CERTIFICATION PROPOSAL

WASTEWATER COLLECTION SYSTEM IMPROVEMENTS
MIGUEL ALEMAN, TAMAULIPAS

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EXECUTIVE SUMMARY

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Project: The project consists of the rehabilitation of the wastewater collection system in the downtown area and the construction of a lift station in Miguel Aleman, Tamaulipas.

Project Objective: The purpose of the project is to eliminate exposure to untreated wastewater discharges by rehabilitating the wastewater collection system in the city's downtown area, including the construction of a lift station, and the construction of a force main to the wastewater treatment plant, contributing to the reduction of pollution and the risk of waterborne diseases and natural resource contamination.

Expected Project Outcomes: The Project is expected to generate environmental and human health related to the following project outcomes:

- Wastewater collection system improvements to support adequate collection, conveyance and treatment for 1,888 residential service connections
- Eliminate untreated wastewater discharges of approximately 17.5 lps (0.40 MGD).

Population Benefitted: 19,230 residents of Miguel Aleman, Tamaulipas

Project Sponsor: Miguel Aleman Municipal Water and Wastewater Commission (Comisión Municipal de Agua Potable y Alcantarillado (COMAPA)

Project Cost: US$6,253,776.

Uses & Sources of Funds:
(Millions of dollars)

Uses	Amount	%
Construction*	$6.25	100.0
TOTAL	$6.25	100.0
Sources	**Amount**	**%**
Mexico (Grant)	$4.27	68.3
NADB-BEIF Construction Assistance (Ggrant)	$1.98	31.7
TOTAL	$6.25	100.0

* Includes costs related to construction, supervision, contingencies and taxes.

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1. ELIGIBILITY

Project Type

The project falls within the eligible category of wastewater.

Project Location

The project is located in the city of Miguel Aleman, immediately adjacent to the U.S.-Mexico border.

Project Sponsor and Local Authority

The **public-sector** Project sponsor is the local water and wastewater utility: *Comisión Municipal de Agua Potable y Alcantarillado* (COMAPA) de Ciudad Miguel Aleman. The legal instrument that demonstrates the sponsor's legal authority was published in the Official Journal of the State of Tamaulipas (Issue No. 66) on June 2, 2004.

2. CERTIFICATION CRITERIA

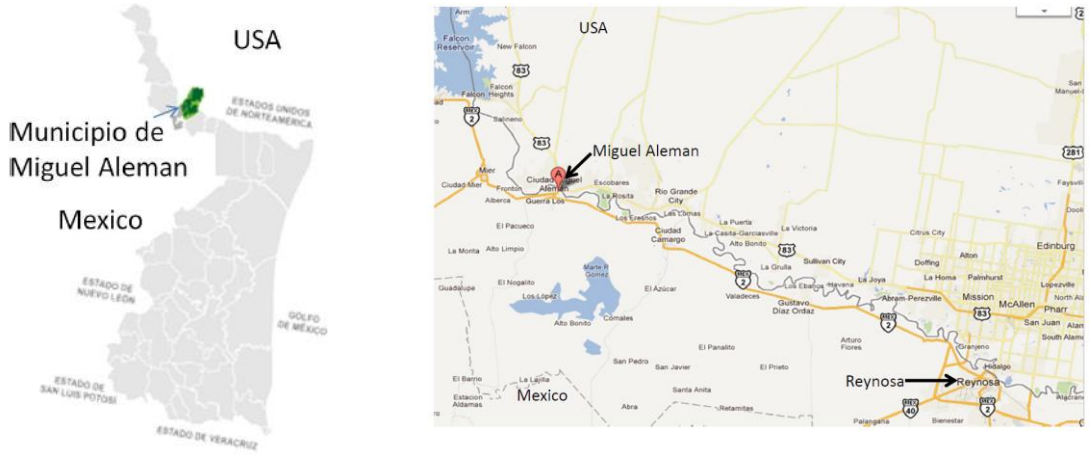
2.1. TECHNICAL CRITERIA

2.1.1. Project Description

Geographic Location

The Project is located in the city of Miguel Aleman, a community situated in the northwestern part of the State of Tamaulipas, along the Rio Grande and adjacent to the U.S. city of Roma, Texas. The Project is located within 62 miles (100 km) of the U.S.-Mexico border, at coordinates of approximately Latitude 26°23'30"N and Longitude 99°03'39" W. Figure 1 shows the location of the municipality of Miguel Aleman within the state of Tamaulipas, as well as the location of the community in the region.

Figure 1
PROJECT VICINITY MAP



General Community Profile

According to population projections prepared by CONAPO for Mexico 2005-2030, by 2012 the city of Miguel Aleman has 19,230 residents (including the nearby community of Los Guerra). The average annual growth rate is -1.98%.

The city's economic activities are based primarily on agriculture, trade, and services. The economically active population is estimated to be 10,009 inhabitants. The marginality index, estimated at -1.5, is considered very low.[1] The annual per capita income is estimated at $11,963 U.S. dollars (PPP), based on estimations prepared in 2008 by UNDP's Office of National Human Development (*Oficina Nacional de Desarrollo Humano,* ONDH) in Mexico.[2]

The status of public services in the city of Miguel Aleman is described below.[3]

[1]Source: SEGOB: Marginación; accessed on February 22 at: http://www.e-local.gob.mx/work/templates/enciclo/tamaulipas/esta_03.htm.
[2] Source: BECC; Accessed on May 15, 2012 at: http://www.cocef.org/indicadoresbasicos/indicadores.aspx?lan=esp.
[3] Source: COMAPA Miguel Alemán, December 2011.

Table 1
BASIC PUBLIC SERVICES AND INFRASTRUCTURE

Water System	
Water coverage	96%
Supply source	Rio Grande River
Number of hookups	8,846
Wastewater Collection	
Coverage	82%

Number of connections:

[redacted]

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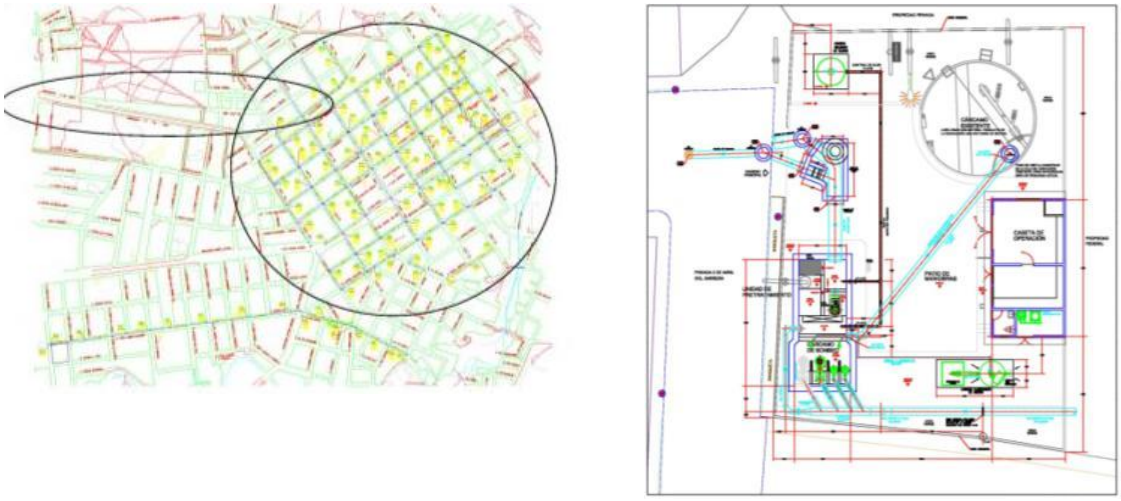
events. This design allows pumping capacity up to peak flow even if one pump fails.

- Force main and interconnection to the WWTP.
  - Total Length: 6,307 LF (1,923 meters)
  - Diameter: 20" (500 mm)
  - Material: PVC

Figure 3 shows the area projected for the rehabilitation of the wastewater collection system, as well as the proposed layout for the wastewater lift station.

Figure 3
LOCATION OF REHABILITATION WORKS AND LIFT STATION LAYOUT



The wastewater collected in the project area will be treated at the "Centenario de la Revolucion" Wastewater Treatment Plant, located approximately 0.8 of a mile (1.3 km) south of the U.S.-Mexico border and east of the city of Miguel Aleman. The facility provides wastewater treatment using a stabilization lagoon system.

The WWTP effluent meets the quality standards established by the Official Mexican Standard NOM-001-SEMARNAT-1996 for discharges to water bodies, and is discharged to an agricultural irrigation canal (Canal Guardados) for agriculture reuse. [5] The management and final disposal of the sludge generated at the WWTP is carried out in accordance with the provisions in the standard NOM-004-SEMARNAT-2002.

[5] Document No. BOO.00.R07.04.02.0383 issued on February 27, 2009, by the CONAGUA Direction of Water Management of the Rio Bravo Basin.

The management and final disposal of the sludge generated at the WWTP complies with the Official Mexican Standard NOM-004-SEMARNAT-2002, which establishes the specifications and maximum permissible limits of contaminants for biosolids reuse and final disposal.

The final design includes the implementation of green building practices as part of the technical construction specifications. For example, the final design considered the use of materials suitable for the project tasks, which guarantee durability at a low cost; it also considered the use of local materials to avoid transportation costs and emissions. The final design specifications describe the availability of materials such as paint, fillers, epoxy, gaskets, lubricants, etc. and their characteristics, so the contractors have the option to make a selection that ensures low toxicity. The specifications also require the use of energy-efficient equipment and sensors for the operation of the electromechanical infrastructure and lighting control.

Table 2 shows the proposed schedule for project implementation milestones.

Table 2
PROJECT MILESTONES

Key Milestones	Status
Procurement	Anticipated: Quarter 3 2012
Construction Period	10 months from initiation

2.1.2. Technical Feasibility

Design Criteria

The project final designs were developed pursuant to the technical specifications contained in the Water, Wastewater Collection, and Treatment Manual prepared by CONAGUA. It also complied with the Official Mexican Standard NOM-001-CNA-1995, "Wastewater Collection System-Imperviousness Specifications." The final design was reviewed and approved by CONAGUA, CEAT, COMAPA, BECC, and NADB.

Selected Technology

During the final design process, technical alternatives related to the project components were evaluated. The following describes the varying considerations reviewed to identify the most appropriate technology or project approach for each component:

a) *Wastewater Collection*.- Technical alternatives considered for the rehabilitation of the wastewater collection system in the city's downtown area were evaluated pursuant to the following parameters:

- Proposed network layout
- Required connection points for the system components
- Investment cost
- Operation and maintenance cost
- Materials and equipment reliability

- Environmental impact
- Community acceptance
- Sustainable technology and practices

Pipe diameters were selected using appropriate slopes and velocities to prevent pipe silting and clogging (septic conditions), as well as over-excavation, or the need for pumping facilities that may increase project costs. The analysis also considered using various pipe materials in compliance with applicable standards and regulations. High density polyethylene, PVC, and asbestos-cement pipes were evaluated, and their characteristics and suitability for the soil type were reviewed. For the proposed Project, PVC was the selected material for the collection system infrastructure, which is the same material used throughout the existing system and has proven to offer reliable operation.

b) *Lift Station and Force Main*. - The evaluation of alternatives considered the following parameters:

- Efficient use of the premises where the existing pumping facilities are located.
- Optimization of the pumping station layout.
- Efficient and optimal regulation of wastewater flows pumped to the WWTP, from a minimum flow to a peak flow.
- Size of force main – operation and economic impacts.
- Construction along well-defined roads or existing rights-of-way.
- Technical and operational performance
- Investment cost
- Operation and maintenance cost (O&M)
- Materials and equipment reliability
- Environmental impact
- Community acceptance
- Sustainable technology and practices

Based on these parameters and the required design criteria, an alternative was selected which considered the ability of the structure to fit within the existing lift station property and for the force main to be constructed for the shortest distance keeping within the existing rights-of-way.

2.1.3. Land Acquisition and Right-of-Way Requirements

In the case of the rehabilitation of the wastewater collection system, all construction will take place within existing municipal right-of-ways and easements. The pressurized force main will be built along existing roads and common right-of-ways and easements. The city of Miguel Aleman has issued an authorization for the construction of wastewater collection projects in the city. COMAPA requested clearance from the Secretariat of Communications and Transportation for crossing federal roads.

The site for the lift station is owned by the city. Property ownership has been substantiated by Public Deed No. 8967, Volume 151, issued in the city of Miguel Aleman, Tamaulipas. The

COMAPA must request and obtain the corresponding permits and licenses for project construction tasks and related street closures.

2.1.4. Management and Operations

Management, construction, and operation of the proposed project will be responsibility of the project sponsor (COMAPA). The local water utility has sufficient resources and staff available for these purposes. The project sponsor has an O&M manual that includes the primary tasks needed to ensure a proper operation of the new infrastructure.

COMAPA is divided into three Divisions –Technical, Administrative, and Commercial– which are subdivided into several departments. The utility has established procedures that identify routine operation and maintenance tasks for the wastewater collection system, the lift station, and the wastewater treatment plant. The utility serves approximately 8,846 water hookups and 7,107 wastewater connections, and provides treatment to 30 lps (0.68 MGD) of wastewater.

For pre-treatment considerations, the project sponsor has established a non-residential wastewater discharge control program and coordinates with the State Water Commission for its implementation.

2.2. ENVIRONMENTAL CRITERIA

The wastewater collection system in the city's downtown area is more than 40 years old and has exceeded its expected life cycle. Due to its topography, this area receives wastewater flows from four watersheds. Portions of the sewer system in the downtown area have collapsed, causing hydraulic malfunctions throughout the system, a situation that creates flooding and ponding in the urban area.

Currently, the wastewater lift station lacks enough regulation capacity to receive local wastewater flows, resulting in wastewater sanitary sewer overflows (SSO's). Additionally, the installed pumping capacity in the lift station is less than the maximum flow rate, which often results in raw wastewater discharges to the El Buey creek.

The shortcomings of the local wastewater collection system do not allow the city to collect and convey to the wastewater treatment plant all the wastewater generated in the project area. This situation jeopardizes the health of residents of the city of Miguel Aleman and Los Guerra, as they are often exposed to contact with raw wastewater and consequently, are at risk for contracting associated diseases. Additionally, discharges of untreated wastewater in the project area result in wastewater runoffs, a portion of which eventually reach the Rio Grande, contributing to potential water contamination.

2.2.1. Compliance with Applicable Environmental Laws and Regulations

Applicable Laws and Regulations

The Project is subject to domestic environmental clearance authorization in accordance with the Regulations of the State of Tamaulipas Law of Environmental Protection, determined through the Secretariat of Urban Development and the Environment of Tamaulipas. Additionally, the contributions of grant funds from the Border Environment Infrastructure Fund (BEIF), supported by federal appropriations to the U.S.-Mexico Border Water Infrastructure Program of the U.S. Environmental Protection Agency (EPA), requires that the transboundary impacts of the Project be examined in compliance with the U.S. National Environmental Policy Act (NEPA).

The project must also assure the ability of the infrastructure and utility service to meet the following applicable environmental laws and regulations applied to proper operation of the infrastructure:

- *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-002-SEMARNAT-1996*, which establishes the maximum permissible levels of contaminants for wastewater discharges into urban or municipal wastewater collection systems.
- *Official Mexican Standard NOM-001-CNA-1995*, which establishes the leak tightness conditions that must be met by wastewater collection systems.

Environmental Studies and Compliance Actions

Pursuant to the provisions of the General Law of Ecological Balance and Environmental Protection and its Environmental Impact Assessment Regulations, Mexico's Secretariat of the Environmental and Natural Resources (SEMARNAT by its initials in Spanish), determined through official communication SGPA-813/09 dated April 3, 2009, that the proposed rehabilitation of the wastewater collection system in the downtown area does not require an Environmental Impact Assessment (MIA by its initials in Spanish). Additionally, the same agency, through official letter No. SGPA/03-1371/11 of July 1, 2011 has established that the construction of the lift station and force main do not require the submission of a federal environmental impact assessment.

The Secretariat of Urban Development and the Environment of Tamaulipas, through official communication No. SEDUMA/0431/2011 of July 13, 2011 informed that the tasks included in the project do not require the submission of environmental studies, inasmuch as the natural conditions of the site where these tasks will be carried out have already been modified for the construction of existing infrastructure.

The National Institute of Anthropology and History (INAH) determined, through official communication No. 275/2009 of May 12, 2009, that there is no evidence of anthropological sites that may be impacted by the replacement of wastewater collection lines in the project area.

Pursuant to the NEPA, the EPA determined that the environmental impacts resulting from the tasks included in the Project for Improvements to the Wastewater Collection System in the city of Miguel Aleman have been considered in the Finding of No Significant Impact (FONSI) issued by this agency on February 16, 2007 for the Wastewater Collection and Treatment project for the city of Miguel Aleman, Tamaulipas, certified in October 2007, which established that the project will not result in significant environmental impacts that may affect the United States border area. On January 13, 2009 an e-mail from EPA to BECC was sent, stating that there is no need for a transboundary environmental impact finding, inasmuch as the project tasks have already been considered in the FONSI issued in 2007.

Pending Environmental Tasks and Clearances

None.

Compliance Documents

The following formal authorizations have been obtained for the Project:

1. Official Communication No. SGPA-813/09 dated April 3, 2009 issued by the Federal Delegation in Tamaulipas of the Secretariat of Environment and Natural Resources,
2. Official Communication No. SGPA/3-1371/11 of July 1, 2011 issued by the Federal Delegation in Tamaulipas of the Secretariat of Environment and Natural Resources,
3. Official Communication SEDUMA 00431/2011 of July 13, 2011, issued by the Secretariat of Urban Development and Environment of the Government of the State of Tamaulipas
4. Official Communication No. 275/2009 of May 12, 2009, issued by National Institute of Anthropology and History
5. No Significant Impact (FONSI) issued by this agency on February 16, 2007 for the Wastewater Collection and Treatment project for the city of Miguel Aleman, Tamaulipas

2.2.2. Environmental Effects / Impacts

Existing Conditions and Project Impact – Environmental

The wastewater collection system in the project area has exceeded its life cycle and experiences deficiencies that cause interruptions in wastewater collection services and trigger the release of untreated wastewater in the city's downtown area. In addition, the current available structures to convey wastewater to the treatment plant have significant regulation deficiencies, which in turn result in open-air raw wastewater discharges. These conditions cause potential contamination of the soil and local surface water bodies, due to inappropriate wastewater discharges in the project area which eventually discharge to the Rio Grande.

The proposed tasks will significantly reduce the potential for groundwater and surface water contamination by eliminating direct discharges of untreated wastewater, and to use the installed wastewater treatment capacity. Environmental benefits expected to result from the project implementation include:

- Appropriate wastewater collection in 1,888 households.

- Access to wastewater treatment will be provided to 7,107 households.
- The intermittent flow of raw wastewater discharges to the Rio Grande will be eliminated.
- Appropriate use of the existing wastewater infrastructure.

Mitigation of Risks

Minor environmental impacts are anticipated from implementation of the project, provided that the tasks are implemented in accordance with adequate construction practices.

Potential impacts will be present during the construction phase and include the following:

- Fugitive dust emissions
- Gas emissions from construction machinery
- Temporary roadway blockages, presence of workers in the area

Mitigation measures that needs to be practiced:

- Application of treated wastewater to reduce fugitive dust emissions
- Vehicle tune ups to reduce emissions
- Placement of warning signs to prevent potentially hazardous situations

The environmental impact resulting from the project implementation will be positive overall, given that this project will contribute to the elimination of raw wastewater discharges to the Rio Grande River, reducing water contamination and improving the quality of life of area residents by curtailing potential health hazards.

Natural Resource Conservation

The project contributes to the reduction of environmental degradation by building infrastructure that will allow the sewer system to operate properly. Wastewater will be collected and conveyed to the wastewater treatment plant, to be treated, in order to reduce risks of groundwater contamination and risks to human health from the discharge of raw sewage into streams and agricultural drains.

Additionally, the final design includes the implementation of green building practices as part of the technical construction specifications.

No Action Alternative

The No-Action alternative was not considered viable, since failing to implement actions to improve the wastewater collection system in the city would significantly limit COMAPA's ability to provide wastewater collection and treatment services, would contribute to the environmental deterioration and would threaten the health of the region inhabitants.

Existing Conditions and Project Impact – Human Health

According to the World Health Organization's document titled "Water, Sanitation, and Hygiene Links to Health, updated in November 2004," wastewater collection and treatment project may result in the following human health benefits:

- Wastewater collection and treatment improvements reduce diarrhea-related morbidity by 32%.
- Improved access to water and wastewater collection, as well as better hygiene practices can reduce ascariasis-related morbidity by 29%.

Residents of the project area are currently receiving poor sanitary sewer services which results in the existence of untreated wastewater discharges. This inappropriate disposal of raw wastewater is a potential source for vectors of disease-causing organisms. Waterborne diseases are caused by pathogenic microorganisms that are directly transmitted as a result of inadequate wastewater disposal practices and unsafe water supplies.

An individual can become ill after drinking water that has been contaminated with these organisms, eating uncooked foods that have been in contact with contaminated water, or through poor hygiene habits that contribute to the dissemination of diseases by direct or indirect human contact. Human health data and statistics for the city of Miguel Aleman area are limited. The following table shows the morbidity rates for the city of Miguel Aleman, Tamaulipas during the first quarter of 2011.

Table 3
MORBIDITY STATISTICS

Morbidity Rates in the Municipality of Miguel Aleman, Tamaulipas. First Quarter 2011	
Disease	**% of Total**
Gastroenteritis	32
Parasitosis	2
Amibiasis	2

Source: Miguel Aleman Hospital, Tamaulipas State Government

The project will reduce the risk of waterborne diseases caused by human contact with wastewater runoffs generated by the lack of a proper hydraulic functioning sanitary sewer system in the project area.

Transboundary Effects

Due to the proximity of Miguel Aleman with the city of Roma, Texas, there are frequent border crossings between the two communities; therefore, the environmental and health conditions of Miguel Aleman may impact the residents of Roma. The construction of the infrastructure needed for collection and conveyance of wastewater to the treatment plant will have a direct positive impact on the health of the area residents, since it will help reduce the risk of spread of

waterborne diseases caused by inadequate management of wastewater. Additionally, it will also reduce contact with raw wastewater and reduce the potential for contamination of the Rio Grande.

According to the transboundary environmental impact study, no significant impacts are expected from the implementation of this project.

Other Local Project Benefits

Additional infrastructure improvements, such as new paving and rehabilitation planned by the municipality for this area, have been delayed in order to address the priority for the underground infrastructure. Additionally, the implementation of the project will allow the proper use of the wastewater treatment infrastructure currently available to the community, by conveying up to the maximum flow generated in the project area to the wastewater treatment facility and improving its operations.

2.3. FINANCIAL CRITERIA

The total estimated cost of the Project is US$6,253,776, which includes the funding for construction, supervision, contingencies and Value Added Tax (VAT). The Project meets all BEIF program criteria and has been approved by EPA for a BEIF grant for up to $1,981,099 to complete the financing of the Project. Table 4 presents a breakdown of total Project costs, as well as the sources of funds.

Table 4
USES AND SOURCES OF FUNDS
(US$ Millions)

Uses	Amount	%
Construction, contingencies, supervision, and VAT	$6,253,776	100
TOTAL	$6,253,776	100
Sources	**Amount**	**%**
Mexico (Grant)	$4,272,677	68
NADB-BEIF Construction Assistance (Grant)	$1,981,099	32
TOTAL	$6,253,776	100

3. ACCESS TO PUBLIC INFORMATION

3.1 PUBLIC CONSULTATION

BECC published the Project Certification Document (PCD) for a 30-day public comment period beginning June 15, 2012. The following list of Project documents is available for public access:

- Final Design for the Rehabilitation and Expansion of the Wastewater Collection System in Ciudad Miguel Aleman, prepared by CEAT in 2009.
- Final Design for the Construction of a Lift Station for Ciudad Miguel Aleman, prepared by AyMA in 2011.
- Water, Wastewater Collection and Treatment Master Plan for Miguel Aleman, developed by the BECC.
- Official Communication No. SGPA/03-813/09 of April 3, 2009, in which SEMARNAT informs COMAPA of the type of environmental studies required for the project.
- Official Communication No. 275/20098 of May 12, 2009, in which INAH presents the results of the archeological assessment and issues clearance to continue with the project.
- Transboundary Environmental Information Document (EID), Wastewater Collection and Treatment System Improvements Project, and Finding of No Significant Impact (FONSI), dated January 14, 2007 (English document).
- Official Communication No. B00.00.R07.05.04-122/11 of November 7, 2011, in which CONAGUA issues the applicable technical validation for the lift station and pressurized forced main projects.

The 30-day public comment period ended on July 16, 2012, with no comments received.

3.2. OUTREACH ACTIVITIES

In accordance with PDAP/BEIF standard operating procedures, an extensive outreach effort was implemented for the project, including activities such as using a local steering committee, meetings with local organizations, surveys and public meetings. The following is a summary of outreach activities conducted for the project.

The Steering Committee was formally established on August 6, 2009 at a meeting held at the city hall of Miguel Aleman. At this meeting, a Board of Directors was elected, consisting of the following members:

Chairman:	Cornelio Garza López
Alternate Chairman:	Faraón García L.
Technical Secretary:	Estela Martínez R.
Members:	Sergio Salinas S., Roberto Ramírez R., Emma Barrera G., Jesús Sáenz B., Dr. Juan Salinas G., Alfredo Hinojosa G., Juan C.P.

Delgado G., Ileana Alamar García G., Jesús Armando Sáenz. T., Jesús Amador Sáenz M., Luz García González., C. René Marroquín G., Diana Barrera Hinojosa., Ma. Analí Ramírez M., Iris Montes M., Mario A. Barrera, Pedro Rodríguez G., Socorro Alcocer C., and Rafael Garza V.

The Steering Committee includes members from academic sectors, civil engineers, economic development associations, and public officials, in addition to residents of the areas benefited by the project.

The Project Steering Committee met regularly to assist the project sponsor in disseminating information about the proposed wastewater collection project. The Comprehensive Community Participation Plan developed by the Steering Committee was approved by the BECC on August 27, 2009.

The project's technical and financial information was made available to the public for review. The Steering Committee, in coordination with the project sponsor, prepared: flyers, brochures, megaphone advertising, and online and printed media announcements to inform the community about the project. The project was presented to the community at two public meetings:

- *First Public Meeting*. The First Public Meeting was advertised in the local newspaper on September 2, 2009. This meeting was held on October 2, 2009 at the Chamber of Commerce Conference Room in the city of Miguel Aleman. The meeting was attended by members of the steering committee, municipal officials, COMAPA representatives, and 114 local residents. After the meeting, an exit survey was administered to the attendees, where 100% of them said they understood the project and expressed their support.

- *Second Public Meeting*. The Second Public Meeting was advertised in the local newspaper on February 28, 2012 and 254 personalized invitations were delivered to attend the meeting. This meeting was held on March 1, 2012 at the Chamber of Commerce Conference Room in the city of Miguel Aleman. The meeting was attended by members of the steering committee, municipal officials, COMAPA representatives, and 111 local residents. After the meeting, the attendees completed a survey, where 100% of them said they understood the project and expressed their support.

The Steering Committee, in coordination with the project sponsor, submitted a final report of the public participation process, which demonstrates that the proposed public participation objectives were fully met.