



February 2020

INTERNATIONAL BOUNDARY AND WATER COMMISSION

Opportunities Exist to Address Water Quality Problems

GAO Highlights

Highlights of [GAO-20-307](#), a report to congressional requesters

Why GAO Did This Study

Ongoing sewage spills and stormwater runoff carrying trash, sediment, and other pollutants in the Santa Cruz River Basin and Tijuana River Valley watersheds along the U.S.-Mexico border have affected public health, the environment, and local economies. Under the 1944 treaty, the United States and Mexico agreed to work together through IBWC to address these water quality problems. As part of this effort, USIBWC manages two wastewater treatment plants in Arizona and California. In 2018, the plants treated more than 14 billion gallons of sewage from Mexico.

This report (1) describes the authorities and roles for developing and managing the plants and sharing their costs; (2) examines factors affecting the operation of each plant and steps taken to address them; and (3) examines the extent to which USIBWC has taken actions to address water quality problems in the watersheds. GAO reviewed U.S.-Mexico treaties, IBWC minutes and permits, and planning and budget data for USIBWC. GAO also interviewed officials from IBWC and other federal agencies, local and state governments, and non-governmental groups.

What GAO Recommends

GAO believes that Congress should consider providing direction and specific authorization to USIBWC to take action to resolve stormwater quality problems in the Santa Cruz River Basin and Tijuana River Valley watersheds. GAO is also making two recommendations to USIBWC, including that it formalize the rapid response team. USIBWC concurred with that recommendation and partly concurred with the other.

View [GAO-20-307](#). For more information, contact J. Alfredo Gómez at (202) 512-3841 or gomezj@gao.gov.

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INTERNATIONAL BOUNDARY AND WATER COMMISSION

Opportunities Exist to Address Water Quality Problems

What GAO Found

A 1944 treaty designated the International Boundary and Water Commission (IBWC) and authorized it to resolve water and boundary issues along the U.S.-Mexico border, including providing wastewater treatment. IBWC's two sections—the U.S. Section (USIBWC) and the Mexican Section, negotiated agreements to construct, manage, and operate two wastewater plants in Nogales, Arizona, and San Ysidro (South Bay), California, to resolve ongoing water quality problems stemming from sewage flowing downhill from Mexico into the United States (see figure). Several of these agreements describe each country's roles, such as sharing costs for the operation and maintenance of each plant.

International Wastewater Plants in Arizona and California



Source: GAO. | GAO-20-307

Several factors can affect the plants' operations, including deteriorating infrastructure in Mexico and the United States that results in raw sewage spills around the plants. USIBWC has taken steps to resolve some of these factors. For example, USIBWC proposed a binational rapid response team to address broken pipes and failing pumps that can send sewage from Mexico into the United States; however, the team has not been formalized to ensure its long-term operation. By taking steps to formalize the team, USIBWC would have assurance it can more effectively address recurring infrastructure failures contributing to sewage spills.

USIBWC and others have taken some actions to address stormwater problems, such as studying stormwater flows in the Tijuana River Valley watershed and building some retention basins. However, USIBWC has not taken action, in coordination with federal, state, and local partners, to identify alternatives, cost estimates, funding sources, and time frames for implementing solutions in either watershed. USIBWC officials said without direction from Congress, it does not have specific authorization for stormwater management in the watersheds because the 1944 treaty and accompanying legislation did not authorize it to carry out such projects. The long-standing stormwater quality problems and their associated environmental and health effects suggest congressional direction is needed to authorize USIBWC to take action. Such action would include identifying alternatives, cost estimates, funding sources, and time frames.

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Abbreviations

ADEQ	Arizona Department of Environmental Quality
CBP	U.S. Customs and Border Protection
Corps	U.S. Army Corps of Engineers
EPA	Environmental Protection Agency
IBWC	International Boundary and Water Commission
IOI	International Outfall Interceptor
NADB	North American Development Bank
NPDES	National Pollutant Discharge Elimination System
OMB	Office of Management and Budget
TMDL	Total Maximum Daily Load
USIBWC	U.S. Section of the International Boundary and Water Commission

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February 5, 2020

The Honorable Diane Feinstein
United States Senate

The Honorable Martha McSally
United States Senate

The Honorable Garret Graves
House of Representatives

For almost 2 decades, we have reported on water quality problems in the Santa Cruz River Basin and Tijuana River Valley watersheds along the U.S.-Mexico border that have affected public health, the environment, and local economies.¹ In that time, the United States and Mexico negotiated to jointly build two international wastewater treatment plants in southern Arizona and southern California to treat sewage flowing from higher terrain in Mexico downhill into the United States. However, wastewater pipeline breaks in Mexico continue to send sewage across the border, and stormwater from Mexico continues to carry trash from city streets, sediment, and bacteria into the United States. Stormwater runs off paved surfaces or other impervious areas into water bodies and may contain pollutants that the water picks up as it runs over such surfaces. In the Tijuana River Valley watershed, from 2003 through 2017, officials from the City of Imperial Beach, California, closed public beaches for at least one-quarter of the year and up to half the year in some years due to sewage contamination, according to data from the city.

Through the binational International Boundary and Water Commission (IBWC), the United States and Mexico have negotiated agreements to address wastewater management problems along the border, including agreements for the construction of the Nogales International Wastewater Treatment Plant in the Santa Cruz River Basin watershed near Nogales, Arizona, and the South Bay International Wastewater Treatment Plant in

¹GAO, *U.S.-Mexico Border: Despite Some Progress, Environmental Infrastructure Challenges Remain*, [GAO/NSIAD-00-26](#) (Washington, D.C.: Mar. 3, 2000); *International Boundary and Water Commission: Two Alternatives for Improving Wastewater Treatment at the United States-Mexico Border*, [GAO-08-595R](#) (Washington, D.C.: Apr. 24, 2008); and *Rural Water Infrastructure: Improved Coordination and Funding Processes Could Enhance Federal Efforts to Meet Needs in the U.S.-Mexico Border Region*, [GAO-10-126](#) (Washington, D.C.: Dec. 18, 2009).

the Tijuana River Valley watershed near San Diego, California. The plants are subject to the United States' Clean Water Act, which prohibits the discharge of pollutants from point sources into waters of the United States without a permit from the Environmental Protection Agency (EPA) or an authorized state.² Specifically, the Clean Water Act regulates discharges from wastewater treatment plants through the issuance of permits under EPA's National Pollutant Discharge Elimination System (NPDES) program.³ These permits limit the amount of pollutants that can be discharged. The Arizona and California state governments have issued and administer NPDES permits for the Nogales plant and South Bay plant, respectively.

IBWC was authorized to address water management issues along the border by a 1944 treaty between the United States and Mexico, the *Treaty Relating to the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande*, among other agreements.⁴ The commission is comprised of a U.S. Section (known as USIBWC) and a Mexican Section; these sections are administered independently of each other. Under the 1944 treaty, the two sections may initiate and carry out investigations to plan, construct, and operate works, such as international water treatment plants, and recommend cost-sharing agreements between the two countries.

To carry out their responsibilities under the 1944 treaty, USIBWC and the Mexican Section negotiate legally binding agreements known as minutes, which are subject to the approval of both governments. For example, after negotiating minutes, the U.S. and Mexican governments agreed to share the costs to build the two plants in the United States, and IBWC has cost-

²The Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, § 2, 86 Stat. 816, codified as amended at 33 U.S.C. §§ 1251-1388 (2016) (commonly referred to as the Clean Water Act). For the purposes of this report, we refer to the statute and its amendments as the Clean Water Act.

³EPA also regulates stormwater pollution through the Clean Water Act's NPDES program, under which some municipalities and others that operate sewer systems must obtain NPDES permits to discharge stormwater into nearby water bodies, such as creeks, lakes, and rivers.

⁴Treaty Relating to the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mexico February 3, 1944, 59 Stat. 1219, T.S. 994. The treaty discusses certain IBWC roles relating to the joint use of the three rivers covered by the treaty, and states that the two governments "agree to give preferential attention to the solution of all border sanitation problems."

sharing agreements in place to pay for both plants' operations.⁵ In addition, USIBWC has a cost-sharing agreement with the City of Nogales for the city's use of the Nogales plant to treat its wastewater.

You requested that we examine the two international wastewater treatment plants and their implementation of their NPDES permits.⁶ This report (1) describes the authorities and roles involved in developing, managing, and sharing costs for the two international wastewater plants in the United States; (2) examines factors that affect the operation of the two plants and steps IBWC has taken to address these factors; and (3) examines the extent to which USIBWC has taken actions to address water quality problems in the two watersheds, including through the use of key capital planning principles.

To describe the authorities and roles involved in developing, managing, and sharing the costs of the two international wastewater plants in the United States, we reviewed the 1944 treaty and associated IBWC minutes. We visited the Nogales and South Bay plants and interviewed USIBWC officials. We also conducted interviews with officials at USIBWC Headquarters in El Paso, Texas, and with the Mexican IBWC Commissioner in Ciudad Juarez, Mexico. We interviewed other federal officials at EPA, the Department of Homeland Security's Customs and Border Protection, and the Department of State during our site visits and in Washington, D.C. We reviewed USIBWC's budget, funding, data, and costs associated with operating the Nogales and South Bay plants. To determine if these data were reliable, we interviewed a USIBWC official about the source of the data and any limitations to using it. We determined the data are sufficiently reliable for reporting on the funding used to pay for the plants.

To examine factors, if any, that affect the operation of the two plants and steps IBWC has taken to address these factors, we reviewed each plant's NPDES permit and violation notices, and USIBWC documentation, such

⁵For example, Pub. L. No. 83-150, 67 Stat. 195 (1953) authorized the Secretary of State to negotiate with Mexico regarding the division of operation and maintenance costs of the Nogales project. The agreement was conditioned on assurance from Nogales, Arizona, that it would pay an equitable proportion, as determined by USIBWC, of operations and maintenance costs allocated to the United States.

⁶This review was conducted in response to a 2018 request that included Representative Garrett Graves—then Chair of the House Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure.

as reports and plans for projects to resolve the violations. We also interviewed USIBWC officials, as well as Arizona and California state environmental officials responsible for developing and enforcing the permits, to discuss permit violations and water quality problems at the plants and actions USIBWC has taken to resolve them.

To examine the extent to which USIBWC has taken steps to address water quality problems in the two watersheds, including using key capital planning principles, we analyzed IBWC documentation including annual financial reports and investment plans for each plant. We also interviewed USIBWC officials and stakeholders at each plant, including local government officials and environmental group representatives, about the water quality problems and solutions. We compared USIBWC's capital planning efforts against the Office of Management and Budget's (OMB) *Capital Programming Guide (Version 3.0) Supplement to OMB Circular No. A-11*, other OMB related guidance, and our reports on key capital planning principles.⁷ (See app. I for further details of our scope and methodology.)

We conducted this performance audit from September 2018 to January 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

In the Santa Cruz River Basin and Tijuana River Valley watersheds, which straddle portions of the 1,954-mile U.S.-Mexico border, water flows north from higher elevations in Mexico into the United States. Both countries have infrastructure along the border to manage, divert, and treat wastewater, including sewers, pipelines, and treatment plants, in addition to the two international wastewater treatment plants in the United States. The Nogales and South Bay plants are located in the middle and lower end of the Santa Cruz River Basin and Tijuana River Valley, respectively. Figure 1 shows the location of the international wastewater treatment plants along the border.

⁷GAO, *Federal Capital: Three Entities' Implementation of Capital Planning Principles Is Mixed*, [GAO-07-274](#) (Washington, D.C.: Feb. 23, 2007), and *Water Infrastructure: EPA and USDA Are Helping Small Water Utilities with Asset Management; Opportunities Exist to Better Track Results*, [GAO-16-237](#) (Washington, D.C.: Jan. 27, 2016).

Figure 1: Map of International Wastewater Treatment Plants Operated by the United States Section of the International Boundary and Water Commission in Arizona and California



Source: GAO. | GAO-20-307

In 2018, USIBWC treated more than a combined 14 billion gallons of sewage at the Nogales and South Bay international wastewater treatment plants. At the Nogales plant, USIBWC treated 4.5 billion gallons of sewage—an average of 12.45 million gallons per day from the city of Nogales in Sonora, Mexico. In addition, the plant treats an average of 2 million to 2.5 million gallons per day of sewage from the Arizona cities of Nogales and Rio Rico.⁸ The Nogales plant discharges treated wastewater into the Santa Cruz River. At the South Bay plant, USIBWC treated 9 billion gallons of sewage in 2018—an average of 24.8 million gallons per day from the City of Tijuana in Baja California, Mexico. The South Bay plant discharges treated wastewater through a pipeline, called the South Bay Ocean Outfall, into the Pacific Ocean.

Both watersheds are located in arid regions characterized by infrequent but sometimes intense precipitation that forms short-lived streams or

⁸The City of Nogales, Arizona, has a contract with the community of Rio Rico, Arizona, which allows Rio Rico to send its wastewater to the Nogales plant for treatment, according to USIBWC officials. Rio Rico reimburses the City of Nogales, Arizona, for this service.

washes that fill with water during such events but may be dry at other times. These high-precipitation events lead to high levels of stormwater runoff. Urban stormwater is a major contributor to pollution in the nation's waterbodies, including rivers and oceans, and can contribute to disease outbreaks and beach closings, as well as flooding.

International Boundary and Water Commission

IBWC's mission is to provide binational solutions to issues that arise during the application of U.S.-Mexico treaties regarding, among other things, water quality and flood control in the border region including constructing and operating wastewater treatment plants, as directed by Congress.⁹ The U.S. and Mexican governments established IBWC (then the International Boundary Commission) in 1889, initially to resolve boundary-related differences arising along the border. Various agreements between the United States and Mexico added water distribution and flood management in the transboundary rivers to IBWC's responsibilities, including management of the border reaches of the Rio Grande and Colorado rivers. In the 1944 treaty, *Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande*,¹⁰ the United States and Mexico agreed to apportion their shared waters, distributing the waters of the Colorado River and the Rio Grande between both countries. As part of the 1944 treaty, the United States agreed to annually provide a guaranteed amount of water from the Colorado River to Mexico—unless deliveries were limited by extraordinary drought—and to allocate the waters of the Rio Grande between the two countries, as well as authorizing jointly built and operated dams, reservoirs, and hydroelectric plants to manage water from the Rio Grande River. USIBWC manages this infrastructure and ensures annual compliance with the 1944 treaty water delivery requirements. As part of its flood

⁹In ratifying the 1944 treaty, the U.S. Senate resolution specified that USIBWC should only conduct work related to eight projects identified in the treaty, and not undertake any other construction projects without congressional authorization. Section (a) of the resolution states, "That no commitment for works to be built in the United States in whole or in part at its expense, or for expenditures by the United States, other than those specifically provided for in the treaty, shall be made by the Secretary of State of the United States, the Commissioner of USIBWC, or any other USIBWC official, or any other officer or employee of the United States, without prior approval of the Congress of the United States." 59 Stat. 1263-64 (1945). IBWC constructed each of the two plants discussed in this report pursuant to a series of specific statutory authorizations enacted in several Congresses. See, for example, Department of State, Justice, Commerce and the Judiciary Appropriation Act for 1947, Pub. L. No. 79-490, 60 Stat. 454 (1946) (Nogales plant); Pub. L. No. 100-4, § 510, 101 Stat. 80 (1987) (South Bay plant).

¹⁰We refer to this treaty throughout the report as the 1944 treaty.

control efforts, IBWC maintains and manages over 500 miles of levees for flood protection.

The 1944 treaty established the key organizational components of IBWC and its two sections—USIBWC and the Mexican Section—which are federal agencies of their respective governments.¹¹ Under the treaty, USIBWC and the Mexican Section are each headed by a commissioner who is an engineer. The treaty allows each commissioner to employ engineers, legal advisers, and assistants as needed and established certain positions—two principal engineers, legal counsel, and a secretary (that is, a foreign officer)—as entitled to diplomatic status in the other country’s territory. USIBWC is headquartered in El Paso, Texas, and the Mexican Section is headquartered in the adjoining city of Ciudad Juarez, Chihuahua, Mexico. USIBWC and the Mexican Section also have their own field offices along the border that operate and oversee joint work.

U.S. Section of the International Boundary and Water Commission

USIBWC operates under the foreign policy guidance of the Department of State and implements treaties between the United States and Mexico related to boundary preservation and water management, including border sanitation and flood control in the border region. USIBWC is headed by the U.S. Commissioner and is made up of six executive offices and three departments, with about 240 full-time equivalent employees as of fiscal year 2017, the most recent data available at the time of our review. The six offices include the Foreign Affairs Office and a Legal Affairs Office; the former houses the foreign officer responsible for diplomatic communications and provides advice for the interpretation of treaties and minutes, and the latter houses legal counsel. The three departments in USIBWC are the

- **Administrative Department**, which supports all agency functions through acquisitions, budget, finance, accounting, and information management;
- **Engineering Department**, which is headed by a Principal Engineer of Engineering who provides technical and policy advice to the U.S. Commissioner and technical support in planning, engineering, environmental management, and construction management; and
- **Operations Department**, which is headed by the Principal Engineer of Operations who through the agency’s field offices oversees the

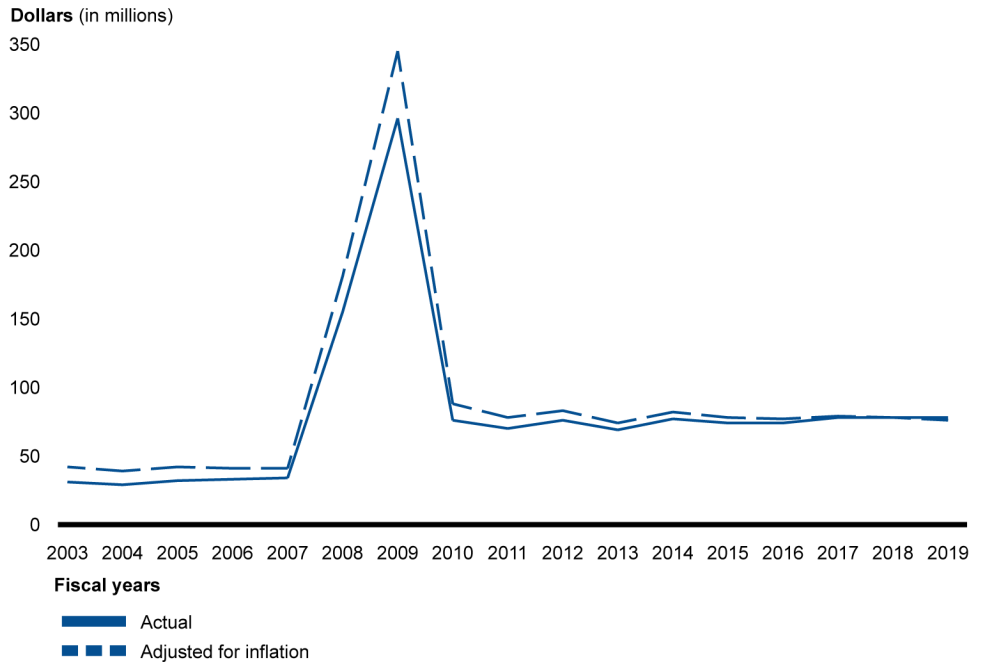
¹¹*Comision Internacional de Limites y Aguas (CILA)* is the Spanish translation of the IBWC. In this report, we refer to Mexico’s section of the IBWC as the “Mexican Section.”

maintenance and operations of the two international wastewater treatment plants as well as more than 100 hydrologic gaging stations, 500 miles of levees, four diversion dams, two international storage dams and associated hydroelectric power plants, more than 600 hydraulic structures, and one-half of all international boundary monuments and markers on the U.S.-Mexico land border and at international ports of entry.

USIBWC's annual budget, which has averaged \$75 million per year since fiscal year 2010, is submitted to Congress as part of the Department of State's overall budget. Under State's budget process, USIBWC submits a budget request 2 years in advance of the funding to be spent. Once the department's leadership approves USIBWC's budget, it is incorporated into the overall departmental budget request for review by OMB. After OMB's review, the budget is included as part of the President's annual budget request to Congress. The agency receives its appropriated funding in two budget line items: (1) Salaries and Expenses and (2) Construction.

As shown in figure 2, USIBWC funding has declined, when considering inflation (fiscal year 2018 dollars). According to USIBWC officials, the agency's funding has increased about 1.1 percent per year since fiscal year 2010 and has been relatively flat since fiscal year 2017. According to a USIBWC budget official, the agency's costs are increasing at an average inflation rate of nearly 3 percent per year. USIBWC's budget from fiscal years 2010 through 2019, however, was more than double its budget from fiscal years 2003 through 2007. According to the official, starting in fiscal year 2010, the agency received an increase in its construction appropriations to fund dam and levee improvements along the border. Before that, in fiscal year 2008, USIBWC received additional appropriations of \$55.6 million to pay for levee repairs; and in fiscal year 2009, under the American Recovery and Restoration Act, received \$220 million for construction projects.

Figure 2: Federal Appropriations for the United States Section of the International Boundary and Water Commission, Fiscal Years 2003 through 2019



Source: GAO analysis of U.S. Section of the International Boundary and Water Commission data. | GAO-20-307

Notes: We used the Consumer Price Index inflation factor for all funding. The adjusted for inflation amounts are in fiscal year 2018 dollars.

Other Federal Agencies Involved with Water Infrastructure Projects on the U.S.-Mexico Border

In addition to USIBWC, other federal agencies that manage or collaborate on water infrastructure projects in communities along the U.S.-Mexico border include the following:

U.S. Army Corps of Engineers (Corps). The Corps provides assistance for flood control, wastewater treatment, drinking water, and water supply projects in communities across the United States, as directed by Congress. To provide flood control assistance, the Corps’ Emergency Streambank and Shoreline Protection program plans, designs, and constructs erosion control projects that protect public infrastructure. It conducts these directly or under contract with other federal agencies, such as USIBWC. Congress has also authorized the Corps to provide assistance to nonfederal interests for carrying out water-related environmental infrastructure and resource protection and development

projects, including waste water treatment and related facilities.¹² In addition, the Corps' Planning Assistance to States program helps states, local governments, and tribes with preparing comprehensive plans for the development and conservation of water and related land resources.

The Corps has worked on various projects along the U.S.-Mexico border. For example, to address stormwater that flows downhill from Nogales, Sonora into Nogales, Arizona, near USIBWC's Nogales plant, USIBWC requested an evaluation by the Corps on possible flood protection improvements in Mexico, which was completed in 2004. Based on the Corps' recommendations, the local and federal governments in Mexico constructed several dams and detention basins. To address flooding of the Tijuana River in southern California, USIBWC contracted with the Corps to implement the U.S. portion of the Tijuana Flood Control Project in 1978.¹³ For this project, the Corps prepared construction plans and supervised the construction of a quarter-mile concrete channel in the United States that extends downstream from the U.S.-Mexico border.

EPA. In 1983, the United States and Mexico signed the *Agreement on Cooperation for the Protection and Improvement of the Environment in the Border Area* (the La Paz Agreement).¹⁴ In the agreement, the United States and Mexico agreed to coordinate their efforts to address problems of air, land, and water pollution in the border area, defined as the area situated within 100 kilometers (approximately 62 miles) of either side of the border. The agreement names EPA as the national coordinator responsible for its implementation and provides EPA with a formal means of working with its federal counterpart in Mexico on binational programs. In addition, EPA and its Mexican counterpart created a binational program to fund environmental improvement projects for communities

¹²Section 219 of the Water Resources and Development Act of 1992, Pub. L. No. 102-580 § 219, 106 Stat. 4835, as amended.

¹³See 22 U.S.C. § § 277d-32, 227d-33. In 1967, in Minute 225, under the terms of the 1944 Treaty, IBWC recommended the implementation of a joint project for flood control of the Tijuana River in both the United States and Mexico to protect communities from flooding of the Tijuana River in San Diego, California, and Tijuana, Baja California. The joint project consisted of two portions. In the U.S. portion, a 0.25-mile concrete channel was constructed that extended from the border downstream. In the Mexico portion, a concrete-lined channel was constructed for the Tijuana River extending from the border upstream 2.7 miles. USIBWC was authorized by statute to construct its portion of the international flood control project in 1966, as amended in 1976. Today, each country maintains its concrete section of the river.

¹⁴35 U.S.T. 2916 (1983).

along the border, called the U.S.-Mexico Border Water Infrastructure Program.¹⁵ The most recent plan developed under the agreement—U.S.-Mexico Border 2020—is an 8-year cooperative program initiated in 2013 that identified five goals to protect the environment and public health in both countries.¹⁶ The second goal—to improve access to clean and safe water—includes protecting and restoring binational watersheds by addressing the inadequate collection and treatment of wastewater. Under the program, EPA works with federal agencies—including USIBWC—and state and local agencies to build grant-funded projects to improve water quality in the border area, including wastewater infrastructure projects that connect to or are related to USIBWC’s two international wastewater treatment plants in Arizona and California.

North American Development Bank (NADB). In 1993, another agreement between the United States and Mexico led to the creation of two entities—NADB and the Border Environmental Cooperation Commission—to develop the environmental infrastructure of the U.S.-Mexico border region.¹⁷ NADB’s supervisory board includes representatives from EPA and the Departments of State and Treasury. NADB also established the Border Environment Infrastructure Fund to administer grant funds provided by EPA, for the implementation of high-priority municipal water and wastewater infrastructure projects located within 62 miles north of the U.S.-Mexico border, as well as 187 miles south of the border.¹⁸ NADB funds wastewater and sewer projects in

¹⁵[GAO-10-126](#).

¹⁶The U.S.-Mexico Border 2020 Program is the latest environmental program implemented under the 1983 La Paz Agreement.

¹⁷In September 1993, the two institutions initiated operations under *Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Establishment of a Border Environment Cooperation Commission and a North American Development Bank*. The agreement provides that “the parties shall call upon the Commission and the IBWC to cooperate, as appropriate, with each other in planning, developing and carrying out border sanitation and other environmental activities.” In November 2018, the Border Environmental Cooperation Commission merged into one entity under NADB.

¹⁸The objective of the Border Environment Infrastructure Fund program is to make infrastructure projects affordable for communities throughout the U.S.-Mexico border region by minimizing project debt through combining grant funds with loans and other forms of financing. NADB provides financing in a number of ways, including direct loans; revolving lines of credit; and municipal bonds. In addition, NADB may act as the sole lender or co-finance projects with other public or private financiers, depending upon the characteristics and financing needs of the project.

communities along the border, including projects at USIBWC's two international wastewater treatment plants.

The Clean Water Act

IBWC's two wastewater treatment plants are required to meet water quality standards under the Clean Water Act. The act establishes the basic structure for regulating surface water quality, including regulation of discharges of such pollutants as *E. coli* bacteria and heavy metals, such as arsenic and lead, into the waters of the United States. The act requires states to establish water quality standards that protect public health and the environment and consider aquatic wildlife and human consumption and recreation, among other uses. The act also requires EPA to maintain and improve water quality by assisting and overseeing states' efforts, among other responsibilities. The states are required to monitor and assess the conditions of water bodies, and those that do not meet state water quality standards are considered impaired.

Other provisions of the Clean Water Act include the following:

- **NPDES permits.** The Clean Water Act prohibits the discharge of pollutants from point sources (sources of pollution, such as wastewater treatment plants and industrial facilities) into waters of the United States without a permit from EPA or an authorized state. Under the act, EPA and authorized states issue NPDES permits for point sources of pollution, which among other things regulate the amount of pollutants that can be discharged.¹⁹ Another component of the NPDES program is the pretreatment program, to prevent the introduction of pollutants into a publicly owned wastewater treatment plant that will interfere with its operation. According to EPA, by reducing or eliminating waste from industries, fewer toxic pollutants are discharged to and treated by the publicly owned wastewater treatment plant, providing benefits to both these plants and the industrial users.²⁰ EPA has authorized most states, including Arizona

¹⁹Under the Clean Water Act, EPA can authorize state, tribal, and territorial governments to implement the NPDES program, enabling them to develop NPDES permits and enact other administrative and enforcement aspects of the NPDES program. Currently, 46 states and one territory are authorized to administer and enforce the NPDES program. GAO, *Water Pollution: EPA Has Improved Its Review of Effluent Guidelines but Could Benefit from More Information on Treatment Technologies*, [GAO-12-845](#) (Washington, D.C.: Dec. 5, 2013).

²⁰The publicly owned treatment plant shall operate pursuant to legal authority enforceable in court, which authorizes the plant to apply and to enforce relevant requirements of the Clean Water Act. 40 C.F.R. § 403.8(f)(1).

and California, to administer clean water discharge permits. The Arizona Department of Environmental Quality administers the NPDES permit for the Nogales plant. The plant is also subject to state permits, such as an aquifer permit required in Arizona to limit the impact of the plant's discharge on groundwater in the vicinity. The San Diego Regional Water Quality Control Board administers the NPDES permit for the South Bay plant.

- **Stormwater runoff.** Stormwater runoff is generated from rain and snowmelt events that flow over land or impervious surfaces—such as paved streets, parking lots, and building rooftops—and does not soak into the ground. The NPDES stormwater program regulates some stormwater discharges from three potential sources: certain municipal storm sewer systems, construction activities, and industrial activities. Operators of these sources might be required to obtain an NPDES permit before they can discharge stormwater. This permitting mechanism is designed to prevent stormwater runoff from washing harmful pollutants into local surface waters.
- **Total Maximum Daily Load.** Under the Clean Water Act, states must establish water quality standards; for waters that do not meet these standards, states must develop Total Maximum Daily Loads (TMDLs), which EPA approves. TMDLs set targeted limits for pollutants but are not self-implementing; EPA and states help reduce pollutants by issuing permits for point sources, whereas they provide voluntary incentives to reduce nonpoint source pollution (pollution that cannot be traced to a single source).²¹

Wastewater Utilities and Asset Management

Wastewater and stormwater utilities in the United States and Mexico are managed, for the most part, by local municipal governments. In the United States, local governments own and operate the majority of drinking water and wastewater utilities and charge users for their service through water rates. In Mexico, local and state governments, including Nogales and Tijuana, own and operate drinking water and wastewater utilities. Each city has its own sewer and wastewater infrastructure, including wastewater treatment plants. For example, the state of Tijuana Public Service Commission of Tijuana is responsible for the operation and maintenance of wastewater collection and treatment infrastructure, and of the drinking water distribution system. In the United States and Mexico,

²¹GAO, *Clean Water Act: Changes Needed if Key EPA Program Is to Help Fulfill the Nation's Water Quality Goals*, [GAO-14-80](#) (Washington, D.C.: Dec. 5, 2013).

stormwater may be managed by a wastewater utility or a local municipality.

Asset management is a widely recognized tool used across a variety of infrastructure sectors to manage physical assets, such as highways, machinery, and buildings. In the case of water infrastructure, those assets include pipelines, tanks, pumps, sewers, and other facilities.²² In a March 2004 report, we found that water utilities may benefit from implementing asset management practices to better identify and manage their infrastructure needs.²³ To assist water utilities in adopting asset management, in 2003, EPA developed an asset management framework for water utilities.²⁴ In 2008, EPA incorporated this framework into a best practices guide for water utilities based on similar frameworks used by water utilities in Australia and New Zealand. In a March 2004 report, we reported that federal law does not require water utilities to use asset management, but large water utilities may be more likely to use asset management than small water utilities.²⁵ In a January 2016 report, we identified leading asset management practices for wastewater utilities that include identifying key assets—such as pipelines, treatment plants, and other facilities—and assessing their life-cycle costs.²⁶

We have also previously identified key capital planning principles that apply to large capital acquisitions, such as infrastructure. For example, in a February 2007 report, we identified five key planning principles in OMB guidance on capital programming contained in OMB Circular A-11.²⁷ These include developing links between strategic goals and infrastructure; developing a needs assessment and identifying gaps in infrastructure; evaluating alternatives; using a review and approval framework with criteria for selecting capital investments; and developing a

²²[GAO-16-237](#).

²³GAO, *Water Infrastructure: Comprehensive Asset Management Has Potential to Help Utilities Better Identify Needs and Plan Future Investments*, [GAO-04-461](#) (Washington, D.C.: Mar. 19, 2004).

²⁴Environmental Protection Agency, *Asset Management: A Best Practices Guide*, EPA 816-F-08-014 (Washington, D.C.: Apr. 2008).

²⁵[GAO-04-461](#).

²⁶[GAO-16-237](#).

²⁷[GAO-07-274](#); Office of Management and Budget, *Capital Programming Guide, Version 3, Supplement to Office of Management and Budget Circular No. A-11* (June 28, 2019).

long-term capital investment plan. Further, OMB's capital planning guidance states that each capital asset should have an operations and maintenance plan that outlines the procedures and responsibilities for scheduled preventive and regular or routine corrective maintenance. In addition, in November 2019, OMB issued a memorandum to federal agencies that reinforced the need to implement the capital programming guidance in OMB Circular A-11 that agencies develop, document, and implement a capital planning process.²⁸

We have also previously found that economic guidance generally states investment decisions such as those made for infrastructure should be informed by a consideration of both benefits and costs of relevant alternatives.²⁹ For example, OMB has issued guidance on estimating costs and benefits to help federal agencies efficiently allocate resources through well-informed decision making about activities. This guidance includes OMB Circular A-94,³⁰ which we have previously identified as providing leading practices for economic analysis.³¹ OMB Circular A-94 directs agencies to follow certain economic guidelines for estimating costs and conducting cost-effectiveness analyses of federal programs or policies to promote efficient resource allocation through well-informed decision making in certain circumstances.³² The guidance applies to federal agencies and programs, but we have previously found that it provides leading practices for economic analysis of investment decisions. Under OMB Circular A-94, a cost estimate is to include a comprehensive assessment of the costs.

²⁸Office of Management and Budget, *Memorandum for the Heads of Executive Departments and Agencies: Implementation of Agency-Wide Real Property Capital Planning* (Washington D.C.: Nov. 6, 2019).

²⁹GAO, *Long Island Sound Restoration: Improved Reporting and Cost Estimates Could Help Guide Future Efforts*, [GAO-18-410](#) (Washington, D.C.: July 12, 2018).

³⁰Office of Management and Budget, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, OMB Circular No. A-94.

³¹GAO, *Climate Change: Information on Potential Economic Effects Could Help Guide Federal Efforts to Reduce Fiscal Exposure*, [GAO-17-720](#) (Washington, D.C.: Sept. 28, 2017).

³²These guidelines apply, with limited exception, to any analysis used to support government decisions to initiate, renew, or expand programs or projects that would result in a series of measurable benefits or costs extending for 3 or more years into the future. The circular applies to: (1) benefit-cost or cost-effectiveness analysis of federal programs or policies, (2) regulatory impact analysis, (3) analysis of decisions on whether to lease or purchase, and (4) asset valuation and sale analysis.

The Two Wastewater Plants Operate, and the United States and Mexico Manage and Share Costs, Under the 1944 Treaty

Under the 1944 Treaty, USIBWC and the Mexican Section have negotiated minutes laying out the countries' roles and responsibilities in managing and operating the two wastewater treatment plants in the United States. Under this authority, both sections have also established cost-sharing agreements for the ongoing operation and maintenance of each plant.

The 1944 Treaty and Related Minutes Establish IBWC in Its Current Form and Address the Construction, Management, and Operation of the Two Plants

The 1944 treaty establishes the jurisdiction, structure, and functions of IBWC under the treaty, largely establishing IBWC's present form and processes. Specifically, IBWC is authorized to jointly study, investigate, and develop solutions to transboundary problems related to water and the international boundary.³³ Under the treaty, when a new or anticipated boundary or water problem is identified, USIBWC and the Mexican Section are to discuss solutions and make recommendations to their respective governments for its resolution before negotiating a formal solution through a minute.³⁴ The early detection and evaluation of the problem, followed by the development of measures for resolution, are a part of IBWC's mission, according to USIBWC's website. The proposal for a new IBWC project may be initiated by one or both governments, or by state or local authorities in either country through their respective IBWC section. The project is then to be jointly investigated. If the findings of the IBWC joint investigations show that a cooperative project is feasible and is justified as a binational project, USIBWC and the Mexican Section may endorse the findings in a minute and recommend the project to the United States and Mexico governments.³⁵

³³For example, Article 24 authorizes IBWC to initiate and carry out investigations to plan, construct, and operate works agreed upon by both governments and recommend cost-sharing agreements between the two countries.

³⁴Article 24[d] of the treaty authorizes both Commissioners to refer disputes between them to diplomatic channels when they are not able to reach agreement. USIBWC, through the U.S. Commissioner, reports to the U.S. Secretary of State for foreign policy guidance under Article 2 of the Treaty and develops positions on matters addressed by IBWC through consultation with federal, state, and local authorities in the United States.

³⁵The findings of IBWC investigations are often documented in a joint report issued by each section's principal engineers.

Under the 1944 Treaty, IBWC is also authorized to resolve disputes between the two countries arising from the interpretation or application of the treaty. In ratifying the treaty, the U.S. Senate resolution specified that USIBWC should only conduct work related to the eight projects identified in the treaty and not undertake any other construction projects without congressional authorization.³⁶ As a result, USIBWC has received separate authorizations from Congress for projects implemented through treaty minutes, including the two international wastewater treatment plants. Specifically, USIBWC constructed the Nogales and South Bay plants under a series of statutory authorizations enacted in several Congresses from the 1930s to the 2000s.³⁷

USIBWC officials said that IBWC can develop documents that are an alternative to a minute but serve the purpose of gaining consensus between the two sections. Alternatives include an exchange of letters, a signed term of reference, and a joint report drafted by principal engineers from USIBWC and the Mexican Section. A letter exchange would provide the approval of an activity from both the U.S. and Mexican Commissioners, such as flood operations criteria in any given year or emergency notification protocols for communities along the border. A term of reference would provide the scope of work for a project or protocol, describe the work that the two sections will do, and how they will do it. A joint report of the principal engineers is a technical document that can describe ongoing activities or that can commit IBWC to a new activity. These reports can be adopted as a minute, or, if the activity is already under way, not adopted.

As a diplomatic agency under the Department of State, USIBWC can negotiate agreements with Mexico on its own, but State gets involved in certain situations, such as the negotiation and conclusion of an IBWC

³⁶As noted above, in ratifying the 1944 treaty, the Senate resolution specified that USIBWC should only conduct work related to eight projects identified in the treaty, and not undertake any other construction projects without congressional authorization. Section (a) of the resolution states, "That no commitment for works to be built in the United States in whole or in part at its expense, or for expenditures by the United States, other than those specifically provided for in the treaty, shall be made by the Secretary of State of the United States, the Commissioner of USIBWC, or any other USIBWC official, or any other officer or employee of the United States, without prior approval of the Congress of the United States." 59 Stat. 1263-64 (1945).

³⁷See, for example, Department of State, Justice, Commerce, and the Judiciary Appropriation Act for 1947, Pub. L. No 79-490, 60 Stat. 454 (1946) (Nogales plant); Pub. L. No. 100-4, § 510, 101 Stat. 80 (1987) (South Bay plant).

minute, or with respect to large and costly projects, according to State officials. For example, under the Department of State's Circular 175 procedure, authorization to negotiate and conclude binding international agreements is obtained via approval of a memorandum by the Secretary of State or another Department of State senior official. The Department of State may also provide diplomatic support in a variety of ways. For example, State may draw attention to an issue by sending a diplomatic note to the Mexican Embassy to formally request the need for action to resolve a problem. Further, in coordination with USIBWC, the U.S. Embassy and Consulates may engage with Mexican government officials to advocate actions to address problems, such as water quality problems, including during meetings with Mexican federal and local officials, according to State officials.

The IBWC commissioners and staff from both USIBWC and the Mexican Section work together in formal and informal ways, according to officials from both sections. The commissioners meet on a regular basis to discuss ongoing and, if appropriate, new, projects to carry out the treaty. Between meetings, the commissioners exchange information through formal channels with letters. In addition, according to USIBWC officials, the two sections' staff are in frequent contact, through formal and informal communication. For example, USIBWC officials said staff from both sections will exchange daily emails and telephone calls to discuss information and collaboration on various IBWC projects.

Under Article 3 of the treaty, the joint use of international waters "is subject to any sanitary measures or works which may be mutually agreed upon by the two Governments, which hereby agree to give preferential attention to the solution of all border sanitation problems."³⁸ Under this article and the articles authorizing joint investigations and solutions, IBWC has negotiated a series of minutes related to sanitation issues, one of which dealt with the issue broadly and others of which dealt with specific geographic locations. Each minute is pursuant to various statutory

³⁸Article 3 of the 1944 treaty provides in full as follows: "In matters in which the Commission may be called upon to make provision for the joint use of international waters, the following order of preferences shall serve as a guide: (1) domestic and municipal uses; (2) agriculture and stock-raising; (3) electric power; (4) other industrial uses; (5) navigation; (6) fishing and hunting; and (7) any other beneficial uses which may be determined by the Commission [IBWC]. All of the foregoing uses shall be subject to any sanitary measures or works which may be mutually agreed upon by the two Governments, which hereby agree to give preferential attention to the solution of all border sanitation problems." 59 Stat. 1225 (1945).

authorizations in the United States. In 1979, IBWC signed Minute 261, which provides that the two countries should take timely measures to prevent any border sanitation problem.³⁹ The minute also provides that for each border sanitation problem, IBWC would prepare a minute that would identify the problem, the course of action for resolution, and a specific time schedule for implementation.

Other minutes were executed for sanitation issues in Nogales and Tijuana, pursuant to various statutory authorizations in the United States. For the Nogales plant, Minute 206, signed in 1958, approved a jointly operated and maintained wastewater plant in Arizona based on a Joint Report by the principal engineers. Minute 227, signed in 1967, provided for the relocation of the plant to its current location and expanded the treatment capacity of the plant. Minute 276, signed in 1988, approved a further increase in the capacity of the plant. For the South Bay plant, Minute 283, signed in 1990, approved the construction of the South Bay plant in San Ysidro, California. This minute described the water quality situation, discussed alternatives to fix the problem, and recommended a plan to fix it. The recommended plan included the building of the international wastewater treatment plant, as well as completion of Mexico's sewage system for Tijuana, and other steps.

Construction and Operations of the Nogales International Wastewater

The Nogales plant provides secondary treatment for wastewater generated in both Nogales, Arizona, and Nogales, Sonora, Mexico. USIBWC and the City of Nogales, Arizona, own the plant, which began operating in 1972.

In 1945, IBWC recommended that a plant be built 1.5-miles north of the border with a treatment capacity of 1.6 million gallons per day.⁴⁰ The plant

³⁹Minute 261 defines a border sanitation problem as each case in which "in the judgement of the Commission, waters that cross the border have sanitary conditions that present a hazard to the health and well-being of the inhabitants of either side of the border, or impair the beneficial uses of these waters."

⁴⁰See, e.g., Department of State, Justice, Commerce, and the Judiciary Appropriation Act for 1947, Pub. L. No. 79-490, 60 Stat. 454 (1946).

Types of Wastewater Treatment



Wastewater treatment plants collect sewage from residences and businesses and treat it to remove pollutants such as sediment, bacteria, and other materials. There are three types of treatment at wastewater treatment plants in the United States. States are required to meet standards for two of them.

Primary treatment involves physical processes such as screening and sedimentation to remove a portion of pollutants that settle or float.

Secondary treatment augments physical treatment with biological processes to remove organic matter. The treatment involves the use of bacteria to consume waste material. Secondary treatment, combined with disinfecting chemicals, such as chlorine, can reduce about 85 percent of pollutants.

Tertiary treatment involves specialized or advanced treatment that is specific to the pollutant. For example, some treatment plants try to reduce nutrients such as nitrogen and phosphorus. Tertiary treatment can include additional filtration, reverse osmosis, or additional chemical or biological processes.

Source: GAO presentation of information from the Environmental Protection Agency. | GAO-20-307

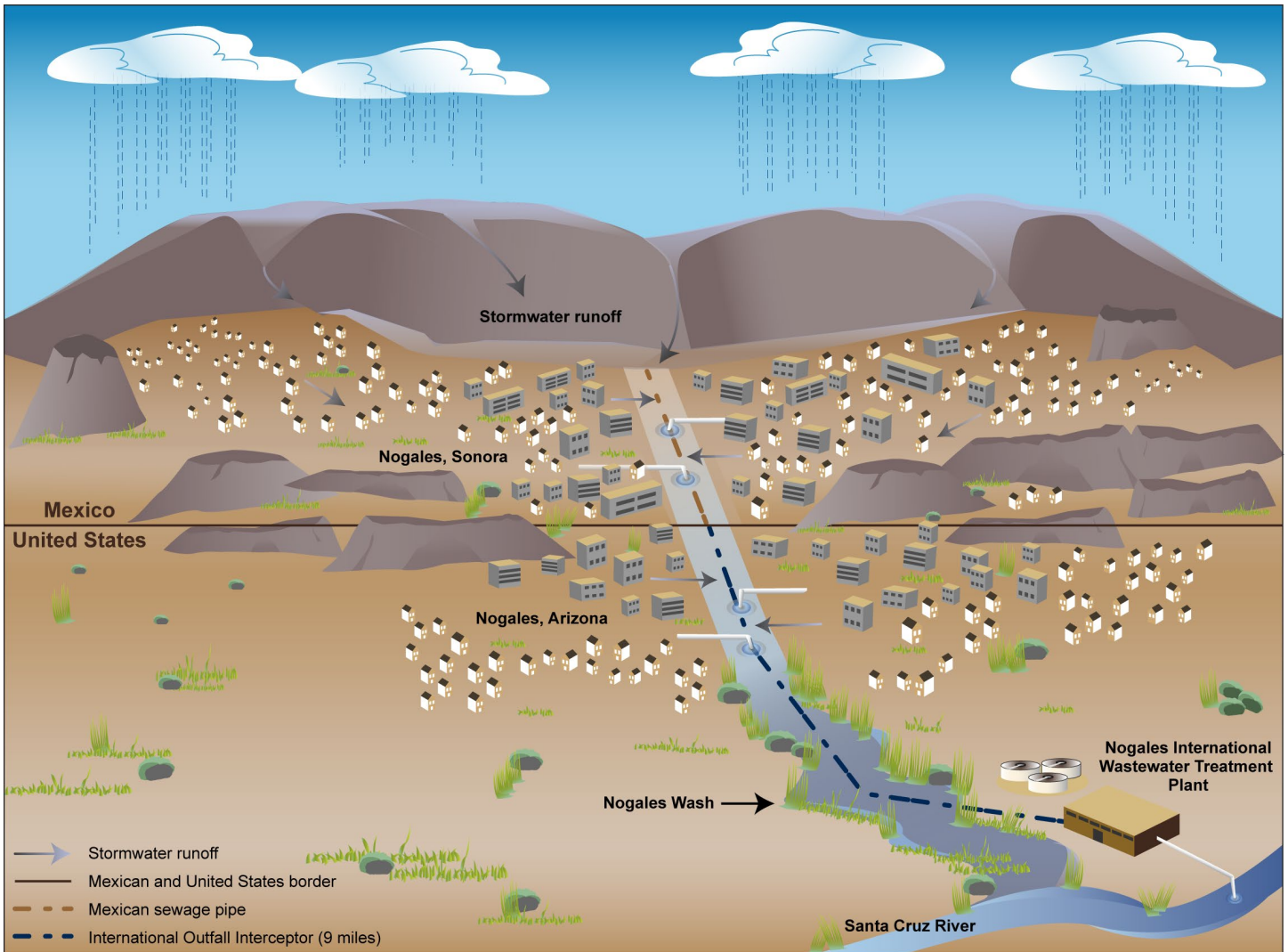
was completed in 1951.⁴¹ An underground pipeline, referred to as the “trunkline,” was also constructed to transport the sewage under the border from Mexico 1.5-miles to the plant for treatment. As the population grew in both cities, the communities recognized the need for a larger plant. At the request of the City of Nogales, Arizona, the new plant—with a treatment capacity of 8.2 million gallons per day according to USIBWC documents—was constructed 9-miles north of the border, at the confluence of the Nogales Wash with the Santa Cruz River (see fig. 3).⁴² Construction on the new plant began in 1970 and was completed in 1972. In 1988, IBWC signed a minute upgrading the plant, adding additional treatment capacity for Mexican wastewater.⁴³ Then to comply with more stringent federal and state regulations, the plant was upgraded in 1992 and 2009. At present, USIBWC manages the plant, which has treatment capacity for up to 17.2 million gallons of wastewater from Mexico and the United States per day according to USIBWC documents.

⁴¹The adjacent communities of Nogales, Arizona and Nogales, Sonora are located in a narrow valley with high hills on either side. In 1941, the government of Mexico began preparations for a sewer system for Nogales, Sonora. However, due to urban development and the slope of the terrain, there was no good site for a treatment plant on the Mexican side of the border. The two countries began discussing construction of an international treatment plant in the United States.

⁴²The Nogales Wash is a major tributary of the Santa Cruz River that flows directly through both Nogales, Sonora, Mexico, and Nogales, Arizona, before converging with the river near the Nogales plant. For its first 0.80 miles as it enters Arizona, the Nogales Wash is a covered concrete channel. After construction was completed for the new plant, the old plant was decommissioned.

⁴³Minute 276, signed in 1988, allocated 15.74 million gallons per day to Mexico and the City of Nogales.

Figure 3: Nogales International Wastewater Treatment Plant

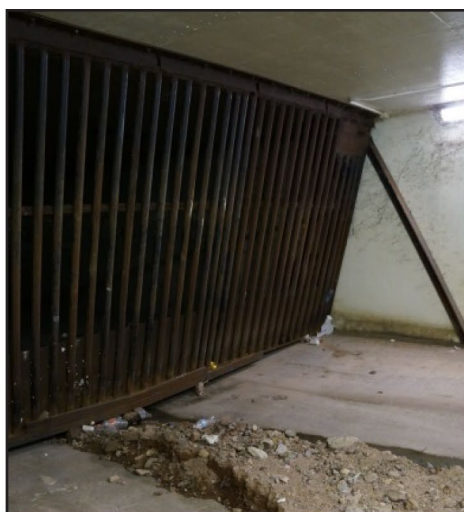


Source: GAO. | GAO-20-307

During the construction of the new plant in the 1970s, USBWC constructed a pipeline called the International Outfall Interceptor (IOI) to transport the sewage from the location of the old plant to the new plant at the request of the City of Nogales. The pipeline is a gravity wastewater pipeline, which is connected to the trunkline, and flows more than 8 miles north to the plant. In this report, we refer to the entire 9-mile pipeline,

including the trunkline, as the IOI (see fig. 4).⁴⁴ Since the early 2000s, the IOI has eroded and developed many cracks due to root intrusion. Excessive amounts of groundwater infiltrate the pipe through these cracks, significantly increasing the volume in the wastewater system.

Figure 4: Sections of the International Outfall Interceptor (IOI)



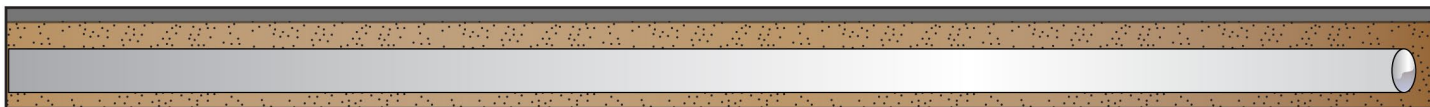
1st Section
Total length = approximately 1 mile
An international trunkline that starts at the U.S.-Mexico border in a tunnel underneath the border



2nd Section
Total length = approximately 1 mile
A pipeline adjacent or underneath the concrete channel of the Nogales Wash.



3rd Section
Total length = approximately 7 miles
A pipeline adjacent or underneath the Nogales Wash.



Source: GAO and Arizona Department of Environmental Quality. | GAO-20-307

Construction and Operations of the South Bay International Wastewater Treatment Plant

The South Bay plant provides secondary treatment for wastewater generated in Tijuana, Mexico.⁴⁵ USIBWC operates the plant. In the decades, before the plant was built in 1997, untreated sewage reached the Tijuana River, which flows north from Mexico to San Diego,

⁴⁴USIBWC distinguishes between the international trunkline (which is approximately the first mile from the border) and the IOI (which is the remainder). We refer to the entire length as the IOI solely for the convenience of the reader.

⁴⁵See, for example, Pub. L. No. 100-4, § 510, 101 Stat. 80 (1987).

California.⁴⁶ The river transported raw sewage to the Pacific coast at Imperial Beach, California, creating a nuisance and public health risk in the United States. To address the problem, IBWC signed Minute 283 in 1990, which provided the framework for a project to treat wastewater from Tijuana, Mexico, at a plant located in the United States. Construction began in 1994. In 1997, the South Bay plant opened with discharge through an emergency connection to the City of San Diego's wastewater treatment facility. The South Bay plant became fully operational in 1999, providing advanced primary treatment for 25 million gallons of sewage coming from Mexico daily and discharging treated wastewater 3-miles offshore in the Pacific Ocean through the South Bay Ocean Outfall, which is a 3.5-mile-long pipe, according to USIBWC documents.⁴⁷

The plant was upgraded with secondary treatment facilities in 2010.⁴⁸ It is designed to treat up to 25 million gallons per day of Tijuana's sewage, with the ability to treat up to 50 million gallons per day for a short period of time, according to USIBWC officials. The City of Tijuana also operates five wastewater treatment plants in Mexico to treat its remaining sewage, though these plants are not always fully operational. The South Bay plant's facilities include five canyon collectors located along the border in five of the six cross-border canyons. During normal operations, smaller amounts or "low-flows" of urban runoff and wastewater from Mexico are

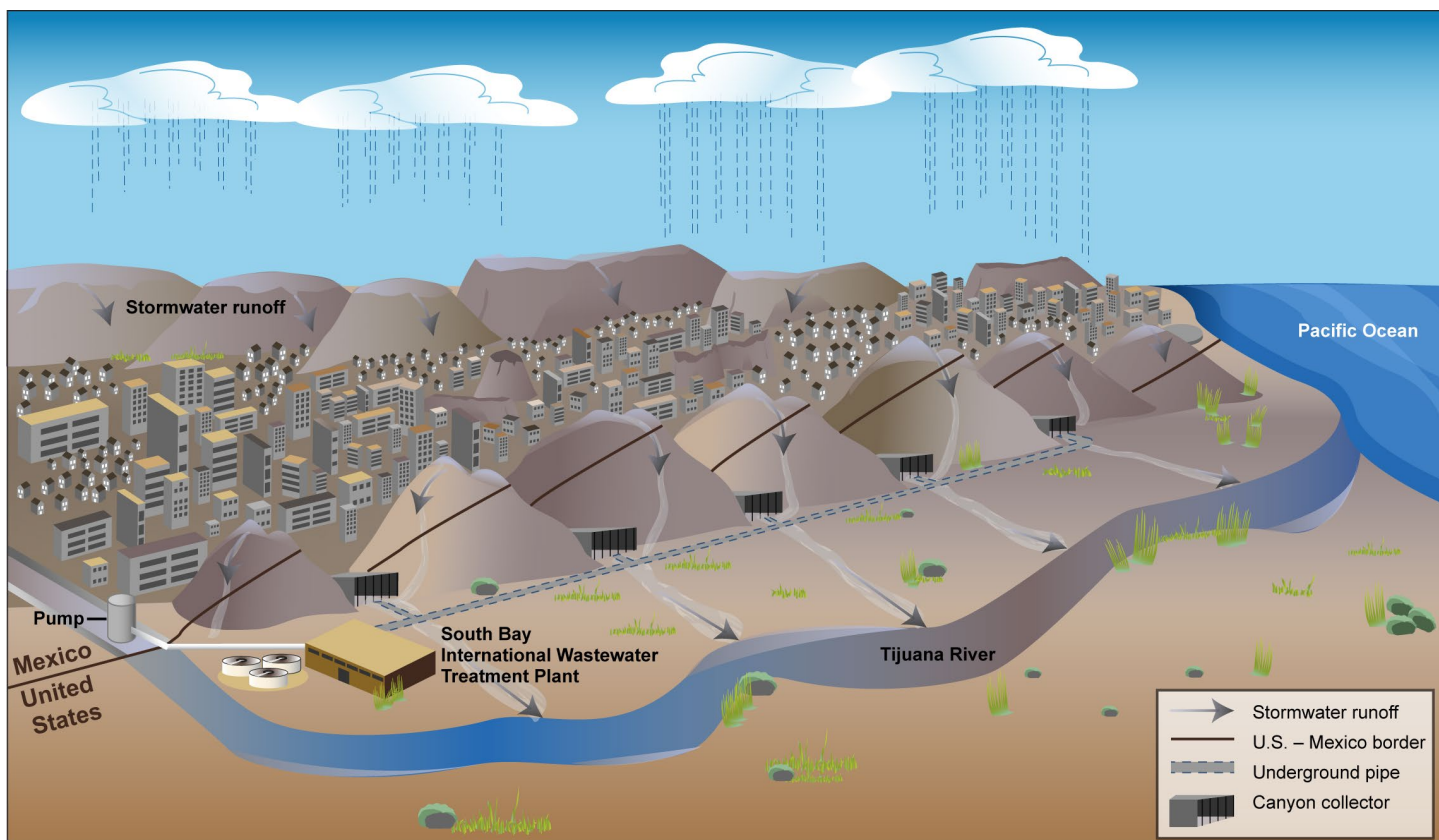
⁴⁶The City of Tijuana is located at the northwestern-most part of Mexico, in the state of Baja California. Its population grew from 21,977 in 1940 to 1,092,468 in 1990. This rapid growth has made it difficult to construct, operate, and maintain a wastewater collection system that keeps pace with the increasing population. The terrain is generally higher in elevation in Mexico than in the United States resulting in natural drainage from south to north. As a result of this natural drainage pattern, intermittent transboundary sewage flows from Mexico to canyons and drains in the United States are common. Such transboundary discharges present a threat to the health and well-being of inhabitants in both countries and to their beneficial use of the waters of the Tijuana River and of the ocean beaches near the boundary in the San Diego-Tijuana area.

⁴⁷USIBWC's South Bay plant discharge is comingled with the City of San Diego's South Bay Water Reclamation Plant's treated wastewater and discharged together through the South Bay Ocean Outfall.

⁴⁸In 1997, USIBWC, with funding from EPA, completed the advanced primary treatment components of the plant. In 2010, an activated sludge treatment component was added to the plant to provide secondary treatment capability, and the plant became fully operational as a secondary wastewater treatment facility.

diverted by these canyon collectors and conveyed to the plant through underground pipelines (see fig. 5).⁴⁹

Figure 5: South Bay International Wastewater Treatment Plant



Source: GAO. | GAO-20-307

IBWC Minutes Describe Roles, Responsibilities, Costs, and Cost-Sharing Agreements for Operating and Maintaining the Plant

IBWC minutes, with the approval of the U.S. and Mexican governments, establish each country's roles and responsibilities, outline the costs of the Nogales and South Bay plants, and describe the cost-sharing arrangements between the United States and Mexico for operating and maintaining the plants. Minutes for each plant specify the cost-sharing arrangement for construction. See appendix II for details of the IBWC

⁴⁹Surface releases of wastewater within Mexico are considered potential sources for contamination of waterways and land areas within the United States. USIBWC constructed collector structures—canyon collectors—at each canyon on the United States side of the U.S.-Mexico border to divert these low-volume flows in dry weather.

minutes that authorize the construction, management, and operation of the two plants.

For the original Nogales plant, the U.S. government authorized the funding in the Department of State, Justice, Commerce, and the Judiciary Appropriation Act for 1947 and provided funding with certain conditions, including that the City of Nogales agreed to furnish the lands or easements free of cost and that the city operate and maintain the project once it was completed.⁵⁰

Under Minute 227, signed in 1967, Mexico agreed to participate in funding the expansion of the capacity of facilities at the Nogales plant. This Minute also authorized the relocation of the plant; however, the Minute provided that Mexico's share of the construction costs of enlarging the international sewage treatment facilities would not change if the United States for domestic reasons constructed the enlarged treatment plant north of its existing site. Mexico conditioned its approval of the relocation on the agreement that Mexico not bear any costs associated with the extension of the IOI pipeline necessary for the relocation, according to USIBWC officials. Further, under Minute 227, the United States, Mexico, and the City of Nogales, Arizona, shared the construction costs of the treatment plant. During the relocation of the plant and resulting extension of the IOI, the City of Nogales acquired all easements in land or the land necessary for the relocation and contributed \$791,000 for the expanded plant and IOI, according to USIBWC officials. Mexico's share was based on the costs of enlarging the treatment plant at the site used for the initial 1951 plant. Since the City of Nogales, Arizona, wanted the plant to be located away from the city limits, the additional IOI costs were not borne by Mexico.

The second plant was upgraded in 1988, 1992, and 2009. In 1988, Mexico provided \$1 million to pay for the additional capacity built at the plant, as the total capacity allotted to Mexico after the upgrade was 9.9 million gallons per day, and the City of Nogales, Arizona, was allotted a total capacity of 4.84 million gallons per day.⁵¹ The United States and the City of Nogales, Arizona, shared the costs for the 2009 upgrade to the facility. During the 2009 upgrade, EPA provided a \$65 million grant to the

⁵⁰Pub. L. No. 79-490, 60 Stat. 454 (1946).

⁵¹Although Minute 276 allocated 15.74 million gallons per day to Mexico and the City of Nogales, the plant's capacity can reach 17.2 million gallons per day.

City of Nogales, Arizona; the City of Nogales, Arizona, contributed \$700,000; and USIBWC provided an additional \$2 million for the construction of an ultraviolet disinfection system according to USIBWC documents.⁵²

For the South Bay plant, the United States and Mexico agreed to construct the plant under Minute 283 and to share the costs for construction, operation, and maintenance for the plant under Minute 296. Congress authorized USIBWC's participation in 1987 amendments to the Clean Water Act.⁵³ The construction cost for the plant was \$241.1 million. The United States contributed \$224.6 million—specifically, EPA provided \$127.4 million to USIBWC for costs associated with the construction of the plant and related infrastructure, \$89.2 million to the City of San Diego and the Corps to construct the South Bay Ocean Outfall, and \$8 million to the Corps for additional environmental work. Mexico contributed \$16.8 million, which was the amount that it would have had to pay to construct and maintain a plant in Mexico. As part of Minute 283, IBWC also built a diversion infrastructure just south of the border to capture low-volume, dry-weather flows in the Tijuana River to prevent northbound transboundary flows into the United States. This diversion system is operated by Mexican entities and includes pumps and pipelines that send wastewater to the South Bay plant.

Minutes also specify cost-sharing arrangements for the ongoing operation and maintenance of the plants. Under the cost-sharing agreements in relevant minutes, the Mexican government generally reimburses USIBWC annually for a portion of the treatment costs at each plant. The reimbursement rate is annually adjusted based on what it would cost to treat a similar amount of wastewater in Mexico according to USIBWC officials.⁵⁴ In addition, USIBWC has a separate agreement with the City of Nogales, Arizona, for the Nogales plant that stipulates reimbursements

⁵²According to EPA, an ultraviolet disinfection system is considered the primary mechanism to destroy pathogenic organisms and prevent the spread of waterborne diseases from the discharge of treated wastewater.

⁵³Pub. L. No. 100-4, § 510, 101 Stat. 80 (1987).

⁵⁴The reimbursement rate is derived using various indexes such as the cost of labor and electricity in Mexico. USIBWC officials noted the reimbursement payment is a fraction of the actual U.S. dollar cost for the operation and maintenance of the plants. Federal funds are used to pay the difference between the reimbursement secured from Mexico and the actual U.S. dollar cost for treatment of Mexican wastewater.

for their sewage treatment. These minutes and cost-sharing arrangements are as follows:

- **Cost-Sharing Agreements for the Nogales plant.** Under Minute 206, Mexico agreed to pay for some operations and maintenance costs, based on its proportion of wastewater flows to the Nogales plant for treatment, at a discounted rate for a predetermined amount of sewage. IBWC commissioners periodically review this discounted rate. Specifically, USIBWC assesses the percentage of sewage (up to 9.9 million gallons per day) Mexico sends to the Nogales plant and adjusts the rate to what it would cost to perform the same service in Mexico, according to USIBWC officials. Furthermore, the Mexican government has agreed to pay full U.S. cost for any flow above the treaty-allotted 9.9 million gallons per day, according to these officials. Meters located at three sites along the U.S-Mexico border continuously measure the sewage flow, and if the amount of sewage treated by the plant exceeds the 9.9 million gallons per day, Mexico is billed by USIBWC for the full cost of sewage treatment, according to USIBWC officials. Separately, USIBWC charges a rate for treatment of the city's sewage under a Memorandum of Agreement with the City of Nogales, Arizona.⁵⁵
- **Cost-Sharing Agreements for the South Bay plant.** Under Minute 296, Mexico agreed to pay for operations and maintenance costs for the plant based on the treatment of up to 25 million gallons per day. The pump that diverts Tijuana's wastewater into the South Bay plant can pump as much as 29 million gallons per day, and the plant can treat more than 25 million gallons per day if needed. Similar to the Nogales plant, USIBWC, on a quarterly basis, bills the Mexican government a prorated amount for the treatment services based on the amount of flow. For example, in fiscal year 2018 Mexico paid USIBWC about \$2.4 million for treatment of its wastewater.

In fiscal year 2018, the plants' operational and maintenance costs totaled \$4.5 million for the Nogales plant and \$15 million for the South Bay plant, and in that fiscal year, the Mexican government reimbursed USIBWC \$4.4 million for both plants, according to USIBWC documents. In addition, according to USIBWC officials, the City of Nogales, Arizona is behind in its payments for the Nogales plant by \$3 million, and Mexico owes \$3 million, according to officials. USIBWC initially pays for the operations and

⁵⁵As of November 2019, the City of Nogales, Arizona and USIBWC are in disagreement regarding the amount to be charged. This disagreement, along with the plant's Clean Water Act violations, is being discussed as part of settlement talks in ongoing litigation.

maintenance costs at all its facilities, including the two wastewater treatment plants, and then seeks reimbursement from Mexico and the City of Nogales, Arizona, for their portions of the operation and maintenance costs. The operation and maintenance costs for each plant include the plant's employees, such as water operators and skilled technical employees, who manage nonstop operations such as running the equipment, controlling the processes, and monitoring the facilities. The Nogales plant employed 17 people as of 2019. USIBWC has used a third-party contractor (Veolia Water Operating Services) to conduct operational and maintenance activities at the South Bay plant since 1998, according to officials. USIBWC Salaries and Expenses budget line item includes funding for each plant's operation and maintenance.

According to federal officials in the United States and Mexico, the operations and maintenance of wastewater infrastructure in Mexico is an ongoing challenge. According to these officials, Mexican wastewater utilities do not have the resources or the long-term technical expertise to address equipment maintenance problems in a timely manner to prevent spills. Although NADB has provided financing to wastewater infrastructure utilities that send wastewater to USIBWC's Nogales and South Bay plants, utilities often lack the resources necessary to adequately maintain the infrastructure and equipment after the construction loan ends, according to NADB officials. NADB could condition financing for every wastewater infrastructure project on capacity to adequately manage operations and maintenance of the infrastructure, as it has for a few projects, according to USIBWC and EPA officials. In the United States, as we reported in January 2016 the U.S. Department of Agriculture includes as one of its loan conditions the capacity of the wastewater utility to pay for operations and maintenance of infrastructure.⁵⁶

USIBWC has identified numerous projects related to operating the plants or building new infrastructure that remain unfunded under the agency's current appropriations level, according to an agency document. USIBWC's Budget Office, as part of its Fiscal Year Year-end Budget Procedures and Guidance, annually sends its staff a report with the projected balances for the Salaries and Expenses and Construction line items for the remainder of that fiscal year. The guidance directs that each department—Engineering, Operations, and Administration—identify work or projects for which they need funding. Each projected balance is to be

⁵⁶[GAO-16-237](#).

calculated by subtracting expenses from each group's allocated funding for the year. The departments are to identify any outstanding requirements and associated costs for the remainder of the fiscal year. For fiscal year 2018, USIBWC identified \$9 million in potential operations and maintenance work and \$2.8 million for potential construction projects, based on agency documents. For example, USIBWC identified the need for \$149,000 for new pumps and motors for pump stations at the South Bay plant but deferred the purchase due to other funding needs, according to an official.

Several Factors Can Affect the Plants' Operations, and Raw Sewage Periodically Spills into the Watersheds

Several factors can affect each plant's operations. IBWC and others have taken some actions to address the factors affecting each plant's operation, including initiating an informal binational rapid response team to address breaking and failing wastewater infrastructure along the border. However, IBWC has not taken the necessary steps to formalize this rapid response team, and raw sewage continues to periodically spill into the Santa Cruz River Basin and Tijuana River Valley watersheds.

Both Plants Operate Under Clean Water Act Permits and Several Factors Can Affect the Plants' Operations

USIBWC's Nogales and South Bay plants are subject to NPDES permits issued by the states of Arizona and California, respectively, which generally prohibit the discharge of pollutants from the plants unless specifically allowed under the permit. Generally, a NPDES permit is issued for a term of 5 years to a single facility and reflects site-specific conditions of that facility.

The Nogales plant's NPDES permit requirements are based on a maximum monthly average of 17.2 million gallons per day to be treated and discharged into the Santa Cruz River.⁵⁷ The permit allows the discharge of certain pollutants within specified limits, including some heavy metals, such as mercury and copper. Under the permit, USIBWC must also meet several monitoring requirements, including monitoring the pollutants in the water coming into the plant from the IOI, the amount of treated wastewater discharged into the Santa Cruz River, and the

⁵⁷The Nogales plant's NPDES permit expired in March 2019; however, the permit was generally administratively extended while the permit renewal application is being reviewed. In December 2019, ADEQ posted the new permit and held a public comment period.

presence of pollutants named in the permit. USIBWC is to submit this information to Arizona Department of Environmental Quality (ADEQ) for monthly or annual review. The Nogales plant permit also requires USIBWC to remove sludge produced as part of the treatment process and dispose of it at an offsite location that is certified to receive that type of byproduct.

Since 2014, ADEQ has issued four Notices of Violation to USIBWC for the Nogales plant's permit. The notices cited the exceedances of certain substances above permit limits, including some heavy metals in the discharge (in 2019); the presence of pollutants toxic to human, animals, plants, or other organisms (in 2018); untreated sewage spilled into a tributary of the Santa Cruz River (in 2017); and USIBWC's failure to accurately monitor and report specific substances to ADEQ as outlined in the permit (in 2014). Each notice outlined actions that USIBWC was required to take to improve the water quality problem identified within a specific time frame.⁵⁸

The South Bay plant has not received any Notices of Violation under its current NPDES permit, which was issued in 2014, according to USIBWC officials.⁵⁹ The current permit covers the South Bay plant and other infrastructure including five canyon collectors and the South Bay Ocean Outfall.⁶⁰ The permit sets a discharge limit of 25 million gallons per day of treated wastewater, on a monthly average, to the Pacific Ocean through

⁵⁸In 2012, the state of Arizona sued USIBWC, alleging among other things that that the Nogales plant had ongoing permit violations related to the discharge and disposal of inadequately treated wastewater and biosolids. *State of Arizona v. International Boundary and Water Commission, United States Section*, Civ. No. 12-644 (D. Ariz.) filed June 22, 2012. As of October 2019, these and other issues were in ongoing settlement discussions, according to USIBWC officials. On September 13, 2019, the parties notified the court that they had reached an agreement in principle on the broad terms of a settlement agreement and were working to finalize the language of an instrument memorializing that agreement. On January 13, 2019, the parties notified the court that they were continuing to work toward a settlement.

⁵⁹The South Bay plant's NPDES permit expired in July 2019; however, the permit is administratively extended pending issuance of a new permit. According to USIBWC officials, as of September 2019, the agency is awaiting a draft permit from the California Regional Water Quality Control Board to review as part of the renewal process.

⁶⁰Whether the canyon collectors have discharged pollutants in violation of the Clean Water Act is the subject of ongoing litigation. *Surfrider Foundation v. The International Boundary and Water Commission, United States Section*, Civ. No. 18-1621 (S.D. Cal.) filed July 17, 2018; *City of Imperial Beach v. The International Boundary and Water Commission, United States Section*, Civ. No. 18-457 (S.D. Cal.) filed March 3, 2018.

the South Bay Ocean Outfall.⁶¹ The permit limits the pollutants that can be discharged, such as zinc and mercury. Under the permit, USIBWC and the City of San Diego conduct a joint monitoring program of the wastewater discharge at the South Bay Ocean Outfall and are required to submit the data collected from this joint monitoring effort to the San Diego Water Board.⁶² The permit also includes monitoring requirements for other parameters, including heavy metals and organic chemicals that are considered harmful to the environment and public health. The South Bay plant has not violated the permit's discharge limits through the South Bay Ocean Outfall since secondary treatment began in 2010, according to USIBWC officials.

During rainstorms or wet weather in Tijuana and when pipelines or pumps break, the plant does not treat all the water flowing from Mexico. During these events, water flows to the Tijuana River and canyons and mixes with unknown amounts of urban runoff, treated effluent from the Tijuana River, and wastewater in Mexico and then flows into the Tijuana River Valley watershed in the United States. During dry weather, the runoff is largely groundwater and some untreated discharge from illegal connections (dry-weather flows); during storms, this runoff mixes with large amounts of rainfall (wet-weather flows).

⁶¹This arrangement allows the plant to exceed its daily discharge limits, as long as the average amount of water discharged during a monthly period is equal to or less than 25 million gallons per day of discharge.

⁶²The joint monitoring program exists because the City of San Diego and USIBWC were both monitoring the South Bay Ocean Outfall since discharge from USIBWC's South Bay plant is comingled with discharge from the City of San Diego's South Bay Reclamation Water Plant. The joint program allows the two entities to share technical expertise and associated costs.

Detering Border Crossings and Drug Smuggling at USIBWC Wastewater Plants



Due to the proximity of the plants to the U.S.-Mexico border, USIBWC's international wastewater treatment plants in southern California and southern Arizona are located in areas patrolled by Customs and Border Protection (CBP) agents. In southern California, the waterways in which sewage pipelines connect to the South Bay International Wastewater Treatment Plant provide a natural crossing point at the border, which CBP has blocked with gates.

In southern Arizona, drug smugglers use the International Outfall Interceptor pipeline—which transports sewage from Mexico to the Nogales International Wastewater Treatment Plant—to transport drugs. According to CBP officials, smugglers in Mexico drop drug bundles into manholes that connect to the pipe, and smugglers in the United States cut into the pipe to retrieve the bundles. These holes in the pipe can cause sanitary sewer spills in Nogales, Arizona. CBP agents patrol along the pipeline to catch smugglers and retrieve the drug bundles, according to CBP officials.

Source: GAO presentation of information from the U.S. Section of International Boundary and Water Commission (USIBWC). | GAO-20-307

There are several factors that can affect the operation of the Nogales plant.

- **Lack of heavy metal pretreatment in Mexico.** In Mexico, metal treatment and plating facilities operate in Nogales, Sonora and directly discharge wastewater that contains heavy metals into the city's sewer systems, which end up at the Nogales plant for treatment. While a municipal pretreatment program exists in Nogales, Sonora, it is designed to meet Mexico's minimum federal requirements and is insufficient to detect and respond to the dumping of industrial contaminants when they occur, according to ADEQ documentation and officials.⁶³
- **Deteriorating sewage infrastructure in Mexico.** Sewage infrastructure in the City of Nogales, Sonora, is not adequately maintained, according to USIBWC officials. As a result, the city of Nogales, Sonora, sends wastewater amounts to the plant in excess of the amount agreed upon in the minute between USIBWC and the Mexican section.
- **Deteriorating infrastructure in the United States.** In the United States, the deteriorating condition of the IOI causes untreated sewage to periodically spill into the Santa Cruz River watershed and Nogales Wash. The deterioration is due to the age of the pipe, as well as ongoing corrosion and erosion of the pipeline (see fig. 6).

See appendix III for more details on the factors that affect the operations of the Nogales plant.

⁶³USIBWC officials stated that the agency does not have legal jurisdiction over the dischargers from Mexico whose discharges are treated at the Nogales and South Bay plants.

Figure 6: International Outfall Interceptor (IOI) Pipe Corrosion Due to Erosion



Source: U.S. Section of the International Boundary and Water Commission. | GAO-20-307

One key factor affects the operation of the South Bay plant: insufficient sewage infrastructure in Mexico contributes to transboundary sewage flows that, if not diverted, can reach the plant and disrupt its operations. According to a 2019 study, Tijuana has not built sufficient sewage infrastructure to serve the area's exponential population growth and urbanization.⁶⁴ When problems arise with Tijuana's treatment facilities, the city diverts a portion of its wastewater for treatment at the South Bay plant. In these instances, the Mexican utility may also shut down Pump Station CILA, a main pump located in the Tijuana River that diverts the river to the treatment plant. If the South Bay plant is not notified and does not shut down its pump and canyon collectors, it may receive additional flows. While the plant can treat additional wastewater and has not

⁶⁴Arcadis, *Tijuana River Diversion Study: Flow Analysis, Infrastructure Diagnostic and Alternatives Development*. (July 2019). The study was prepared for NADB by Arcadis, an international design and consulting firm.

violated its NPDES permit, the plant is experiencing an increase in the number of days that it treats above capacity, according to USIBWC officials.

In addition, USIBWC officials stated that the South Bay plant is not designed and operated to address some of the wastewater that flows into the Tijuana River Valley watershed. These wastewater flows are due to:

- **Limited Tijuana Basin diversion infrastructure.** The Tijuana Basin diversion system consists of the Mexican-operated Pump Station CILA and the South Bay plant's canyon collectors. This system captures dry-weather flows for treatment at the South Bay plant or for a wastewater treatment plant in Mexico. However, it is not designed to capture high flows that result from pipe breaks or pump failures. To avoid affecting the South Bay plant's wastewater treatment operations, during incidents of high flows, Pump Station CILA and the five canyon collectors are shut off. During these events, the water bypasses the South Bay wastewater treatment plant and flows untreated into the Tijuana River and watershed. For example, a February 2017 spill from a broken pipeline in Mexico released 143 million gallons of sewage-contaminated water into the Tijuana River that bypassed the South Bay plant and was not treated.
- **Lack of maintenance for existing sewage infrastructure in Mexico.** A lack of maintenance for Tijuana's existing sewage infrastructure causes excess wastewater flows into the Tijuana River according to USIBWC officials. For example, in August 2019, USIBWC reported that on June 19, 2019, 1.9 million gallons of wastewater were released into the Tijuana River because of trash buildup at one of Tijuana's pumps that caused the pump to fail.⁶⁵ A 2019 study also reported that the poor condition of critical wastewater infrastructure in Mexico results in approximately 30 percent of Tijuana's wastewater entering the Tijuana River or Pacific Ocean without treatment.⁶⁶

See appendix III for more details on these factors that affect the operations of the South Bay plant.

⁶⁵USIBWC, *Report to the Congress on Transboundary Flows that Enter the United States from Mexico in the Tijuana Watershed* (Aug. 15, 2019).

⁶⁶Arcadis, *Tijuana River Diversion Study*.

IBWC and Others Have Taken Some Actions to Address the Factors that Affect the Plants' Operations, but Releases of Raw Sewage Continue

USIBWC and the Mexican Section have taken some actions to address the factors that can impede plant operations. However, raw sewage is still released from Mexico into the Santa Cruz River Basin and Tijuana River Valley watersheds and continues to have significant public health and environmental impacts.

USIBWC and others have taken various actions to address the factors that affect Nogales plant operations, including the following:

- **Sending letters to heavy metal dischargers.** To address the presence of heavy metals in the wastewater stream, in October 2018, USIBWC, ADEQ, and EPA sent joint letters to four American companies affiliated with the metal treatment and plating facilities in Nogales, Sonora, Mexico. The letters asked for the companies' cooperation in addressing the issue and offered to meet with each company to discuss possible solutions. According to USIBWC officials, they received a response from one company, but not the other three. However, in continued monitoring, USIBWC has seen fewer instances of heavy metals in the wastewater that it treats at the Nogales plant according to agency officials.
- **Maintaining treatment capacity in Nogales, Sonora.** To address the inadequate wastewater infrastructure in Nogales, Sonora, IBWC has collaborated with other stakeholders to maintain wastewater treatment capacity in Mexico. For example, the U.S. State Department sent a diplomatic note to the Mexican government in February 2019 regarding the failing pumps and asked the Mexican government to quickly respond and eliminate the discharges that end up at the Nogales plant. USIBWC officials stated that the Mexican Section of the IBWC purchased two new pumps, which were expected to arrive at the pump station in Nogales, Sonora, in late 2019. The Mexican Section also plans to work with the local utility to install equipment to remove grit from the wastewater and prevent degradation of the new pumps.
- **Upgrading infrastructure in the United States.** In 2005, USIBWC proposed a five-phase plan to rehabilitate the IOI's pipe that uses a process referred to as "cured-in-place pipe." In this process, a polyester tube is inserted into the pipe and inflated, which then hardens to become a pipe within a pipe. This process has an estimated cost of \$50 million. As of November 2019, the rehabilitation had not started due to funding disagreements between USIBWC and the state of Arizona. According to USIBWC officials, the agency does not want to fund the entire project but has secured \$28.1 million for it.

Nogales Wash Domestic Water Improvement District



The Nogales Wash contains three sections that must be maintained and rehabilitated: a concrete tunnel near the border, an open concrete channel over a mile long, and an earthen section that extends to the Santa Cruz River. High volume stormwater flows from the upper watershed in Mexico cause erosion to the earthen and concrete portions of the wash.

In 2018, the Arizona Department of Environmental Quality proposed creating a domestic water improvement district as a mechanism to provide funding for the management and operations of the Nogales Wash, and to ensure continued reuse of treated wastewater from Mexico in the arid region. A cost-sharing agreement for the district would outline the amount of funds that each entity—such as the City of Nogales, Arizona and Santa Cruz County—would contribute to manage the wash. Local reaction to the proposal has been mixed, and the district has not yet been created as of November 2019.

Source: GAO presentation of information from the Arizona Department of Environmental Quality (ADEQ). | GAO-20-307

- According to USIBWC officials, the City of Nogales will not contribute any funding without a change to the current cost-sharing agreement on reimbursements between the city and USIBWC for sewage treatment. The cured-in-place pipe process will address some of the IOI's deferred maintenance issues but will not resolve ongoing disagreements about which entity is responsible for funding annual maintenance and operations. According to USIBWC officials, the annual maintenance needs include more than the work to repair the IOI. For example, lateral pipelines that connect City of Nogales sewers to the IOI also need to be maintained; occasional breaches in the pipeline need to be repaired; and vegetation management along the pipeline is necessary to prevent root intrusion into the pipeline. USIBWC officials estimated the annual cost for operations and maintenance, including infrastructure repair and personnel costs, at about \$1.5 million to \$2 million.

IBWC and others have also taken actions to address the pump failures and pipeline breaks in Tijuana that send polluted flows downstream, affecting the Tijuana Basin diversion infrastructure and subsequently the South Bay plant. These actions include the following:

- **Negotiating a *Binational Tijuana River Spill Notification Protocol*.** In August 2017, IBWC negotiated a notification protocol for raw sewage discharges into the Tijuana River that may enter the United States. The protocol was prompted by the February 2017 spill from a broken pipeline in Mexico of 143 million gallons of sewage-contaminated water that flowed into the Tijuana River. The initial protocol stated that a formal memorandum of understanding would be developed at a later date to formalize the protocol; however, the initial protocol remains in place. According to an USIBWC official, Mexico has since adhered to the protocol twice by warning USIBWC of imminent raw sewage flows when pipelines in Tijuana, Mexico, ruptured. However, in August 2019, USIBWC reported that most of the transboundary flows were detected by an automated alert system on the U.S. side of the border that was deployed by USIBWC in October 2018 to better monitor and detect any transboundary flows. The system relies on river gage data recorded at the Tijuana River that is also posted to the USIBWC website.⁶⁷

⁶⁷USIBWC, *Report to the Congress on Transboundary Flows*.

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- **Upgrading infrastructure in Mexico.** In April 2018, the Department of State sent a diplomatic note to the Mexican government after failures in Tijuana’s sanitation infrastructure led to sewage flows on multiple days in 2017 and 2018. The diplomatic note requested that the Mexican government take appropriate measures (as outlined in Minute 283) to stop sewage flows from crossing into the United States, including making short-term repairs and longer-term upgrades. According to USIBWC officials, Mexico does not have much funding for its infrastructure. However, in March 2019, Mexico and EPA, through NADB, funded the replacement of three segments of the Poniente Collector in Tijuana, Mexico, to eliminate a key source of untreated discharges into the Tijuana River in the United States.
 - **Participating in the Tijuana River Diversion Study.** In 2019, NADB funded the study of alternatives to expand or adapt the diversion infrastructure in the Tijuana River to identify potential infrastructure projects (and associated costs) to divert dry-weather flows and possibly some flows that result from wet weather mixed with wastewater and raw sewage.⁶⁸ The study developed project alternatives in Mexico, the United States, or both countries that would reduce the number of days that transboundary flows occur, including by diverting more wastewater through the South Bay plant to prevent its release in the United States. The alternatives range in cost from \$8 million to \$236 million. USIBWC, the Mexican Section, the EPA, the Mexican National Water Commission, and the Tijuana water utility also coordinated on the study, which was completed in July 2019.

Even with the efforts of IBWC and others, raw sewage continues to be released in both watersheds due to deteriorating and insufficiently maintained sewage infrastructure primarily in Mexico, with the exception of the IOI in the United States. In the Santa Cruz River, the presence of raw sewage in Nogales Wash and the river continues to threaten public health and the survival of fish and wildlife, including endangered species, according to representatives of Friends of the Santa Cruz River, a local nonprofit organization.⁶⁹ Similarly, raw sewage containing *E. coli* and other pathogens continues to flow into the Tijuana River and watershed primarily during storm events or breaks in infrastructure in Tijuana,

⁶⁸Arcadis, *Tijuana River Diversion Study*.

⁶⁹According to USIBWC officials, the effluent from the Nogales plant will result in the improved status of an endangered fish species, the Gila topminnow. The U.S. Fish and Wildlife Service plans to upgrade the status of the fish to threatened, with the possibility of delisting it entirely.

contributing to public health concerns and beach closures in southern California.

To address the continuing release of raw sewage due to pipe breaks and pump failures, at an IBWC meeting in spring 2019, USIBWC proposed the development of a rapid response team comprised of technical experts from both countries that could immediately respond to infrastructure problems, such as pipe breaks and pump failures. This team would take actions to mitigate sewage leaks along the border such as those in Nogales, Sonora, and Tijuana. For example, the team would respond immediately to situations in which a pipe break in Mexico causes wastewater to flow into the United States and would put in place appropriate diversions and equipment to repair the break. Members of the team would come from both countries, and funding for their deployment would come primarily from the United States. USIBWC has not estimated the cost to form and annually support the binational team.

The principal engineers from both USIBWC and the Mexican Section have agreed to start building the team with their respective staff, according to a USIBWC official. However, this agreement is informal, and IBWC has not taken the necessary steps to formalize the team. Such steps could include preparing a minute. Specifically, Minute 261 states that for each border sanitation problem, IBWC is to prepare a minute identifying: (1) the problem; (2) the conditions which require solution; (3) specify quality standards that should be applied; (4) the course of action that should be followed for its solution; and (5) the specific time schedule for its implementation.⁷⁰ According to IBWC officials, the benefit of a minute is that it functions as a formal agreement between the respective governments, encouraging them to provide greater support through funding and other resources to ensure the solutions and projects are implemented.

According to USIBWC officials, they also have alternatives to negotiating a minute, such as issuing a joint report, and a minute may not be necessary for the countries to formalize their commitment. For example, IBWC could exchange formal letters signifying their intent to form the team or issue a joint report written by each IBWC section's principal

⁷⁰Minute 261 defines a "border sanitation problem" as "each case in which, the waters that cross the border, including coastal waters...[and] have sanitary conditions that present a hazard to the health and well-being of the inhabitants of either side of the border or impair the beneficial uses of these waters."

engineers. By formalizing a binational rapid response team to address sewage infrastructure failures along the U.S.-Mexico border, including the watersheds around the Nogales and South Bay plants, USIBWC would have better assurance that it is able to more effectively address the urgent and recurring sewer breaks and pump failures in Mexico that contribute to raw sewage spills.

USIBWC States That It Lacks Authority to Address Unmanaged Stormwater Problems, and Has Not Used Long-Term Capital Planning That Includes Key Planning Principles

USIBWC has taken some actions to address water quality problems at both plants, but USIBWC and the Mexican Section have not taken actions to address unmanaged stormwater flows and their associated water quality problems. USIBWC officials stated that the agency does not have the authority to manage stormwater problems in the Santa Cruz River Basin or Tijuana River Valley watersheds without direction by Congress. Further, USIBWC has not fully incorporated key planning principles for long-term capital planning that would help it identify alternative approaches for resolving the ongoing water quality problems along the border.

Unmanaged Stormwater Complicates Water Quality Management in the Two Watersheds, and USIBWC Has Not Taken Actions to Address the Issue

USIBWC and others have taken some actions to address the water quality problems that exist in the two watersheds, but USIBWC has not taken actions that include identifying alternatives to address stormwater and stormwater quality in the Santa Cruz River Basin watershed or in the Tijuana River Valley watershed. As a result, unmanaged stormwater flows largely untreated downhill from Mexico, carrying bacteria, trash, and sediment into the lower portions of the Santa Cruz River Basin and Tijuana River Valley watersheds where the Nogales and South Bay plants are located, threatening key infrastructure and complicating water quality management in the watersheds.⁷¹ The stormwater carries the pollutants across the border, depositing them in the river channel, shorelines, nearby wetlands, and—in the case of the Tijuana River—ultimately the

⁷¹The portion of the Santa Cruz River and Tijuana River Valley watersheds located in Mexico is the primary contributor of stormwater into the Santa Cruz River and the Tijuana River, respectively. Flood control projects constructed by the Corps in the Nogales Wash and the Tijuana River, in the United States, serve for the most part to channel stormwater away from populated areas.

Even with USIBWC Actions,
Unmanaged Stormwater
Threatens Key Infrastructure
and Carries Bacteria into the
Nogales Wash

ocean, causing public health and environmental concerns in the United States. In addition, stormwater can damage plant infrastructure.

The Nogales Wash is the main drainage for the cities of Nogales, Sonora, and Nogales, Arizona. Stormwater from the upper watershed flows into the wash and crosses the border, carrying bacteria and sediment into the United States. According to IBWC officials, because Nogales, Sonora, does not have adequate stormwater sewers, Mexican citizens remove manhole covers to allow stormwater to drain from the streets into the sanitary sewers during heavy rainstorms.⁷² The IOI essentially becomes a combined sewage system—one in which wastewater and stormwater flow in the same pipelines—even though it was not designed as such, according to USIBWC officials. The excess stormwater causes increased pressure in the IOI that is released when the manholes in the United States overflow, sending sewage into the streets of Nogales, Arizona. In July 2018, ADEQ documentation noted that Nogales, Sonora, experiences frequent flooding during heavy rain events in the summer and uses the IOI to mitigate flood events, which results in releases of untreated sewage into the residential and business neighborhoods in the City of Nogales, Arizona and the Santa Cruz River watershed. For example, in 2017, Santa Cruz County Health Services and the Arizona Department of Health Services released public health advisories for elevated *E. coli* for the City of Nogales, Arizona, due to untreated sewage leaking from the IOI. According to one of these advisories, stormflows are typically high in pollutants that can be harmful to human health such as bacteria and pathogens.

Unmanaged stormwater flowing into the Nogales Wash can destabilize the IOI, which runs inside or below the wash, from the border to the Nogales plant. Stormwater rushing down the wash erodes and removes natural and manmade materials covering the pipeline, such as the cement panels lining the middle portion of the wash (see fig. 7). For example, in July 2017, flooding in the Nogales Wash eroded the soil around a manhole in the IOI, partially shearing the pipe and causing untreated wastewater to flood into the wash and into the streets of

⁷²Sanitary sewers carry only sewage from residential, business, and other areas to a wastewater treatment plant, while storm sewers carry only stormwater from streets, yards, and other open areas to a nearby water body. Combined sewers carry both sewage and stormwater in the same pipe to a wastewater treatment plant. During storms, combined sewer systems can overflow and release untreated wastewater into nearby waterbodies. These types of releases are called combined sewer overflows.

Nogales, Arizona, resulting in elevated levels of *E. coli* in the wash and Santa Cruz River. As a result, the Arizona Governor's Office declared a State of Emergency in Santa Cruz County and sent a notice of the Nogales plant's permit violation to USIBWC.⁷³

Figure 7: Collapse of Cement Panels in the Nogales Wash in Arizona



Source: GAO. | GAO-20-307

⁷³USIBWC contested this notice of violation, asserting that it does not own, operate, or maintain the IOI and the City of Nogales is the co-permittee on the NPDES permit but was not issued a similar notice. In 2017, a federal court held that USIBWC is at least a partial owner of the IOI. *Arizona ex. re. Darwin v. International Boundary and Water Commission, United States Section*, Civ. No. 12-644 (D. Ariz.), slip. op. at 4 (Sept. 20, 2017) (adopting magistrate judge's report and recommendation of April 4, 2017). Also, in this case the state of Arizona is arguing that certain discharges from the IOI are covered by the Clean Water Act. We express no view regarding the extent, if any, to which federal law governs the transboundary flows at issue in these cases.

To date, USIBWC's actions have focused on emergency repairs and cleanup when untreated sewage has leaked from the IOI into the Nogales Wash and Santa Cruz River. During the July 2017 event, for example, to prevent further contamination of the wash due to the release of raw sewage leaking from the broken section of the IOI, USIBWC hired a contractor to install a bypass system to divert the raw sewage spilling into the wash to the Nogales plant for treatment. Other stakeholders also took action. For example, at the request of the Arizona governor's office, the Corps stabilized earthen banks along the Nogales Wash that had eroded. The Arizona Army National Guard and Arizona Department of Transportation also took part in similar efforts.

In general, the Nogales Wash is not regularly maintained to stabilize the earthen banks and concrete panels to prevent erosion. According to USIBWC officials, operations and maintenance of the Nogales Wash and management of stormwater in the Nogales Wash is a municipal responsibility and not the responsibility of the IBWC. As a result, USIBWC has not taken action to manage the Wash to prevent stormwater damage to the IOI. Instead, it has—as with the example above—sought to bring in other federal agencies that USIBWC says have authority over domestic water management. However, Nogales city managers do not accept responsibility for managing the wash, stating that it is IBWC's responsibility.

USIBWC and other federal agencies have conducted some studies in Mexico to address stormwater management in the watershed. For example, USIBWC contracted the Corps to conduct an evaluation to develop measures to reduce the threat of flooding and alternatives to reduce potential flood damage in Nogales, Sonora. The study was completed in 2004. Based on the recommendations in the evaluation, Nogales, Sonora, and the Mexican federal water agency, constructed 14 dams and detention basins from 2008 through 2015. However, according to USIBWC officials, the basins that are in Mexico and maintained by the local utility are full of sediment and have not been cleared because the local Mexican utility does not have funds to maintain them. In addition, USIBWC and the U.S. Geological Survey have collaborated on joint studies of the watershed surrounding Nogales, Sonora, for many years according to USIBWC officials. For example, one study completed in 2016 was to be the basis of further work to identify stormwater management projects, but that work has not been planned or conducted. (See app. IV for details of additional studies.)

In the absence of an entity that regularly maintains the wash, the IOI is still threatened when stormwater runs through the wash. IBWC has not

Even with IBWC Actions,
Unmanaged Stormwater
Carries Trash, Sediment, and
Bacteria throughout the
Tijuana River Valley
Watershed

contracted for or conducted a study to identify long-term solutions to the stormwater quality problems in the watershed, like was done with the Tijuana River Diversion Study. Instead, since 2005, USIBWC has responded to events that threaten the IOI as they occur at the request of the City of Nogales, Arizona, and used an emergency response authority that is applicable to the U.S.-Mexico border, according to USIBWC officials. The Mexican Section also has not addressed maintenance of the already insufficient stormwater conveyance infrastructure in Nogales, Sonora. Without resolution, the unmaintained wash and inadequate stormwater infrastructure in Mexico threaten the stability of the IOI with additional stormwater damage.

Stormwater carries trash into the canyons that cross the border area, as well as bacteria from illegal sewer connections and infrastructure breaks in Tijuana, and sediment that erodes from the steep hills of Tijuana. As part of routine operation and maintenance, USIBWC annually removes trash and clears sediment from the grates in the South Bay plant's five canyon collectors according to agency officials (see fig. 8).

Figure 8: Trash and Sediment, South Bay Plant Canyon Collector in California



Source: GAO. | GAO-20-307

The pollutants carried in the transboundary stormwater also cause ongoing degradation to the riparian and estuarine habitats within the lower Tijuana River Valley, impacting ecological diversity, wildlife, and

ceremonial and recreational use of the area.⁷⁴ For example, from 2003 through 2017, the City of Imperial Beach, California, closed public beaches for at least one-quarter of the year and half the year in some years due to bacterial contamination in the Tijuana River, according to city officials. Although the parties dispute the source of pollution causing the closures, the raw sewage that enters into the Tijuana River Valley and flows with stormwater into the ocean is a likely source of pollution.⁷⁵

In response to the bacteria and trash problems caused by flows from Mexico into the Tijuana River Valley, the California Regional Water Quality Control Board, San Diego Region, initiated the development of two TMDLs—for bacteria and trash—for the Tijuana River.⁷⁶ If the TMDLs are applied, USIBWC would be responsible for meeting the TMDL requirements, according to a California state official; USIBWC disagrees.⁷⁷ If it were subject to a TMDL, USIBWC would be expected to oversee the trash collection and removal in the United States even if the trash originated in Mexico. USIBWC maintains that its ownership of the

⁷⁴Riparian areas—the narrow bands of green vegetation along the banks of rivers and streams—are widely recognized as crucial to the overall ecological health of adjacent lands. Estuaries and their surrounding wetlands are bodies of water usually found where rivers meet the sea. Estuaries are home to unique plant and animal communities that have adapted to brackish water—a mixture of fresh water draining from the land and salty seawater.

⁷⁵The sources of bacterial contamination closing Imperial Beach are being debated by the various stakeholders involved because there are several potential sources of pollution, including a Mexican wastewater plant that discharges raw sewage 5 miles south of the international border. In addition, ocean currents move polluted water discharged by Mexico, San Diego, and the South Bay plant north or south along the coast at different times of the year.

⁷⁶Under the Clean Water Act, states must establish water quality standards; for waters that do not meet these standards, states must develop TMDLs, which EPA approves. TMDLs set targeted limits for pollutants but are not self-implementing; EPA and states help reduce pollutants by issuing permits for point sources, whereas they provide voluntary incentives to reduce nonpoint source pollution. In 2007, the California Regional Water Quality Control Board, Los Angeles Region adopted a TMDL for the Los Angeles River watershed to eliminate trash carried in stormwater and improve water quality.

⁷⁷The official further stated that the state had previously initiated development of TMDLs but suspended the effort in 2011 to provide time and opportunity for non-regulatory efforts to be implemented to address the water quality, trash, and sediment problems in the Tijuana River Valley watershed. However, these efforts have not materialized, and the state reinstated the development of TMDLs in 2018. The agency anticipates an external scientific peer review of the draft TMDLs during summer 2020, public review of the draft TMDLs during the following winter, and staff presentation to San Diego Water Board members for adoption in spring 2021.

Los Angeles Trash Total Maximum Daily Load (TMDL) Under the Clean Water Act



In August 2007, the California Regional Water Quality Control Board developed a TMDL that establishes the maximum amount of specific pollutants the Los Angeles River can contain and still be considered in compliance with the state's water quality standards. A TMDL allocates the allowable pollutant load to the sources of that pollutant to that water.

This TMDL described the watershed, which for many miles is lined in concrete, and the neighborhoods that drain into the river. The TMDL also described trash in waterways as causing significant water quality problems. For example:

- Small and large floatables can inhibit growth of aquatic vegetation and decrease spawning areas and habitats for fish and other organisms.
- Wildlife can ingest or become entangled in floating trash.
- Settleable trash—such as cigarette butts, rubber, and construction material—settles on the bottom of waterways, affecting bottom feeding organisms.
- Trash can end up floating to beaches or into the open ocean, discouraging visitors and degrading coastal waters.

The TMDL established litter management approaches to remove certain amounts of trash from the neighborhoods, based on the size of the area.

Source: GAO analysis of California Regional Water Quality Control Board documents; Regional Water Quality Control Board photo. | GAO-20-307

Tijuana Flood Control Project does not make it responsible for the quality of water flowing in that project from Mexico under the Clean Water Act. As of November 2019, the issue of whether USIBWC should take action to resolve these pollutant problems is in litigation.⁷⁸

In 2015, IBWC also negotiated a minute to address stormwater effects in the Tijuana River Valley, Minute 320, *General Framework for Binational Cooperation on Transboundary Issues* in the Tijuana River Basin. According to USIBWC officials, the minute was developed after local stakeholders in California asked Mexico to take action to address stormwater problems in the United States. Mexico responded that it participates in binational solutions to issues through IBWC. Under Minute 320, the United States and Mexico acknowledged that binational coordination is required to address stormwater flows that carry bacteria, trash, and sediment, as well as other pollutants that threaten the Tijuana River Basin.

In response, IBWC formed three binational working groups composed of local, state, and non-governmental stakeholders to conduct studies to identify the sources of bacteria, trash, and sediment that stormwater flows carry into the Tijuana River Valley. The working groups are tasked with recommending solutions to the problems based on the studies' findings. However, Minute 320 did not set a timeline for completion of the studies nor did it identify sources of funding for potential projects recommended by the working groups. According to USIBWC officials, Minute 320 anticipates that there may be variety of sponsors and funding resources for projects recommended by the working groups. The three groups stopped meeting in 2017.⁷⁹ In June 2019, the water quality and sediment groups resumed meetings, but as of September 2019, the trash working group had not reconvened. According to USIBWC officials, as of November 2019, IBWC is convening a meeting of a reconstituted Minute

⁷⁸Surfrider Foundation v. The International Boundary and Water Commission, United States Section, Civ. No. 18-1621 (S.D. Cal.) filed July 17, 2018; City of Imperial Beach v. The International Boundary and Water Commission, United States Section, Civ. No. 18-457 (S.D. Cal.) filed March 3, 2018. We express no view regarding the extent, if any, to which federal law governs the transboundary flows at issue in these cases.

⁷⁹According to USIBWC officials, the work groups were temporarily put on hold due to the litigation. Many of the stakeholders that participate in the working groups are also plaintiffs in the litigation and the working groups were dealing with issues that were included in or related to issues the litigation.

320 Binational Core Group, following up on stakeholder recommendations to re-establish and strengthen the Minute 320 process:

- **Water quality working group.** The water quality group is working on an ongoing binational water quality monitoring program that began in December 2018 and was to end in November 2019. The group is sampling sewage and other flows at various locations in the United States and Mexico to establish baseline data for pollutants in the waters of the Tijuana River watershed according to USIBWC officials.
- **Sediment working group.** The sediment group is working on an ongoing sediment detention feasibility study funded by USIBWC to identify the most effective means of sediment management within the Tijuana River channel. The sediment working group had recommended the study. USIBWC estimates the cost of removing sediment at \$15 million per year, based on an estimated 492,000 tons of sediment entering the river each year and about three-quarters of it being removed. According to USIBWC officials, the sediment working group expects to complete the study in early 2020.
- **Trash working group.** The working group has developed the scope of work for a binational study of trash booms in different sites along the Tijuana River. It is waiting on funds to perform a feasibility study.

USIBWC and several state and local agencies have taken further actions to address these water quality problems in the Tijuana River Valley Watershed, including the following:

- **Constructing a temporary earthen berm in the Tijuana River Channel.** In 2018, USIBWC constructed a temporary earthen berm in the U.S. section of the concrete channel of the Tijuana River, close to the border. The purpose of the berm was to hold back low-volume, dry-weather flows contaminated with untreated sewage; however, some sediment and sewage still enters the Tijuana River Valley during high-volume flows or storm events because those flows permeate the berm according to USIBWC documents. USIBWC officials said the berm is just a temporary measure to capture low-volume flows of sediment and trash during dry weather and is not intended as a long-term solution for the river channel.
- **Monitoring water quality in the Pacific Ocean.** To understand the sources of beach pollution, USIBWC contracts with the City of San Diego to regularly monitor water quality in the Pacific Ocean, in particular around the discharge points for the city's wastewater

treatment plant and the South Bay plant.⁸⁰ Starting in 2018, the City of San Diego and USIBWC began a joint program to track the extent of dispersion of sediment into the Pacific Ocean where the Tijuana River empties into the ocean according to USIBWC and City of San Diego officials.

- **Collecting and disposing of trash and sediment.** Several state and local agencies collect and remove sediment from their land parcels in the Tijuana River Valley. For example, California State Parks placed a boom across the floor of one of the five canyons to collect trash and sediment from stormwater flows (see fig. 9). Since 2015, California State Park employees annually collect and remove trash and sediment from the rack and disposes of it at a local landfill and quarry, at a cost of \$1.8 million per year. In addition, the U.S. Customs and Border Protection agency also removes trash and debris from grates associated with four of the five cross-border canyons as often as necessary to protect the health of agents conducting daily patrol operations.

⁸⁰As part of its NPDES permit, USIBWC is required to monitor the discharges from the South Beach Ocean Outfall. USIBWC pays the City of San Diego to conduct this monitoring, totaling about \$1 million annually.

Figure 9: Trash Boom in a Canyon Collector in the Tijuana River Valley Watershed in California



Source: GAO. | GAO-20-307

- **Identifying projects to reduce sewage, trash, and sediment, in the Tijuana River Valley.** The County of San Diego is funding an assessment to identify and prioritize potential projects that could be implemented in the United States to improve the water quality in the Tijuana River Valley by addressing transboundary flows of sewage, trash, and sediment. The county expects the assessment to be completed in March 2020, and intends to work with partners in the region to identify funding and other resources necessary to implement

the highest priority projects, according to San Diego County officials.⁸¹ (See app. IV for additional studies.)

As of October 2019, USIBWC officials said they were reviewing alternatives outlined in the 2019 study of alternatives to expand or adapt the diversion structure for the South Bay plant to address transboundary sewage flows. In December 2019, local government officials in California passed a resolution supporting a set of projects to be built on the U.S. side of the border to resolve the water quality problems. The mayors of several California municipalities endorsed EPA to receive funding to construct projects on the U.S. side of the border to help resolve water quality problems in the Tijuana River basin. In January 2020, a large trash buildup in a storm drain on the border caused putrid water to back up in Tijuana, highlighting the nature of the trash and sediment problem in the upper watershed, which also affects the lower watershed. In December 2019, a congressional committee identified the need for EPA to lead the efforts to resolve these problems.⁸²

According to USIBWC officials, while the most cost-effective solutions are in Mexico, the Mexican government lacks resources to make all of the infrastructure improvements. However, officials told us the proposed solutions on the U.S. side of the border may be more expensive or difficult to implement in part due to other constraints to the United States. For example, one of the alternatives would divert untreated sewage to the South Bay Ocean Outfall for direct discharge into the Pacific Ocean, but the discharge likely would not meet Clean Water Act standards. According to USIBWC officials, solutions that lead to violations of Clean

⁸¹A local non-governmental organization, the Surfrider Foundation San Diego has proposed a combination of infrastructure projects and policies to provide a solution to sediment, waste, sewage, and chemicals affecting the Tijuana River Valley. Among the projects proposed are (1) a diversion system to be constructed in the United States, which includes extending the Tijuana River lining to install a trash rack; (2) the construction of a low-flow pipe; and (3) the construction of a sediment basin.

⁸²A bill passed by the House of Representatives in December 2019 to implement the agreement replacing the North American Free Trade Agreement would require EPA, in coordination with eligible public entities, to carry out the planning, design, construction, and operation and maintenance of high priority treatment works in the basin to treat wastewater (including stormwater), nonpoint sources of pollution, and related matters resulting from international transboundary water flows originating from Mexico. H.R. 5430 § 821(a). The House committee report accompanying the bill states that “the Committee has determined that the EPA possesses the issue expertise and experience necessary to lead and coordinate all efforts associated with pollution reduction in the Tijuana River’s watershed.” H.R. Rep. No. 116-358 at 47 (2019).

Water Act standards would not be acceptable to USIBWC, EPA, or other U.S. stakeholders.

According to EPA officials, USIBWC has expertise in operating and managing water and wastewater infrastructure, while EPA has expertise in addressing water pollution. In addition, EPA officials stated that USIBWC's binational presence and ability to work across the border is important to deal with operations and maintenance issues, such as clearing stormwater channels. EPA officials stated that their role in coordinating with USIBWC is important for identifying and addressing specific water quality problems. For example, joint efforts by both agencies through the Mexicali Binational Sanitation Observation and Technical Committee led to successful solutions to wastewater pollution and trash problems through joint monitoring and site visits, according to EPA officials.

USIBWC States That It Lacks Authority to Address Stormwater Quality Problems in Each Watershed, and Long-Standing Problems Remain

USIBWC officials stated that the agency does not have the specific authority to manage stormwater problems in the Santa Cruz Basin or Tijuana River Valley watersheds without the direction of Congress.⁸³ Minute 261 states that IBWC shall "give permanent attention to border sanitation problems and give currently existing problems immediate and priority attention."⁸⁴ In addition, OMB Circular A-94 calls for agencies to assess the benefits and costs of alternative projects. Although IBWC, USIBWC, and others have taken some actions to address stormwater quality problems in the Santa Cruz River Basin and Tijuana River Valley watersheds, such as conducting studies of stormwater and building some retention basins, the problems have nevertheless continued to occur over many years, and no entity has taken action to identify alternatives, cost estimates, funding sources, or time frames for implementing them.

⁸³Municipal and environmental organization plaintiffs have challenged this assertion in court, arguing that USIBWC does have some legal responsibility to manage certain transboundary stormwater flows in the Tijuana River Valley watershed. *Surfrider Foundation v. The International Boundary and Water Commission, United States Section*, Civ. No. 18-1621 (S.D. Cal.) filed July 17, 2018; *City of Imperial Beach v. The International Boundary and Water Commission, United States Section*, Civ. No. 18-457 (S.D. Cal) filed March 3, 2018. Also, in *State of Arizona v. International Boundary and Water Commission, United States Section*, Civ. No. 12-644 (D. Ariz.) filed June 22, 2012, the state is arguing that certain discharges from the IOI are covered by the Clean Water Act. We express no view regarding the extent, if any, to which federal law governs the transboundary flows at issue in these cases.

⁸⁴International Boundary and Water Commission, United States and Mexico, Minute 261 at 2 (1979).

USIBWC officials stated that feasibility studies and analyses are necessary steps in justifying requests for funding a project and investigating the cost and technical feasibility of a project. While USIBWC has conducted some feasibility studies on different individual solutions, it has not done a comprehensive study to recommend any overall solutions to address the transboundary stormwater problems of bacteria, trash, and sediment in either watershed.

According to USIBWC officials, previous projects it has built in Nogales and South Bay were developed with federal, state, and local partnerships and with congressional approval. In particular, USIBWC officials stated that the agency does not have specific authorization for stormwater management in the watersheds surrounding the Nogales and South Bay plants because the 1944 Treaty and accompanying legislation did not authorize that the agency carry out projects for stormwater management along the border.⁸⁵ USIBWC's role in addressing certain transboundary stormwater flows and associated water quality problems is in dispute in ongoing litigation involving the Santa Cruz and Tijuana River basins, and USIBWC officials stated that they would not take action to resolve the stormwater quality problems without congressional direction. Yet without action, the long-standing environmental and health problems associated with transboundary stormwater flows in the watersheds of both rivers will continue. Under these circumstances, Congress has the opportunity to provide direction and specific authorization for USIBWC to take action. Such action would include identifying alternatives, cost estimates, funding, and time frames.

⁸⁵USIBWC is "authorized to conduct technical and other investigations relating to the defining, demarcation, fencing, or monumentation of the land and water boundary between the United States and Mexico, to flood control, water resources, conservation, and utilization of water, sanitation and prevention of pollution, channel rectification, stabilization, drainage of transboundary storm waters, and other related matters[.]"22 U.S.C. § 277a.

USIBWC Has Not Fully Incorporated Key Capital Planning Principles That Would Help Identify Alternative Approaches to Address Water Quality Problems in Both Watersheds

USIBWC has not fully incorporated key capital planning principles that would help identify alternative approaches to address water quality problems in the Santa Cruz or Tijuana River Valley watersheds. In 2019, OMB issued a Capital Programming Guide that supplements Circular A-11, which provides guidance on capital programming, including key capital planning principles (see table 1).⁸⁶

Table 1: Key Capital Programming Planning Principles

Key planning principles	Description of planning principle
Strategic linkage	Capital planning is an integral part of an agency’s strategic planning process. It provides a long-range plan for the capital asset portfolio in order to meet the goals and objectives in the agency’s strategic and annual performance plans.
Needs assessment and gap identification	A comprehensive needs assessment identifies the resources needed to fulfill both immediate requirements and anticipated future needs based on the results-oriented goals and objectives that flow from the organization’s mission. A comprehensive assessment of needs considers the capability of existing resources and makes use of an accurate and up-to-date inventory of capital assets and facilities as well as current information on asset condition. Using this information, an organization can properly determine any performance gap between current and needed capabilities.
Alternatives evaluation	An evaluation of a wide range of alternative approaches includes nonphysical capital options such as human capital, as well as contracting out, privatizing the activity, leasing, and whether existing assets can be used. Using an alternatives evaluation, an organization can determine how best to bridge performance gaps. The selection of the best alternative to compare with other agency projects should be based on a systematic analysis of expected costs and benefits. OMB Circular A-94 provides guidelines for benefit-cost analysis.
Review and approval framework with criteria for selecting capital investments	A formal process for senior management review and approval of proposed capital assets should include criteria that consider the cost of a proposed asset, the level of risk involved in acquiring the asset, and its importance to achieving the agency mission. In addition, each capital asset should have an operations and maintenance plan that outlines the procedures and responsibilities for scheduled preventive and regular or routine corrective maintenance.
Long-term capital investment plan	A long-term capital plan should be the final and principal product resulting from the agency’s capital planning process. The capital plan, covering 5 years or more, should be the result of an executive review process that has determined the proper mix of existing assets and new investments needed to fulfill the agency’s mission, goals, and objectives, and should reflect decision makers’ priorities for the future.

Source: GAO analysis of Capital Programming Guide (Version 3.0), Supplement to OMB Circular No. A-11 (2019) from the Office of Management and Budget (OMB) and [GAO-07-274](#). | GAO-20-307

⁸⁶Office of Management and Budget, *Capital Programming Guide (Version 3.0)*.

In February 2007, we reported that OMB's guidance on capital planning requires long-range planning and a disciplined decision-making process as the basis for managing assets to achieve an agency's goals and objectives.⁸⁷ We also reported that the planning phase is the most important for the capital decision-making process and that it links capital asset investments to an organization's overall mission and long-term strategic goals. We emphasized that agencies should evaluate a full range of alternatives to bridge any performance gap and recommended that Congress require agencies to develop long-term capital plans and submit them for review.⁸⁸ Furthermore, in January 2016, we reported that asset management planning for water utilities includes key components such as assessing the current state of their assets (for example pipelines and treatment plants), incorporating life-cycle costs, and developing a strategy for the long-term funding of the repair and replacement of their assets.⁸⁹

In our review of documents and interviews with USIBWC officials, we found that the agency incorporates aspects of the key planning principles in its capital planning and budgeting but has not fully incorporated the principles. For example, the agency has a strategic plan that identifies its goals, including a goal to improve the quality of water along the border. We have stated, along with OMB, the importance of linking capital asset investments to an organization's overall mission and long-term strategic goals.⁹⁰ However, in its capital planning and budget process, USIBWC does not fully assess or identify future needs, as called for in OMB's key capital planning principles. Those principles state that a needs assessment identifies the resources needed to fulfill both immediate requirements and anticipated future needs, based on the agency's goals and objectives.

According to USIBWC officials, the agency conducts and funds capital planning on a project-by-project basis because it uses year-end money to fund studies or evaluations to identify project needs or alternatives. Specifically, USIBWC engineers identify the need for a project, and the

⁸⁷[GAO-07-274](#).

⁸⁸As of November 2019, our recommendation had not been implemented.

⁸⁹[GAO-16-237](#).

⁹⁰Office of Management and Budget, *Capital Programming Guide (Version 3.0)*, Supplement to OMB Circular No. A-11 (2019); [GAO-07-274](#).

agency identifies year-end appropriations to pay for a study of that project. For example, in one case described by a USIBWC official, the agency contracted with the Corps of Engineers to conduct a study of USIBWC flood control levees and their condition. The agency used year-end funds in its Salaries and Expenses budget line item to pay for the study, and USIBWC officials stated that the study has since been the basis for its request for levee repair and replacement projects.

In addition, we found that USIBWC conducts alternative evaluations of potential projects, as directed by OMB's guidance that states an evaluation should be conducted of a wide range of alternative approaches to determine how to bridge performance gaps in capital infrastructure. According to USIBWC officials, the agency is considering a range of alternatives and plans to conduct an analysis of costs associated with the projects, as leading practices for benefit-cost analysis and alternative comparison suggest. For example, the contractor for the 2019 study of alternatives to expand or adapt the diversion infrastructure for the South Bay project has assessed alternatives and costs to reduce the number of days that transboundary flows cross the border bringing bacteria, trash, and sediment into the United States. However, this was done for one part of the water quality problems created by transboundary flows and will not solve the problems associated with water quality problems created by all stormwater flows. USIBWC has not evaluated alternative approaches or costs for managing stormwater and associated water quality problems in the Santa Cruz River Basin and Tijuana River Valley watersheds that will continue to impact water quality along the border, and states it has no responsibility to do so.⁹¹

USIBWC also has not developed a comprehensive, long-term capital plan to help achieve its strategic goal for water quality. Instead USIBWC has elements of a plan, such as asset management documents for each of its two wastewater plants that identify key equipment replacement costs and schedules. The Nogales plant manager provides USIBWC officials with 10-year cost projections for major equipment, which include information on cyclic maintenance and life-cycle replacements. The operator of the

⁹¹Municipal and environmental organization plaintiffs have challenged this assertion in court, arguing that USIBWC does have some legal responsibility to manage transboundary stormwater flows. *Surfrider Foundation v. The International Boundary and Water Commission, United States Section*, Civ. No. 18-1621 (S.D. Cal.) filed July 17, 2018; *City of Imperial Beach v. The International Boundary and Water Commission, United States Section*, Civ. No. 18-457 (S.D. Cal.) filed March 3, 2018. Accordingly, we express no view on this legal issue.

South Bay plant prepares a 5-year plan that assesses the condition of equipment and recommends repair and replacement. However, neither plan identifies gaps in infrastructure needed to resolve water quality problems that are separate from the plants and their normal operation, such as stormwater problems that destabilize the Nogales plant's IOI pipeline and cause polluted water to be diverted around the South Bay plant. USIBWC states it has no responsibility to do so. As noted above, USIBWC's role in addressing certain transboundary stormwater flows and associated water quality problems is in dispute in ongoing litigation involving the Santa Cruz and Tijuana River Valley basins.

Under OMB's capital planning principles, conducting long-term capital planning should enable USIBWC to more systematically assess its long-term needs, including its future needs and identify alternative approaches and costs to address stormwater problems in the watersheds. Furthermore, a long-term capital plan should identify the capital projects that USIBWC needs to achieve the strategic goal it seeks to accomplish—in this case, improvement of water quality along the border. In February 2007, we reported that a long-term capital plan can include elements such as (1) a baseline assessment and identification of performance gaps; (2) justification of spending on proposed new assets; (3) the basis for selecting proposed assets; and (4) cost schedules and performance goals. In addition, OMB's capital planning guidance states that each capital asset should have an operations and maintenance plan that outlines the procedures and responsibilities for scheduled preventive and regular or routine corrective maintenance. Currently, USIBWC has not comprehensively developed this information into a long-term capital plan. A long-term capital plan would help USIBWC budget for capital projects and investments in the watersheds and provide justification for funds requested for capital investment in future water quality projects.

OMB Circular A-11 also encourages agencies to use a summary of the capital plan for budget justification to OMB, congressional authorizations of projects, and justification for congressional appropriations. In November 2019, OMB issued a memorandum to federal agencies that reinforced the need to implement the capital programming guidance in OMB Circular A-11 that agencies develop, document, and implement a capital planning process.⁹² In its budget process, USIBWC requests

⁹²Office of Management and Budget, *Memorandum for the Heads of Executive Departments and Agencies: Implementation of Agency-Wide Real Property Capital Planning*.

funding for individual capital projects for the budget year in which the projects are needed. Specifically, for each annual budget cycle, USIBWC's Principal Engineers provide information to agency budget officials on the projects they have identified and funds needed for each plant. USIBWC budget officials use this information to prepare budget requests that are then reviewed by the State Department and OMB, and, ultimately, Congress. According to USIBWC's Administrative Officer, the agency previously provided capital needs in an attachment to the budget requested in OMB Circular A-11. The official told us preparing the information was time-intensive yet helpful. For example, the information helped the agency understand the scope and life-cycle costs of a project. However, when OMB no longer collected agencies' information, USIBWC stopped providing the information in its budget.⁹³ According to Department of State budget examiners, USIBWC notifies them of potential infrastructure projects and funding needs; however, this information is not included in the agency's budget request and is therefore not available to identify funding needs. According to USIBWC officials, they do not provide the information in a budget request to State because they are told to conduct agency operations within a flat budget. By conducting long-term capital planning for the Santa Cruz River Basin and Tijuana River Valley watersheds, following the principles in OMB Circular A-11, USIBWC would have more information to address the water quality problems resulting from unmanaged stormwater in either the Santa Cruz River Basin or Tijuana River Valley watersheds; and could provide the information to State, OMB, or Congress as part of annual budget deliberations.

Conclusions

USIBWC and the Mexican Section of IBWC have successfully developed binational solutions to water quality issues along the U.S.-Mexico border, including constructing two international wastewater treatment plants to treat raw sewage that would otherwise flow into the United States. Nonetheless, in the decades since construction of the plants, the communities along the border have experienced exponential growth in populations and development that has, exacerbated by aging and deteriorating infrastructure, resulted in ongoing transboundary flows of raw sewage, trash, and sediment. USIBWC and the Mexican Section have discussed some alternatives to deal with ongoing water quality problems at both plants and in both watersheds. However, water quality

⁹³[GAO-07-274](#).

problems, including unmanaged and untreated stormwater, bring bacteria, trash, and sediment into the lower watersheds in the United States. To date, USIBWC and the Mexican Section have only studied or monitored the problems; they have not taken actions to resolve the problems by proposing and analyzing alternatives, analyzing costs, identifying solutions, or establishing time frames. The long-standing environmental and health problems associated with transboundary stormwater flows in the watersheds of both rivers continue. USIBWC officials' statement that it lacks the authority to resolve the problems suggests that congressional direction may be needed to specifically authorize USIBWC to take action. This action could include identifying alternatives, cost estimates, funding, and time frames. Such action would help address the environmental and health problems associated with transboundary stormwater flows in the Santa Cruz River Basin and the Tijuana River Valley watersheds.

To help address some of the infrastructure problems in Mexico that cause the transboundary flows—such as pipe breaks and pump failures—USIBWC has proposed the development of a binational rapid response team comprised of technical experts in both countries that would immediately respond to infrastructure problems. However, it has not taken the necessary steps to formalize the team within IBWC. By formalizing the binational rapid response team to address sewage infrastructure failures along the U.S.-Mexico border, USIBWC would have better assurance that it is able to more effectively address the urgent and recurring sewer breaks and pump failures in Mexico that contribute to raw sewage spills.

In addition, USIBWC has not fully incorporated key capital planning principles that would help identify alternative approaches for the agency to address stormwater problems in the Santa Cruz River Basin or Tijuana River Valley watersheds. By conducting long-term capital planning in the Santa Cruz River Basin and Tijuana River Valley watersheds, following the principles in OMB Circular A-11, USIBWC would have better information to address the water quality problems resulting from unmanaged stormwater in either the Santa Cruz River Basin or Tijuana River Valley watersheds. USIBWC would also have capital planning information available to provide to State, OMB, and Congress, as part of the budget process, as directed in the 2019 OMB memorandum.

Matters for Congressional Consideration

Congress should consider providing direction and specific authorization for USIBWC to take action to resolve the long-standing water quality problems associated with transboundary stormwater flows in the Santa Cruz River Basin watershed, including identifying alternatives, cost estimates, funding sources, and time frames, in coordination with federal, state, and local partners. (Matter for Consideration 1)

Congress should consider providing direction and specific authorization for USIBWC to take action to resolve the long-standing water quality problems associated with transboundary stormwater flows in the Tijuana River Valley watershed, including identifying alternatives to include cost estimates, funding sources, and time frames, in coordination with federal, state, and local partners. (Matter for Consideration 2)

Recommendations for Executive Action

We are making the following two recommendations to the U.S. Commissioner of the IBWC.

The U.S. Commissioner of the IBWC should work with the Mexican Commissioner to formalize a binational rapid response team to address sewage infrastructure failures along the U.S.-Mexico border, including the Nogales and South Bay wastewater treatment plants. (Recommendation 1)

The U.S. Commissioner of the IBWC should direct USIBWC staff to conduct long-term capital planning for the Santa Cruz River Basin and Tijuana River Valley watersheds, following the principles in OMB Circular A-11. (Recommendation 2)

Agency Comments and Our Evaluation

We provided a draft of this report to USIBWC, EPA, and the Departments of State and Homeland Security for comment. USIBWC provided written comments, which are reproduced in appendix V. The other three agencies did not provide written comments on our draft report; however, they provided technical comments that we incorporated as appropriate.

In its written comments, USIBWC concurred with our first recommendation that it work to formalize a binational rapid response team to address sewage infrastructure failures along the U.S.-Mexico border. The agency noted that it has held extensive consultations with the Mexican Section of the IBWC, and once there is agreement on the designated responsibilities and funding of the team, USIBWC will seek to

formalize the arrangement through a written agreement or exchange of letters between the U.S. and Mexican Sections, approaches we outlined in the report. USIBWC also noted that the United States and Mexico have not agreed upon each country's share of expenses and that the U.S. financial contribution is subject to legislative approval and contributions, including in-kind contributions, from domestic nonfederal entities.

USIBWC partly concurred with our second recommendation that the U.S. Commissioner of the IBWC direct staff to conduct long-term capital planning for the Santa Cruz River Basin and Tijuana River Valley watersheds. The agency noted that it provided us the long-term capital planning information previously required by the Office of Management and Budget and that the practice had been useful. However, the agency also noted that to the extent our report envisions USIBWC undertaking long-term capital planning for (1) nonfederal infrastructure; (2) infrastructure that does not yet exist; and/or (3) infrastructure that the USIBWC is not yet authorized to construct or maintain, it does not concur. USIBWC stated that Congress may not view it as the lead agency, and therefore Congress does not need to provide it with the authorization to oversee cross-border pollution matters. Regardless of whether Congress considers USIBWC as the lead agency in resolving transboundary water quality, the agency is a key player in managing water quality on the border and has the infrastructure and organization that will be part of the solution. To date, the agency has been more reactive than proactive in participating in planning efforts and studies to resolve water quality problems and has told us that it does not have the authority to do so. Yet, without the information that USIBWC would generate by comprehensively assessing its long-term needs, such as through long-term capital planning efforts, Congress cannot authorize specific work that needs to be done. We recommended that the agency conduct long-term planning, including for infrastructure that does not exist and for infrastructure that is not yet authorized specifically to address this problem. We continue to believe that USIBWC should recognize its role along the border and, as we recommended, start planning for it, including by undertaking long-term capital planning for existing and potential future infrastructure and identifying alternatives to address the long-standing water quality problems.

The agency also commented on our two Matters for Congressional Consideration in which we said that Congress should consider providing direction and specific authorization for USIBWC to take action to resolve long-standing water quality problems associated with transboundary stormwater flows in the watersheds. In its comments, USIBWC stated that

it partly concurred with the Matters. USIBWC also stated that the phrasing of the Matters suggests that Congress should assign USIBWC specific duties and responsibilities, including identifying time frames for a comprehensive solution of pollution problems associated with transboundary stormwater flows and binational watershed management. This is correct. In our report, we highlighted the role USIBWC plays along the border and the infrastructure USIBWC manages and operates to address transboundary flows from Mexico. Given the location of the USIBWC's wastewater treatment plants, along with its expertise and role working with Mexico, the agency would need to be centrally involved in any transboundary solution.

However, it is incorrect, as USIBWC's letter further stated, that our Matters imply that USIBWC would have the lead role in resolving water quality problems along the border. USIBWC's letter stated that while the Matters acknowledge that USIBWC might coordinate with a wide range of partners, the language implies that Congress would designate USIBWC as the lead agency. Further, the agency stated that such a designation may run counter to past and current congressional intent and reasoning, as evidenced in very recent developments. In our matters, we stated that Congress should authorize USIBWC to take action to resolve water quality problems because it is a central actor in managing water and water quality along the border and because, during the course of our review, USIBWC stated that it needed specific congressional authorization to manage stormwater problems and to construct and maintain new infrastructure. We included the need for USIBWC to coordinate its action with other agencies because USIBWC would not be the sole lead actor. We note that USIBWC did not state what its role would be.

Moreover, USIBWC stated that Congress may be in the process of designating EPA as the lead agency in developing major new infrastructure in the Tijuana Valley watershed to mitigate problems resulting from transboundary flows from Mexico. USIBWC also cited a recent bill to show that Congress is considering, consistent with proposals from California stakeholders, an appropriation request for as much as \$300 million for the EPA to build this infrastructure. The agency stated that the bill lists USIBWC as one of 11 eligible public entities with which EPA may coordinate its efforts, as opposed to identifying the USIBWC as the lead agency. It also stated that the United States-Mexico-Canada Agreement Implementation Act accompanying this bill explains that EPA's designation as the lead agency was premised on Congress's determination that EPA has the expertise and experience necessary to

lead and coordinate efforts involving wastewater, stormwater, nonpoint sources of pollution, and related matters in the Tijuana watershed. At a minimum, USIBWC will be a key partner with EPA if it is given the authority to help resolve stormwater quality problems in the Tijuana River watershed. Yet, as discussed in our report, USIBWC stated it needs congressional authorization to participate in addressing stormwater issues along the border. We note that the bill to which USIBWC refers does not specifically address USIBWC's authority to develop and implement stormwater projects near the border. Our report shows that this authorization is necessary for the agency to take action, whether as a lead agency or as an eligible partner that may coordinate with others. We added a discussion of the bill in our report, as well as about the expertise that EPA and USIBWC have to address transboundary flow problems. Specifically, we described that according to EPA officials, EPA lacks the expertise to construct and maintain water infrastructure projects on its own. Further, EPA officials stated that EPA will need to carry out any work in the area through contracts with other agencies, as EPA does not have expertise in operating and maintaining water infrastructure, as USIBWC does. EPA also noted that USIBWC is one of the only federal agencies that works across the border because it has consistent communication and contacts in Mexico.

Finally, USIBWC stated in its comments that the reasoning for designating EPA in the bill and the accompanying act as the lead agency for pollution reduction for the Tijuana River watershed—because of EPA's unique qualifications—also applies in any border area, including the Santa Cruz watershed in Arizona. Again, our report showed that USIBWC is a central actor in managing water and water quality on the border and that congressional authorization is needed for USIBWC to help address transboundary stormwater flows, including identifying alternatives for solutions, in the Santa Cruz watershed. We did not change our Matters, but added a discussion in our report of the proposed congressional legislation to address the water quality problems in Tijuana specifically and the expertise that EPA and USIBWC each bring to addressing transboundary flow problems.

We are sending copies of this report to appropriate congressional committees; the Commissioner of the U.S. Section of the International Boundary and Water Commission; the Secretaries of Homeland Security and State; the Administrator of the EPA; and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or gomezj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix VI.



J. Alfredo Gómez
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

This report (1) describes the authorities and roles involved in developing, managing, and sharing costs for the International Boundary and Water Commission's (IBWC) two international wastewater plants in the United States; (2) examines factors that affect the operation of the two plants and steps IBWC has taken to address these; and (3) examines the extent to which the U.S. Section of the International Boundary and Water Commission (USIBWC) has taken steps to address water quality problems in the two watersheds, including through the use of key capital planning principles.¹

To address these three objectives, we visited the Nogales International Wastewater Treatment Plant (Nogales plant) in Arizona and the South Bay International Wastewater Treatment Plant (South Bay plant) in California. At each facility, we interviewed USIBWC officials and toured each wastewater treatment plant and its associated infrastructure. We also met with other federal, state, and local government officials and representatives of non-governmental organizations to discuss USIBWC's management and operations of the plant. Specifically, in Arizona we met with officials from the Department of Homeland Security's Custom and Border Protection (CBP), the City of Nogales, the Arizona Department of Environmental Quality, the County of Santa Cruz, and the nonprofit Friends of the Santa Cruz River. In California, we met with officials from CBP; Environment Protection Agency Region 9; the California Water Quality Regional Control Board; the City of San Diego; the County of San Diego; the California State Parks; the City of Imperial Beach; and Surfrider Foundation San Diego Chapter, Wildcoast, and 4Walls International (all nongovernmental organizations). We visited USIBWC Headquarters in El Paso, Texas, to meet with agency officials, including the U.S. Commissioner and budget, engineering, and general counsel staff. We also met with the Mexican Commissioner of the IBWC in Ciudad Juarez, Chihuahua, Mexico.

To describe authorities and roles involved in developing, managing, and sharing the costs of USIBWC's two international wastewater plants in the United States, we reviewed the 1944 treaty between the United States and Mexico, *Treaty Relating to the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande*, and associated IBWC

¹This review was conducted in response to a 2018 request that included Representative Garret Graves—then Chair, House Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure.

minutes.² For cost-sharing of operational and maintenance expenses at the plants, we reviewed minutes between USIBWC and the Mexican Section and a memorandum of agreement between USIBWC and the City of Nogales, Arizona. We reviewed USIBWC's budget for fiscal years 2003 through 2019, including appropriated funding information for fiscal years 2003 through 2019. We also met with budget officials at USIBWC and the Department of State. To determine if these data are reliable, we interviewed a USIBWC official about the source of the data and reviewed documentation to determine that the data were sufficiently reliable for the purposes of discussing USIBWC budget and project costs.

To examine factors, if any, that affect the operation of the two plants and steps IBWC has taken to address these factors, we reviewed each plant's permit from the National Pollutant Discharge Elimination System, violation notices, and USIBWC documentation, such as plans for projects to resolve the violations. We interviewed USIBWC officials about their plans and projects to resolve any water quality problems at the plants. We also interviewed Arizona and California state environmental officials responsible for developing and enforcing the permits, to discuss permit violations and water quality problems at the plants and actions to resolve them.

To examine the extent to which USIBWC has taken steps to address water quality problems in the two watersheds, including using key capital planning principles, we reviewed and analyzed IBWC minutes, USIBWC's annual financial reports for fiscal years 2015 through 2019, USIBWC's most recent strategic plan covering fiscal years 2011 through 2016, the South Bay plant's 5-year and Nogales plant's 10-year equipment investment plans, and documentation from USIBWC's citizen forums in each location. In addition, we reviewed prior GAO reports on federal agency capital planning and asset management, the Office of Management and Budget's (OMB) *Capital Programming Guide (Version 3.0) Supplement to OMB Circular No. A-11*, and OMB's 2019 guidance on implementing agency-wide real property capital planning.³ We compared

²Treaty Relating to the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mexico February 3, 1944, 59 Stat. 1219, T.S. 994.

³Office of Management and Budget, *Capital Programming Guide (Version 3.0), Supplement to Office of Management and Budget Circular No. A-11* (June 28, 2019). Office of Management and Budget, *Memorandum for the Heads of Executive Departments and Agencies: Implementation of Agency-Wide Real Property Capital Planning*, OMB Memorandum M-20-03 (Washington D.C.: Nov. 6, 2019).

USIBWC's capital planning efforts against OMB's Capital Programming Guide and past GAO reports on capital planning leading practices. Further, we interviewed USIBWC officials and stakeholders at each plant, including local government officials and environmental group representatives, about the water quality problems and solutions they have discussed. We also reviewed studies conducted in the two watersheds.⁴

We conducted this performance audit from September 2018 to February 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

⁴Brown and Caldwell, *Evaluation of the International Outfall Interceptor for the City of Nogales, Arizona* (Phoenix, AZ: March 2005) and Arcadis, *Tijuana River Diversion Study: Flow Analysis, Infrastructure Diagnostic and Alternatives Development* (July 2019).

Appendix II: International Boundary and Water Commission Minutes Related to the Two U.S. Wastewater Treatment Plants

Table 2: International Boundary and Water Commission (IBWC) Minutes Executed for the Construction and Operations of the Nogales and South Bay International Wastewater Treatment Plants

Minute	Name	Description
Nogales Plant		
Minute 206	Joint Operation and Maintenance of the Nogales International Sanitation Project	Signed in 1958, this minute approved the plan for a jointly operated and maintained sanitation project in Nogales, Arizona.
Minute 227	Enlargement of the International Facilities for the Treatment of Nogales, Arizona, and Nogales, Sonora Sewage	Signed in 1967, this minute agreed to enlarge the existing Nogales plant to enable treatment of the sewage volumes that were anticipated for future use over the next 20 years. The minute also acknowledged that the ability for the Nogales plant to treat the volume of sewage at that time was critically insufficient and created a serious danger to the health and welfare for the residents in the two communities that utilized the plant. This minute also covered other key issues related to the Nogales plant including (1) approval for the plant to be relocated further from the border due to recent urban expansion in Nogales, Arizona, and (2) the condition that Mexico could dispose of part or all of the Nogales, Sonora, sewage in Mexico when it is considered advisable.
Minute 276	Conveyance, Treatment, and Disposal of Sewage from Nogales, Arizona and Nogales, Sonora, Exceeding the Capacities Allotted to the United States and Mexico at the Nogales International Sewage Treatment Plant	Signed in 1988, the minute approved additional capacity for treatment at the Nogales plant. Further, the minute stated that the two countries consider special measures to ensure immediate repairs to breakdowns in sewage collection systems in each country.
South Bay Plant		
Minute 222	Emergency Connection of the Sewage System of the City of Tijuana, Baja California, to the Metropolitan Sewage System of the City of San Diego	Signed in 1965, the minute approved the construction of a sewer line to connect the main collector of the sewage system of the city of Tijuana, Baja California, with the San Ysidro Branch of the Metropolitan Sewage System in San Diego, California. The purpose of the connection was to serve as an additional safety measure and protect the U.S. from surface flows of Tijuana sewage if there was a serious accident to the Tijuana sewage system.
Minute 283	Conceptual Plan for the International Solution to the Border Sanitation Problem at San Diego, California, and Tijuana, Baja California	Signed in 1990, the minute approved the construction of an international secondary treatment plant in the United States in San Ysidro, California. The minute also included approval for the construction of a pipeline system to convey treated sewage to the Pacific Ocean from the plant. Other issues related to sewage were also approved, such as the Mexican government requiring industries in Tijuana to pretreat their wastewater discharges that will flow in the South Bay plant. Minute 283 also provided that subsequent minutes would further detail the final design and the specific division of construction, operation, and maintenance costs between the United States and Mexico.

**Appendix II: International Boundary and Water
Commission Minutes Related to the Two U.S.
Wastewater Treatment Plants**

Minute	Name	Description
Minute 296	Distribution of Construction, Operation, and Maintenance Costs for the International Wastewater Treatment Plant Constructed under the Agreements in the Commission Minute 283 for the Solution of the Border Sanitation Problem at San Diego, California/Tijuana, Baja California	Signed in 1997, the minute approved funding and cost-sharing details for the United States and Mexico related to the construction, operation, and maintenance of the South Bay plants.

Source: IBWC minutes. | GAO-20-307

Appendix III: Factors that Can Affect the Operations of the Nogales and South Bay Plants

This appendix provides information about some of the factors that can affect the operations of the Nogales and South Bay plants.

For the Nogales plant, the factors that can affect the operations include:

- **Lack of heavy metal pretreatment.** Numerous metal treatment and plating facilities operate in Nogales, Sonora, Mexico. These facilities directly discharge their wastewater, which contains heavy metals such as chromium, zinc, and nickel, into the city's sewer system. The heavy metals are comingled with the other sewage and sent to the Nogales plant (in Arizona) for treatment. In the United States, similar types of facilities would be required to pretreat the wastewater to remove metals and other pollutants before discharging it into the public sewer system. In the United States, the mechanism used to limit industrial discharges into a sewer system is a pretreatment program that can ultimately cause dischargers to be shut off from the system or fined if they do not limit the industrial contaminants in their discharges to the system.¹ While a municipal pretreatment program exists in Nogales, Sonora, it is designed to meet Mexico's minimum federal requirements and is insufficient to detect and respond to the dumping of industrial contaminants when they occur, according to the Arizona Department of Environmental Quality documentation and officials.² According to U.S. Section of the International Boundary and Water Commission (USIBWC) officials, the Nogales plant is not designed to separate out heavy metals during its treatment processes, and as a result the heavy metals contaminate the plant's sludge. Furthermore, due to the presence of heavy metals, USIBWC disposes of the sludge at a municipal landfill, a process that is more expensive than other disposal options, which has led to increased operational costs for the plant.³ According to USIBWC officials, it would cost about \$60 million

¹Under the U.S. program, a pretreatment program operator is to operate under legal authority enforceable in court, which authorizes the operator to apply and to enforce the applicable Clean Water Act requirements. 40 C.F.R. § 403.8(f)(1).

²USIBWC officials stated that the agency does not have legal jurisdiction over the dischargers from Mexico whose discharges are treated at the Nogales and South Bay plants.

³Specifically, disposing the sludge at a landfill has a higher disposal cost, according to USIBWC officials. Additionally, the sludge has to be transported to the dumping site in a semi-dry state because if fully dry, the heavy metal particulates could be released into the environment and create further environmental risk. As a result, USIBWC pays for multiple truckloads of semi-dry sludge compared to a single truckload of fully dried, uncontaminated sludge that could be disposed on land.

to update the Nogales plant to a tertiary treatment system that could remove the heavy metals from the sludge.

- **Deteriorating sewage infrastructure in Mexico.** Sewage infrastructure in the City of Nogales, Sonora, is not adequately maintained, according to USIBWC officials. As a result, USIBWC officials told us that the amount of wastewater Nogales, Sonora, sends exceeds the amount agreed upon in a minute between the two sections. Although Nogales, Sonora, built a new plant—the Los Alisos Plant—that can treat 5.5 million gallons per day, wastewater has to be pumped uphill from Nogales, Sonora, into the plant. After the first year of operation, the Mexican government could not maintain the plant due to funding constraints, according to USIBWC officials. The pumps responsible for delivering the wastewater uphill to the Los Alisos plant continually break or fail. For example, as of July 2019, only one of the five pumps at the Los Alisos plant was operational, according to USIBWC officials. When these pumps fail, Mexico releases the 2 million to 4 million gallons per day of wastewater—which normally would have been intercepted and sent to the Los Alisos plant—through the International Outfall Interceptor (IOI) to the Nogales plant.
- **Deteriorating infrastructure in the United States.** The deteriorating condition of the IOI has caused untreated sewage to periodically spill into the Santa Cruz watershed and Nogales Wash. The IOI is over 45 years old, and according to USIBWC officials, the typical lifespan of a similar pipeline is 50 years. Maintenance has been deferred because of continuing disagreement between USIBWC and the City of Nogales, Arizona, regarding which entity owns the pipeline and is therefore responsible for its maintenance, according to USIBWC officials.⁴ The IOI's condition continues to worsen and requires a significant amount of rehabilitation to address structural damage. Erosion and corrosion are continuously occurring, according to a 2005 assessment of the IOI prepared for the City of Nogales, Arizona.⁵ Specifically, gases released by the sewage corrode the pipeline, and root intrusion and groundwater cause erosion. According to the 2005 assessment, half of the thickness of the pipe had been eroded and corroded

⁴As of November 2019, the disagreement between USIBWC and the City of Nogales, Arizona, is being addressed in settlement discussions. In 2018, ADEQ became involved with the negotiations, trying to broker an agreement between the interested parties. These negotiations are ongoing.

⁵Brown and Caldwell, *Evaluation of the International Outfall Interceptor for the City of Nogales, Arizona*. (Phoenix, Arizona; March 2005).

For the South Bay plant, the factor that may affect the operations is:

- **Insufficient sewage infrastructure in Mexico.** According to the 2019 study of alternatives to expand or adapt diversion infrastructure, Tijuana has not built sufficient sewage infrastructure to serve the area's increasing population and urbanization, contributing to transboundary sewage flows.⁶ According to USIBWC officials, the city of Tijuana does not prioritize wastewater issues and is experiencing exponential population growth and urbanization. As a result, areas of Tijuana are not connected to the city's sewer system. A 2017 study prepared by a Mexican state agency estimated that over \$340 million would be required to fix and develop adequate wastewater treatment and reuse systems for the city of Tijuana.⁷ When there are problems with Tijuana's treatment facilities, Tijuana diverts a portion of its wastewater to be treated at the South Bay plant. If the South Bay plant is not notified and does not shut down the pump and canyon collectors, it may receive additional flows. While treating the excess wastewater does not violate the plant's National Pollutant Discharge Elimination System permit, the plant is experiencing an increase in the number of days that it treats flows above capacity, according to USIBWC officials. This could eventually cause violations to occur as the plant is not supposed to operate above capacity for prolonged periods.

In addition, USIBWC officials stated that the South Bay plant is not designed and operated to address some of the wastewater that flows into the Tijuana River Valley watershed. These wastewater flows are due to:

- **Limited Tijuana Basin diversion infrastructure.** The Tijuana Basin diversion system is comprised of Mexican-operated Pump Station CILA and the South Bay plant's five canyon collectors. This system captures dry-weather flows for treatment at the South Bay plant or a wastewater treatment plant in Mexico. However, it is not designed to capture high flows that result from pipe breaks or pump failures. Specifically, the system has a peak capacity of 29 million gallons per day, while Pump Station CILA can only operate at 23 million gallons

⁶Arcadis, *Tijuana River Diversion Study: Flow Analysis, Infrastructure Diagnostic and Alternatives Development* (July 2019). The study was prepared by Arcadis, an international design and consulting firm.

⁷Comisión Estatal de Servicios Público de Tijuana, *Plan for a Comprehensive Wastewater Treatment and Reuse System for the City of Tijuana* (2017).

per day.⁸ To avoid affecting the South Bay plant's wastewater treatment operations, during incidents of high flows, Pump Station CILA and the canyon collectors are shut off. During these events, the water bypasses the South Bay wastewater treatment plant and flows untreated into the Tijuana River and watershed. The Senate committee report accompanying the Department of State, Foreign Operations, and Related Programs Appropriations Act, 2019 required the USIBWC to submit a report quantifying the total annual volume of transboundary flows entering the United States from Mexico in the Tijuana River watershed.⁹ USIBWC issued this report in August 2019.¹⁰

- **Lack of maintenance for existing sewage infrastructure in Mexico.** A lack of maintenance for Tijuana's existing sewage infrastructure causes excess wastewater flows into the Tijuana River according to USIBWC officials. For example, in August 2019, USIBWC reported that on June 19, 2019, nearly 1.9 million gallons of wastewater were released into the Tijuana River because trash buildup at one of Tijuana's pumps caused the pump to fail.¹¹ In the last 2 decades, according to a 2019 study, the local Mexican utility that operates and manages the city's sewage infrastructure has invested in expanding the city's wastewater collection infrastructure to address direct dischargers or inadequate disposal practices, according to USIBWC officials.¹² However, the overall system has not kept pace with the region's rapid growth, nor has the existing infrastructure in Mexico received sufficient maintenance. In addition, the local utility that manages and operates Tijuana's wastewater system has a limited number of personnel. The study also reported that existing personnel were "very knowledgeable, dedicated, and

⁸USIBWC, *Tijuana River Wastewater Spill Investigation* (El Paso, TX: United States International Boundary and Water Commission, February 2017).

⁹S. Rep. No. 115-282 at 30 (2018). The committee report also directed the Department of State to "work with the IBWC Commissioner and the Government of Mexico to enhance efforts to mitigate pollution in the Tijuana River Valley, including to implement the recommendations from the IBWC's "Report of Transboundary Bypass Flows into the Tijuana River" (April 2018) and to encourage the Government of Mexico to make additional investments to halt the discharge of waste into the United States." Id.

¹⁰USIBWC, *Report to the Congress on Transboundary Flows that Enter the United States from Mexico in the Tijuana Watershed* (Aug. 15, 2019).

¹¹USIBWC, *Report to the Congress on Transboundary Flows*.

¹²*Tijuana River Diversion Study, 60% Progress: Summary of Study Deliverables* (March 2019).

creative in their efforts” to maintain and operate the sewage infrastructure. Nonetheless, Tijuana’s existing sewage pipes consistently break and its pump stations fail. Another 2019 study also reported that the poor condition of critical wastewater infrastructure in Mexico results in approximately 30 percent of Tijuana’s wastewater enters the Tijuana River or Pacific Ocean without treatment.¹³

¹³Arcadis, *Tijuana River Diversion Study*.

Appendix IV: Studies of the Santa Cruz River Basin and the Tijuana River Valley Watersheds

Table 3: Studies of the Nogales Wash, Santa Cruz River Basin Watershed and Ambos Nogales, Sonora, Mexico Watershed

Title of study	Year completed	Sponsor(s) of study
Flood Detention Study	2010	U.S. Geological Survey U.S. Department of the Interior
Inspection of the Nogales Wash	2009	U.S. Army Corps of Engineers (for City of Nogales, Arizona)
Mapping Land Use/ Land Cover in the Ambos Nogales Study Area	2008	U.S. Geological Survey U.S. Department of the Interior
Morley Tunnel Inspection Report	2008	U.S. Section of the International Boundary and Water Commission (USIBWC)
Nogales Wash Channel Damages	2007	U.S. Army Corps of Engineers
Final Evaluation of the International Outfall Interceptor	2005	Border Environment Cooperation Commission/ North American Development Bank (for City of Nogales, Arizona)
Flood Damage Reduction Study in Nogales, Sonora, Mexico	2004 (revised 2005)	U.S. Army Corps of Engineers USIBWC

Source: GAO summary of USIBWC documentation. | GAO-20-307

**Appendix IV: Studies of the Santa Cruz River
Basin and the Tijuana River Valley Watersheds**

Table 4: Studies of the Tijuana River Basin Watershed

Title of study	Year completed	Sponsor(s) of study
Tijuana River Feasibility Study for Sediment Basins (Stantec Study)	ongoing	U.S. Section of the International Boundary and Water Commission (USIBWC)
Binational Sampling Plan	ongoing	USIBWC and the Mexican section of International Boundary and Water Commission (IBWC)
Binational Inspections	ongoing	IBWC
Watershed Analysis	ongoing	U.S. Army Corps of Engineers (for City of San Diego)
Tijuana River Diversion Study: Flow Analysis, Infrastructure Diagnostic and Alternatives Development	2019	North American Development Bank (NADB)
Sampling Data from Customs and Border Protection	2019	Customs and Border Protection
Tijuana River Spill Report	2017	USIBWC
Biosolids Marketing and Process Assessment	2013	Border Environment Cooperation Commission/ NADB
River Diversion Study	2002	USIBWC
Coastal Observations and Monitoring in South Bay San Diego (Scripps Study)	unknown	USIBWC
Plan Tijuana	unknown	State Public Services Commission of Tijuana

Source: GAO summary of USIBWC documentation. | GAO-20-307

Appendix V: Comments from the U.S. Section of the International Boundary and Water Commission



OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

INTERNATIONAL BOUNDARY AND WATER COMMISSION UNITED STATES AND MEXICO

Mr. J. Alfredo Gómez
Director Natural Resources and Environment
Government Accountability Office
441 G Street NW
Washington, DC 20548

Dear Mr. Gómez:

Thank you for the opportunity to review and comment on the GAO Draft Report, *International Boundary and Water Commission: Opportunities Exist to Address Water Quality Problems*. (GAO-20-307) (GAO CODE 103008) ("GAO Report"). The USIBWC appreciates all the time, effort, and work that your staff put into understanding and assessing the complex environmental issues on the U.S.-Mexico border. The USIBWC is committed to being part of the solution to these complex issues in collaboration with other stakeholders and federal entities that are engaged in addressing this issue.

Below please find the USIBWC's response to the recommendations in the GAO Report.

- 1) Recommendation to USIBWC: *The U.S. Commissioner of the IBWC should work with the Mexican Commissioner to formalize a binational rapid response team to address sewage infrastructure failures along the U.S.-Mexico border, including the Nogales and South Bay plants.*

USIBWC RESPONSE: The USIBWC concurs with this recommendation. The USIBWC has held extensive consultations with the Mexican Section of the IBWC and local stakeholders in the United States. Once there is agreement on the designated responsibilities and funding of the rapid response team, the USIBWC will seek to formalize the arrangements through a written agreement or exchange of letters between the U.S. and Mexican Sections of the IBWC. While the body of the GAO report suggests that the team's funding will come primarily from the United States, the two countries' shares of expenses have not been agreed upon. Any U.S. financial contribution to the rapid response teams is subject to legislative approval and contributions, including in-kind contributions, from domestic non-federal entities may be necessary.

- 2) Recommendation to USIBWC: *The U.S. Commissioner of the IBWC should direct USIBWC staff to conduct long-term capital planning for the Santa Cruz River Basin and Tijuana River Valley watersheds, following the principles in OMB Circular A-11.*

USIBWC RESPONSE: The USIBWC partly concurs with this recommendation. As indicated in the report, the USIBWC provided the long-term capital planning information previously required by the Office of Management and Budget and found the practice useful despite being a labor-intensive process. To the extent that the GAO report envisions the USIBWC undertaking long-term capital planning for (1) non-federal infrastructure; (2)

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infrastructure that does not yet exist and/or (3) infrastructure that the USIBWC is not yet authorized to construct or maintain, it does not concur with this recommendation. The GAO's report is focused primarily on resolving pollution and water-quality issues that are caused, in part, by unmanaged stormwater flows in bi-national watersheds. The USIBWC notes below that Congress may not consider USIBWC as the lead agency that should be considered for congressional authorization to oversee these cross-border pollution matters. Although the body of the report indicates that any such responsibilities assigned to USIBWC would be held in coordination with other federal and state parties, the implication is that USIBWC would have lead responsibility. (Please see comments on the Matters for Congressional Consideration below.)

- 3) Matter for Congressional Consideration 1.
Congress should consider providing direction and specific authorization for USIBWC to take action to resolve the long-standing water quality problems associated with transboundary stormwater flows in the Santa Cruz River Basin watershed, including identifying alternatives, cost estimates, funding sources, and time frames, in coordination with federal, state and local partners.
- 4) Matter for Congressional Consideration 2.
Congress should consider providing direction and specific authorization for USIBWC to take action to resolve the long-standing water quality problems associated with transboundary stormwater flows in the Tijuana River Valley watershed, including identifying alternatives to include cost estimates, funding sources, and time frames, in coordination with federal, state, and local partners.

USIBWC RESPONSE: The USIBWC partly concurs. The USIBWC will continue its current efforts to address transboundary flows where it has authorized projects; continue to coordinate with Mexican, federal, state, and local government partners, the private sector, and nongovernmental organizations that may have more appropriate expertise or authority to address various aspects of the stormwater management, pollution (water quality) control, or watershed management; and continue pursuing its activities as described in the GAO report. However, the phrasing of GAO's two congressional recommendations suggests that Congress should assign to USIBWC specific duties and responsibilities, including identifying time frames for a comprehensive solution of pollution (water quality) problems associated with transboundary stormwater flows and bi-national watershed management. While the matters for consideration acknowledge that USIBWC might be given such authorities in coordination with a wide range of partners, the GAO implication is that USIBWC would be designated as the lead agency. Such a designation may run counter to past and current congressional intent and reasoning, as evidenced in very recent developments.

Congress may be in the process of designating the Environmental Protection Agency (EPA) with the lead role in developing major new infrastructure in the Tijuana Valley watershed to mitigate cross-border wastewater, stormwater, non-point sources of pollution, and related matters resulting from international transboundary flows originating in Mexico. Consistent with proposals from California stakeholders, Congress is considering

**Appendix V: Comments from the U.S. Section
of the International Boundary and Water
Commission**

appropriation requests for as much as \$300 million for the EPA to build this infrastructure. In addition, Section 821 of H.R. 5430 states:


“The Administrator of the Environmental Protection Agency shall, in coordination with 11 eligible public entities, carry out the planning, design, construction, and operation and maintenance of high priority treatment works in the [Tijuana River watershed] to treat wastewater (including stormwater), nonpoint sources of pollution, and related matters resulting from international transboundary water flows originating in Mexico.”

H.R. 5430 describes the USIBWC as one of 11 eligible public entities with which EPA may coordinate its efforts, as opposed to identifying the USIBWC as the lead agency. In addition, in the United States-Mexico-Canada Agreement Implementation Act (Rept. 116-358 accompanying H.R. 5430), the House Ways and Means Committee explains that EPA’s designation as the lead agency was premised on Congress’s determination that the EPA has the expertise and experience necessary to lead and coordinate efforts involving wastewater, storm water, non-point sources of pollution, and related matters in the Tijuana watershed.

Although H.R. 5430 and the accompanying Report 116-358 apply to the Tijuana River watershed (where the bill grants EPA the lead pollution reduction role), Report 116-358 explains that EPA was designated as such because of EPA’s unique qualifications. This same reasoning applies in any border area, including the Santa Cruz watershed.

Should you have any questions about this letter please feel free to contact me at (915) 832-4101 or via email: jayne.harkins@ibwc.gov.

Sincerely,



Jayne Harkins, P.E.
Commissioner

Appendix VI: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

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