico, and are working with the International Boundary and Water Commission and the State Water Resources Control Board toward this. The disinfection and aeration of the entire New River flow would require considerable resources, and there are questions of safety in utilizing the chemicals required for disinfection, so at this time we suggest that resources may be more effectively directed elsewhere… Realizing the potential for corrective actions within Mexico, we believe that Phase II should focus on California-based treatment of New River using wetlands." [1]

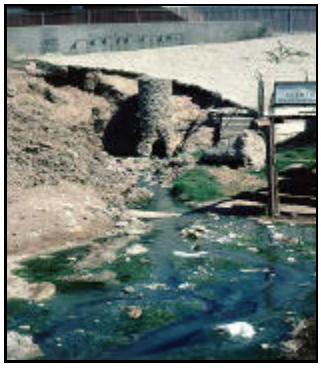


Figure 102

Figure 103

Figures 102 and 103 Raw sewage spill at the International Boundary (Mar 1988)

In May 1989, State Board staff prepared a detailed technical report entitled <u>New River Pollution Abatement --- Preliminary Design Report and Cost Estimate</u> for the IBWC. The report covered the following recommended projects:

---

1 The Regional Board's enthusiasm for wetlands treatment of New River waned substantially when a court decision directed at the Penn Mine cleanup in Central California was made finding that a non-responsible party that initiates a goodwill cleanup effort could in effect become the primary responsible party and be charged with total cleanup.

a. Mexicali No. 1 Lagoon Enhancement
b. Collection System Rehabilitation
c. Drain 134 Diversion
d. Right and Left Bank Collector Replacement[1]
e. Alamo River Diversion
f. Mexicali Drain Diversion
g. Mexicali Drain Pump Station Forcemain and Treatment
h. Mexicali Drain Treatment Disposal Lands
i. Mexicali No. 1 Reclamation Lands
j. One-half of Mexicali South Collection System
k. Mexicali South Influent and Effluent Canal
l. One-half of Mexicali South Lagoons and Reclamation
m. Gonzales-Ortega Pump Station and Forcemain
n. Effluent Diversion to Laguna Salada
o. Complete Mexicali South Collection System
p. Mexicali South Lagoons and Reclamation

Figure 104: Screen to reduce foam at Mexicali effluent outfall to New River (Jul 1989)

The State Board report also included the following summation:

"The projects will abate most current and future public health and pollution hazards associated with the New River in Mexico and the United States. The projects are low cost, reliable solutions to the most critical problems which exist or are anticipated. If constructed, the projects will allow for continued industrial development and population growth in the Mexicali metropolitan area while reducing the public health threat on both sides of the border. Finally, the projects provide a means for Mexico to maximize its use of freshwater supplies from the Colorado River."

A letter of June 22, 1989, from California Governor Deukmejian to U.S. Secretary of State Baker made the following request:

"I understand you will be attending a meeting in Mexico City in August with Fernando Solana Morales, Mexico's Secretary of Foreign Relations, in advance of a meeting between the Presidents of the United States and Mexico. I urge that you include on your agenda discussion of the water quality problems in California associated with sewage flows from Mexico into the Tijuana River and New River. I further request that specific solutions to these problems be elevated to discussion and agreement between President Bush and President Salinas."

1 These sewage collectors convey sewage from the northern perimeters of Mexicali to Pumping Plant No. 2.

In a July 14, 1989, update of Mexicali's progress in addressing pollution control, the IBWC Commissioner reported that:

> *"The old mechanical foam suppresser has been replaced with a metal screen on the effluent drain near the international boundary and it is effective as no foam is moving downstream in New River into the United State."*[1]

Figure 105

Figure 106

Figures 105 and 106: Installation of new sewer pipeline along the east bank of the New River, near A. Reforma. The uphill grade to Pumping Plant No. 2 has made sewage conveyance difficult, leading to line clogging and sewage spills (Jul 1989)

In an August 17, 1989, letter to the U.S. IBWC Commissioner, the Regional Board Executive Officer reported the following:

> *"I am pleased by the progress being made in Mexicali to resolve the New River pollution problem, particularly the sewage related problems. The actions of the International Boundary and Water Commission in effecting this progress are certainly commendable…One problem which I want to bring to your attention, though, is what appears to be an increasingly ineffective program of solid waste management within Mexicali. It appears that Mexican authorities are now making reasonable progress in New River pollution abatement with this one exception. Although I believe that correction of Mexicali sewage and*

Figure 107: Construction of Pumping Plant No. 1A (Jul 1989)

1 Although this device was more effective than previous devices, some foam continues to be present in the river at the border.

industrial waste discharges to the river are a higher priority than the present solid waste problem, it does seem that Mexico could address the solid waste problem concurrently with the other pollution problems and without affecting the present progress being made in addressing those problems."

A reply from the U.S. IBWC Commissioner dated September 14, 1989, contained the following:

"Although IBWC Minute 264 does address floating trash, etc., it does not provide for the overall solid waste management within Mexicali. Nevertheless, I will discuss the issue with the Mexican Commissioner to see if he can provide any information on Mexico's plans for solid waste management in Mexicali and its impacts on the New River."

On November 15, 1989, the Regional Board's Executive Officer forwarded the following comments on a bill (AB 1598) introduced to address New River pollution abatement:

"The bill would provide resources for enclosing the section of the New River which flows through Calexico. Although this project would not improve the water quality of the river, it would, if designed properly, serve to eliminate the public health hazard and aesthetic problems associated with the river for the length of river covered. The City of Calexico, in consultation with the Department of Health Services, should be instrumental in design/construction/operation of an approved project to best suit the needs of the City…The bill would also provide resources for constructing a defoaming device near the International Boundary. Although Mexico has recently constructed a defoaming device on the Mexican side of the border, which in our opinion has been reasonably effective in controlling foam, there is no guarantee that the device will remain effective in the future. Therefore, the prudent course of action should be to install a defoaming device on the California side of the border."

In a December 21, 1989, letter to Governor Wilson, the U.S. IBWC Commissioner provided the following information:

"In 1988 and 1989, the United States and Mexico through the International Boundary and Water Commission carried out a jointly funded $1.2 million project to obtain some improvement in the quality of the waters of the New River. The project consisted of construction of a new pumping plant, rehabilitation of old pumping plants, and acquisition of truck-mounted sewer line cleaning equipment. In addition, Mexico replaced and repaired portions of the North Collector Line, thereby reducing a major source of pollution to the New River…Mexico has indicated a strong interest in participating in additional joint projects. The U.S. Section, IBWC, in cooperation

with the Environmental Protection Agency and the State of California, has identified a number of possible joint projects. In all cases, these agencies agree that the least expensive and most effective solution is to correct the problem at the source in Mexico. The extent of participation in a jointly financed project by the United States, and perhaps the project itself, will be dependent upon financing by Congress. We expect to begin discussions with Mexico on these projects early in 1990."

A February 14, 1990 bill (SB 1999) introduced by Senator Bergeson would require:

"The State Water Resources Control Board shall conduct a pilot study to determine the feasibility of the use of wetlands treatment in improving water quality in the New River. The bill would appropriate $100,000 for the study."

Figure 108: Discharge from City slaughterhouse (Nov 1990)

A March 12, 1990 progress report from the U.S. IBWC Commissioner contained the following:

"The $1.2 million joint project was placed into service on Thursday, February 22, 1990. This completes work under Minute No. 274. A possible additional IBWC joint project at Mexicali is being studied."

On April 10, 1990, an inauguration/delivery ceremony was held in Mexicali for this project's completion.

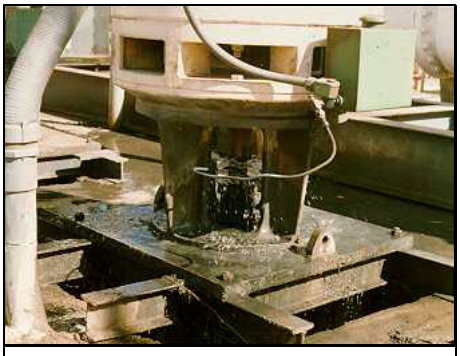


Figure 109: Worn out pump motor at Pumping Plant No. 1 (Nov 1990)

An April 23, 1990, letter from the Regional Board Chair to the U.S. Secretary of State requested the following assistance:

"We believe the need for addressing and resolving the New River pollution problem is urgent, and thus are requesting your assistance in elevating the priority of this long-standing problem. We are encouraged that Mexico has recently accepted U.S. technical and economic assistance toward the successful completion of a joint $1.2 million U.S./Mexico project to begin to address a cleanup of the New River on the Mexican side of the border. The timing now appears right for implementation of more extensive pollution control projects in Mexico to fully resolve the New River problem. Your assistance

would be most valuable in gaining the necessary cooperation from Mexican officials for further project implementation, and also in addressing project funding."

Proposition 148, the Water Quality Bond Law of 1990, would support an array of water projects including $15 million for New River cleanup if approved by California in the November 1990 election[1].

During 1990, the Mexican government relocated the Mexicali City dump to an outlying area where the New River was not threatened[2].

Assembly Bill 1800 was introduced on March 8, 1991 and if enacted[3] would:

"…enact the International Border Wastewater and Toxics Cleanup Bond Act of 1991, which, if adopted, would authorize, for purposes of financing a specified wastewater and toxics cleanup program in the international border region, the issuance of bonds in the amount of $150,000,000, pursuant to the State General Obligation Bond Law."

In May 1991, U.S. IBWC received a conceptual plan by the Mexican government for addressing the pollution of the New River in Mexicali. The U.S. IBWC Commissioner described the plan and requested some financial support in a letter of July 31, 1991, to Governor Wilson:

"I take this opportunity to inform the State of California that after several years of technical discussions, based in large part on the technical advice of the California Water Resources Control Board and the Regional Water Quality Control Board, Colorado River Region, the International Boundary and Water Commission, United States and Mexico (IBWC), has intensified talks that could result in a United States-Mexico conceptual plan for the solution of the New River border sanitation problem. As I have mentioned to California authorities, the lack of sufficient Mexican financing and adequate binational technical oversight have been obstacles to an effective solution to this long-standing problem. I believe that we now have a real opportunity to overcome these difficulties if certain components of this long term solution could be resulted in corrective actions in other problem areas along the border. In addition to

1 The Proposition failed.

2 Although widespread indiscriminate dumping occurs to this day within the New River watershed, this was a very significant action.

3 The Bill was not enacted.

informing California authorities of the progress of talks with Mexico, the purpose of this letter is to ask the State of California to explore the possibility of sharing in the costs of works that may be proposed in the New River solution conceptual plan. The Mexican IBWC Commissioner provided a proposal for a conceptual plan to resolve the New River problem. The Mexican proposed plan, which in principle has merit, would: 1) seek to control the problem at the source with the works in Mexicali, Baja California; 2) propose a number of construction and other action components that could be undertaken over a five-year period; and 3) provide a six-month period within which the United States and Mexico would arrange for financing…We estimate that the cost for construction of the nine principal components outlined above would be $100 million. I would greatly appreciate it if the State of California could advise whether the State would consider exploring the possibility of participating in sharing the cost of the estimated $100 million conceptual plan components."

The Regional Board supported California's participation in partially financing pollution controls in Mexicali and cited three specific projects of particular importance:

a. Diversion of Mexico's portion of Alamo River flow into the New River watershed;

b. Mexicali Drain diversion[1]; and

c. Drain 134 connection to sewage collection and treatment system.

Figure 110: Despite closures, the Mexicali Drain continued to accumulate refuse from upstream City dump sites (Jul 1991)

The State Board likewise supported California's participation and cited the following additional projects of particular importance:

- **Conduct performance evaluations of industrial pretreatment plants discharging into the Mexicali Drain. Continuously monitor effluent quality and enhance pretreatment if necessary.**
- **Implement a systematic program to identify and monitor all industrial waste discharges into the Mexicali collection system.**

[1] It was envisioned that the Mexicali Drain would either be diverted out of the New River watershed or contained within evaporation/percolation basins.

- **Provide training for Mexicali wastewater personnel in all areas needed to protect New River water quality and to enhance treatment levels from existing or future treatment facilities.**

Figure 111: New River at International Boundary (Jul 1991)

Figure 112: Discharge from Conasupo plant (Jul 1991)

Figure 113: Discharge from Quimica Organica (Jul 1991)

Figure 114: Effluent from Gonzalez-Ortega treatment lagoons (Jul 1991)

Figure 115: Discharge from City slaughterhouse (Jul 1991)

Figure 116: A New River tributary drain (Jul 1991)

Figure 117: Effluent from treatment lagoons--treatment effectiveness is much better during warmer months (Jul 1991)

Figure 118: New River at Calexico; the gauging/water sampling station is to the left (Jul 1991)

On September 24, 1990, Governor Deukmejian approved SB 1999 with an important deletion thusly:

> *"I am deleting the $100,000 appropriation contained in Section 2 of Senate Bill No. 1999."*

This bill required the State Water Resources Control Board to conduct a two-year water treatment pilot project for the New River in Imperial County and before the Governor's deletion would have appropriated $100,000 from the General Fund for that purpose. The bill required the SWRCB to report to the Legislature on the findings of the pilot project by April 15, 1993.

Figure 119: Closure of the City dump in Mexicali Drain channel east of the San Felipe Highway crossing (Jul 1991)

On February 6, 1992, the Regional Board was alerted of the following problem:

> *"IBWC called on February 6, 1992, and reported that the force main between pumping plants 1 and 2 has ruptured. The repair will take up to three weeks and the flow of 10-15 MGD will be bypassed to the New River."*

In March 1992, it was learned that Quimica Organica, a major polluter of the New River, was closed by the Mexican government due to a history of chemical spills and accidents[1].

On March 31, 1992, the Imperial County Board of Supervisors adopted a Resolution addressing New River pollution control, stating the following:

> *"A). The County of Imperial through this Resolution of the Board of Supervisors, is fully committed to support all efforts of the Federal and State Government in conjunction with Mexico, to immediately commence the clean up of the New River; B). The clean up efforts must include…maximum efforts by the U.S. and Mexico, at source reduction of the pollution; C) The treatment facility must be located where the taxpayers who funded the project have an ongoing ability to control the facility; D) The treatment facility must be owned, designed, built and operated to our standards of treatment, and the ongoing control and maintenance should be under direct U.S. control; E) The economic benefits of the construction [of the treatment facility] and ongoing operational employment should be a positive impact for the people*

[1] **The plant operation remains permanently closed and has slowly been dismantled; the primary concern of the Mexican government appeared to be toward air-borne threats rather than water pollution.**

of the U.S. who funded the project in the first place; F) The benefits of the clean up, in addition to a cleaner river would also provide mitigation efforts for the Salton Sea and provide unlimited recreational opportunities; G) This treatment facility should have the same emphasis and be constructed on this side of the border just as the desalinization plant recently built on the Colorado River near Yuma."

An editorial in the Imperial Valley Press of April 19, 1992, concluded with the following:

"Being realistic, I strongly doubt any one body of government, spurred by even the most enthusiastic leaders, will accomplish a satisfactory and positive conclusion to the New River dilemma. But, if the right people, and for the right reasons, collectively come together from Imperial County, the state of California and our federal government, and each shoulders the responsibility that common decency and financial ability would dictate, we might in our lifetimes, see such a project take place."

On July 21, 1992, a public meeting was held in Calexico by U.S. IBWC to discuss a proposed conceptual plan to resolve the New River sanitation problem. Some excerpts from the minutes of the meeting follow:

"The U.S. Commissioner said the proposed agreement seeks a permanent and definitive solution by controlling pollution of the New River so that the River can be restored to its original Mexican agricultural drainage state. He emphasized that the goal is not to meet a drinking water standard…The solution in Mexico would be performed by construction of specific works in the Mexicali service areas which would be divided in two parts, Mexicali I, the older service area, and Mexicali II the new service area to the east…The IBWC would have a period to assess costs and develop cost distributions and then develop specific construction agreements."

Figure 120: Mexicali Drain at San Luis Highway crossing (Aug 1992)

A number of comments from Imperial Valley residents indicated desire to have a treatment plant to abate New River pollution constructed in the United States.

In September 1992, the U.S. Army Corps of Engineers (Corps) completed an assessment of wastewater collection, treatment and disposal needs for the entire United States/Mexico border region (except Tijuana) for IBWC. The Corps report estimated Mexicali wastewater needs would require a construction budget of $447,000,000 for 1993-1997. State Board staff prepared comments on the assessment.

Figure 121

Figure 122

Figure 123

Figure 124

Figures 121 through 124: Raw sewage spills into the New River (Aug 1992)

Figure 125: Drain 134; shortly after this photo was taken, the Drain was encased in an underground pipeline (Aug 1992)

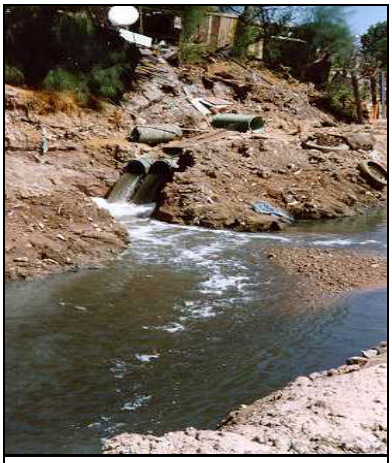


Figure 126: Raw sewage bypass from North Collector to Drain 134 (Aug 1992)

A COOPERATIVE APPROACH (LATE 1980'S)

Treaty Minute No. 274 (Adding Pumping/Treatment Works)

TREATY MINUTE NO. 288

On October 30, 1992, Treaty Minute No. 288 was signed by IBWC officials. The minute was entitled Conceptual Plan for the Long Term Solution to the Border Sanitation Problem of the New River at Calexico, California -- Mexicali, Baja California and stated the following:

> *"The Commissioners considered that if the actions and works proposed for the Mexicali I and the Mexicali II systems are carried out within approximately five years in the above-described manner, discharges of untreated or partially treated domestic and industrial wastewaters to waters of the New River will be eliminated. The commissioners also noted the information of the U.S. Commissioner that his Government is willing to participate financially in components of the conceptual plan since improvements of the water quality of the New River to levels acceptable to the United States and Mexico is in the interest of both countries...The Commissioners concluded that regardless of the source of financing, the works planned for the Mexicali I and Mexicali II systems should be designed, constructed, operated, and maintained in a manner that will ensure that no untreated domestic and industrial wastewaters are discharged into the New River or its tributaries and that the effluent from treatment facilities in Mexico have a quality such that the waters of the New River at the international boundary meet the standards that are agreed to by the two Governments in a Commission Minute."*[1]

On November 16, 1992, a meeting was held between representatives of U.S. IBWC, U.S. EPA, and California EPA to discuss implementation of Minute 288. The following was communicated:

> *"The California Agencies and EPA outlined their views on priority works that would produce the most immediate visible results. All agencies agreed that the United States financial participation be focused on the long-term engineering solution of diverting Mexicali wastewaters outside the New River basin. This amounts to add ons to Mexico's basic plans premised on meet-*

Figure 127: Attempted collection of fish for toxics analysis in New River at International Boundary (Dec 1992)

1 In general, the agreement called for rehabilitation of existing sewer lines, pumps, and treatment facilities, and construction of new facilities where needed (i.e. Mexicali II). Mexico would design the facilities to comply with Mexico's standards, but the U.S. would have the opportunity to potentially finance certain components of the project where a higher standard was desired.

ing to the extent possible, the more stringent California standards in the New River at the international boundary. The California agencies and EPA will work with USIBWC over the next few months on standards scenarios."

Regarding water quality standards:

"It was agreed that, initially, standards contained in Treaty Minute 264 should be the objective. Following this, compliance with Mexico's own standards would be the objective. At some (unspecified) time in the future, Mexico should be expected to comply with California water quality standards."

Figure 128: Discharge from Kenmex spills into this drain (Mar 1993)

Regarding priority, it was generally agreed during the November 16, 1992 meeting that:

"Initially, raw sewage spills from the left and right bank wastewater collectors, Drain 134 and other sewage spills should be eliminated. These flows were estimated to be 6-7 MGD currently."

Regarding water quality monitoring, it was also agreed that:

"IBWC would request the establishment of monitoring stations at the following locations:

"1. Mexicali I lagoon discharge just prior to the New River
"2. Drain 134 prior to the New River
"3. Mexicali Drain (which includes the Gonzales-Ortega lagoon effluent) just prior to the New River
"4. New River prior to the Mexicali Drain confluence"

Figure 129: One of several discharge points from Vitromex (Mar 1993)

A Regional Board staff report covering a March 3, 1993, binational inspection in Mexicali contained the following regarding industrial discharges:

"To the immediate south of the Hidrogendora Nacional and Quimica Organica plants a glass factory, 'Vitromex', has opened. The plant is a relatively large operation with several discharge pipes noted spilling into the Mexicali Drain (tributary to New River). One of these pipes was discharging about 10 gpm of clear wastewater with some foam. Also, heavy black oil was observed trickling from a drum into the drain.

"Another new plant, 'Quipac', was noted directly across the drainageway from the Quimica Organica plant. Two recently installed discharge pipes were observed originating from the plant -- one of these was discharging about 1 gpm. A truck carrying drums of chemicals was parked with corrosive placards. The business is apparently associated with chemicals distribution.

"The usual discharge was noted from the Kenmex plant,[1] about 5 gpm of clear, gray wastewater. Major development is beginning adjacent to the Kenmex plant, which may be associated with Kenmex. A manhole was being constructed, which indicates a new future discharge source to the Mexicali Drain."

At a May 25, 1993, binational meeting, Mexico reportedly provided the following information on New River pollution control:

- **Mexico expects to have the North Collector/Drain 134 sewage overflow problem corrected by early 1994.[2]**
- **Mexico reported substantial progress with capturing the domestic and industrial wastes now flowing in various old agricultural drains. These drains were reportedly being replaced with sewer interceptors.[3]**
- **Mexico expects to increase agricultural reuse of effluent from the Mexicali I Lagoons, thereby reducing the discharge to the New River.[4]**

Figure 130: Tour of Mexicali to review New River problem (Apr 1993)

- **Mexico provided the results from an analysis of where the new Mexicali II treatment system would be located. Due to financial limitations, Mexico now proposes to**

1 **Kenmex (Kenworth) is an assembly plant for trucks/tractors.**

2 **This was not accomplished and remains a problem to this date.**

3 **To this date, many problems remain, including some new ones.**

4 **This effort has largely been a failure.**

construct these future lagoons on the New River just 12-14 kilometers from the Border. Furthermore, due to this location, no Mexicali II wastewater reuse was expected. [1]

Figure 131

Figure 132

Figures 131 and 132: Drums of chemical waste stored in Cierro Prieto area, many of which were of U.S. origin. This was apparently part of a purported recycling effort that was a front for a disposal operation. The waste from the U.S. was returned (May 1993)

On September 15, 1993, the Regional Board adopted Resolution No. 93-130, which requested that:

> *"1. The International Boundary and Water Commission immediately seek sufficient funding from the governments of the United States and Mexico to implement the pollution control projects specified in Minute No. 288.*
>
> *"2. The International Boundary and Water Commission continue progress toward developing and implementing corrective projects in Mexicali to address the New River pollution problems as expediently as possible."*

In September 1993, Imperial County adopted a proclamation citing the following concerns:

[1] **In 1989, the State Board staff recommended locating this plant far enough south that effluent would not reach the New River drainage.**

"…the Board of Supervisors of the County of Imperial does hereby find that conditions of extreme peril to the safety of persons and property have arisen within said county caused by uncontrolled flow of 127,818,864 gallons of raw and inadequately treated sewage and seepage from major garbage dumps, slaughterhouses, and industrial refuse coming across the border daily into the New River in Imperial County; and…the raw sewage causes contamination of the surrounding land and discharges into the Salton Sea in a condition that is incompatible with the ecology and varied public uses of some of California's most important recreational areas, and…this condition constitutes an economic and public health threat which warrants and necessitates the proclamation of the existence of a local emergency."

The proclamation concluded by ordering:

"…that a copy of this proclamation be forwarded to the Governor of California with the request that he proclaim the County of Imperial to be in a state of emergency pursuant to Section 8625 (b) of the California Government Code, and…is further ordered that the Governor of California be requested to provide any available State and Federal aid to help alleviate this emergency condition."

On September 28, 1993, Governor Wilson issued a Proclamation of a State of Emergency regarding the New River.

5

A COOPERATIVE APPROACH (LATE 1980'S)

Treaty Minute No. 288

A U.S./Mexico Partnership (Early/Mid 1990's)

6

WORKING TOWARDS PROBLEM SOLUTION

On December 16, 1993, Imperial County petitioned U.S. EPA as follows:

"After decades of neglect and with significant growth in population and industrial facilities projected for Mexicali, Mexico, Imperial County feels it must initiate action to focus the federal government's attention on the New River. Accordingly, Imperial County, California petitions Administrator Browner, under Section 21 of the Toxic Substances Control Act, 15 U.S.C. Sections 2601, et seq., to issue a rule requiring testing of the chemical substances present in the New River to determine the levels of these chemicals and their effects on the health of the predominantly poor Hispanic population of Imperial County. Imperial County also requests that the Environmental Protection Agency ("EPA") take additional action once it has determined the risks posed by the New River. Imperial County also petitions Administrator Satcher, under Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S. C. Sections 9601, et seq., to conduct a comprehensive health assessment of the New River...Imperial County understands that the federal government has acknowledged that it is responsible for the remediation of the international pollution problem associated with the New River. Given the ratification of the North American Free Trade Agreement, Imperial County feels the time is ripe for resolution of this international pollution problem. As part of this petition, Imperial County requests Administrator Browner and Administrator Satcher to raise the need for a solution with Mexican officials."

The following excerpts are from a press release discussing a trip by Imperial County officials to Washington D.C. to generate support for a New River cleanup:

"The basic purpose of the trip was to call attention to the need to clean up the New River and to provide Imperial County support for a proposal by the State of Baja California to establish a project to rid the New River of pollution due to sewage contamination. The State of Baja California proposed a New River Restoration Project which would rehabilitate Mexicali's existing waste water treatment plant and collection system and provide for the construction of a new water treatment system and pumping station. Baja officials opined that approval of the new facilities will end the flow of untreated sewage into the New River, and that, without such a New River

sanitation project, the flow of raw sewage water into the United States will increase to 26 million gallons per day by the year 2010. The total project would cost some $34.0 million; Baja officials were attempting to obtain capital investment funding for some $19.5 million. The remainder of necessary funding would come from Federal grants, user fees, and private investments…Imperial County officials supported this project and related New River clean-up matters at a number of meetings in Washington D.C. Our congressional delegation representatives indicated they would be willing to work with us to facilitate any kind of legislation that might become necessary to New River clean-up efforts and/or to formalize the project proposed by Baja California. One of the major discussion areas which evolved at these meetings was the subject of cleansing the New River of toxic contamination (as contrasted to sewage pollution). It was generally agreed between both United States and Baja officials that a clean up of the New River would also require programs to attack toxics at the same time we are attacking sewage, such as pretreatment and enforcement programs for industrial wastes and possibly with United States assistance and participation in such programs. The World Bank and Inter-American Development Bank officials made it very clear that ample funds were available for such a project but that a strict requirement would be that such funds would be in the form of loans for which repayment must be assured."

In a letter of January 26, 1994, addressed to U.S. EPA, the Chair of the Imperial County Board of Supervisors stated the following:

"Imperial County has a major stake in the clean-up of the New River, which flows north from the Mexican State of Baja California into the County. Frankly, we believe that there is a connection between the County's poverty and the fact that the New River remains perhaps the nation's most notorious untreated waterway…Recognizing that a long-term solution will require cross-border cooperation, we also began in October a process of consulting with our colleagues in the State of Baja California. Those consultations resulted in the execution on December 14, 1993, of an unprecedented Memorandum of Understanding between the County and Baja California. As a result of that Memorandum of Understanding, and drawing on its prior work, the Secretariat of Human Settlements and Public Works developed the outlines of a plan for an international project, to be located near the border in Mexico. The project would upgrade the existing Mexicali I project and construct a second plant to be known as Mexicali II. Together these projects are intended to treat the New River to secondary treatment standards at a preliminary estimated capital cost of $34 million. The IBWC, through Minute 288, has made the clean-up of the New River a high priority, although for reasons that need to be examined carefully, the project scale presented by Baja California officials was much smaller than that envisioned by the IBWC…We and Baja California officials believe that a portion of the cost of

this project could be paid by private investors who might build and operate the project under a concession or similar arrangement…We look forward to discussing with you our new working relationship with the State of Baja California on plans which can effectively address the contamination of the New River."

On February 23, 1994, the Environmental Health Coalition, Committee Ciudadano Pro Restauracion del Canon del Padre, and the Southwest Network for Environmental and Economic Justice jointly petitioned U.S. EPA as follows:

"The petition requests action on the part of EPA in both the U.S. and Mexico. The petition alleges illegal action on both sides of the border. These alleged actions include illegal import, export, release and dumping as well as violations of Sections 5 and 8 of TSCA[1]."

In a press release dated March 24, 1994, U.S. EPA stated the following:

Figure 133: Pump repairs underway at Pumping Plant No. 1 (Apr 1994)

"…announced that it has denied a December 1993 petition from Imperial County to issue a test rule under the Toxic Substances Control Act (TSCA) to monitor the New River for chemical pollutants. The New River flows from Mexico into Imperial County at Calexico, California…There's no question that the New River is extremely polluted and that tests are needed to understand the extent of chemical contamination of the river', said Harry Seraydarian, water management division director for the western region. 'However, we plan to fund monitoring by the Colorado River Basin Regional Water Quality Control Board which will give us the monitoring data requested in the petition…After the first round of tests, which will be conducted by the regional board in the fall of 1994, the U.S. EPA will assess the need for additional health effects monitoring and testing. The U.S. EPA finds this approach will be faster and more comprehensive than conducting testing under TSCA…In addition to the monitoring, U.S. EPA is pursuing funding for the New River Sanitation Project, which will treat domestic sewage from Mexicali, Mexico."

In a briefing packet for a tour of the New River by Senator Boxer, U.S. EPA listed a number of efforts planned to address New River cleanup, some of which included the following:

1 **TSCA is the federal Toxic Substances Control Act.**

"EPA is pursuing specific authorization for border area projects from the 'Hardships Communities' appropriation, which will include funding for the U.S. share of costs to start the New River project described in Minute 288. Once the U.S. government has the funds to devote to the project, further agreements with Mexico can be reached in order to address priority infrastructure needs and complete detailed facility plans. EPA, through the newly created Border Environmental Cooperation Commission (BECC), will also explore alternative infrastructure funding mechanisms currently under development in both the U.S. and Mexican financial communities. The FY95 presidential request includes $29 million for New River sanitation…EPA has offered and provided technical assistance to IBWC and to Mexico in planning and designing the wastewater collection and treatment facilities for Mexicali. EPA will continue to offer such assistance…The U.S. Section of the IBWC has responded to Mexico's submittal of the proposed wastewater treatment facilities it plans to construct. The U.S. Section has requested that Mexico submit a more detailed facility plan on projects that include U.S. funding…EPA Region 9 is planning to provide financial assistance to RWQCB7 to implement their monitoring proposal for the New River. EPA will ensure that the comprehensive monitoring study incorporates all the parameters of concern mentioned in the Imperial County's Toxic Substance Control Act petition, including pesticides…EPA Region 9 is planning to provide financial assistance for a contaminant modeling study of the New River. The study addresses the fate of organic chemicals as the New River flows from Mexicali, Mexico to the Salton Sea…The U.S. and Mexico will discuss a proposed program for monitoring contaminants of domestic, industrial, and agricultural origin in the Colorado River for implementation beginning in 1994."

Figure 134: Effluent from Mexicali lagoons (Apr

Figure 135: Mexicali sewage treatment lagoons (Apr 1994)

In a letter, dated June 24, 1994, to Senator Boxer, the Regional Board's Executive Officer made the following request:

Figure 136: Terminus of newly constructed Mexicali II collector at Mexicali Drain (Apr 1994)

"…the water pollution threat has seriously escalated as a result of failures in Mexicali's sewage system…At present four of the six pumps at Plant No. 1 are inoperative and the remaining two active pumps are in need of repair. Raw sewage is presently being bypassed into the River because of these pump failures, and I'm very concerned that failure of the remaining pumps at Plant No. 1 is imminent and will cause an even greater problem…What is needed is emergency funding for a project to get the pumps at Plant No. 1 back on line. I am requesting any assistance that you can provide in securing this funding. As in the past, project implementation could be accomplished through the International Boundary and Water Commission. As a whole the New River pollution problem is, without question, very severe -- but it certainly has the potential to become much worse."

In a letter, dated July 1, 1994, to U.S. Secretary of State Christopher, Senator Boxer stated the following concerns and a request for help:

Figure 137: Gonzalez-Ortega Pumping Plant (Apr 1994)

"I am writing to request that the State Department and the International Boundary and Water Commission (IBWC) take immediate action to stop the flow of raw sewage from Mexicali, Mexico into the United States…I am advised by the State of California's Regional Water Quality Control Board that $500,000 in emergency funding is needed to end the current emergency. Without immediate action, the remaining pumps could fail, sending additional raw sewage into the New River…The IBWC participated in the funding of the existing treatment plant, and there is a clear federal responsibility to respond to this emergency. I will appreciate the assistance of the State Department in ensuring the speedy implementation of measures to address this emergency."

In a memorandum dated July 1, 1994, the acting U.S. IBWC Commissioner presented the following concerns to Mexico's IBWC Commissioner:

"The United States Section is concerned that the pumps and related equipment are allowed to go unrepaired in spite of the understandings for their maintenance. We respectfully request that immediate repairs be undertaken and scheduled preventative maintenance be provided consistent with those understandings…The U.S. Section is concerned that there is a commitment for the characterization of wastewaters, control of industrial wastes, and elimination of untreated discharges to the New River. We are prepared to discuss with you a number of lower cost options that would provide some improvement to the New River quality during the period that financing is defined for the major elements. We would like to discuss low cost improvements to halt Drain 134 discharges. We have provided a proposal by the State of California for technical assistance in improving the Mexicali I lagoons. We want to discuss an opportunity for use of United States funds for water quality monitoring in the New River. We also want to discuss opportunities for cooperative efforts in dealing with industrial wastes controls."

California Assembly Joint Resolution No. 75 relative to the New River was filed with the Secretary of State on July 5, 1994, and the following was memorialized:

"…the President and Congress to implement measures, in cooperation with the Republic of Mexico and state and local public officials, to correct the contamination of the New River caused by discharges within the Republic of Mexico."

In a report covering an August 30, 1994 binational inspection, the Regional Board staff made the following recommendation for an environmental enforcement program in Mexicali:

"The lack of an enforcement program including implementation of punitive measures for sewage spills is evident and needs to be addressed as a priority item. Some spills that have been observed appear to occur for no good reason--either a low level of concern by operators or an inadequate level of personnel on duty. Additionally, Mexico should implement a requirement for reporting of all spills to a centralized enforcement agency with appropriate penalties administered for non-reporting."

In an August 31, 1994 letter to Senator Boxer, the Regional Board's Executive Officer stated the following:

"I am pleased to report that Mexico has recently taken appropriate action to repair most of the major pumps which convey the City's sewage to treatment lagoons… However, other severe problems remain and must be satisfactorily addressed before the New River will begin to approach a minimally acceptable condition. Unfortunately, some of these problems will be very costly to deal with -- especially the direly

needed renovation of Mexicali's sewage collection system. The present inadequate and incapacitated system results in routine spills of raw sewage to the river on a daily basis. We are hopeful that sufficient federal funds will be appropriated to help facilitate a comprehensive solution to this long-standing problem."

Figure 138

Figure 139

Figures 138 and 139: Pipe corrosion at Pumping Plant No.1A (Aug 1994)

On September 21, 1994, agencies within the United States and Mexico signed an agreement as follows:

"Between the Government of the State of Baja California, acting through the Comision Estatal de Servicios Publicos de Mexicali (CESPM) (the 'Grantee'), and the Government of the United States of America, acting through the U.S. Trade and Development Agency ('TDA'). TDA agrees to provide the Grantee under the terms of this agreement 56,000 U.S. Dollars (the 'Grant Agreement') to fund the cost of services required for a technical assistance consultancy on the proposed Mexicali I and Mexicali II wastewater treatment plant project."

In a letter of November 5, 1994, to the Regional Board's Executive Officer, Senator Boxer reported the following:

"You will be pleased to know that the Conference Report on Appropriations for Departments of Veterans Affairs, Housing and Urban Development, and Independent Agencies allocated the amount of $10 million for the construction of cleanup facilities in fiscal year 1995. Please be assured that I will continue to monitor the progress of the cleanup projects in the New River."

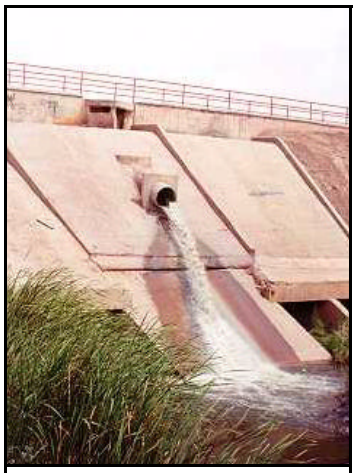


Figure 140: Bypassing of raw sewage from South Collector (Apr 1994)

Figure 141: Bypass of raw sewage from Pumping Plant No. 1 (Aug 1994)

Figure 142: Bypass of raw sewage at Av. Reforma crossing from east bank (Aug 1994)

Figure 143: Bypass of raw sewage from Gonzalez-Ortega (Aug 1994)

In a February 8, 1995, letter from the State Board Vice-Chair to U.S. IBWC Commissioner Bernal[1], the following was expressed:

1 **John Bernal has served as U.S. IBWC Commissioner since July 14, 1994.**

"On October 20, 1994, at the joint United States and Mexico meeting of the International Boundary and Water Commission, representatives from Mexico proposed to divert existing and future Mexicali wastewater out of the New River Basin. This proposal is consistent with previous State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board (RWQCB) staff recommendations and with Treaty Minute 288…There will be slight negative impacts to Salton Sea salinity and wildlife if the diversion occurs. This impact would be offset, however, by reduced flooding adjacent to the Salton Sea, public health protection to residents of the Imperial Valley, and water quality improvements in the New River and the Salton Sea…Considering the benefits which would result, any effort by Mexico to divert wastewater should be encouraged."

Figure 144: The bacteria slime growing on the substrate is evidence of the extremely polluted condition of the Mexicali Drain (Aug 1994)

Figure 145: Influent to Gonzalez-Ortega treatment facility (Aug 1994)

Figure 146: Mexicali Drain near confluence with New River (Aug 1994)

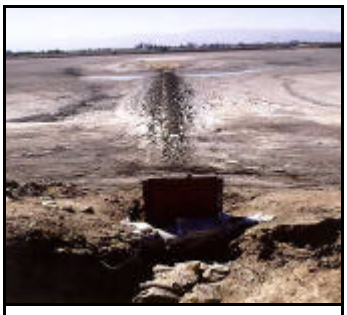


Figure 147: A primary treatment lagoon drained to repair distribution system (Aug 1994)

Figure 148: Development in upper Mexicali Drain watershed (Oct 1994)

Figure 149: Fabrica de Papel de S.F., a paper recycling plant (Oct 1994)

Figure 150: Sludge disposal at Fabrica de Papel de S.F. plant (Oct 1994)

Figure 151: Siderurgica California, a steel recycling plant (Oct 1994)

Figure 152: Discharge from Siderurgica California (Oct 1994)

Figure 153: Maseca, a food processing plant (Oct 1994)

Figure 154: Discharge from Maseca (Oct 1994)

Following an inspection of the major pumping stations for Mexicali's sewage, State Board staff reported the following:

> *"My overall assessment of the three pump stations is a mixture of positive and negative impressions. On the positive side are the simplicity of design and operation and the standby pumping capacity which provides a degree of extra reliability. The greatest problems are severe corrosion, the excessive pressure surges noted at P.S. 1A, and possible misapplication of pumps and materials."*

Figure155: Cleanout of one of Mexicali's sewage treatment lagoons (Nov 1994)

Figure 156: Sewer cleanout underway at Av. Reforma (Nov 1994)

Following a February 14, 1995 binational inspection in Mexicali, a registered Regional Board staff engineer after a first-time Mexicali inspection reported the following:

Figure 157: Repairs underway at Gonzalez-Ortega pumping station (Feb1995)

> *"The problems noted during this inspection constitute an environmental nightmare. It appears that there is no effective and consistent plan to cleanup and remediate the situation in order to prevent the direct discharge of pollutants into the New River. I was very pleased with the enthusiasm of the Mexican engineers who accompanied us in this inspection and look forward to working with them in the future to solve this problem. The following items should be implemented:*
>
> *"1. An aerial survey of the New River watershed should be conducted in order to provide us with a comprehensive look of all existing and potential sources of pollutants.*

"2. An industrial survey of all industrial entities doing business in the City. This should include sampling all wastewater generated at such facilities.

"3. A survey of all housing developments to evaluate existing sewer conditions. We need to accurately estimate the volume of wastewater generated in the City and disposal practices.

"4. A workplan should be prepared to eliminate all discharges described in this report, and others which may be discovered as part of the above described surveys.

"5. A storm water runoff control facilities plan needs to be designed and implemented. This is a major problem which was noted during this inspection.

Figure 158: An opaque blue discharge from the Quipac facility (Feb 1995)

"6. The treatment works including the collection system are in obvious need of repair.

"7. A bi-weekly inspection frequency is recommended for the above location until the problem is corrected."

Figure 159: Mexicali Drain at San Felipe Highway crossing (Feb 1995)

Figure 160: Effluent from Mexicali sewage treatment lagoons (Feb 1995)

In a March 3, 1995 letter to U.S. EPA, the Regional Board Chair expressed the following:

Figure 161: Outhouse discharging to Mexicali Drain (Feb 1995)

"We understand that U.S. EPA has approximately $37 M available to address sanitation problems along the Mexican border (Mexicali and Nogales particularly), but that it still remains unclear whether the funds are restricted to planning or may also be used for project implementation.

"Our strong belief is that exclusive use of these funds for strictly planning purposes is ill-advised and unnecessary at this point. Mexico recently completed a facilities plan specifying sewage collection and treatment projects that need to be implemented as soon as possible to abate the New River pollution problem. After reviewing the document, we found it to be basically an impressive and thorough plan, and believe that with appropriate United States oversight many of the recommended projects are now ready for immediate implementation.

"I urge your immediate attention toward expediting implementation of recommended projects in the Mexicali area. After many years of gross pollution entering the United States from Mexico, we owe the public some positive and expedient results-not merely more studies and reports."

On the above same topic, Imperial County went on record as follows:

Figure 162: Raw sewage discharge from Mexicali II Collector to Mexicali Drain (Mar 1995)

"It is Imperial County's view that it is critical to make a commitment to the Mexico Section of the IBWC to financially participate in at least some 'quick fix' projects that are relevant to the long term process and can be immediately implemented."

After reviewing Mexico's Facility Plan for Wastewater Collection and Treatment in the Mexicali Area, Regional Board staff made the following recommendations to U.S. IBWC:

"After reviewing the subject plan which Mexico presented to us at the binational meeting on February 24, 1995, we are generally impressed by the scope and detail in the document,

and believe it provides a satisfactory basis for implementing a number of the specified projects. Those projects which we recommend assisting Mexico in immediately implementing are the following:

- *Sewer line clean-out of Mexicali I system including purchase of necessary equipment.*
- *Replacement/repair of pumps used in Mexicali I system including correction of corrosion problems.*
- *Provide fencing/security at pumping stations.*
- *Implementation of a maintenance program for the sanitation system.*
- *Construct trunk line and pump station for Mexicali II collection system southeastward beyond present terminus at Mexicali Drain.*
- *Implement improvements to Mexicali I lagoons.*

"Further, we strongly recommend that the above projects be implemented with oversight from a United States engineering firm to ensure that the projects are designed and built in accordance with United States engineering standards... We believe that some of the long range projects which Mexico recommended in their Facilities Plan need further review and planning accomplished before implementation. These are listed as follows:

- *Industrial pretreatment and wastewater survey.*
- *Mexicali II treatment plant design and location.*

"To accomplish the long-range planning necessary for the Mexicali II system, we suggest that a qualified engineering consultant be selected utilizing a binational selection panel. Although not recommended by Mexico, we suggest that consideration toward expansion of the Mexicali I lagoons be considered as part of the long range planning/implementation effort...Some other projects which we believe are necessary and ready for immediate implementation but did not appear to be recommended in the Facilities Plan are as follows:

- *Backup power and pumps for sewage collection system.*
- *Implementation of a plan to eliminate all raw sewage bypassing within the Mexicali I area which is not already addressed by the sewer clean-out project.*

"• *Providing backflow and surge protection at pumps where necessary (i.e. PP ¾ backflow and PP ¾ surge protection).*

"• *Remove sludge deposits from Gonzalez-Ortega lagoons as an interim measure until the phase-out of the plant is complete".*

A March 21, 1995 memorandum from the U.S. EPA Director of the Office of Wastewater Management, addressed cost-sharing for border pollution control projects as follows:

Figure 163: Discharge from Hidrogenadora Nacional (Mar 1995)

"In the context of a multi-year and multi-community program of border project construction and construction assistance, we should expect rough parity between U.S. and Mexican government capital expenditures. This may vary among projects or project phases depending on their perceived national benefits, their genesis, and separate national standards or expectations...In the case of the Nogales and Mexicali projects, the U.S. government, through EPA, is prepared to pay most, and perhaps all, of the cost of preparing facility plans and design work to levels that satisfy U.S. needs. In this way we will achieve the level of cost and quality control which the Administration and Congress expect of projects using U.S. funds. EPA would expect its initial contributions for this purpose to be factored into negotiations with U.S. State and local governments and the Mexican government over shared costs in the construction phase of these projects, and I believe we can and should expect substantial participation by these governments in that phase."

In a March 28, 1995 letter, U.S. EPA stated:

"The report of the Appropriations Conference Committee for FY 1995 (House of Representatives Conference Report 103-715, page 40) states that there is available, $47,500,000 for architectural, engineering and design, and related activities in connection with wastewater facilities in the vicinity of Nogales, AZ, and Mexicali, Mexico, and planning and design of other high priority wastewater facilities in the area of the Mexico border, to control municipal wastewater from Mexico..."

During a binational two-day conference sponsored by Imperial County and the National Water Research Institute, the following top ten issues were identified by participants as impediments to getting the New River cleaned up in order of priority:

"1) Securing financing for pollution control works;

"2) Timeliness of pollution control implementation;

"3) The need to reach binational agreement on a Facilities Plan to address pollution control;

"4) Informational needs on the future value of clean water in the area;

Figure 164: Effluent from Mexicali sewage treatment lagoons (Apr 1995)

"5) Deficient data characterizing the pollution threat, including pretreatment information and discharge characterization;

"6) Insufficient resources for staff involvement to satisfactorily address the problem;

"7) Lack of public concern;

"8) Lack of public review and input involving international commitments (such as Minute Treaty agreements addressing transborder pollution control);

"9) Lack of a lead local international agency to address the problem.

"10) Lack of a response from the United States to the Facilities Plan which Mexico presented on February 24, 1995, addressing New River pollution control."

The conference was well represented by parties involved/interested in the River cleanup from the United States and Mexico.

At a July 31, 1995 interagency meeting to discuss New River pollution, the following was reported:

"Three Mexican agencies (CNA-CESPM-COSAE)[1] have prepared a report on problems, deficiencies and proposed improvements to the existing Mexicali wastewater collection and treatment system. The report is 200+ pages and in Spanish. It roughly follows EPA guidelines for required plan elements. Black and Veatch[2] pre-

1 CNA is the federal National Water Commission. CESPM is the State Office of Public Works responsible for operation and maintenance of the sewage treatment and collection system in Mexicali. COSAE is the Water Utilities Commission for the State of Baja California.

2 Black and Veatch is an engineering consultant.

pared a cursory review of the Mexican report through a contract with IID. The Mexicans feel that they have prepared an acceptable facility plan. IBWC is hiring a consultant team to prepare a facilities plan for a project in Mexico. The roles of the IBWC and Mexican agencies in the Mexicali planning project are not yet clearly defined."

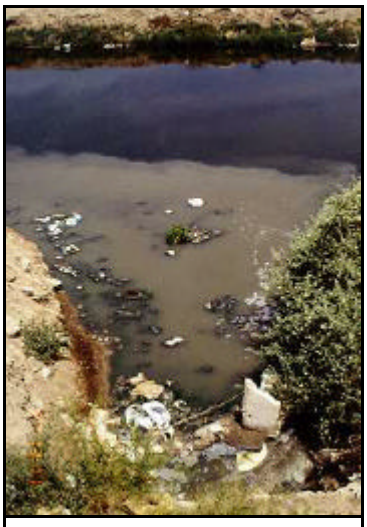


Figure 165: Discharge of raw sewage to New River from storm drain near Pumping Plant No. 2 (Apr 1995)

Figure 166: Mexicali Drain at Highway 2 crossing (Apr 1995)

Figure 167: Discharge from Hidrogenadora Nacional (Apr 1995)

Figure 168: Gonzalez-Ortega sewage treatment lagoons (Apr 1995)

Figure 169: Raw sewage bypass to New River by Pumping Plant No. 2 (Apr 1995)

Figure 170: Raw sewage discharging to New River via storm drain (May 1995)

Figure 171: Mexicali Drain at Highway 2 crossing. Discoloration due to discharge from Hidrogenadora Nacional plant. The discharge to the right is raw sewage (May 1995)

Figure 172: Raw sewage spill to New River (Jun 1995)

Figure 173: Discharge from Quipac facility (Jul 1995)

The following data of concern were reported by the State Board's Toxic Substances Monitoring Program for New River fish collected near the International Boundary[1]:

Date	Species	Total PCB's (ppb)*	Total PCB's(ppb)**	Mercury (ppb)*
11-02-94	Carp	429.	4959.5	0.50
06-16-93	Carp	135.	1562.5	0.51
12-18-91	Carp	176.	3378.1	0.47
07-31-90	Carp	130.	1226.4	0.38
07-20-89	Carp	ND	ND	0.60

*** Fillet (Muscle Tissue) ** Lipid (Fat)**

These concentrations of PCB's and mercury are abnormally high, even for a waterway as polluted as the New River.

In an August 2, 1995 letter to U.S. IBWC, U.S. EPA staff emphasized the importance of Operation and Maintenance (O&M) of Mexicali's wastewater treatment works as follows:

Figure 174: Regional Board staff collecting samples of New River water at Calexico for analysis (Aug 1995)

"One of the most important requirements for EPA funding is adequate assurance that the infrastructure funded will be properly operated and maintained. This is a standard component of EPA's construction grant program and will be an important part of BECC certification…Mexico shall submit a manual describing how it will operate and maintain the wastewater infrastructure, including the treatment plant, collection system, and equipment. The manual will include an emergency operating program,

[1] **The presence of fish in the New River in the border area from 1989-94 was a positive sign; prior to and after this period the polluted conditions have apparently been unsuitable even for pollution tolerant species such as carp. A return of fish was reported during mid 1997.**

personnel training, and an adequate budget for funding operating and maintenance costs…Mexico shall operate and maintain the wastewater infrastructure to meet the project performance requirements for the useful life of the system."

THE "QUICK FIXES" PROGRAM

On October 25, 1995, the Principal U.S. and Mexico IBWC Engineers signed a joint report regarding construction of immediate need projects and planning of facilities for solving border sanitation problems of the New River. The signed report provided for the following:

Figure 175: New check valves and manifold installed at Pumping Plant No. 1A (May 1995)

"…we identified 11 immediate need project components within the areas of both Mexicali I and Mexicali II that provide a rapid improvement to the sanitary condition in the city, as well as the water quality of the New River at the international boundary…funds are available to the U.S. Section of the IBWC to cover the cost by the United States of construction of these immediate need projects not to exceed 55 percent of the cost. Mexico, through Baja California, will provide the remaining 45 percent of the cost and will assume the total cost of their operation and maintenance performed in such a manner that…will ensure that the water quality improvements proposed for each of the projects are met…We recommend that for these cost-shared projects between the two countries, the Mexican Section, in the earliest time possible, would provide to the IBWC, for each of the 11 identified projects, the construction plans for review and approval as to their adequacy in meeting the water quality improvements…and the operations and maintenance procedures to be included in an operations and maintenance manual to be developed for the applicable component that addresses routine operations and maintenance as well as emergency procedures. The U.S. Section of the IBWC would have available at a cost charged to the EPA funds, a United States Architectural/Engineering consulting firm that will provide technical support to that Section in the development of projects…We also observe that for the longer term there is a need to explore alternatives in more detail to allow definition of United States and Mexico financial participation in works to be constructed, as well as their operation and maintenance, contemplating facilities planning for those components which in the judgment and request of local authorities need to be submitted for certification by BECC[1] for NAD Bank[2] financ-

1 BECC is the Border Environmental Cooperation Commission established in 1993 for the purpose of evaluating and certifying United States/Mexico border area environmental improvement projects.

2 NAD Bank is the North American Development Bank which was established with BECC to assist in financing of BECC certified projects.

ing…Every effort should be made to complete a wastewater facilities plan in a period not to exceed one year, at which time, the results shall be presented to the IBWC, such that the United States may define its financial participation in the sanitation project components, selected by local authorities and CNA…We recommend that for the bilateral coordination work including planning, subject of this report, following the terms of Articles 2 and 24 of the 1944 Water Treaty, the IBWC will designate an engineer for each Section to coordinate a binational technical team[1] to oversee the long term facilities planning, construction, operation and maintenance of the works. Those IBWC engineers, with technical advisers from institutes in both countries participating in such team, will coordinate technical meetings with the frequency necessary to oversee the work underway."

The eleven projects[2] identified were the following:

Figure 176: Work underway to correct problems at Pumping Plant No. 3 (formerly PP1A) (Aug 1995)

1. **Rehabilitate the North Collector.**
2. **Replace and extend the Right and Left Bank Collectors with corrosion resistant and larger diameter pipe.**
3. **Replace Mexicali I subcollectors.**
4. **Replace collectors in southwest section of Mexicali I.**
5. **Rehabilitate and replace lift stations.**
6. **Replace and repair pumps at the pumping stations including abatement of corrosion, back flow and surge protection problems and purchase spare parts.**
7. **Implement improvements to the Mexicali I lagoons including dredging of the lagoon bottoms and repair diversion structures and works.**

---

1 Within the United States, the technical team that was formed to address the New River issue includes representation from U.S. IBWC, U.S. EPA, the Regional Board, the State Board, Imperial County, and Imperial Irrigation DIstrict. A New River Policy team was also formed with similar agency representation, but at a higher level.

2 These are oftentimes referred to as the "quick fix projects."

8. **Acquire and operate additional sewer cleaning equipment and immediately implement a system-wide inspection. This would include cleaning the collection lines and conducting a television inspection for an estimated 120-day period.**

9. **Remove sludge from the Gonzales-Ortega lagoon.**

10. **Construct Alamo River diversion weir.**

11. **Install Flow Meters at Pumping Station 1, 1A, and 2.**

Figure 177: Sewer line cleanout for slip pipe installation (Aug 1995)

Figure 178: Replacement of concrete pipe with PVC pipe (Apr 1995)

Figure 179: PVC pipe being delivered for sewer line replacement (Apr 1995)

Figure 180: A sewer cleaning unit provided for use in the Mexicali effort by the U.S. (Apr 1995)

Figure 181: Repairs underway at Pumping Plant No. 1 (Apr 1995)

A draft December, 1995, report entitled Summary of Information Collected from U.S. Parent Companies of Maquiladoras Relating to the New River[1] was summarized as follows:

Figure 182: Drain 134 emptying into New River (Aug 1995)

"The report summarizes information about the New River and its pollution, EPA's information collection effort, and information collected from U.S. parent companies of maquiladoras in response to both EPA's April 1994 letter and September 1994 subpoena…Based on the releases reported by the U.S. parent companies, these 83 maquiladoras do not appear to be major contributors to industrial pollution in the New River. However, the information contained in the responses was insufficient to permit the agency to independently assess whether the data contained in the responses from the U.S. parent companies are representative of the actual releases of industrial pollutants from the maquiladoras. Further, EPA does not currently possess the data necessary to make such a determination. EPA believes that the continued monitoring of the New River is the most effective way to provide accurate information on the pollutants in the river."

A report, dated February 28, 1996, prepared by U.S. Department of Health and Human Services to evaluate New River pollution contained the following summation:

Figure 183: Mexicali Drain at Highway 2 (Jan 1995)

"The New River poses a potential public health hazard because area residents could be exposed to fecal streptococci, and other pathogens through contact with contaminated surface water and foam."

Recommendations were to:

- *Restrict access to the New River*
- *Advise area residents against collecting and eating organisms from the New River*

[1] **U.S. EPA prepared this draft report.**

"• *Promote coordination and cooperation between the U.S. and Mexican governments to reduce contamination in the New River"*

Figure 184: Plans by Mexicali to address cleanup in the New River floodplain include fencing to prevent dumping (Aug 1995)

In February 1996, the City of Calexico and Imperial County adopted Resolutions requesting *"support from our local, state, and federal representatives to see that funding is provided to pipe the New River through the City of Calexico***".**

In a March 27, 1996 report to the Regional Board, the Executive Officer expressed the following:

"I believe Mexico deserves praise for recent successful efforts to address New River pollution in Mexicali. The desire to clean up the river appears genuine and sincere. Further, the Mayor's office in Mexicali recently announced plans to construct roads paralleling the New River on both banks, construct a parkway, and remove residential development in the floodplain. This implementation would address the illicit dumping along the banks and sewage discharges from bankside residences. Although Mexico has made similar previous promises which remain unfulfilled, we need to give the new administration a fair chance before expressing doubt. My understanding is that the President of Mexico[1] has made the New River cleanup a priority issue with the new Mayor of Mexicali[2], and a resource of commitment has been made…Mexico has reported completion of $515,775 worth of work on water pollution control projects in Mexicali. This effort has led to the elimination, or practical elimination, of raw sewage bypassing at four locations in the City. Most of this effort focused on replacement of collapsed sewer collector lines to prevent sewage bypassing to the City's stormwater drainage system. The Baja California Public Works Department is to be commended for this effort."

An April 1, 1996 letter from U.S. EPA to the U.S. IBWC Commissioner expressed the following:

"I just wanted to let you know how pleased I am with the recent progress on the Mexicali wastewater project…I believe that the open discussion and exchange of

1 **Ernesto Zedillo**

2 **Eugenio Elorduy**

information that occurred at the Mexicali technical team meeting was crucial to the significant agreements and understandings reached at the meeting. As you know, I believe that open communication, especially at the technical level, is a vital need for our border projects. I was particularly glad to hear of the important role played by the states of California and Baja California at the meeting. The emerging state-to-state relationship can be a real asset for our project…I recognize that this is a new way of doing business for the IBWC and I appreciate your efforts to make it happen..."

Figure 185

Figure 186

Figures 185 and 186: New sewer line being installed as part of Mexicali II sewage collection system (Oct 1996)

During the week of April 1, 1996, a contract was awarded to CH2M Hill by U.S. IBWC to provide technical assistance on the New River cleanup in Mexicali.

In a May 21, 1996 letter to the U.S. IBWC, the Regional Board's Executive Officer recommended the following:

- *Arrangements need to be established to facilitate communications and logistics between our consultant, CH2M Hill, and CESPM ¾- Mexico's primary project implementation agency.*
- *All agreed upon immediate needs projects should commence as rapidly as possible with primary U.S. oversight provided by CH2M Hill.*

"• *An especially high priority item should be implementation of quick-fix improvements to the Mexicali I lagoons.*

"• *Facilities planning for the Mexicali II proposal should be continued and brought to completion without delay."*

On June 1, 1996, hundreds of people reportedly held a candlelight gathering near the banks of the New River to protest 50 years of broken promises by governments on both sides of the border to clean up the river.

An August 6, 1996 letter from U.S. EPA to Mexico's Comision Nacional del Agua (CNA) contained the following:

"…we would look favorably on locating the Mexicali II treatment plant at a site that would facilitate opportunities for reuse of the treated effluent and possible discharge out of the New River watershed…As is generally required for EPA-funded projects, we expect that the U.S. will have a reasonable opportunity to review, prior to construction, the detailed technical plans, specifications, and supporting documentation for each of the projects for which EPA funding or credit is being considered. We expect that the documentation will address the long-term viability of the project, its expansion capability, and the quality of construction. In this way, we can ensure that options which minimize transboundary impacts are preserved."

Figure 187: Bypass of raw sewage at Pumping Plant No. 2 (Oct 1996)

In an October 4, 1996 letter to the U.S. IBWC Commissioner, the Chair of the Regional Board proposed the following:

"I believe that an important element is missing in our Minute treaty agreements with Mexico addressing international water quality concerns. That element being an absence of any meaningful punitive assessment if specified water quality standards are not met. For example, Mexico has been complaining about excessive levels of suspended sediment in their Colorado River delivery. We in the United States have been complaining about the serious pollution in some of the north-flowing rivers, such as the New River…First, reasonable standards would be developed and agreed upon. If there were exceedances, an

Figure 188: Replacement of concrete pipe with steel pipe on the South Collector (Jan 1997)

agreed upon schedule would specify monetary penalties which would become due and payable to the affected country.

"Implementation of this concept would provide a sorely needed impetus for both the United States and Mexico for meeting standards specified in Minute treaty agreements covering water quality."

In a February, 1997 report, CH2M Hill reported the following progress on the "quick fix" projects in Mexicali[1]:

Project No.	Percent Complete
1	81
2	99
3	65
4	88
5	75
6	55
7	35
8	100
9	33
10	90
11	80

A March 5, 1997 letter from the Imperial County Health Officer to U.S. IBWC contained the following:

"As a Public Health Officer for the County of Imperial, I am obligated to write you to officially protest the procedures used by your office to notify the appropriate public officials about the dumping of raw sewage into the New River. County Administrative Officer, Richard Inman received the attached letter from your office, two days after the fact, notifying him that approximately 9 million gallons a day of wastewater flow would be discharged into the New River over the next two weeks. This notification process is unacceptable. I fully understand that the New River, is by its very nature, a public health hazard and that work on the 'quick fixes' in Mexicali might necessitate having to discharge wastewater into the

Figure 189: New River at International Boundary (Mar 1997)

[1] **Refer to pages 6-24 and 6-25 for a description of the quick-fix projects.**

New River. However, the discharge of 9 million gallons of raw sewage per day further contaminates the river and aggravates an already dangerous public health hazard. Such an event can surely be anticipated to allow for appropriate notice to public health officials in Imperial County."

In a March 11, 1997 letter to the Imperial County Health Officer from U.S. IBWC, the following was conveyed:

"I assure you that we at the International Boundary and Water Commission, U.S. Section, are working to see that in the near future this public health hazard is eliminated...As you may know, we are working toward improvement of the Mexicali sewer and wastewater treatment systems. On a short term basis, a program of 'quick fixes' is being implemented which has required the recent bypasses of raw wastewater to the New River. This program will still continue for approximately 90 days, and other temporary raw wastewater bypasses to the New River may be necessary. We recognize the need for better coordination with the contractors in Mexico so we can more opportunely advise you and other interested parties of any spills that may be necessary as part of this work effort. We will work to minimize spills and will conduct our notification process in a more timely manner to provide information prior to their occurrence."

Figure 190: Mexicali II force main installation project underway (Aug 1997)

Figure 191: Pumping Plant No. 1 (Aug 1997)

7

THE ROAD AHEAD (MID/LATE 1990'S)[1]

THE INDUSTRIAL DISCHARGES

Since late 1997, the efforts of the Binational Technical Committee have focused on three areas: (1) characterizing industrial discharges into the New River and the Mexicali sewage collection system; (2) planning for the new pumping plant and 840-liter per second (20-mgd) wastewater treatment facility (WWTF) for the Mexicali II area; and (3) completing the "Quick Fix" projects.

In September 1997, CH2M Hill prepared a report entitled Assessment of the Industrial Wastewater Discharges in Mexicali, Baja California, and Recommendations for the Implementation of an Industrial Pretreatment Program. A Regional Board staff registered civil engineer reviewed and summarized the report in a memorandum dated November 14, 1997, as follows:

> "• *…Approximately 88 different industries are discharging into what Mexico defines as 'waters of the nation' (e.g., open ditches, ag drains, streams, rivers, groundwaters, and coastal waters). Out of the 88, about 50 different industries/entities are believed to be discharging directly into the New River and/or its tributaries, and many of them (e.g., Hidrogenadora Nacional) have multiple discharge points. All industries discharging into the waters of the nation fall under the jurisdiction of CNA[2]. The limits applicable to these industries are contained in Mexican federal regulation NOM-001-ECOL/1996[3] and shown in the following table:*

---

1 **Chapter 7 was written by Jose L. Angel, Senior Water Resources Control Engineer of the Regional Board.**

2 **The list for these industries/entities was compiled by CH2M Hill from information provided by CNA. The list is included in the CH2M Hill report, has limited available information on the COD and TSS of the discharges, and does not include commercial facilities or privately owned medical facilities (e.g., hospitals).**

3 **This regulation became effective in 1997 and provides a time schedule for compliance. CESPM and industries discharging more than 3.0 tons/day of BOD and TSS must comply with the limits by 1/1/2000. Industries discharging between 1.2 and 3.0 tons/day of BOD and TSS must comply with the limits by 1/1/2005, and industries discharging less than 1.2 tons/day of BOD and TSS must comply by 1/1/2010.**

	Benficial Use					
	Agriculture Irrigation		Urban/Public Contact		Aquatic Life Protection	
Parameter (units)	Monthly Average	Daily Average	Monthly Average	Daily Average	Monthly Average	Daily Average
Temperature (^{o}C)	n/a*	n/a	40	40	40	40
Grease and Oils (mg/l)	15	25	15	25	15	25
Floating materials	n/p**	n/p**	n/p**	n/p**	n/p**	n/p**
Settleable Solids (ml/l)	1	2	1	2	1	2
TSS (mg/l)	150	200	75	125	40	60
BOD_5 (mg/l)	150	200	75	150	30	60
Total Nitrogen (mg/l)	40	60	40	60	15	25
Total Phosphorus (mg/l)	20	30	20	30	5	10
Arsenic (mg/l)	0.2	0.4	0.1	0.2	0.1	0.2
Cadmium (mg/l)	0.2	0.4	0.1	0.2	0.1	0.2
Cyanide (mg/l)	2.0	3.0	1.0	2.0	1.0	2.0
Copper (mg/l)	4.0	6.0	4.0	6.0	4.0	6.0
Chromium (mg/l)	1	1.5	0.5	1.0	0.5	1.0
Mercury (mg/l)	0.01	0.02	0.005	0.01	0.005	0.01
Nickel (mg/l)	2	4	2	4	2	4
Lead (mg/l)	0.5	1	0.2	0.4	0.2	0.4
Zinc (mg/l)	10	20	10	20	10	20

"• *CH2M Hill was not able to assess how and to what extent CNA is enforcing the regulatory discharge limits. Also, baseline data regarding the inorganic and organic characteristics of many of the discharges is not available to fully assess the water quality impacts they may be causing in the New River. However, my review of the report indicates that, of the 50 entities discharging into the New River and/or its tributaries, over 65% are discharging their wastes untreated, only 21 of them (i.e., less that 50%) have waste discharge permits from CNA, and many of them are not included in the binational tours. Further, 12 of the permitted discharges (i.e., approximately 60%) are in violation of their TSS and/or COD effluent limits. Therefore, one has to conclude that the majority of the industries discharging into the New River watershed have a poor compliance record. Also, one has to*

Figure 192 - Tula West Drain downstream of Hidrogenadora Nacional (Jan 1998)

question whether an effective enforcement program is in place and being implemented to bring these industries into compliance with NOM-001-ECOL/1996.

"• *Approximately 180 industries are currently discharging wastes into the municipal sewage collection system[1]. These industries fall under the jurisdiction of the Direccion General de Ecologia del Estado de Baja California (DGE)[2]. The limits applicable to these industries are contained in Mexican federal regulation NOM-CCA-031-ECOL/1993 and shown in the following table:*

Figure 193 - New industry connected to Gonzalez-Ortega collection system (Jan 1998)

	Permissible Maximum Limits	
Parameter (units)	Daily Average	Instantaneous
Temperature (^{o}C)		40
pH	6 - 9	6 - 9
Settleable Solids (ml/l)	5	10
Grease and Oils (mg/l)	60	100
EC (umhos/cm)	5000	8000
Aluminum (mg/l)	10.0	20
Arsenic (mg/l)	0.5	1.0
Cadmium (mg/l)	0.5	1.0
Cyanide (mg/l)	1.0	2.0
Copper (mg/l)	5.0	10.0
Chromium (mg/l)	0.5	1.0
Total Chromium (mg/l)	2.5	5.0
Fluoride (mg/l)	3.0	6

1 The list for these industries is also included in the CH2M Hill report, but this list was compiled from information provided to CH2M Hill by DGE. This list includes limited available information on the inorganic and conventional pollutant characteristics of the industrial wastes, but does not include commercial facilities (e.g., restaurants and auto shops) or privately owned medical facilities (e.g., hospitals and dentist facilities).

2 DGE is a state agency in charge of ensuring compliance with state environmental laws, including discharges of industrial wastes into the sewage collection system, which is run by CESPM.

"• *Very few (less than 15%) of the industries discharging into the collection system implement any kind of pretreatment program prior to discharging. However, according to the CH2M Hill report, most of these industries comply with the limits specified in NOM-CCA-031-ECOL/1993. The report indicates that when DGE finds an industry out of compliance, it requests an appropriate and prompt corrective action.*

"• *Data in the report indicates that the majority of the industries discharging into the collection system are involved in the agricultural industry (i.e., deal with ag chemicals), in the electronics industry, and in the manufacturing of different items out of metal. Consequently, these industries are likely to produce wastewater high in metals and organic chemicals.* ***Neither CESPM nor DGE have a pretreatment program for the municipal wastewater treatment facilities (WWTFs) and enough data on the physical and chemical characteristics of the discharges to assess: (1) the impact that these discharges have on the WWTFs and the New River, and (2) the overall effectiveness of NOM-CCA-031-ECOL/1993****. Therefore, I agree with the report's recommendations that Mexicali (i.e., CESPM/DGE) should implement the following for the development and implementation of a pretreatment program:*

"1. Develop local rules/regulations, which provide the necessary legal authority to implement and enforce a pretreatment program for its WWTFs. These authorities may be incorporated into a single ordinance/regulation or multiple rules may be used for the necessary authority.

"2. Perform an Industrial Waste Survey (via inspections, questionnaires, review of files, review of utility records, etc., etc., etc.) to verify the list of industries which could be significant dischargers into its collection system, identify the character of the discharges, and develop an industrial waste survey data management system.

"3. Evaluate the current local limitations (i.e., NOM-CCA-031-ECOL/1993) to determine whether additional/more stringent limitations need to be developed and implemented to protect the WWTFs and O&M personnel.

"4. Evaluate the staffing and equipment needed to run a pretreatment program efficiently.

"5. Develop procedures for evaluating the compliance status of the industries discharging into the collection system and the procedures to deal with enforcement.

"6. Establish a committee consisting of representatives from industry, the city, environmental groups, and concerned entities, who can provide input on the development of the pretreatment program.

"7. Develop criteria to determine the effectiveness of the program.

"8. Develop a time schedule for developing a pretreatment program."

From August 25 to October 5, 1997, CH2M Hill monitored wastewater in the principal collectors of Mexicali, sewage treatment lagoons, water treatment plants, and New River. The objectives of the monitoring were to:

- **Characterize wastewater flows for existing and proposed WWTFs, potable water prior to use and discharge to sewers, and background conditions in the New River;**
- **Determine toxicity of effluent from existing WWTFs; and**
- **Evaluate requirements for long-term sampling and analysis.**

The results of the monitoring were presented in a December 1997 report entitled Flow Monitoring and Sampling and Wastewater Characterization for Mexicali, Baja California, Mexico. Tables No. A-1 through A-17 in Appendix A show the monitoring results for field parameters and conventional pollutants, for the influent into and effluent from the Zaragoza and Gonzalez-Ortega lagoons. Tables No. A-18 through A-20 in Appendix A show the monitoring results for the Xochimilco Agricultural Drain, which is considered to represent background water quality for the New River. The following four tables summarize the flow, conventional pollutant, bacterial, and toxicity monitoring results[1].

Table 1
Sewage Flow Resuts (in mgd)

Station Name	Average	Minimum	Maximum
Zaragoza WWTF Influent	31.67	25.28	35.26
Colector Principal	2.31	0.33	4.39
Colector Nutrimex	3.54	2.78	4.2
Villa Colonial	0.52	0.3	0.67

[1] **Tables No. 1 through 4 have been adapted from data contained in the CH2M Hill report.**

Table 2 Conventional Pollutants and Bacterial Results for Raw Sewage				
Parameter	Zaragoza Lagoons	Colector Principal	Colector Nutrimex	Gonzalez Ortega Lagoons
BOD (mg/l)	112	155	96	129
TSS (mg/l)	236	481	179	352
Total Coliform (MPN)	$1.6x10^7$	$2.3x10^7$	$1.7x10^7$	$2.0x10^7$
Fecal Coliform (MPN)	$9.2x10^6$	$1.2x10^7$	$7.5x10^6$	$1.1x10^7$

Table 3 Station No. 1-E Zaragoza Treatment Plant Effluent Acute Toxicity Bioassays (Daphnia Magna)				
	Concentration	Percent Survival		
Date	%	0 Hrs	24 Hrs	48 Hrs
9/12/97	100	100	100.00	100.00
9/22/97	100	100	100.00	90.00
9/29/97	100	100	100.00	15.00

Table 4 Station No. 2-E Gonzalez Ortega Treatment Plant Effluent Acute Toxicity Bioassays (Daphnia Magna)				
	Concentration	Percent Survival		
Date	%	0 Hrs	24 Hrs	48 Hrs
9/12/97	100	100	30	15
9/29/97	100	100	100	100

The report provides the following observations and interpretation of the above-referenced monitoring results:

- **Colector Principal and Colector Nutrimex currently carry most of the flow that will be lifted by the new Pumping Plant No. 4 for discharge into the new WWTF for the Mexicali II area.**
- **Villa Colonial represents a typical residential subdivision and the monitoring results for this station yielded a per capita sewage contribution of 51.2 gpd or 194 liters per capita per day (lpcpd)[1], which is equivalent to a water consumption of 242 lpcpd,**

1 **This is about one-half of the typical per capita wastewater flow contribution for the United States.**

which is well in line with the 257 lpcpd water consumption rate reported by CNA in its 1996 update to the Master Plan.

- **The wastewater data from the Zaragoza lagoons can be used for a proposed expansion of these lagoons. The data from the Colector Principal, Colector Nutrimex, and Gonzalez-Ortega Lagoons can be used for the Mexicali II WWTF.**
- **The proposed CNA design for the Mexicali II WWTF uses a BOD_5 of 250 mg/l and an influent total and fecal coliform organisms of $1.0x10^8$ and $1.0x10^7$ MPN/100 ml, respectively. The CNA's BOD_5 value appears to be conservative when compared to the values obtained of 96 to 164 mg/l. The bacteria values observed at Zaragoza are about the same as the design values used by CNA for the proposed Mexicali II WWTF. However, CNA's design values are based on cold weather conditions with a lagoon temperature of 12.3 ^oC. Therefore, further long-term sampling is necessary to determine sewage conditions during cold weather design conditions.**
- **An analysis of the BOD_5, COD, and TTS at various points in the sewage collection system suggests that approximately 10 mgd of water is apparently infiltrating/inflowing into the system. Accordingly, CH2M Hill recommends that a program to ascertain the sources of water and insoluble COD and TSS should be initiated because these values affect the design of wastewater treatment facilities and user fees.**
- **The data indicates that the Zaragoza lagoons are achieving about 80% BOD removal even though they are operating at about 50% above their design capacity and the flow pattern is short-circuiting the lagoon system.**
- **A comparison of the metal concentrations in the raw sewage into the Zaragoza and Gonzalez-Ortega lagoons and in the Colector Principal and Colector Nutrimex with the limits prescribed by Mexican regulations (NOM-001-ECOL/1996) for discharge into surface waters shows that all metal concentrations comply with said limits. However, a comparison with water quality objectives in the Inland Surface Waters Plan[1] of the State Water Resources Control Board shows that chromium, copper, lead, and selenium[2] fail to meet the water quality objectives. Based on this, and to**

[1] **In 1994, the California Supreme Court voided this Plan. The State Board is considering adoption of another version of the Plan in 1998 or shortly thereafter.**

[2] **The values reported for selenium are highly suspect as they are extremely high (up to 20 times the typical concentrations in water from the Colorado River, which is the source water for Mexicali). One explanation for this is that the method used to analyze the wastewater samples had a detection limit of 45 ug/l and most of the sampling results were reported as 45 ug/l when they were "non-detected."**

account for seasonal variations, CH2M Hill recommends long-term monitoring for all metals for which the Regional Board or State Board has water quality objectives.

- **Influent and effluent wastewater samples from the Zaragoza and Gonzalez-Ortega lagoons; wastewater samples from Colector Principal, Colector Nutrimex, Water Treatment Plants No. 1 and 2, and residential basin were "non-detect" for volatile organic constituents, persistent organic compounds, and Base/Neutral/Acid extractable compounds.**
- **One effluent sample from the Zaragoza lagoons and one effluent sample from the Gonzalez-Ortega lagoons showed acute toxicity. Ammonia levels in the samples was high enough to be at least partly responsible for the toxicity. Therefore, CH2M Hill recommends that toxicity testing should continue at both wastewater treatment facilities, but ammonia should be eliminated as the toxic source in the samples prior to running the bioassays.**

Figure 194 - Zaragoza lagoon (Jan 1998)

- **The water samples from the Xochimilco Agricultural Drain yielded mean values for BOD of 10 mg/l, COD of 171 mg/l, TSS of 197 mg/l, and total and fecal coliform organisms of 1600 MPN/100 ml, which compare closely with the values that the Regional Board obtained in 1972 and 1986 for the same constituents. CH2M Hill recommends long-term monitoring of this drain for heavy metals and organic constituents to accurately characterize the water quality impacts caused by discharges of waste downstream of the drain.**

In a report entitled <u>Mexicali Sanitation Project--Immediate Need Projects, December 1997</u>, IBWC reported the following benefits/improvements from the quick fixes:

"The Collector Works and Sewer Cleaning Equipment (Quick Fixes 1 through 4, and 8): The works completed thus far have increased the reliability and capacity of the sewer infrastructure. These works have eliminated an estimated 2 million gallons of raw sewage per day

Figure 195 - SewerVac Truck (Jul 1998)

from being discharged indirectly or directly into the New River…Work on the collector system continues and further significant discharges to the River will be eliminated. It is estimated that 95% of these works will be completed by mid December 1997 (one project, the "South Collector," is ongoing and, due to unforeseen collapses of sewer pipes, is expected to be completed in 1998). The cleaning equipment has been well utilized in preparing the collectors for lining/replacement work…A 120-day video inspection was conducted on the sewerage system and additional work was identified. The cleaning equipment will continue providing service for many years, helping to clean and maintain the system, thus preventing many future bypasses of wastewater to the New River.

"Lift Stations, Pumping Plants and Flow Meters (Quick Fixes 5, 6 and 11): *The pumping plants…and lift stations…are a crucial part of the system. When they are out of service due to either power outages or equipment failure, this results in significant discharges of raw wastewater to the New River. The old pumps were constantly breaking down and in need of repair. The emergency standby generators were outmoded and replacement parts were difficult to obtain…These immediate need projects have reduced wastewater bypasses to the New River due to plant outages. The newly installed pumps and generators should, over the long term, prove to be far more reliable than the old units (in many cases, the existing pumps were potable water pumps not designed for this type of application). During the month of August 1997 alone, it was estimated that more than 6 million gallons of wastewater bypass to the New River were avoided, due to operation of the new emergency generators during electrical outages. The flow meters will help maintain the efficiency of the collection system.*

Figure 196 - Standby generator at Pumping Plant No. 1 (Mar 1998)

Figure 197 - Pumping Plant No. 3 (new pump in gray) (Mar 1998)

"***Ignacio-Zaragoza and González-Ortega Lagoons (Quick Fixes 7 and 9)**: Over the years, sludge had accrued on the lagoon bottoms. Under normal operating conditions, an immediate improvement of effluent quality is expected after sludge is removed from [the] lagoons. However, the Ignacio-Zaragoza and Gonzalez-Ortega Lagoons are overloaded because they are processing approximately 27 million gallons per day and 4 million gallons per day, respectively, but they were designed to treat only 22 million gallons per day and less than 1 million gallons per day. In addition, one of the three primary lagoons at Ignacio-Zaragoza is currently out of service due to modifications to enhance its operation. The accumulated sludge further diminished the treatment capacity of the lagoon system by reducing the volume available for treating the wastewater. Lab analyses show that removing the accumulated sludge…has stabilized the effluent quality from the lagoons, which is preventing further water quality degradation of the New River. Further improvements in effluent and water quality are expected once the primary lagoon at Ignacio-Zaragoza becomes operational within the next few months.*

"***Alamo River Diversion Weir (Quick Fix 10)**: The new weir has been constructed. However, some modifications to downstream portions of the Mexicali Drain need to be completed to allow the weir to function properly. Once finished, the base flows of the Alamo River will be diverted to the New River Basin to prevent approximately 1.6 million gallons per day of transboundary discharge of polluted waters that may enter the Alamo River.*

"***Drain 134**: Due to the implemented collector works, wastewater discharges to Drain 134 have been reduced. Further reductions can be expected after the longer term project work is completed."*

Figure 198 - Drain 134 discharging into the New River (Mar 1998)

MEXICALI II

Wastewater generated in the Mexicali I area will be collected by the Mexicali I sewer network and conveyed to the Zaragoza WWTF (a.k.a. Mexicali I WWTF), whereas wastewater generated by the Mexicali II area would be collected and conveyed to a proposed Pumping Plant No. 4 from which it would be pumped to the proposed Mexicali II WWTF. In a report dated December 1997, IBWC identified the following components of future sanitation projects for the Mexicali I and Mexicali II service areas:

MEXICALI I

- **Rehabilitation of 20,010 feet of sewers**
- **Replacement of 24,250 feet of sewer pipeline**
- **Construction of new sewers, pump stations and forcemains**
- **Rehabilitation of four lift station wet wells**
- **Rehabilitation of Mexicali I wastewater treatment plant**
- **Installation of telemetry equipment at pumping plants**
- **Expansion of the Mexicali I wastewater treatment plant to 30 million gallons per day**

MEXICALI II

- **Construction of sewer Pumping Plant No. 4**
- **Construction of 31,170 feet of discharge forcemain[1] for Pumping Plant No. 4**
- **Construction of 91,370 feet of sewers**
- **Replacement of 6,600 feet of sewers**
- **Rehabilitation of two lift station wet wells**

Figure 199 - Sewage force main for Mexicali II WWTF (Feb 1998)

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

- **Construction of Mexicali II wastewater treatment plant to treat 20 million gallons per day**
- **Installation of telemetry equipment at pumping plants and treatment facilities**

The proposed Mexicali II project has an estimated cost of $50 million dollars. It received conditional and final certification by the BECC on December 5, 1997, and January 7, 1998, respectively. The final financing plan including Federal, State and local funds is being developed to pay for project costs.

Figure 200 - Proposed site for Mexicali II WWTF (Oct 1997)

On January 8, 1998, the Regional Board adopted an updated Clean Water Act 303(d) list[1], which listed the beneficial uses of the New River as being impaired by bacteria, volatile organic constituents, nutrients, silt, and pesticides. The bacterial and VOC pollution is largely attributable to discharges of wastes in Mexicali. Also, the discharges in Mexicali are partly responsible for causing the nutrient and pesticide impairments.

Figure 201 - Discharge from Slaughterhouse (Oct 1997)

On January 8, 1998, U.S. Senator Barbara Boxer met in El Centro with Imperial Valley constituents and policy makers to discuss, amongst other topics, border infrastructure and New River pollution. During the meeting she stated that come February *"…the Federal government's goal will be to issue a complete financial analysis of the next phase of the polluted river's cleanup and to secure a $10 to $15 million loan for the execution of that cleanup…"*

During the January 12, 1998 Salton Sea symposium held in Rancho Mirage, the Regional Board Executive Officer made a presentation regarding the Salton Sea problems. His presentation included a discussion of New River pollution in Mexicali and emphasized that, while New River pollution from Mexico remains a significant problem and a top priority for the Regional Board, the main water quality problem facing the Sea is increasing salinity. He postulated that bacteria and organic loading concentrations (i.e., pollution) at the International Boundary have declined

[1] **The Clean Water Act mandates that the Regional Board adopt a list of surface waters which are not supporting their designated beneficial uses or meeting their assigned water quality objectives. The list has to be updated periodically.**

significantly over the last 20 years, while nutrient concentrations at the International Boundary have remained stable (Figure Nos. 215 and 216 and Table Nos. B-1 through B-5 in Appendix B show the trend monitoring and recent water quality data for the New River at the International Boundary).

On January 16, 1998, Newt Gingrich, the Speaker of the U.S. House of Representatives, and a bipartisan congressional delegation representing Riverside and Imperial Counties visited the Salton Sea and pledged to make the Sea's cleanup a top environmental cause for Congress. During his visit, he was briefed on Mexico's pollution of the New River.

During a January 22, 1998, binational tour of the New River in Mexicali, a Regional Board staff registered civil engineer made the following observations:

"Pump Station No. 1 - Only Pumps No. 5 and 6 were operating at the time of the tour. Pumps No. 1 through 4 (the new Fairbanks-Morse pumps) are not operational yet…According to Mr. Soberanes, CESPM is still working on the "wiring" for the pumps. He stated that the pumps should be fully operational within one month. Also, the on-site emergency generator is not fully operational. Mr. Soberanes stated that CESPM tested the generator last month to make sure it works, but that the test blew up some electrical panels at the station. Apparently, CESPM is also working on the electrical wiring for the generator.

Figure 202 - Pumping Plant No. 1. The new pumps are shown in gray color (Jan 1998)

"Pump Station No. 2 - Pumps No. 1 and 3 in the upper section and Pumps No. 1 and 3 in the lower section were operating during the tour. Pump No. 2 in the upper section and Pump No. 2 in the lower section were out of service reportedly for repairs.

"Right Bank Pumping Station - The station was bypassing approximately 1 million gallons per day of

Figure 203 - Bypass from Lift Station into New River (Jan 1998)

raw wastewater into the New River. [A CESPM representative] stated that CESPM was working on some of the valves and wiring at the station and that the work was expected to be complete in about two days.

"Pump Station No. 3 - Only Pumps No. 1 and 3 were operational…Pump No. 2, the new Fairbanks-Morse pump…is not operational yet either. Also, the new flow meters have been installed, but they too are not operational yet.

"Gonzalez-Ortega Pump Station - This pumping station has been completely abandoned! All that remains there is the old dilapidated building…I understand that rehabilitation of this pumping station was part of the Quick Fix program.

"During the tour, we also visited the Tula West Drain one mile upstream and north from Highway 2. The drain at this location is being encased like the New River…the drain is being encased all the way to Highway 2 to prevent further dumping of trash and illegal discharges into it, better manage storm water runoff, and to reclaim the land that the drain currently affects…Reportedly, the project is scheduled for completion within two months. The Mexican Government is bearing the full cost of the project."

Figure 204 - Encasement of Tula West Drain upstream of industrial area (Jan 1998)

"The indiscriminate dumping of solid wastes (e.g., household trash and used tires) into the Tula West Drain by Highway 2, Mexicali II Principal Collector, and into the New River by the pedestrian bridge between Oaxaca and Tabasco Avenues further pollute the river…We must request that the Mexican government inform us what steps it is taking or proposes to take to permanently eliminate these discharges and to provide us with a time schedule to do so…

Figure 205 - New River one mile upstream of Drain 134 (Jan 1998)

"Partially treated and untreated discharges of industrial wastewater into the New River and its tributaries continues seemingly unabated. We must request that CNA inform us what steps it is taking or proposes to take to bring these industries into compliance with Mexican laws and regulations..."

Figure 206 - Alamo River weir (Jan 1998)

During the February 3, 1998 Binational Technical Committee (BTC) meeting in Mexicali, the U.S. section of the committee reported to have $8.7 million available under Treaty Minute No. 294 for the construction of the new Pumping Plant No. 4, its force main, and the Mexicali II lagoon system. It also expressed a desire to review the CNA plans and specifications for these two projects for adequacy, prior to committing the money for construction. As currently designed by CNA, the Mexicali II WWTF consists of Phase I and Phase II. Phase I is based on a 20-mgd lagoon system consisting of conventional anaerobic, facultative, and maturation ponds with a total detention time of 35 days to be located in a 250-ha site. According to CNA, Phase II consists of dissolved air flotation units followed by trickling filters for a design flow of 20-mgd[1]. During the meeting, CNA reported that it was negotiating an agreement with the City of Mexicali for long-term maintenance of the Alamo River weir.

On February 4, 1998, members of the BTC attended a workshop at the University of California-Berkley concerning Advanced Integrated Pond Systems (AIPS) wastewater unit treatment processes. The purpose of the workshop was to explore the potential to use AIPS as the main unit treatment process in the Mexicali II WWTF, and the workshop included a tour of the AIPS at St.Helena WWTF in St. Helena, California. AIPS occupy less area and are capable of handling slug loads better than conventional facultative lagoons. The U.S. BTC section formally recommended to the Mexican section to use AIPS as the main unit treatment process for the Mexicali II WWTF. It also recommended a number of modifications to the design of the new Pumping Plant No. 4 and the its sewage force main. During the meeting, a Regional Board staff registered civil engineer expressed concerns that, even though about 1.5 miles of force main have already been installed, neither geotechnical nor chemical analyses (e.g, differential settlement and soil corrosivity) have been performed on the soils affected by the force main. Further, the staff engineer expressed concerns about the lack of a transient analysis for the force main and pumping plant.

---

[1] At several BTC meetings, USEPA and Regional Board/State Board staff have expressed serious reservations about the use of trickling filters in Phase II.

A March 1998 IBWC report entitled Mexicali II Wastewater Treatment Facilities Present Worth Analysis compared the construction, operation, and maintenance costs of the proposed CNA lagoon system against the costs of the U.S. recommended AIPS for both Phase I and Phase II of the Mexicali II WWTF. The report shows a savings of about $1.0 million dollars in construction costs if AIPS were to be used instead of the CNA proposed pond system for Phase I. However, for Phase II of the WWTF, it showed a savings of over $5.0 million dollars in construction and over $500,000/year in O&M if AIPS were to be used. This notwithstanding, CNA expressed reservations about the AIPS recommendation, but conceptually agreed to the new pumping plant and force main recommendations.

On February 25, 1998, The Sonny Bono Memorial Salton Sea Restoration Act[1] was introduced in the U.S. House of Representatives. The draft legislation would appropriate $300 million dollars to implement a project to restore the Sea's beneficial uses. It would also appropriate $2 million dollars for and provide an exemption from the CWA permitting requirements to discretionary wetland projects to cleanup agricultural drainage from Imperial Valley and New River water. About one week later, U.S. Senators Barbara Boxer and Dianne Feinstein introduced similar legislation in the U.S. Senate, but their proposed legislation did not address the wetland projects.

A Regional Board staff memorandum for the March 3, 1998 binational tour of the New River contains the following observations:

Figure 207 - Discharge from Hidrogenadora Nacional (Mar 1998)

"Hidrogenadora Nacional continues to discharge wastes into the drain evidently without regard for unsightly conditions or adverse water quality impacts it may create...its outlet line located about 0.51 miles north from Highway 2, was discharging approximately 5 lps of steamy, greasy wastewater with a milky-brown tint into the drain...Further, at approximately 10 feet south from the outline, someone evidently dumped a black oil-like substance on the left bank of the drain. The substance extended from just below the top of the embankment all the way down to the water line in the drain and covered approximately 50-60 square feet of embankment...

[1] **The Act was a bipartisan tribute to the late U.S. Representative Sonny Bono, who championed cleanup of the Salton Sea. Mr. Bono died in a skiing accident on January 5, 1998.**

"The [Jardines Del Lago Lift Station]…was bypassing approximately 1 million gallons per day of raw wastewater into the New River. [CESPM stated it] was working on some of the valves and wiring at the station and that the work was expected to be complete in two days at the most. No U.S. agency, and in particular IBWC, received prior notification about the bypass.

"…dumping of solid wastes (e.g., household trash and used tires) into the New River and its tributaries continues. Wire fences along both sides of the banks of the New River by Oaxaca Avenue has somewhat mitigated the indiscriminate dumping…we must continue to request the…removal of the solid wastes from the waterways, proper disposal of the wastes, and documented periodic maintenance of the waterways.

"The [Gonzalez-Ortega and Zaragoza lagoons] continue to be organically and hydraulically overloaded and suffering from short-circuiting. We should request an expert evaluation of the existing lagoon distribution systems, configuration, and O&M to determine whether short-term, cost-effective measures (e.g., enhanced O&M) can be implemented to improve effluent quality.

Figure 208 - Gonzalez-Ortega primary lagoon (Mar 1998)

"The on-going bypasses of raw sewage and partially treated wastewater through Drain 134, Nutrimex, Colector Principal, and the above-mentioned storm drains and pipes are unacceptable. We must continue to press the Mexican government to make their permanent and prompt elimination the highest priority. CESPM is eliminating bypasses of municipal wastewater into the New River and its tributaries, planning ahead for the need of a pre-treatment program for the industries that discharge into its collection system, and making progress in eliminating raw sewage overflows from its collection system and pumping stations. While the progress at times seems slow, it is progress nevertheless. Completion of all quick fixes and construction of the new wastewater treatment facilities will abate New River pollution at the International Boundary. However, these efforts are significantly undermined by the fact that Mexican industries and businesses continue to discharge partially treated and untreated wastewater directly into the New River and its tributaries at will. Until these industries are brought into full compliance with Mexican laws and regulations, the New River at the International Boundary will continue to be significantly polluted.

"Sadly, the Alamo weir continues to overflow into the U.S.…According to CILA,

CNA was supposed to implement an operation and maintenance program to prevent the overflows, but it has not done so. The weir itself is now in jeopardy because the concrete around it is being washed away by the overflows..."

On March 25, 1998, Regional Board staff accompanied USEPA Deputy Administrator Fred Hansen, IBWC Commissioner John Bernal, USEPA Region IX Administrator Felicia Marcus, and representatives of CILA, CNA, and CESPM on a tour of the Mexicali sanitation project. The tour covered Pumping Plant No. 2, the proposed site for the Mexicali II WWTF, and the industrial area by the Tula West Drain and Highway 2 in Mexicali. The purpose of the tour was to show aspects of the sanitation program being implemented (e.g., quick fixes) to address New River pollution, the unprecedented and on-going industrial growth in Mexicali, and how much work is still needed to address and prevent New River pollution.

In April 1998, the Baja California State Legislature began holding hearings on the encasement project of the New River[1]. The following are excerpts from an April 30, 1998, article in the *La Voz de la Frontera*, Mexicali's main newspaper, regarding an April 29, 1998, hearing in which SAHOPE's Secretary appeared before the State legislature committee investigating the project and reported the following:

Figure 209 - New River by Pumping Plant No. 2 (Jun 1998)

- **The river is being encased from the Mexican customs offices (i.e., from the border) to Xochimilco Lake at a cost of $102,795,729 pesos (approximately $12.8 million dollars), and that the State would not pay any additional money for the project;**
- **The design is based on a hydraulic capacity of 26 cubic meters per second (approximately 920 cfs), which is what was recommended by CNA[2];**

[1] **Throughout 1998, the College of Engineering at the Universidad Autonoma de Baja California, as well as other political and scientific institutions in Mexicali have raised questions about the hydraulic capacity, project bid/award process, method of payment for the contractors in charge of building the project, and actual merits of the encasement for the New River in Mexicali. Speculation by some Mexican engineers is that the project was grossly under-designed.**

[2] **Questions about the hydraulic capacity began right after tropical storm Nora in August 1997. The storm caused severe flooding in Mexicali and generated about 20 cubic meters per second (700 cfs) in 24 hours. Consequently, the flow of the New River outside the encasing was reportedly five to ten times what was conveyed by the encasing.**

- **The project was awarded to the contractor who was solvent and could guarantee the best price and financial arrangement, complete the job in a timely manner, as well as reclaim the most area within the floodplain of the river;**
- **The State owes approximately $1.2 million dollars to the contractors. He reported the debt would be paid in money (i.e., cash); and**
- **The encasement will be accessible for maintenance.**

On May 12, 1998, the Citizen's Congressional Task Force on the New River met at the Imperial Valley College to discuss two proposed wetland projects in Imperial Valley to treat agricultural drain wastewater runoff and water from the New River. During the meeting, Regional Board staff provided an overview of the sanitation problems and 'quick fix" projects. Regarding industrial discharges of waste into the New River in Mexicali, the Imperial County Deputy District Attorney stated that "*…until the specific industries are identified, nothing will improve, and [that if maquiladoras with U.S. ownership are discharging into the New River,] they should be brought to the United States and prosecuted under American laws.***"**

During the May 19, 1998, BTC meeting in Imperial, CNA officially declined the United States' recommended use of AIPS for the Mexicali II area, but conceptually agreed to the following modifications to enhance the design of the pumping plant for the Mexicali II WWTF:

- **Provide submersible pumps and motors in dry pits as protection against flood damage and as an alternative to close, connected vertical centrifugal pumps;**
- **Provide a soil odor treatment system as an alternative to no odor control or ventilation of the influent area;**
- **Cover influent channels with checkered plates to prevent odors from escaping as an alternative to no covering;**
- **Provide containment for diesel tanks as an alternative to no containment; and**
- **Provide an electrical bus as an alternative to cables.**

Regarding the force main, CNA agreed to modify the design of the force main so that the main includes a "pig launching station[1]" for cleaning access as an alternative to no cleaning access. It also

[1] A "pig cleaning station" simply provides easy access for cleaning a force main using a polly-pig cleaning device.

agreed to provide splitter boxes and pipes for flow control as an alternative to open channels with slide gates in the lagoon distribution system.

THE QUICK FIXES--PHASE II?

On June 12, 1998, a subgroup of the BTC met in Mexicali to discuss the status of the quick fixes and the protocol to bring the fixes to a satisfactory conclusion. It was reported by SAHOPE that essentially all quick fixes were 100% complete, except for minor details at Pumping Plants No. 1, 2, and 3. In response, the U.S. BTC subgroup section stated that:

- **The flow meters at Pumping Plants No. 1, 2, and 3 had not been calibrated yet;**
- **The flow recorders at said plants were not operational;**
- **The flow meter for Pump No. 5 at Pumping Plant No. 1 and the flow meter for Pump No. 3 in the upper level of Pumping Plant No. 2 were "measuring flow" when they were not on;**
- **The water pressure at Pumping Plant No. 3 was inadequate to ensure proper lubrication of the two new pumps simultaneously;**
- **The electrical wiring for the new pumps and lubrication system at Pumping Plant No. 3 was incomplete, and, consequently, the pumps were being operated manually; and**
- **The Alamo River weir was still spilling wastewater into the U.S.**

The Mexican BTC subgroup section agreed to address the above-mentioned issues. The subgroup as a whole identified the following potential/candidate projects for inclusion in a Phase II of the Quick Fix Program:

- **Verification of adequate construction and post-grouting liner integrity of the sewer collector quick fix projects that used high-density polyethylene (HDPE) pipe and were subsequently grouted;**
- **Field evaluation to assess existing conditions and the need for proper grouting of the 32-inch HDPE liner along Av. Jose Maria Michelena, the 18-inch HDPE liner along the International Border crossing, and the 32-inch liner along Av. Licenciado Francisco Primo De Verdad;**
- **Improvements to headwork bar screens and ventilation systems at Pumping Plants No. 1, 2, and 3;**
- **Provide "water hammer" protection at Pumping Plant No. 3;**
- **Change the electrical wiring of the emergency power generation system to govern all six pumps at Pumping Plant No. 1;**

- **Conduct a study to identify a long-term solution to the Alamo River overflows;**
- **Conduct a study to eliminate wastewater discharges from Drain 134 into the New River; and**
- **Conduct a study to define a project to improve the effectiveness and operation of the Right Bank and Left Bank sewer collectors near the International Boundary.**

During the June 26, 1998 BTC meeting, the full BTC agreed to include the above-mentioned projects in Phase II of the Quick Fix Program and asked CH2M Hill to develop cost estimates for the projects[1].

In a letter dated July 9, 1998 addressed to USEPA, and pursuant to the CWA 303(d) list adopted by the Regional Board in January 1998, the Regional Board Executive Officer expressed the Regional Board's commitment to draft total maximum daily load recommendations (TMDLs)[2] for New River at the International Border. The Executive Officer proposed to work jointly with USEPA, the IBWC, and appropriate Mexican agencies in preparing an implementation plan. Upon successful completion of the draft TMDLs, he recommended that adoption be pursued via a Minute treaty agreement with Mexico. He added that successful implementation of the TMDLs for New River at the International Boundary would greatly increase the cooperation the Regional Board receives from the Imperial Valley agricultural community in implementing TMDLs to address pollution within the Salton Sea watershed.

In a letter dated July 16, 1998, and as a follow-up to the September 1997 report prepared by CH2M Hill on industrial discharges (see page 7-1), the Regional Board requested to IBWC to schedule a special Binational New River Tour to determine the extent of direct discharges of industrial wastewater into the New River in Mexicali. The purpose of the tour would be to "visit" those industries which were not part of the monthly binational tours, but that were identified by CH2M Hill as discharging wastes into the New River and/or its tributaries. The letter transmitted a list, which identified about 50 industries of concern. IBWC responded to the Regional Board request on July 28, 1998. IBWC agreed that the tour was necessary and stated that it would be making arrangements with the Mexican government to conduct the tour.

---

[1] As of the date of this report, while Mexico remains committed to participate in the funding of these projects, USEPA has not been able to match that commitment. Meanwhile, raw sewage discharges from Drain 134, sewage overflows from collectors close to the International Border, and the Alamo weir, to name a few, continue to be a significant problem.

[2] TMDLs are numeric limits/goals that are developed for impaired surface waters. The purpose of the TMDLs is to allocate allowable loadings to non-point and point-source pollution sources to restore the beneficial uses of the impaired waters.

Following the July 1998 Binational tour of the New River, the Regional Board Executive Officer and a staff engineer noted the following observations in a memorandum dated August 5, 1998:

"The westernmost primary basin at the Mexicali I wastewater treatment system has been drained and, work was underway on the new distribution system. Effluent from the lagoons was green and no particular problems were noted.

Figure 210 - Construction of cistern at Pumping Plant No. 3 (Jul 1998)

The Gonzalez-Ortega lift station is fully operational. At Pumping Plant No. 3, CESPM began building a cistern to provide sufficient water pressure to the new pumps' lubrication system. The cistern should be finished within one week. At the time of the tour, all three pumps were operational, and the plant operator reported that the pumps now operate in automatic mode. Reportedly, the flow meters at this plant have been calibrated, but the total flow recorder is still not operational. At Pumping Plant No. 1, one pump was down because of a bad shaft. Currently, this is not a problem since the four new pumps/motors are much more than adequate to handle the load. At Pumping Plant No. 2 everything was in good shape except for one of the old pumps which was down, the flow meters which need to be calibrated, and the flow recorder which is still not operational. Mr. Aranda, the contractor in charge of the work at the pumping plants, stated that his crew and a representative from the meter's manufacturer would take care of the problems with the flow meters and recorders this week. The noted problems not withstanding, the overall conditions at these three pumping plants were judged to be better than ever. Except for potential corrosion problems, failure is not anticipated at these pump stations for at least the next few years, if proper pump/motor maintenance is accomplished. No problems were noted in the Pumping Plant No. 26 sector of the river. Apparently, quick-fix projects have been successful in stemming spills of raw sewage in this area.

Figure 211

Figure 212

Figure 213

Figure Nos. 211 through 213: In clockwise direction, Pumping Plants No. 1, 2, and 3 (Jul 1998)

"A major recent bypass of raw sewage from the South Collector to the New River has been eliminated, at least for the most part. The bypass occurred because of a collapsed line. The efforts by Mexico to deal with this problem in expedient fashion are commendable considering the magnitude of the problem and resources needed (e.g., over $120,000 dollars) to deal with the problem."

Figure 214 - South Collector repairs underway (Jul 1998)

A

MEXICALI WASTEWATER DATA

A MEXICALI WASTEWATER DATA

Table A-1 Station No. 1-I Zaragoza Tretament Plant Influent Field Parameters						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
pH	1-I	6.70	7.60	7.19	7.15	7.51
Temperature, °C	1-I	26.00	35.00	31.28	32.00	34.60
Conductivity, umhos/cm	1-I	1675.00	2050.00	1865.48	1850.00	1950.00

Table A-2 Station No. 1-I Zaragoza Treatment Plant Influent Conventional Pollutants						
		Min	Max	Mean	Median	90th Percentile
Analyte	Station ID	mg/L				
Alkalinity	1-I	144.00	352.00	271.11	276.00	307.20
Settleable Solids, ml/L/h	1-I	0.60	5.00	1.79	1.50	3.70
Total Dissolved Solids	1-I	422.00	1,100.00	934.04	932.00	1,050.00
Total Solids	1-I	1,020.00	1680.00	1,222.96	1,200.00	1,450.00
Total Suspended Solids	1-I	76.00	1,080.00	235.93	135.00	511.60
Cyanide, ug/L	1-I	10.00	16.00	10.44	10.00	11.40
Fluoride	1-I	0.22	0.72	0.57	0.58	0.64
Sulfate	1-I	140.00	319.00	268.00	274.00	307.40
Ammonia-N	1-I	5.00	22.50	18.76	20.00	21.44
Nitrate	1-I	0.05	0.50	0.17	0.05	0.50
Nitrite	1-I	0.10	1.00	0.40	0.10	1.00
Ortho Phosphate-P	1-I	0.52	5.57	4.15	4.33	5.45
TKN	1-I	16.80	97.10	27.55	25.50	29.44
Total Nitrogen	1-I	16.80	97.10	27.55	25.50	29.44
Total Phosphorus	1-I	4.41	9.98	6.80	6.78	8.20
BOD_5, total	1-I	53.00	162.00	111.65	110.00	151.00
COD Total	1-I	183.00	728.00	361.48	357.00	434.80
MBAS Total	1-I	5.90	22.60	13.86	15.50	18.04
Oil & Grease	1-I	14.00	413.00	41.37	26.00	39.20
BOD_5 Soluble	1-I	11.00	100.00	62.96	65.00	89.00
COD Soluble	1-I	60.00	195.00	120.44	122.00	171.20

Table A-3 Station No. 1-I Zaragoza Treatment Plant Influent Heavy Metals						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		ug/L				
Aluminum	1-I	1,030.00	17,500.00	3,503.70	2,350.00	7,658.00
Arsenic	1-I	17.00	28.30	18.97	17.00	24.78
Cadmium	1-I	2.00	2.90	2.05	2.00	2.04
Chromium	1-I	4.10	437.00	45.41	19.80	89.98
Copper	1-I	17.10	173.00	54.10	44.30	86.62
Iron	1-I	544.00	19,400.00	3,477.30	1,920.00	9,714.00
Lead	1-I	31.00	109.00	42.79	31.00	64.44
Manganese	1-I	37.20	407.00	94.13	60.80	215.20
Mercury	1-I	0.10	1.50	0.52	0.48	1.01
Nickel	1-I	8.00	738.00	62.92	23.50	118.46
Selenium	1-I	45.00	45.00	45.00	45.00	45.00
Silver	1-I	2.00	13.60	4.87	4.30	6.28
Sodium	1-I	58,000.00	215,000.00	175,000.00	179,000.00	203,400.00
Zinc	1-I	68.00	638.00	208.70	162.00	434.00

Table A-4 Station No. 1-I Zaragoza Treatment Plant Influent Bacteriological						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		MPN/100 ML				
Coliform	1-I	2,000,000	50,000,000	16,350,000	13,000,000	23,700,000
Fecal	1-I	2,000,000	23,000,000	9,157,895	8,000,000	18,000,000

Table A-5 Station No. 1-E Zaragoza Treatment Plant Effluent Field Parameters						
Analyte	StationID	Min	Max	Mean	Median	90th Percentile
pH	1-E	7.00	7.20	7.10	7.10	7.18
Temperature, °C	1-E	25.00	32.00	28.67	29.00	31.40
Conductivity, umhos/cm	1-E	1,800.00	2,000.00	1,900.00	1,900.00	1,980.00

Table A-6 Station No. 1-E Zaragoza Treatment Plant Effluent Conventioanal Pollutants						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
Alkanlinity	1-E	296.00	348.00	325.00	328.00	342.00
Settleable Solids, ml/L/h	1-E	0.10	0.30	0.15	0.10	0.24
Total Dissolved Solids	1-E	946.00	1,000.00	966.50	960.00	989.80
Total Solids	1-E	1,070.00	1,140.00	1,117.50	1,130.00	1,137.00
Total Suspended Solids	1-E	70.00	84.00	77.00	77.00	82.80
Cyanide, ug/L	1-E	10.00	10.00	10.00	10.00	10.00
Fluoride	1-E	0.55	0.58	0.57	0.58	0.58
Sulfate	1-E	226.00	231.00	228.25	228.00	230.70
Ammonia-N	1-E	8.80	10.80	9.88	9.95	10.74
Nitrate	1-E	0.55	0.50	0.16	0.05	0.37
Nitrite	1-E	0.10	1.00	0.78	1.00	1.00
Ortho Phosphate-P	1-E	2.69	3.60	2.99	2.83	3.40
TKN	1-E	16.90	23.80	19.88	19.40	22.99
Total Nitrogen	1-E	16.90	23.80	19.88	19.40	22.99
Total Phosphorus	1-E	5.02	10.60	7.52	7.22	10.10
BOD_5, total	1-E	21.00	54.00	32.00	26.50	45.90
COD Total	1-E	162.00	221.00	192.25	193.00	218.30
MBAS Total	1-E	0.33	4.00	1.95	1.74	3.54
Oil & Grease	1-E	10.00	10.00	10.00	10.00	10.00
BOD_5 Soluble	1-E	10.00	54.00	21.25	10.50	41.10
COD Soluble	1-E	53.00	100.00	65.25	54.00	86.50

Table A-7 Station No. 1-E Zaragoza Treatment Plant Effluent Heavy Metals						
		Min	Max	Mean	Median	90th Percentile
Analyte	Station ID	ug/L				
Aluminum	1-E	89.50	341.00	213.88	212.50	323.30
Arsenic	1-E	17.00	22.20	18.30	17.00	20.64
Cadmium	1-E	2.00	2.00	2.00	2.00	2.00
Chromium	1-E	2.00	2.00	2.00	2.00	2.00
Copper	1-E	3.80	4.30	4.05	4.05	4.24
Iron	1-E	127.00	354.00	237.50	234.50	348.30
Lead	1-E	31.00	31.00	31.00	31.00	31.00
Manganese	1-E	27.10	41.20	35.23	36.30	41.20
Mercury	1-E	0.10	0.26	0.16	0.15	0.24
Nickle	1-E	8.00	8.00	8.00	8.00	8.00
Selenium	1-E	45.00	45.00	45.00	45.00	45.00
Silver	1-E	2.00	2.00	2.00	2.00	2.00
Sodium	1-E	191000.00	198000.00	195000.00	195500.00	198000.00
Zinc	1-E	35.70	47.40	40.00	38.45	45.18

Table A-8 Station No. 1-E Zaragoza Treatment Plant Effluent Bacteriological						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		MPN/100 ML				
Coliform	1-E	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Fecal	1-E	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000

Table A-9 Station No. 2-1 Gonzalez Ortega Treatment Plant Influent Field Parameters						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
pH	2-I	6.60	7.90	7.26	7.25	7.67
Temperature, °C	2-I	20.40	33.40	25.10	25.10	29.27
Conductivity, umhos/cm	2-I	1500.00	2000.00	1743.18	1750.00	1900.00

Table A-10 Station No. 2-1 Gonzalez Ortega Treatment Plant Influent Coventional Pollutants						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		mg/L				
Alkalinity	02-I	144.00	384.00	252.16	244.00	292.00
Setteable Solids, ml/L/h	02-I	0.20	15.00	2.26	1.00	6.20
Total Dissolved Soilds	02-I	814.00	1030.00	888.20	875.00	936.00
Total Solids	02-I	996.00	3210.00	1339.44	1090.00	2094.00
Total Suspended Solids	02-I	56.00	2220.00	351.64	160.00	982.40
Cyanide, ug/L	02-I	10.00	10.00	10.00	10.00	10.00
Fluoride	02-I	0.34	0.45	0.39	0.38	0.44
Sulfate	02-I	243.00	385.00	294.76	286.00	321.60
Ammonia-N	02-I	7.66	21.10	15.98	16.50	19.44
Nitrate	02-I	0.05	0.50	0.18	0.05	0.50
Nitrite	02-I	0.10	1.00	0.39	0.10	1.00
Ortho Phosphate-P	02-I	2.58	6.31	4.60	4.50	5.86
TKN	02-I	13.40	121.00	28.72	23.20	28.24
Total Nitrogen	02-I	13.40	121.00	28.72	23.20	28.24
Total Phosphorus	02-I	5.46	11.60	7.09	6.72	9.10
BOD_5, total	02-I	44.00	682.00	129.21	101.50	156.60
COD Total	02-I	230.00	745.00	340.36	312.00	455.40
MBAS Total	02-I	7.90	25.50	14.18	13.10	19.36
Oil & Grease	02-I	10.00	17.00	28.96	17.00	38.40
BOD_5 Soluble	02-I	27.00	97.00	59.83	59.00	85.00
COD Soluble	02-I	58.00	893.00	144.48	93.00	184.20

Table A-11 Station No. 2-I Gonzalez Ortega Treatment Plant Influent Heavy Metals						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		ug/L				
Aluminum	2-I	567.00	35900.00	5447.40	1880.00	17448.00
Arsenic	2-I	17.00	32.10	19.73	17.00	26.52
Cadmium	2-I	2.00	2.50	2.02	2.00	2.00
Chromium	2-I	2.00	37.60	6.24	2.40	15.96
Copper	2-I	19.20	182.00	47.18	36.20	79.86
Iron	2-I	723.00	39800.00	5727.40	1950.00	17064.00
Lead	2-I	31.00	93.60	35.68	31.00	43.02
Manganese	2-I	34.30	699.00	142.28	66.20	437.60
Mercury	2-I	0.10	1.50	0.32	0.20	0.63
Nickle	2-I	8.00	51.30	14.52	8.00	32.26
Selenium	2-I	45.00	45.00	45.00	45.00	45.00
Silver	2-I	2.00	3.20	2.07	2.00	2.00
Sodium	2-I	131000.00	197000.00	157200.00	154000.00	169200.00
Zinc	2-I	68.40	641.00	160.20	122.00	245.40

Table A-12 Station No. 2-1 Gonzalez Ortega Treatment Plant Influent Bacteriological						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		MPN/100 ML				
Coliform	2-I	2,000,000	50,000,000	17,550,000	20,000,000,	30,000,000
Fecal	2-I	2,000,000	30,000,000	12,500,000	10,500,000	23,000,000

Table A-13 Station No. 2-E Gonzales Ortega Treatment Plant Effluent Field Parameters						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
pH	2-E	7.00	7.70	7.30	7.20	7.60
Temperature, °C	2-E	19.00	23.50	21.83	23.00	23.40
Conductivity, umhos/cm	2-E	1800.00	1900.00	1866.67	1900.00	1900.00

Table A-14 Station No. 2-E Gonzales Ortega Treatment Plant Effluent Conventional Pollutants						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		mg/L				
Alkalinity	2-E	268.00	356.00	309.00	306.00	347.60
Setteable Solids, ml/L/h	2-E	0.10	0.40	0.20	0.15	0.34
Total Dissolved Soilds	2-E	904.00	971.00	930.00	922.50	960.80
Total Solids	2-E	1010.00	1070.00	1037.50	1035.00	1061.00
Total Suspended Solids	2-E	44.00	114.00	80.75	82.50	108.00
Cyanide, ug/L	2-E	10.00	10.00	10.00	10.00	10.00
Fluoride	2-E	0.42	0.48	0.45	0.45	0.48
Sulfate	2-E	192.00	248.00	222.00	224.00	242.60
Ammonia-N	2-E	11.10	15.10	12.65	12.20	14.41
Nitrate	2-E	0.05	0.50	0.16	0.05	0.37
Nitrite	2-E	0.10	1.00	0.78	1.00	1.00
Ortho Phosphate-P	2-E	3.54	5.96	4.44	4.12	5.55
TKN	2-E	12.10	20.70	15.75	15.10	19.02
Total Nitrogen	2-E	12.10	20.70	15.75	15.10	19.02
Total Phosphorus	2-E	5.07	6.20	5.51	5.38	5.96
BOD_5, total	2-E	71.00	153.00	97.00	82.00	132.00
COD, Total	2-E	214.00	304.00	253.00	248.00	292.90
MBAS	2-E	9.80	12.80	11.03	10.75	12.26
Oil & Grease	2-E	10.00	10.00	10.00	10.00	10.00
BOD_5 Soluble	2-E	38.00	112.00	67.00	59.00	98.50
COD Soluble	2-E	95.00	178.00	117.25	98.00	154.60

Table A-15 Station No. 2-E Gonzales Ortega Treatment Plant Effluent Heavy Metals						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		ug/L				
Aluminum	2-E	216.00	1150.00	601.50	520.00	1046.50
Arsenic	2-E	17.00	17.00	17.00	17.00	17.00
Cadmium	2-E	2.00	2.00	2.00	2.00	2.00
Chromium	2-E	2.00	4.60	2.85	2.40	4.06
Copper	2-E	5.80	21.80	11.85	9.90	18.95
Iron	2-E	314.00	1300.00	699.50	592.00	1169.50
Lead	2-E	31.00	31.00	31.00	31.00	31.00
Manganese	2-E	52.00	87.30	73.13	76.60	84.24
Mercury	2-E	0.10	0.26	0.17	0.16	0.25
Nickle	2-E	11.80	25.70	18.60	18.45	23.72
Selenium	2-E	45.00	45.00	45.00	45.00	45.00
Silver	2-E	2.00	2.80	2.20	2.00	2.56
Sodium	2-E	157000.00	210000.00	175750.00	168000.00	199200.00
Zinc	2-E	42.40	80.70	62.48	63.40	78.12

Table A-16 Station No. 2-E Gonzales Ortega Treatment Plant Effluent Bacteriological						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		MPN/100 ML				
Coliform	2-E	2000000.00	13000000.00	6750000.00	6000000.00	11500000.00
Fecal	2-E	4000000.00	8000000.00	6666667.00	8000000.00	8000000.00

Table A-17 Station No. 13 Xochimilco Agricultural Drain Conventional Pollutants						
Analyte	Station ID	Min	Max	Mean	Median	90th Percentile
		mg/l				
Alkalinity	13	172.00	172.00	172.00	172.00	172.00
Settleable Solids ml/l/h	13	0.10	0.60	0.35	0.35	0.55
Total Dissolved Solids	13	1480.00	1710.00	1595.00	1595.00	1687.00
Total Solids	13	1910.00	1920.00	1915.00	1915.00	1919.00
Total Suspended Solids	13	151.00	242.00	196.50	196.50	232.90
Cyanide, ug/L	13	10.00	10.00	10.00	10.00	10.00
Fluoride	13	0.51	0.53	0.52	0.52	0.53
Sulfate	13	323.00	341.00	332.00	332.00	339.20
Ammonia-N	13	0.80	0.90	0.85	0.85	0.89
Nitrate	13	0.29	0.42	0.36	0.36	0.41
Nitrite	13	1.00	1.00	1.00	1.00	1.00
Ortho Phosphate-P	13	0.31	0.34	0.33	0.33	0.34
TKN	13	1.70	1.70	1.70	1.70	1.70
Total Nitrogen	13	2.00	2.10	2.05	2.05	2.09
Total Phosphorus	13	0.29	0.34	0.32	0.32	0.34
BOD_5, total	13	10.00	10.00	10.00	10.00	10.00
COD, Total	13	160.00	181.00	170.50	170.50	178.90
MBAS	13	1.00	4.00	2.50	2.50	3.70
Oil & Grease	13	10.00	10.00	10.00	10.00	10.00
BOD_5 Soluble	13	10.00	10.00	10.00	10.00	10.00
COD Soluble	13	53.00	60.00	56.50	56.50	59.30

Table A-18 Station No. 13 Xochimilco Agricultural Drain Heavy Metals						
		Min	Max	Mean	Median	90th Percentile
Analyte	Station ID	ug/L				
Aluminum	13	3170.00	5590.00	4380.00	4380.00	5348.00
Arsenic	13	17.00	17.00	17.00	17.00	17.00
Cadmium	13	2.00	2.00	2.00	2.00	2.00
Chromium	13	2.00	3.20	2.60	2.60	3.08
Copper	13	6.00	9.80	7.90	7.90	9.42
Iron	13	2820.00	5030.00	3925.00	3925.00	4809.00
Lead	13	31.00	31.00	31.00	31.00	31.00
Manganese	13	171.00	226.00	198.50	198.50	220.50
Mercury	13	0.10	0.10	0.10	0.10	0.10
Nickel	13	8.00	8.00	8.00	8.00	8.00
Selenium	13	45.00	45.00	45.00	45.00	45.00
Silver	13	2.00	2.00	2.00	2.00	2.00
Sodium	13	333000.00	390000.00	361500.00	361500.00	384300.00
Zinc	13	37.60	42.10	39.85	39.85	41.65

Table A-19 Station No. 13 Xochimilco Agricultural Drain Bactriological						
		Min	Max	Mean	Median	90th Percentile
Analyte	Station ID	MPN/100ML				
Coliform	13	1,600	1,600	1,600	1,600	1,600
Fecal	13	1,600	1,600	1,600	1,600	1,600

B

NEW RIVER WATER QUALITY DATA

Figure 215 - Trend Monitoring for Bacteria at International Boundary

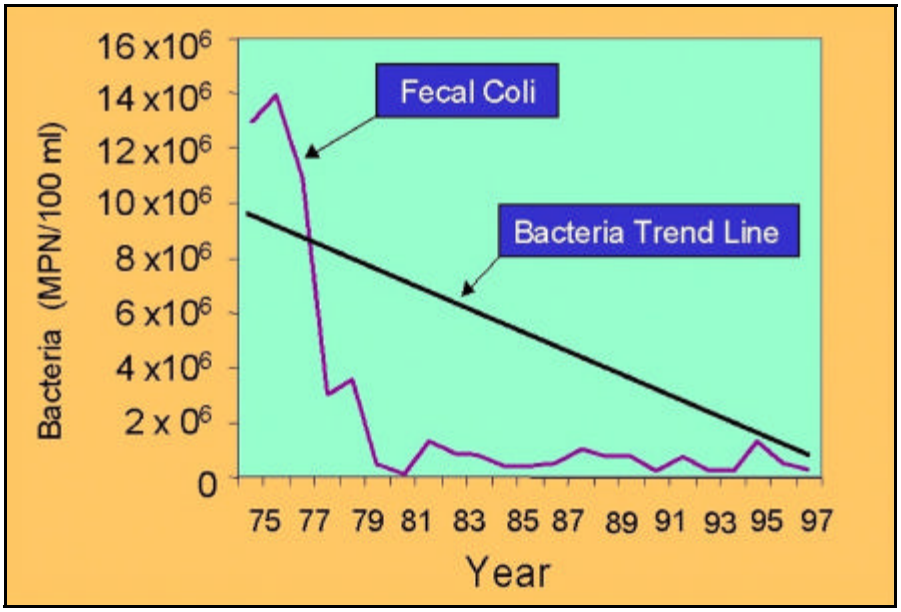
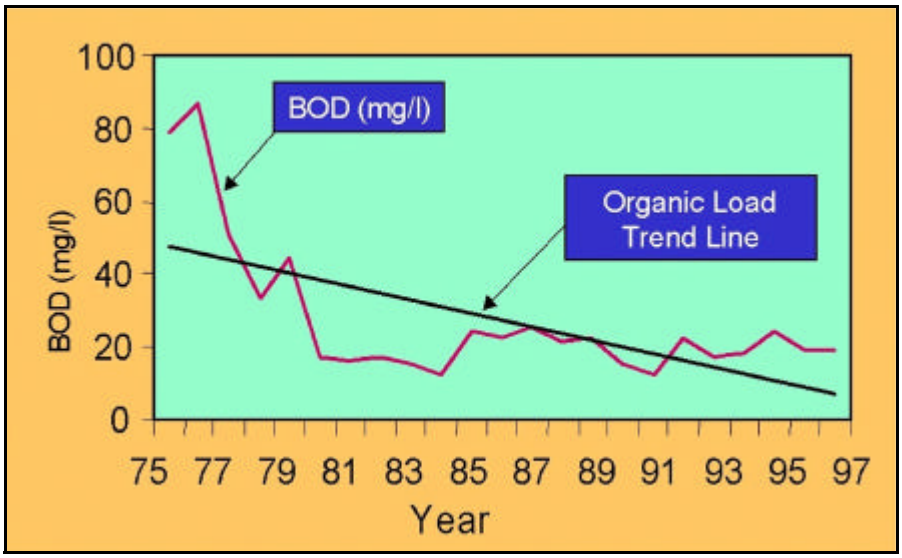


Figure 216 - Trend Monitoring for BOD at International Boundary



California Regional Water Quality Control Board, Colorado River Basin Region
New River at International Boundary Water Analyses (Calexico USGS Station)

Table No. B-1: Conventional Pollutants, Phenol, Cyanide Analyses

Date Sampled: 3/30--3/31/98 | Sampled By: CRWQCB (R7) | Lab: California Department of Health Services

Constituent[1]	Storet Code	US EPA Method	Reporting Limits	Results[2] (8-hr Comp.)	Results[3] (24-hr Comp.)	Min.[4]	Ave.[4]	Max.[4]	Units
MBAS	38260	425.1	0.025	0.10	0.07	0.03	1.04	3.180	mg/l
Total Phosphate as P	665	365.2	0.01	1.36	1.53	1.10	1.85	2.93	mg/l
Phenol	32730	420.1	0.002	ND	ND	ND	0.01	0.02	mg/l
Cyanide	720	335.2	0.01	0.01	0.02	ND	0.01	0.02	mg/l
Ammonia - Nitrogen (NH_3-N)	610	350.2	0.05	4.5	4.8	3.80	4.92	6.50	mg/l
Nitrate - Nitrogen (NO_3-N)	610	353.2	0.2	0.2	0.4	ND	0.37	0.70	mg/l
Nitrite - Nitrogen (NO_2-N)	610	353.2	0.03	0.1	0.1	ND	0.10	0.10	mg/l
Hardness as ($CaCO_3$)	900	130.2	1	820	770	645	802	895	mg/l
Total Alkalinity as ($CaCO_3$)	410	310.1	1	263	258	244	270	296	mg/l
Total Filter. Residue (TDS)	70300	160.1	10	2540	2400	1970	2601	3070	mg/l
Total Suspended Solids	530	160.2	10	51	47	10	70	206	mg/l
Turbidity	82079	180.1	0.1	9.2	11.5	6	15	27	NTU
BOD_5 @ 20°C	310	410.4	2	16	23	9	20	31	mg/l
COD	340	405.1	5	29	26	26	39	61	mg/l

Table No. B-2: Trace metal Analyses

Date Sampled: 3/30--3/31/98 | Sampled By: CRWQCB (R7) | Lab: California Department of Health Services

Constituent[1]	Storet Code	Method	Reporting Limits		Results[2] (8-hr Comp.)	Results[3] (24-hr Comp.)	Min.[2]	Ave.[2]	Max.[2]	Units
			Graphite	Flame						
As-Arsenic	1002	A.A.	2	-	4	4	4	7	10	µg/l
Cd-Cadmium	1027	A.A.	1	50	ND	ND	ND	NA	NA	µg/l
Cr-Chromium	1034	A.A.	10	100	ND	ND	ND	NA	NA	µg/l
Cu-Copper	1042	A.A.	10	50	ND	ND	ND	NA	13	µg/l
Pb-Lead	1051	A.A.	10	200	ND	ND	ND	NA	14	µg/l
Se-Selenium	1147	A.A.	5	-	ND	ND	ND	NA	NA	µg/l
Zn-Zinc	1092	EPA-212.3	-	50	ND	ND	ND	NA	127	µg/l
Hg-Mercury	71900	EPA-245.1	1	-	ND	ND	ND	NA	NA	µg/l

[1] Composite of eight grab samples collected @ 60 minute intervals.

ND = Not Detected NA = Not Applicable

[2] Resutls are from the 8-hr composite sample collected on 3/30/98 from 0700-1400.

[3] Resutls are from the 24-hr composite sample collected on 3/30-3/31/98 from 0700-0600, and are not included in any calculations.

[4] Ave, max, & min values for the past 12 months

California Regional Water Quality Control Board, Colorado River Basin Region
New River at International Boundary Water Analyses (Calexico USGS Station)

Table No. B-3: Turbidity Analyses								
Date Sampled: 3/30--3/31/98			Sampled By: CRWQCB (R7)			Lab: Department of Health Services		
Turbidity[1]	**Storet Code**	**US EPA Method**	**Reporting Limits**	**Results**	**Min.[2]**	**Ave.[2]**	**Max.[2]**	**Units**
700	82079	180.1	0.1	9	2	12	29	NTU
800	82079	180.1	0.1	9	2	13	33	NTU
900	82079	180.1	0.1	10	2	13	38	NTU
1000	82079	180.1	0.1	10	2	21	114	NTU
1100	82079	180.1	0.1	13	2	12	25	NTU
1200	82079	180.1	0.1	10	4	13	20	NTU
1300	82079	180.1	0.1	14	2	12	21	NTU
1400	82079	180.1	0.1	11	2	12	24	NTU

Table No. B-4: Bacterial Analyses						
Date Sampled: 3/30--3/31/98	Sampled By: CRWQCB (R7)			Lab: CRWQCB (R7), ATS		
Fecal Coliform[1,3]	**Storet Code**	**Results**	**Min.[2]**	**Median[2]**	**Max.[2]**	**Units**
1100	316315	20,000	20000	150000	300000	MPN/100ml
1200	316315	40,000	40,000	135,000	300,000	MPN/100ml
1300	316315	70,000	20,000	130,000	500,000	MPN/100ml
1400	316315	20,000	20,000	120,000	500,000	MPN/100ml
0300	316315	70,000	70,000	270,000	300,000	MPN/100ml
0400	316315	70,000	70,000	170,000	3,000,000	MPN/100ml
0500	316315	700,000	80,000	270,000	700,000	MPN/100ml
0600	316315	40,000	40,000	130,000	800,000	MPN/100ml

[1] Grab sample taken at the indicated time

[2] Ave, median, max, & min values for the past 12 months

[3] Analyzed by the Multiple Tube Fermentation Method

California Regional Water Quality Control Board, Colorado River Basin Region
New River at International Boundary Water Analyses (Calexico USGS Station)

Table No. B-5: Volatile Organic Constituent Analyses

Date Sampled: 3/30--3/31/98 | Sampled By: CRWQCB (R7) | Lab: California Department of Health Services

Analyte[1]	Storet Code	3/30/98 0900[2]	3/30/98 1200[2]	3/30/98 1500[2]	3/30/98 1800[2]	3/30/98 2100[2]	3/31/98 0000[2]	3/31/98 0300[2]	3/31/98 0600[2]	Detection Limits	Units
Benzene	34030	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Bromobenzene	81555	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Bromochloromethane	A-012	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Bromodichloromethane	32101	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Bromoform	32104	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Bromomethane (Mehyl Bromide)	34413	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
n-Butylbenzene	A-010	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
sec-Butylbenzene	77350	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
tert-Butylbenzene	77353	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Carbon Tetrachloride	32102	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Chlorobenzene (Monochlorobenzene)	34301	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Chloroethane	34311	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Chloroform	32106	ND	ND	ND	0.56	ND	0.64	ND	ND	0.5	µg/l
Chloromethane (Methyl Chloride)	34418	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
o-Chlorotoluene (2-Chlorotolulene)	A-008	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
p-Chlorotoluene (4-Chlorotolulene)	A-009	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Dibromochloromenhane	32105	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Dibromomethane	77596	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,2-Dichlorobenzene (o-DCB)	34536	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,3-Dichlorobenzene (m-DCB)	34566	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,4-Dichlorobenzene (p-DCB)	34571	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Dichlorodifluoromethane (Freon 12)	34668	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l

[1] See Footnotes in B-8

California Regional Water Quality Control Board, Colorado River Basin Region

New River at International Boundary Water Analyses (Calexico USGS Station)

Table No. B-5: Volatile Organic Constituent Analyses

Date Sampled: 3/30--3/31/98 | Sampled By: CRWQCB (R7) | Lab: California Department of Health Services

Analyte[1]	Storet Code	3/30/98 0900[2]	3/30/98 1200[2]	3/30/98 1500[2]	3/30/98 1800[2]	3/30/98 2100[2]	3/31/98 0000[2]	3/31/98 0300[2]	3/31/98 0600[2]	Detection Limits	Units
1,1-Dichloroethane (1,1-DCA)	34496	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,2-Dichloroethane (1,2-DCA)	34531	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,1-Dichloroethylene (1,1-DCE)	34501	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
cis-1,2-Dichloroethylene	77093	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
trans-1,2-Dichloroethylene	34546	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,2-Dichloropropane	34541	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,3-Dichloropropane	77173	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,2-Dichloropropane	77170	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,1-Dichloropropylene	77168	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
cis- & trans-1,3-Dichloropropylene	34561	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Ethyl benzene	34371	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Ethylene dibromide (EDB)	77651	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Hexachlorobutadiene	34391	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Isopropylbenzene (Cumeme 77356)	77223	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
p-Isopropyltoluene (p-Cymene)	A-011	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Methylene chloride (Dichloromethane)	34423	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Methyl Ethyl Ketone	81595	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Methyl Isobutyl Ketone	81596	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Napthalene	34696	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
n-Propylbenzene	77224	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Styrene	77128	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,1,1,2-Tetrachloroethane	77562	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l

[1] See Footnotes in B-8

California Regional Water Quality Control Board, Colorado River Basin Region

New River at International Boundary Water Analyses (Calexico USGS Station)

Table No. B-5: Volatile Organic Constituent Analyses

Date Sampled: 3/30--3/31/98 | Sampled By: CRWQCB (R7) | Lab: California Department of Health Services

Analyte[1]	Storet Code	3/30/98 0900[2]	3/30/98 1200[2]	3/30/98 1500[2]	3/30/98 1800[2]	3/30/98 2100[2]	3/31/98 0000[2]	3/31/98 0300[2]	3/31/98 0600[2]	Detection Limits	Units
1,1,2,2-Tetrachloroethane	34516	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Tetrachloroethylene (PCE)	34475	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Toluene	34010	0.74	0.8	1.2	1.6	1.2	0.89	2.3	0.62	0.5	µg/l
1,2,3-Trichlorobenzene	77613	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,2,4-Trichlorobenzene	34551	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,1,1-Trichloroethane (1,1,1-TCA)	34506	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,1,2-Trichloroethane (1,1,2-TCA)	34511	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Trichloroethylene (TCE)	39180	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,2,3-Trichloropropane	77443	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Trichlorofluoromethane (Freon 11)	34488	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,2,4-Trimethylbenzene	77222	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,3,5-Trimethylbenzene	77226	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
1,1,2-Trichloro-trifluoroethane (Freon 113)	81611	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
Vinyl chloride (VC)	39175	ND	ND	ND	ND	ND	ND	ND	ND	0.5	µg/l
m,p-Xylenes	A-014	ND	ND	ND	0.68	0.54	ND	0.93	ND	0.5	µg/l
o-Xylene	77135	ND	ND	ND	ND	ND	ND	0.53	ND	0.5	µg/l

ND = Not Detected

[1] USEPA Method 524.2

[2] Results are for each grab sample collected at the specified time/date, the first sample was collected @ 0900 on 3/30/98. The last was collected @ 0600 on 3/31/98.