Border Environment Cooperation Commission

"Los Alisos" Wastewater Treatment and Conveyance Project in Nogales, Sonora

1. General Criteria

1.a Project Type

Project Name:	"Los Alisos" Wastewater Treatment and Conveyance Project in Nogales, Sonora.
Project Sector:	Wastewater Treatment.

1.b Project Category

Category:	Community Environmental Infrastructure Project – Community-wide Impact.

1.c Project Location and Community Profile

Community:	Heroica Nogales, seat of the municipality of Nogales, Sonora.
Location:	The project will be developed within the city of Nogales, seat of the municipality of Nogales, Sonora, which is located in northern Sonora. The community is bounded to the north by Nogales, Arizona, in the United States; the municipalities of Magdalena and Imuris to the south; the municipality of Santa Cruz to the east, and the municipality of Sáric to the west.
Location within the border:	The project's components are located within the 62.5 miles (100 km) border area; the project's most remote component is 14 miles away from the international boundary.

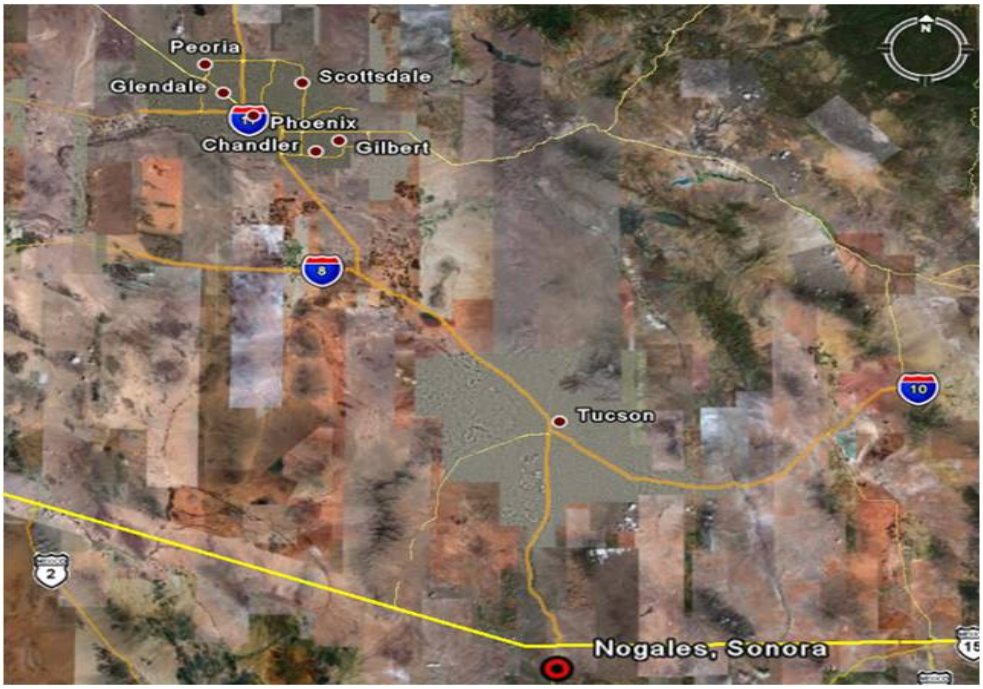


Figure 1. Location of Nogales, Sonora (Source: Google Earth).

Demographics	
Current population:	213,976 inhabitants
Growth rate:	2.3%
Reference:	INEGI Year: 2000 and CONAPO Year: 2005
Economically active population:	65,133 inhabitants
Reference:	Population and Housing Census, Year: 2000
Median per capita income:	US $8,153 (at a 13.5 pesos per dollar exchange rate)
Reference:	INEGI
Primary economic activity:	Trade and Services
Marginalization rate:	Very Low, -1.69%

Services	
Water Distribution System:	
Water coverage:	86%
Current length of water pipelines:	242 miles
Residential hookups:	44,950
Commercial hookups:	1,443
Industrial hookups:	59
Water supply source:	Underground (catchment areas: Alisos, Mascareñas, and City)
Number of water hookups:	46,452

Wastewater Collection System:

Wastewater coverage:	85 %
Current length of sewer pipelines:	212 miles
Residential connections:	45,009
Commercial connections:	1,552
Industrial connections:	150
Number of sewer connections:	46,711

Wastewater Treatment System:

Wastewater treatment coverage:	86 %
Capacity:	9.9 MGD (million gallons per day)

Solid Waste:

Waste collection coverage:	98%

1.d Legal Authority

Project sponsor:	The Water and Wastewater Utilities of Nogales Sonora – *Organismo Operador Municipal de Agua Potable, Alcantarillado y Saneamiento* (OOMAPAS).
Legal representative:	Francisco Octavio Gastelum-Ceballos, General Manager.
Legal instrument to demonstrate legal authority:	The project sponsor is the Municipality of Nogales, Sonora, through the water and wastewater utility, *Organismo Operador Municipal de Agua Potable, Alcantarillado y Saneamiento* (OOMAPAS), responsible for providing water, wastewater collection, and treatment services pursuant to Article 3, Section I of the Drinking Water and Sewage Collection Law for the State of Sonora. The utility has the legal authority to develop and implement municipal infrastructure projects, establish and collect user fees, and make use of income from general funds.
Date of instrument:	Thursday, July 4, 1994
Compliance with agreements:	- 1889 International Boundary Convention - 1944 Water Treaty - 1983 La Paz Agreement, or Border Environment Agreement - 1990 Integrated Border Environmental Plan (IBEP) - 1994 North American Free Trade Agreement (NAFTA) - Border 2012 Program - Minute 276 (CILA/IBWC)

1.e. Project Summary

Project description and scope:

The project consists of the construction of a wastewater treatment plant (WWTP) in Los Alisos River basin with 5 MGD (220 lps) initial capacity. The project also includes the construction of conveyance works to convey wastewater to the WWTP.

The conveyance works will consist of one lift station: Lift Station “Estadio" with average capacity of 9.13 MGD (400 lps), (see Figure 2.a). Additionally, the conveyance works require one forcemain, a gravity outfall, and a discharge box at the watershed divide. The forcemain will connect Lift Station “Estadio” with the discharge box through 30-inch diameter pipe. The discharge box will receive pressurized wastewater from the forcemain and equalize flow from pressurized to gravity. The gravity outfall will convey the wastewater through a 24-inch diameter pipe to the proposed "Los Alisos" WWTP (see Figure 2.b).

The construction of the WWTP was contracted under a Design-Build delivery scheme (construction, start-up, and stabilization), wherein the OOMAPAS, through an international public solicitation process, put out to bid the construction of the wastewater treatment infrastructure. The contract for the provision of services includes the development of the final design, construction, outfitting, operation tests, capacity tests, start-up, and stabilization of the WWTP during 4 months, starting when wastewater begins flowing into the facility; as well as the treatment, removal, and final disposal of sludge generated by the facility during the start-up and stabilization period. The contract also includes the effluent outfall. BECC developed the basic engineering for the WWTP, including the Bidding Terms/Guidelines and the exhibits required for the solicitation process.

Components:

Wastewater Conveyance

- Construction of one Lift Station “Estadio”
- Construction of 4.49 miles (7.19 km) of 30 inch (76 cm) diameter forcemain.
- Construction of 10.15 miles (16.25 km) of 24-inch (61 cm) diameter gravity outfall.

Wastewater treatment

Construction of a new WWTP with 5 MGD (220 lps) initial capacity composed of two treatment modules, each with 2.5 MGD (110 lps) capacity. The WWTP includes screening, grit separator, secondary treatment and disinfection; as well as sludge digestion, thickening and dewatering.

Population served: 70,000 inhabitants

Number of connections: 20,308

Project cost: $19,308,864 dollars

Project Maps:

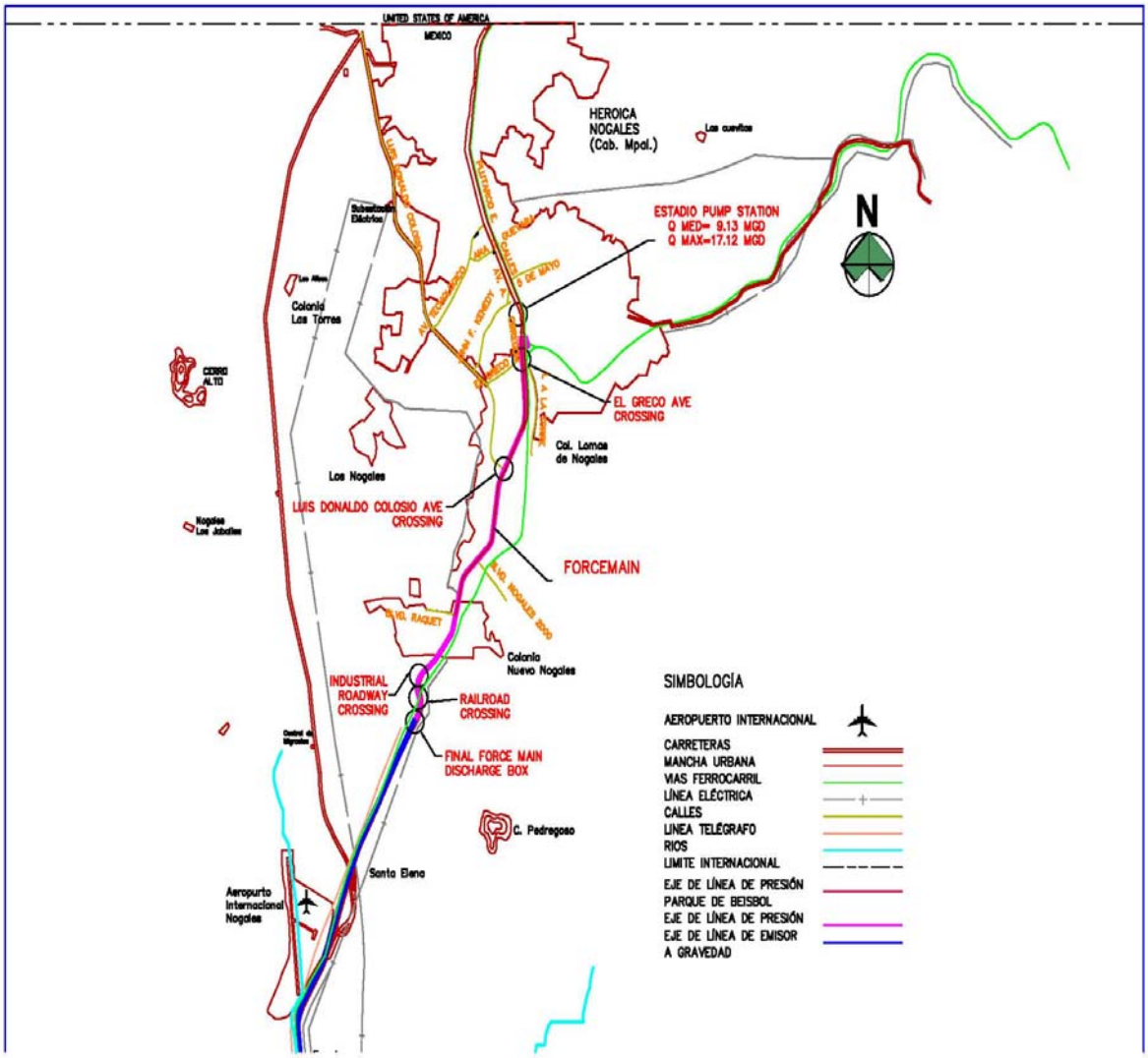


Figure 2a. Location of Project Site.

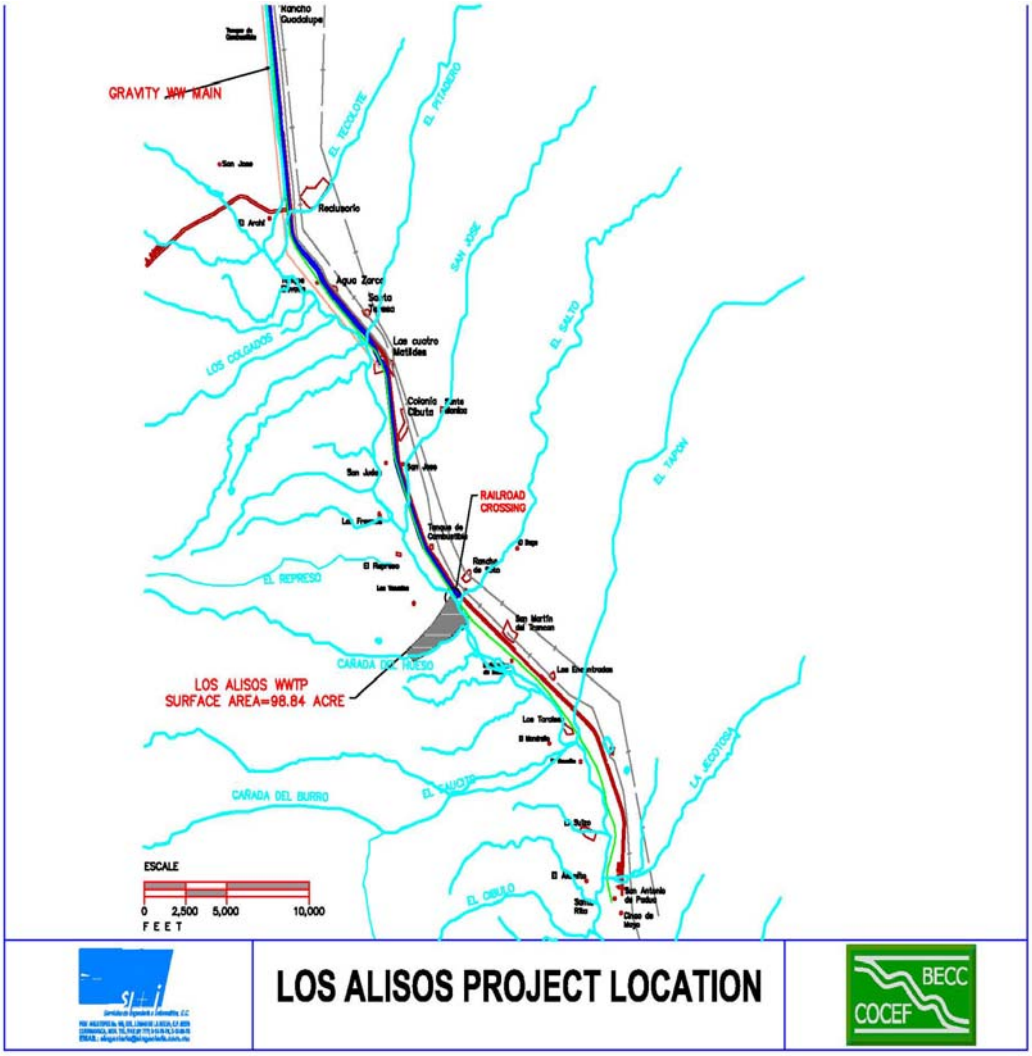


Figure 2b. Location of Project Sites

Project Justification

Project justification:

- At the present time, wastewater generated by Nogales, Sonora is conveyed by gravity through the Obregon and Ruiz Cortinez wastewater collectors to the international boundary and into an international outfall on the U.S. side that subsequently conveys the wastewater for treatment and final disposal to the International Wastewater Treatment Plant in Nogales, Arizona (NIWWTP). Pursuant to the agreement established in Minute 276 of the International Boundary and Water Commission (IBWC) between Mexico and the United States, the NIWWTP has a capacity of 9.9 MGD (434 lps) assigned to Mexico. Nogales, Sonora rapid demographic growth has created a wastewater treatment demand well beyond that available to the capacity allotted to Mexico. Transboundary flows have exceeded

	12.5 MGD (523 lps) averaged annually and show no prospect of declining. Additionally, nearly 15% of the existing homes in Nogales have no adequate wastewater treatment option; a situation that subjects residents of the community and those across the border to heightened risk of infection from waterborne diseases. - The lack of wastewater treatment at the local level in Nogales, Sonora along with the excess flows from the established limits in the agreements subscribed by Both Nogales creates a need for a new WWTP. - The proposed project will increase wastewater treatment capacity for Nogales, Sonora in the short and in the long run. Wastewater will be treated by both the NIWWTP and "Los Alisos" WWTP, reducing the direct discharge of untreated sewage to Nogales Wash and the Santa Cruz River. - With the project implementation, up to 5 MGD (220 lps) of untreated and inadequately treated wastewater discharges to the environment will be eliminated, reducing surface and groundwater contamination caused by this discharge. - The risks of transmission of waterborne diseases will be reduced with the implementation of this project, as well as the risks of environmental contamination.
Urgency of the project or consequences of no action:	• The lack of appropriate wastewater treatment service jeopardizes the health of area residents by exposing them to a higher risk for gastrointestinal diseases. • The inappropriate discharge of wastewater in the project area results in untreated wastewater runoffs, a portion of which will eventually reach the Santa Cruz River basin and cause water contamination.
Prioritization Process Category:	Category1 (This project is a Region 9 Priority Project)

Pending Issues:

None.

Criterion Summary:

The project falls within BECC Priority Sectors and meets the general basic criteria.

2. Human Health and Environment

2.a Compliance with Applicable Environmental Laws and Regulations.

Environmental and Public Health needs addressed by the proposed project:

- Reduce the risk for communicable waterborne diseases caused by human contact with raw wastewater runoff due to seepage of wastewater without any previous treatment, as a result of the lack of wastewater treatment.

- Appropriate wastewater treatment. The construction of a new WWTP in Nogales, Sonora will reduce the excess wastewater flows that are currently conveyed to the NIWWTP, and will help treat the flows that currently discharge their untreated wastewater directly into the Santa Cruz River basin.

- Reduce contamination of the soil and surface bodies of water, considering that it has been estimated that a portion of the project area's runoff generated by inappropriate wastewater discharges has an impact on the quality and conservation of water resources in the Santa Cruz River.

The project meets the following applicable environmental laws and regulations:

- Official Mexican Standard NOM-001-SEMARNAT-1996, which establishes the maximum permissible levels of contaminants for wastewater discharges into national waters and territories.

- Official Mexican Standard NOM-003-SEMARNAT-1997, which establishes the maximum permissible limits of contaminants for treated wastewaters that are reused in services to the public.

- Official Mexican Standard NOM-004-SEMARNAT-2002, which establishes the specifications and maximum permissible limits of contaminants for the use and final disposal of biosolids.

2.b Human Health and Environmental Impacts.

Human Health Impacts

Direct and indirect benefits:

- The project will reduce surface and ground water contamination.

- The project will reduce soil contamination.

Health statistics:

Waterborne diseases are caused by pathogenic microorganisms that are directly transmitted from inadequate wastewater disposal practices and non-potable water usage.

An individual may become ill after drinking water that has been contaminated with these organisms; eating uncooked foods that

have been in contact with contaminated water; or having bad hygiene habits that contribute to the dissemination of diseases by direct or indirect human contact. Water borne diseases may be caused by protozoans, viruses, bacteria, and intestinal parasites.

Supporting figures: The following table shows statistics for waterborne diseases in Nogales. In general, the number of cases has dropped throughout the years despite the population growth. Water and wastewater improvement projects such as the introduction of wastewater collection and treatment, contribute to enhance public health in the communities.

Table 2.1 Morbility of Waterborne Diseases in Nogales from 2004 to 2008.

Number of Cases					
Disease	**2002**	**2003**	**2004**	**2005**	**2007**
Intestinal Amebiasis	608	604	424	510	374
Ascariasis	7	2	3	3	40
Enterobiasis	20	9	11	88	27
Scabiosis	122	77	53	45	49
Typhoid Fever	1	6	5	0	1
Giardiasis	152	93	65	46	32
Hepatitis A	0	12	43	6	9
Intestinal Infection by other organisms	8652	8734	7257	5088	6670
Other Helminthiasis	685	475	340	331	407
Other Intestinal Infections	6	4	1	16	86
Paratyphoid and other type of Salmonellosis	17	10	4	5	3
Shigellosis	1	1	0	1	2
TOTAL	**10271**	**10027**	**8206**	**6139**	**7700**

Source: Sonora Health Services, Undersecretary of Health Services, General Administration of the Community Health Services.

Environmental Impacts

Direct and indirect benefits: Reduce health and environmental risks associated with inadequate wastewater disposal and lack of wastewater treatment. The proposed project will allow OOMAPAS-Nogales to treat the excess wastewater flows, which are currently conveyed to the NIWWTP, at the local level in compliance with the Minute 276 agreed by the CILA/IBWC.

Environmental impacts: The project implementation will allow treating part of the wastewater generated in the city at the Los Alisos WWTP, thus improving water quality in area streams and the Santa Cruz River basin.

Minor environmental impacts are anticipated from the implementation of the different project phases, provided that the project tasks are executed in accordance with the specifications

	of the Environmental Impact Statement –*Manifestacion de Impacto Ambiental (MIA*)–, and the Transboundary Environmental Assessment, and taking into account the mitigation measures established in it. <u>Construction Phase</u> - Fugitive dust emissions - Gas emissions from construction machinery - Temporary roadway blockages, presence of workers in the area. - Special Handling of Solid Waste generation.
Mitigation measures:	Mitigation measures considered in the MIA include: - Vehicle tune ups to reduce emissions. - Placement of warning signage to prevent potentially hazardous situations. - Separate Management for urban and special solid waste and disposal according to the existing Mexican norms and the State regulations.
Impacts:	The environmental impact resulting from the project implementation will be positive overall, given that the project increases wastewater treatment coverage for the short, medium and long runs, reducing environmental contamination and improving the quality of life of residents in the project areas by curtailing potential health hazards.
Transboundary Impacts	
	Given the proximity of Nogales, Sonora and Nogales, Arizona, there are frequent border crossings between these two communities. The proposed project will have a positive impact on the health of residents of both Nogales and the entire region, since the project will help reduce the risk of waterborne diseases caused by the lack of wastewater treatment. Furthermore, the project will reduce contact with raw wastewater. Additionally, the implementation will reduce the potential for contamination of the shared water body, such as the Nogales Wash, which is a tributary to the Santa Cruz River basin. According to the environmental assessment, no significant impacts are anticipated as a result of constructing the project.

Formal Environmental Clearance

Environmental clearance:

Mexico's Secretariat of the Environmental and Natural Resources (SEMARNAT) established that the project required a Particular MIA Modality, which was prepared and submitted to SEMARNAT on December 18, 2008. Authorization for the project was issued on March 31, 2009 through Official Communication No. DS-SG-UGA-IA-0242-09, after having met all the requirements of the Mexican environmental clearance process. Since the WWTP process changed, the MIA was modified, and then submitted to SEMARNAT for its review and ruling. A new authorization for the project was issued on July 13, 2010 through Official Communication No. DS-SG-UGA-IA-0526-10. The Technical Justification Study was also modified according to the selected treatment process. An authorization for the project was issued on July 22, 2010 through Official Communication No. DFS/SGPA/UARRN/0979/2010, for the land use change requested for the WWTP.

Pursuant to the U.S. National Environmental Policy Act (NEPA), an Environmental Assessment (EA) was developed and submitted for consideration by the United States Environmental Protection Agency (USEPA).

A supplemented Finding of No Significant Impact (FNSI) was signed and issued on May 26, 2009. The USEPA appended the supplemented FNSI to an existing original and a confirmation FNSI, for a total of three filed NEPA documents, establishing that the project will not result in significant environmental

3. Technical Feasibility

3.a Technical Aspects

The project includes the construction of the following components:

a) Construction of a gravity outfall, a lift station, and a forcemain.

b) The required hydraulic infrastructure for wastewater flow changes.

c) Phase 1 of "Los Alisos" WWTP with an average capacity of 5 MGD (220 lps), consisting of two treatment modules with average capacity of 2.5 MGD (110 lps) each.

Project Development Requirements

Design criteria: The final design for the conveyance works, as well as the Basic Engineering study for "Los Alisos" WWTP were

In the selection of the pumps the following factors were considered: Total dynamic head, flow rate, pump-motor efficiency ratio. All of the calculations were performed based on the *"Diseño de instalaciones mecánicas"* [Mechanical Installation Design] book from the CONAGUA standards.

Forcemain

The forcemain line will connect the "Estadio" Lift Station with the Discharge Box with a pipe of 4.49 miles (7.19 km) length and 30 inch (76 cm) diameter pipe. The forcemain will have an average capacity of 9.13 MGD (400 lps) and a maximum capacity of 17.22 MGD (750 lps).

Discharge Box

The discharge box or vault will receive wastewater pumped from the "Estadio" lift station through the forcemain and transfer it from pressurized to gravity flow to the wastewater treatment plant.

Gravity Outfall

The outfall consists of a 10.15 -mile (16.25 km) length and 24-inch (61 cm) diameter pipe. The line will connect the discharge box with “Los Alisos” WWTP.

"Los Alisos" Wastewater Treatment Plant

Los Alisos WWTP will be located approximately 9.3 miles south from the area's watershed divide, between the Santa Cruz River and Los Alisos River basins. Right in the vicinity of Km. 21 watch post on Federal Highway No. 15, within the Los Alisos River basin.

No final design has yet been completed for the "Los Alisos" WWTP. The construction of the facility will be done under a Design-Built contract, which includes the following services:

- Basic design data verification.
- Final design development.
- Construction.
- Outfitting.
- Operation tests.
- Capacity tests.
- Start up.
- Stabilization for a period of four months.

The WWTP will have a phased capacity, initially treating an average of 5 MGD of wastewater discharges that are generated under the current flow rate conditions. Figure 3 shows the Los Alisos WWTP flow diagram, having two

initial modules, each with a 2.5 MGD capacity, and an additional/optional 2.5 MGD third module.

Table 3.1 shows the quality required for the plant effluent, in compliance with the NOM-003-SEMARNAT-1997, service to public with indirect contact or occasional.

Table 3.1 WWTP Effluent Quality.

Parameter	Maximum Permissible Concentration
Oils and grease (mg/L)	15
Suspended organic matter	absent
TSS (mg/L)	30
BOD_5 (mg/L)	30
Helmint eggs	≤ 5
Fecal coliforms (NMP/100ml)	1,000

Source: NOM-003-SEMARNAT-1997

Sludge Quality

The solids generated (sludge) in the plant must be digested and dewatered in order to comply with the provisions of NOM-004-SEMARNAT-2002 for Class B sludge. The digested and dewatered solids will be sent to the Municipal landfill for its final disposal.

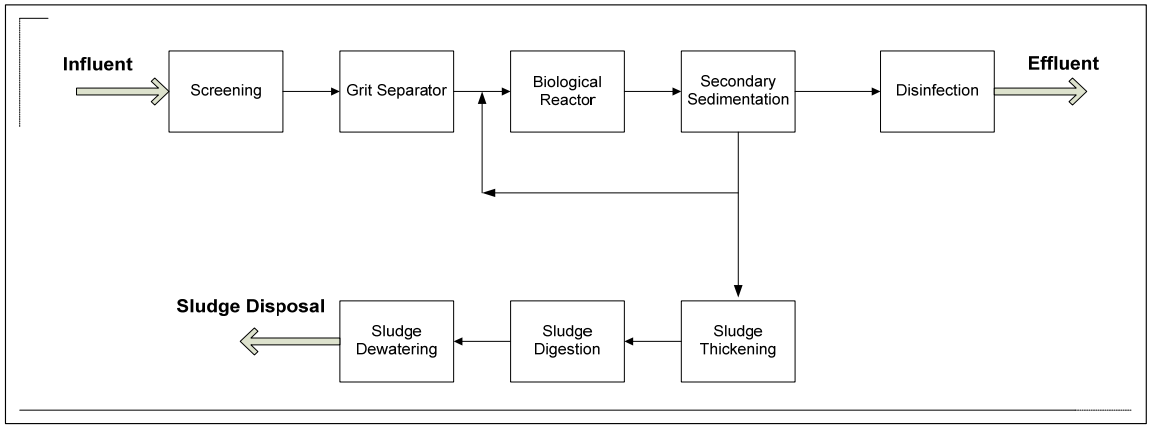


Figure 3. Basic Engineering Layout at Los Alisos WWTP.

Appropriate Technology

Assessment of alternatives:

As part of the development process, each project component had an alternative analysis on the basis on the following parameters: investment cost, operation and maintenance cost, annual costs, ease of operation, environmental impact, community acceptance, environmentally accepted materials technology.

Conveyance Works

The selection of the lift station site was based on the alternative analysis developed during the preliminary engineering, which considered 14 alternatives at different sites, and the possibility of having one lift station instead of two.

Concurrently with the site selection process, 14 conveyance alternatives were evaluated, based on pumping feasibility and investment costs. The alternative analysis was based on initial investment, operation and maintenance costs, annual costs, and major criteria.

Los Alisos WWTP

Selection for the site, as well as the capacity and type of treatment, were recommendations made by various studies prior to the construction, including among which are the Master Plan and the Basic Engineering Study.

Four treatment alternatives based on biological processes were evaluated. An alternative analysis was made based on activated sludge, biological filters, partially aerated lagoons, and stabilization lagoons treatment systems.

Activated Sludge was the selected secondary treatment alternative as the winning proposal of the Design Build bidding process.

Property and Right-of-Way Requirements

Requirements:

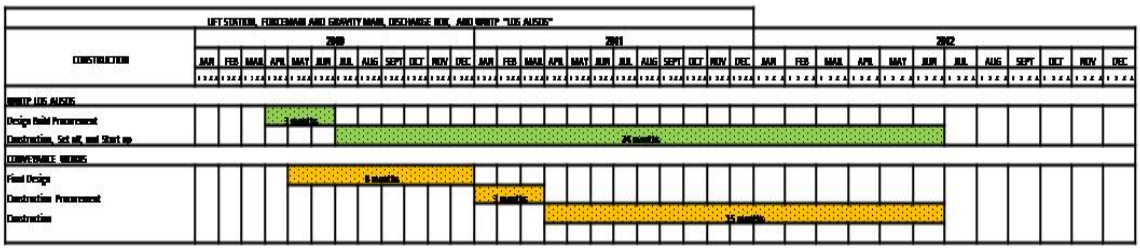
- OOMAPAS owns the property where Los Alisos WWTP and the lift station will be constructed; the project does not require the purchase of additional land.

- The pressure line will be built on municipal property; the gravity outfall will be built between Federal Highway No. 5 and the railroad tracks.

- The utility must request and obtain the corresponding construction permits and licenses.

Project Tasks and Timelines

Table 3.6. Comprehensive Project Construction Timeline.



3.b Management and Operations

Project Management

Resources:

The management, construction, and operation of the proposed project will be the responsibility of the sponsor, which has sufficient resources and staff for this purpose.

Operation and Maintenance

Organization:

OOMAPAS-Nogales serves approximately 44,950 water hookups and 45,009 sewage connections in Nogales; the utility has an appropriate operation and maintenance program. The utility is divided into various sections, including wastewater collection, operation and maintenance, construction, and administrative departments.

Pretreatment:

OOMAPAS-Nogales has established a municipal pretreatment program to control industrial and commercial discharges in coordination with U.S. agencies such as the Arizona Department of Health Services (ADHS), the Arizona Department of Environmental Quality (ADEQ), the Arizona Department of Water Resources (ADWR), the U.S. and Mexican sections of the International Boundary and Water Commission (IBWC/CILA), EPA, and CONAGUA through sampling and analysis of significant discharges. OOMAPAS-Nogales has a water quality laboratory seeking to obtain Mexico's federal certification.

Operation plan:

The sponsor will follow the Operation and Maintenance manual developed as part of the Final Design, which includes the primary tasks needed to ensure a proper operation of the system and to prevent breakdowns in the proposed infrastructure.

Permits, licenses, and other regulatory requirements:

The sponsor has the following documentation:

- Wastewater discharge permit (CONAGUA).

Reviewing agencies:	• BECC • NADB • CONAGUA • EPA

Pending Issues:

None.

Criterion Summary:

The project complies with BECC's Technical Feasibility Criterion.

4. Financial Feasibility

4.a Verification of Financial Feasibility

Financial Conditions

Information Presented: OOMAPAS-Nogales financial statements.

Summary of Financial Analysis: OOMAPAS-Nogales will be able to generate the necessary cash flow to meet the operation and maintenance costs if the Utility is able to increase user fees in at least 5% for FY 2011, with an adjustment for inflation thereafter. EPA will provide assistance to avoid overall cash flow deficits during the first two years. To cover project related debt service payments, the Municipality of Nogales will pledge its Federal Tax Revenues into an irrevocable trust.

Project Total Cost, Financial Structure and Other Capital Investment Plans

Concept: Los Alisos-Nogales, Sonora wastewater treatment plant and conveyance project.

Total Cost: **$19,308,864 USD**

Financial Structure:

Source	Type	Amount (USD$)	%
Mexico	Grant	8,067,373	41.9
Financial Institution[1]	Loan	3,241,491[2]	16.7
NADB-BEIF	Grant	8,000,000	41.4
Total:		**$19,308,864**	100%

[1]/ OOMAPAS-Nogales has requested a loan to the NADB, which is under its final analysis process.
[2]/ The amount of US Dollars is equivalent to MX$40.0 million in accordance with the estimated exchange rate for the project figures agreed with CONAGUA of $12.34.

Dedicated Revenue Source

Revenue Source: OOMAPAS-Nogales, revenues with the pledge of Federal Tax Revenues of the Municipality of Nogales, Sonora.

4.b Legal Considerations

Project Administration: The project will be managed by OOMAPAS-Nogales, which has adequate staff to manage the proposed infrastructure, as well as the capacity to address any potential emergency related to the project's operation and maintenance.

Financing status: N/A

Pending Issues:

None.

Criterion Summary:

The project complies with BECC/NADB Financial Criterion.

5. Public Participation

5.a Community Environmental Infrastructure Projects – Community-wide impact

Local Steering Committee

Date of establishment:

The Local Steering Committee was formally installed on October 22, 2008 at a meeting held at the OOMAPAS-Nogales facilities.

Local Steering Committee:

The Local Steering Committee was installed consisting of the following members:

Chairman:	Mateo Ramos Pereida
Secretary:	José Arriola Ortega
Alternates:	Francisco J. Macías
	Jesús R. López Mendoza
	Juan J. de la Torre Ruiz de Chávez
	Dr. Sergio Parra
	Bernardo Silva García
	Alejandra Cota Luis

Date of approval of Public Participation Plan:

The Community Participation Plan developed by the Steering Committee was approved by the BECC on November 16, 2008.

Public Access to Project Information

Public access to project information:

The project's technical and financial information was made available to the public for review. The Local Steering Committee, along with the sponsor, prepared the following:

- Flyers
- PowerPoint presentation

The above media outlets were used to inform the community about the Project.

Additional outreach activities:

- Developed and distributed a project factsheet.
- Project surveys to document public concerns or support for the project.

First Public Meeting:

Notice to announce the First Public Meeting was published on "El Diario de Sonora" newspaper on October 24, 2008.

The first public meeting was held to inform the community about the technical aspects of the project. The meeting was held at 18:00 hrs. on November 24, 2008 at the Nogales Theater/Auditorium. The meeting was attended by the Steering

	Committee and representatives of OOMAPAS, the Municipality of Nogales, the City Mayor, and BECC. The meeting was attended by 80 residents who answered project surveys. 100% of those surveyed said they were able to fully understand the project and explicitly expressed their support.
Second Public Meeting:	Notice to announce the Second Public Meeting was published on "El Diario de Sonora" newspaper on June 4, 2010. A second public meeting to inform the community about the project's financial components was held at 18:00 hrs. on June 10, 2010 at the OOMAPAS Training Center. The meeting was attended by the Steering Committee and representatives of OOMAPAS, the Municipality of Nogales, the NADB, and BECC. The meeting was attended by 45 residents. 33 attendees answered project surveys. 88% of those surveyed said they were able to fully understand the project and explicitly expressed their support.
Final Public Participation Report	
Final Report:	The Steering Committee and the applicant prepared the Final Public Participation Report to demonstrate that the proposed objectives were fully met to BECC's satisfaction.
Post-Certification Public Participation Activities	
Post-Certification Activities:	The project applicant, in coordination with the Steering Committee provided a general description of public participation activities that may be carried out after the project's certification to support its implementation and long-term feasibility.

Pending Issues:

None.

Criterion Summary:

The project complies with BECC’s Public Participation Criterion.

6. Sustainable Development

6.a Human and Institutional Capacity Building

Project Operation and Maintenance:

The project sponsor will be the agency responsible for operating and maintaining the system as it relates to:

- Wastewater treatment
- Wastewater conveyance

The sponsor has the basic institutional and human capacity to operate and maintain the following:

- Proposed wastewater treatment system
- The applicant has a pretreatment program

Human and institutional capacity building:

Actions within the scope of the project that contribute to strengthen the institutional and human capacity of OOMAPAS-Nogales include:

- Providing and improving wastewater treatment services in a continuous, efficient, and cost-effective manner.
- Operating a treatment system that meets applicable municipal, state, and federal regulations
- Training and education for the utility's operating staff throughout its different areas, to provide essential services that meet the needs of the community and promote the responsible maintenance of the new infrastructure.
- Optimize the use of scare water resources, and raise public awareness about the importance of water for the development of the community.

Additional plans or programs:

There is an environmental education program called "*Cultura del Agua*" (Water Culture), which promotes water conservation and efficient water use among the community.

Additionally, the sponsor will strive to use part of the effluent from the Los Alisos WWTP to irrigate green areas or recharge local water tables.

6.b Conformance to applicable Local, State, and Regional Regulations and Conservation and Development Plans

Local and Regional Plans addressed by the project:

The proposed project conforms to applicable plans and actions described in the following documents:

- Master Plan for improvements to the Water, Wastewater Collection, and Treatment Services
- State Development Plan

	- Municipal Development Plan - The Municipal Development Plan sets forth the need to develop basic sanitary infrastructure in Nogales, Sonora, such as wastewater collection and treatment. - The implementation of the project will eliminate risks inherent to inappropriate wastewater management, and treated water will be available for other uses. The project will reduce the use of potable water for purposes different to human consumption. - In the area of regional planning, the project incorporates actions and tasks included in the National Water Program (*Programa Nacional Hidráulico* or PNH), as such reduces water contamination in a basin considered by the PNH as a priority area due to its binational nature, as the Santa Cruz River is a body of water shared with the United States. - The project adheres to the U.S.-Mexico Border 2012 Environmental Program by meeting Goal 1 (Reducing water contamination) and Objective 1 (promoting an increase in the number of household wastewater connections and treatment services) and 4 (promoting the improvement in the efficiency of the local water utilities).
Laws and regulations met by the project:	The project complies with applicable federal laws and regulations regarding collection, treatment and final disposal of wastewater.
Impacts to neighboring communities in the U.S.:	The implementation of this project will prevent the release of untreated wastewater discharges to the Santa Cruz River basin.

6.c Natural Resource Conservation

- The final design includes the implementation of green building practices as part of the technical construction specifications.

- The project contributes to reducing environmental deterioration by expanding wastewater treatment capacity and providing for wastewater to be collected and conveyed to the WWTP, to reduce aquifer and surface water contamination and human health hazards resulting from the discharge of raw wastewater to streams or agricultural drains

6.d Community Development

- The completion of this project is essential for the development of the community. The tasks proposed by the project will provide for the adequate disposal of wastewater, which will in turn contribute to reducing conditions that favor the proliferation of water-borne and arboviral diseases.
- The project promotes community development, as it helps to reduce contamination in certain city areas, improving the quality of life of local residents.
- Treated wastewater may be diverted for other purposes, such as agriculture, as well as urban public uses.
- The project will help the city reach a higher level of wastewater collection coverage, which will continue to help the development of the community, as it will reduce contamination resulting from raw wastewater discharges.

Pending Issues:

None.

Criterion Summary:

The project complies with BECC's Sustainable Development Criterion.

Available Project Documents:

- Camp, Dresser & Mckee (CDM), 1999. Comprehensive Wastewater treatment Plan for Both Nogales.
- Border Environment Cooperation Commission (BECC), Servicios de Ingeniería e Informática S.C. (SI+I), July 2006. Final Design for the Lift Station and Wastewater Outfall for Nogales, Sonora. Final Report Task 1.
- Border Environment Cooperation Commission (BECC), Servicios de Ingeniería e Informática S.C. (SI+I), January 2008. Preliminary Investigations (Preliminary Project), Sonora. Final Report. Additional Work.
- Border Environment Cooperation Commission (BECC), Camp, Dresser & Mckee (CDM), September 2008. Final Value Engineering Report, Value Engineering in a Transboundary Region; Lift Stations, Force and Gravity Wastewater Mains, and Final Force Main Discharge Box for the City of Nogales, Sonora.
- Border Environment Cooperation Commission (BECC), Servicios de Ingeniería e Informática S.C. (SI+I), July 2009. Basic Studies for the Los Alisos Wastewater Treatment Plant in Nogales, Sonora.
- Environmental Clearance Resolution by SEMARNAT, Official Communication No. DS-SG-UGA-IA-0526-10, Sonora Federal Delegation, July 13, 2010.
- United States Environmental Protection Agency (USEPA), Supplemental Environmental Assessment & Finding of No Significant Impact for the Los Alisos Wastewater Treatment Plant and Conveyance System Construction. May 26, 2009