

Ambos Nogales and Tijuana-San Diego Sanitation Issues

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Framework

IBWC Authority

Key legislation involved in funding border sanitation projects





Border Sanitation in Nogales, Sonora -Nogales, Arizona

IBWC Joint Report of Principal Engineers (1943)

Construction of a 1.6 mgd IWTP

IBWC Minute 206 (1958)

O&M costs; Mexico pays at Mexican economy

IBWC Minute 227 (1967)

Enlargement of treatment facilities to 8.2 mgd

IBWC Minute 276 (1988)

- Expansion of the International Plant; capacity assigned to Mexico 9.9 mgd; O&M costs
- Payment of excess flows

IBWC Minute 294 (1995)

 Excess flows to be sent southward; Estadio Lift Station, sewer pipeline, pressure and gravity; Los Alisos Treatment Plant: capacity 220 l/s, 2 modules.





Challenges for the Management and Treatment of Wastewater in Nogales





Actions to eliminate excess flows to the NIWTP



The excess flows to the IWTP have not been eliminated because of failures in Estadio LS and because the treatment capacity of Los Alisos was not expanded according to the population growth of Nogales, Sonora.

Los Alisos WWTP Current Cap. : 5 MGD Expansion Project (Third module): **7.53 MGD**



Challenges for the Management and Treatment of Wastewater in Nogales





Actions for the control of industrial discharges in Nogales, Son.

Binational Technical Committee

Established in 1994, continued until 2007. Resumed in 2011. Mexican Participants: CONAGUA, CEA, OOMAPAS, IMIP, SMCILA. U.S. Participants: ADWR, ADEQ, Nogales, Az.,. EPA. US IBWC. **Objetive:** Exchange of • water quality information

from both Nogales, and

propose solutions.

continued

Established in 2003.

Industrial and Commercial Pretreatment



Objective: Prevent nondomestic discharges into the municipal sewer system.

> **Scope:** Through **annual monitoring**, it verifies that discharges comply with the Mexican Official Standards.

Its creation was a binational commitment established through a contract with BDAN to obtain BEIF resources.

Currently, it regulates discharges from 432 establishments: 142 industries and 290 commercial establishments.





Results obtained:

Historic results of the wastewater from Nogales, Son. monitoring

Period	Cadmium	Mercury	Lead	Chromium	Copper	Nickel	Zinc	Period	Chromium	Copper	Nickel	Zinc	Cyanide
2001		S/E	S/E	N/A		N/A		2016		S/E	S/E	S/E	S/E S/F
2002			S/E	N/A		N/A							S/E
2003			S/E	N/A		N/A				S/E S/E	S/E	S/E S/E	S/E S/E
2004	S/E		S/E	N/A		N/A		2017	S/F	S/E S/F	S/E S/F	S/E S/F	S/E S/F
2005	S/E			N/A		N/A			57 L	S/E S/E	57 L	S/E	S/E
2006				N/A		N/A		2018	S/E	S/E S/E	S/E	S/E S/E	S/E S/E
2007			S/E	N/A		N/A			S/E	S/E	S/E	S/E	S/E
2008		S/E	S/E	N/A		N/A		2019		S/E S/E	3/E	S/E S/E	S/E S/E
2009		S/E		N/A		N/A			S/F	S/E S/F	S/E S/F	S/E S/F	S/E S/F
2010				N/A		N/A				S/E	S/E	с /г	S/E
2011		S/E		N/A		N/A		2020	S/E	S/E S/E	S/E	S/E	S/E S/E
2012		S/F		N/A		N/A	S/F		S/E s/e	S/E S/F	S/E s/f	S/E S/F	S/E
2012	S/F	S/E		Ν/Δ		N/A	S/F	2021	S/E	S/E	57 L	S/E	S/E
2013	5/L C/E	5/L C/E	c/e			N/A	57 L		S/E S/F	S/E S/F	S/E S/F	S/E S/F	S/E S/F
2014	3/E	3/E	3/E							S/E	5/ L	S/E	S/E
2015	S/E	S/E	5/E							S/E S/F	S/E S/F	S/E	S/E S/F
								2022	S/E	S/E	S/E	S/E	S/E S/E
The discharge of wastewater containing <u>Cadmium, Mercury, and Lead</u>									S/F	S/E S/F	S/E S/F	S/F	S/E S/F
has been eliminated.								2023	S/E	S/E	S/E	S/E	S/E
									S/E	S/E	S/E	S/E	S/E
The conce	The concentration of <u>Chromium, Copper, Nickel, and Zinc</u> in									S/E S/F	S/E S/F	S/E S/F	5/E
wastewater discharges has been reduced.								2024	S/E	S/E	S/E	S/E	S/E
										S/E	S/E	S/E	S/E



Challenges for the Management and Treatment of Wastewater in Nogales

Stormwater

Steep slopes and short length of the Nogales Wash and Tributaries.Stormwater carries a lot of sediment and trash, that enters into the sewer system and travels to the IWTP.

Around 20 sites were identified to build retention dams.

13 dams were built

- Additional dams need to be built
- O&M is needed



Location of gabion dams in Nogales, Son.



Actions

Finish the third module in Los Alisos Treatment Plant (for a capacity of 330 l/s), to handle the excess flows thar are being sent to the international Plant



Remove sewer lines from the arroyos to avoid the entrance of sediment and trash into the sewer system.

Rehabilitate/expand the sanitation infrastructure in Nogales, Sonora (around \$245 million dollar are needed in water and wastewater infrastructure)



Border Sanitation in Tijuana-San Diego



1930s, sewer line from Tijuana& San Ysidro to the PacificOcean.

1985, Minute 270, System in Tijuana (Pumping Plant, Conveyance system, WWTP 17mgd, 9km South of the border)

1990, Minute 283, International plant in USA, 25mgd, to treat Tijuana wastewater, included a deep ocean outfall.

1991, pumping plant PBCILA, to capture flow of the Tijuana River during the dry season.



Border Sanitation issues in Tijuana-San Diego



Issues:

- Increased population outpacing infrastructure
- Old infrastructure (breaks and leaks)
- Untreated sewage flows into Tijuana River and Pacific Ocean (known as South Bay)

Operational Limitations:

- Lack of funding for operation and maintenance
- Limited capacity in conveyance to SAB
- U.S. ITP Plant: Limited capacity and treatment
- Mexico SAB Plant: No wastewater treatment

Impact:

- Water quality issues due to increased dry weather flows in Tijuana River to San Diego beaches
- Untreated flows to Tijuana beaches that seasonally flow north reach San Diego beaches



Results of Total Coliform Monitoring at Beaches in Tijuana, B.C. and San Diego, CA. (Minute 270) 75

Fruito

Otay River Marsh

Holly Av

1D

BRISA MAR

LOS LAURELES

Imperial Beach

Refugio Nacional de Vida Silvestre Tijuana

ECCION

MONUMENTA

Monitoring at the International Boundary % of times Total Coliforms > 1,000 MPN/100 mL





Transboundary discharges through the Tijuana River and canyons resulted in contamination and closures of the beaches in the USA and Mexico.

Minute 328 (2022)

Investment of both governments: \$474 million dollar

USA investment: \$330 million in the International Plant

MX investment: \$144 million in sewer lines, pumping stations, WWTP (SAB)

Projects in progress

Completed Projects





Minute 328- South Bay Wastewater Treatment Plant Expansion

- Full project funding approved for \$650 million for design, construction, contingencies, project management, and other support services estimated.
- Design Progress
 - Scoping meetings held in December 2024; design workshops ongoing
 - Site assessment completed; final structural assessment in February 2025
 - o Alternatives to treatment technologies under review
 - 10% Conceptual Design in February 2025; 30% Design expected May 2025
 - o 60% Design Sep 2025; 90% Design Mar 2026; Obligate May 2026
 - Initial discussions with San Diego Regional Water Quality Board
- Ongoing planning for early work to maintain plant functionality until construction completion
 - **Grit facility repairs** expedited to provide reliable grit removal sooner through plant
 - **Replace aged equipment** in-kind to prolong plant reliability
 - o Concrete rehabilitation to prolong the life of existing structures until new facilities are commissioned



Status

- PBCILA is capturing all of the Tijuana River flows during the low flow hours (4 a.m. to 1 p.m.).
 - Some flows crosses the border during the peak flow hours of the day.
- High concentrations of hydrogen sulfide in the air impacts health of people living near the Tijuana River.
- Mexico is securing the funding needed to implement all the 328 projects.
- Status of projects can be found on IBWC website:

https://gisportal.ibwc.gov/agsportal/apps/inst ant/sidebar/index.html?appid=042ae0c0255b 4dd0a6364581ef55ef5e







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