

**Border Environment Cooperation Commission**  
**Wastewater Collection and Treatment Projects for**  
**El Millon, Tres Jacales, and Jesus Carranza,**  
**Municipality of Juarez, Chihuahua**

**1. General Criteria**

**1.a Project Type**

<b>Project Name:</b>	Wastewater Collection and Treatment Projects for El Millon, Tres Jacales, and Jesus Carranza, Municipality of Juarez, Chihuahua.  The sponsor has developed three projects (Construction of Wastewater Collection Systems and Wastewater Treatment for El Millón, Tres Jacales, and Jesus Carranza).
<b>Project Sector:</b>	Domestic Water and Wastewater Hookups and Wastewater Treatment.

**1.b Project Category**

<b>Category:</b>	Community Environmental Infrastructure Project – Community-wide Impact.
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**1.c Project Location and Community Profile**

<b>Community:</b>	El Millón, Tres Jacales, and Jesus Carranza, Municipality of Juarez.
<b>Location:</b>	The projects are located in the communities of El Millón, Tres Jacales, and Jesus Carranza, in Northeastern Chihuahua, within the Municipality of Juarez and adjacent to Fabens, TX. These are three of the 23 communities that comprise the area known as the Juarez Valley, and are traditionally agricultural communities, although, due to their proximity to Ciudad Juarez, a significant portion of their residents are currently employed in maquiladoras.
<b>Location within the border:</b>	The projects are located within the 62-mile [100 km] border area.
<b>Figure:</b>	Figures 1 shows the location of El Millón, Tres Jacales, and Jesus Carranza in the Municipality of Juarez, in the northeastern end of the State of Chihuahua.



Figure 1. Location of El Millón, Tres Jacales, and Jesus Carranza in the State of Chihuahua

**Demographics**

<b>Current population:</b>	1,723 residents
<b>Growth rate:</b>	1.00 %
Reference:	INEGI Year: 2005-CONAPO Year: 2009
<b>Median per capita income:</b>	\$ 3,517 pesos/month
Reference:	BECC estimation based on statistics by INEGI and the National Commission on Minimum Wages.
<b>Primary economic activity:</b>	Agriculture, cattle-raising, and industry (Ciudad Juarez)
<b>Marginalization rate:</b>	El Millon -1.38008: Low
	Tres Jacales -1.47934: Very Low
	Jesús Carranza -1.46798: Very Low
Reference:	INEGI 2005

**Services**

**Community:** **El Millon**

**Water System**

Drinking water service coverage:	100%
Number of residential hookups:	180
Source of water supply:	El Millon water well

**Wastewater Collection System**

Wastewater collection service coverage:	0%
Number of residential connections:	0

**Wastewater Treatment**

Wastewater treatment coverage: 0%

**Solid Waste**

Solid waste collection coverage: 100%

**Street Paving**

Street paving coverage: 5%

**Community:** **Tres Jacales**

**Water System**

Drinking water service coverage: 100%  
Number of residential hookups: 69  
Source of water supply: El Millón water well

**Wastewater Collection System**

Wastewater collection service coverage: 0%  
Number of residential connections: 0

**Wastewater Treatment**

Wastewater treatment coverage: 0%

**Solid Waste**

Solid waste collection coverage: 100%

**Street Paving:**

Street paving coverage: 5%

**Community:** **Jesús Carranza**

**Water System**

Drinking water service coverage: 100%  
Number of residential hookups: 180  
Source of water supply: Jesús Carranza water well

**Wastewater Collection System**

Wastewater collection service coverage: 0%  
Number of residential connections: 0

**Wastewater Treatment**

Wastewater treatment coverage: 0%

**Solid Waste**

Solid waste collection coverage: 100%

**Street Paving:**  
 Street paving coverage: 5%

### 1.d Legal Authority

**Project sponsor:** Junta Central de Agua y Saneamiento de Chihuahua (JCAS) in coordination with the Junta Rural de Agua y Saneamiento (JRAS) de Dr. Porfirio Parra

**Legal representative:** Miguel Angel Jurado Marquez, President of the JCAS

**Legal instrument to demonstrate legal authority:** The legal authority of JCAS and JRAS is established in Article 1564 of the Administrative Code for the State of Chihuahua. The JRAS is authorized to provide water and wastewater collection services to the local community, whereas JCAS is the regulatory agency and the entity responsible for developing infrastructure improvement projects in El Millon, Tres Jacales, and Jesús Carranza.

**Date of instrument:** May 1<sup>st</sup>, 1950.

**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

### 1.e. Project Summary

**Project description and scope:** The project sponsor developed three projects that have been selected to receive BEIF funding. The projects consist of the construction of Wastewater Collection Systems for El Millón, Tres Jacales, and Jesús Carranza, the construction of a main collector, and the construction of a lift station and the El Millón Wastewater Treatment Plant (WWTP) to treat wastewater produced by these three communities.

**Components:**

Wastewater collection Systems      **Community: El Millon**  
 25,640 linear feet of sewer lines with 8 to 12 in diameter pipes, 122 manholes, and 180 residential connections.

**Community: Tres Jacales**

8,117 linear feet of sewer lines 8 in. diameter pipes, 36 manholes, and 69 residential connections.

**Community: Jesús Carranza**

26,857 linear feet Of sewer lines with 8 to 10 in. diameter pipes, 126 manholes, and 180 residential connections.

**Main Collector**

18,878 linear feet of 24 in. diameter pipes and 81 manholes.

Wastewater treatment

**Wastewater Treatment**

Construction of a 0.13MGD WWTP in El Millon to serve the three communities.

**Population served:**

1,723 residents

**Project cost:**

\$ 47.22 million pesos

**Project Map**



Figure 2 show the location of wastewater collection systems proposed for El Millón, Tres Jacales, and Jesús Carranza

<b>Project Justification</b>	
<b>Project justification:</b>	<ul style="list-style-type: none"> <li>• Currently the communities of El Millon, Tres Jacales and Jesus Carranza do not have wastewater collection and treatment systems resulting in untreated discharges and flows with potential to reach surface and/or groundwater bodies such as the Rio Grande.</li> <li>• This situation represents health risks due to the potential of direct human contact with wastewater and vectors of waterborne diseases, as well as environmental contamination risks.</li> <li>• With the project implementation, 0.13 MGD of untreated wastewater will be eliminated, reducing surface and groundwater contamination caused by this discharge.</li> <li>• The risks of transmission of waterborne diseases will be reduced with the implementation of this project, as well as the risks of environmental contamination.</li> </ul>
<b>Urgency of the project or consequences of no action:</b>	<ul style="list-style-type: none"> <li>- The lack of these services jeopardizes the health of area residents, as this situation leaves them exposed to contact with these waters and consequently, at risk for associated diseases.</li> <li>- Increased rate of gastrointestinal diseases in the project area.</li> <li>- Affected quality of water bodies due to untreated wastewater discharges into agricultural canals and soil.</li> </ul>
<b>Prioritization process category:</b>	Category1

**Pending Issues:**

None
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**Criterion Summary:**

The projects comply with the BECC's General Criterion.
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## 2. Human Health and Environment

### 2.a Compliance with Applicable Environmental Laws and Regulations.

**Environmental and Public Health needs addressed by the proposed project:** Wastewater collection and/or wastewater treatment services are not available to residents of the three communities; consequently, wastewater is discharged to open air areas, latrines, or cesspools.

The lack of wastewater collection and treatment in the project area results in untreated wastewater runoffs, which create a risk for the transmission of diseases due to the potential for human contact with unhealthy waters and soil contamination.

**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-002-SEMARNAT-1996, which establishes the maximum permissible levels of contaminants for wastewater discharges into municipal sewer systems (pretreatment).
- Official Mexican Standard NOM-003-SEMARNAT-1997, which establishes the maximum permissible levels of contaminants for reclaimed water use for non-potable uses.
- Official Mexican Standard NOM-004-SEMARNAT-2002, which establishes the maximum permissible levels of contaminants for biosolids reuse and final disposal.

During the implementation of the project, JCAS and CONAGUA will oversee the tasks for conformance with the aforesaid regulations.

### 2.b Human Health and Environmental Impacts.

#### Human Health Impacts

**Direct and indirect benefits:** The implementation of the proposed project will help reduce groundwater, surface water, and soil contamination in the region in addition to eliminating raw wastewater contact by the local population.

**Health statistics:** Water-borne diseases are caused by pathogenic microorganisms that are directly transmitted as a result of inadequate wastewater disposal practices and unhealthy water supplies.

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 poor hygiene habits that contribute to the dissemination of diseases by direct or indirect human contact.

**Supporting figures:**

**Table 1. Gastrointestinal Diseases in the Juarez Area**

HEALTH SERVICES OF CHIHUAHUA SANITARY JURISDICTION, JUAREZ EPIDEMIOLOGY DEPARTMENT					
GASTROINTESTINAL DISEASES PER TYPE AND YEAR IN THE JUAREZ AREA YEARS 2003 TO 2007					
	YEAR				
DISEASE	2003	2004	2005	2006	2007
AMEBIASIS	1012	914	863	934	863
INTESTINAL ILLNESESS	48721	49666	41123	42806	41526
PARATYPHOID AND OTHER SALMONELLOSIS	488	656	1075	1367	1087
OTHER HELMITIASIS	3259	3087	1407	1247	1555
TYPHOID FEVER	38	54	11	42	60
SHIGELLOSIS	6	30	17	14	29
VIRAL HEPATITIS-A	112	181	76	54	*
GIARDIASIS	202	225	100	83	96
ASCARIASIS	69	10	9	6	27
OXIUROS	78	34	18	31	18

SOURCE: WEEKLY REPORT OF DISEASES NEW CASES

**Environmental Impacts**

**Direct and indirect benefits:** The environmental impact resulting from the project will be positive overall, inasmuch as the project will help supply wastewater collection and treatment services to 100% of the population in the three communities, reducing thus the risk of wastewater contamination resulting from the use of latrines and cesspools. Additionally, all the proposed tasks will be carried out in areas that have previously been impacted.

**Environmental impacts:** Minor environmental impacts are anticipated from the development of the different project phases, provided that the project tasks are implemented in accordance with the specifications of the Environmental Information Document and taking into account the mitigation measures established in it.



Potential impacts include the following:

Construction Phase

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

**Mitigation measures:**

Mitigation measures will include:

- Water application to reduce fugitive dust emissions.
- Vehicle tune up to reduce emissions.
- Installing warning signs to prevent potentially hazardous situations.

**Impacts:**

The environmental impact resulting from the implementation of the proposed projects will be positive overall, inasmuch as they will increase wastewater collection and treatment coverage, reducing environmental contamination and improving the quality of life of area residents by curtailing potential health hazards.

**Transboundary Impacts**

Due to the proximity of these three communities with the City of Fabens, there are frequent border crossings between cities. The proposed project will have a positive impact on the health of residents of cities such as El Paso, Clint, Fabens, Tornillo, and the entire region, since the project will help to reduce the risk of waterborne diseases caused by the lack of wastewater collection and treatment or inappropriate wastewater management. Furthermore, the project will reduce human contact with raw wastewater.

Additionally, the project implementation will reduce the potential for contamination of local and shared water bodies, such as the Rio Grande. According to the transboundary environmental assessment significant impacts are not expected due to the project implementation.

**Formal Environmental Clearance**

**Environmental clearance:**

Pursuant to the provisions of the General Law on Ecological Balance and Environmental Protection regarding Environmental Impact Statements, Mexico's Secretariat of the Environment and Natural Resources (SEMARNAT) issued Official Communication SG.IR.08-2009/417 on October 6, 2009, in which the agency determined that based on the Preliminary Environmental Impact Statement submitted by the projects sponsor, the projects comply with all environmental requirements applicable to these types of projects.

Pursuant to the U.S. National Environmental Policy Act (NEPA), a transboundary impact study was developed and submitted for consideration to the United States Environmental Protection Agency (EPA). A 30-day public review period was opened on September 29, 2009 to receive questions or requests for clarifications. Finally, a Finding of No Significant Impact (FONSI) was issued by the EPA on November 3, 2009, which establishes that the project will not result in significant environmental impacts that may affect the U.S. border area.

**Pending Issues**

None

**Criterion Summary:**

The projects comply with BECC's Human Health and Environment Criterion.

## 3. Technical Feasibility

### 3.a Technical Aspects

The project sponsor has developed three projects which include the construction of wastewater collection and treatment systems for El Millon, Tres Jacales, and Jesús Carranza, that have been selected to receive BEIF funding.

#### Project Development Requirements

##### Design criteria:

Final designs were developed in accordance with technical specifications contained in the Wastewater Collection and Treatment Manual prepared by CONAGUA's Technical Directorate.

Final designs were validated by CONAGUA and reviewed by BECC and NADB.

##### Wastewater Collection

The projects include the following components:

For the three communities, the construction of the proposed wastewater collection systems includes the construction of sewer lines, sub collectors, mains, and residential discharge outlets as detailed below:

- Construction of sewer lines: 52,249 linear feet of 8 in. diameter pipelines
- Construction of sub-collectors and main: 27,241 linear feet of 8 to 12 in. and 24 in diameter pipelines
- Residential discharge outlets: 429 household connections

By community:

##### El Millon

- Sewer lines: 22,435 linear feet of 8 in. diameter pipelines
- Sub-collectors and main: 3,202 linear feet of 10 to 12 in. diameter pipelines
- 122 manholes
- 180 household connections

##### Tres Jacales

- Sewer lines: 8,117 linear feet of 8 in. diameter pipelines
- 36 manholes
- 69 household connections

##### Jesús Carranza

- Sewer lines: 21,697 linear feet of 8 in. diameter pipelines
- Sub-collectors and main: 5,161 linear feet of 10 in. diameter pipelines

- 126 manholes
- 180 household connections

**Main Collector**

- 18,878 linear feet of 24in. diameter sewer line
- 81 manholes.

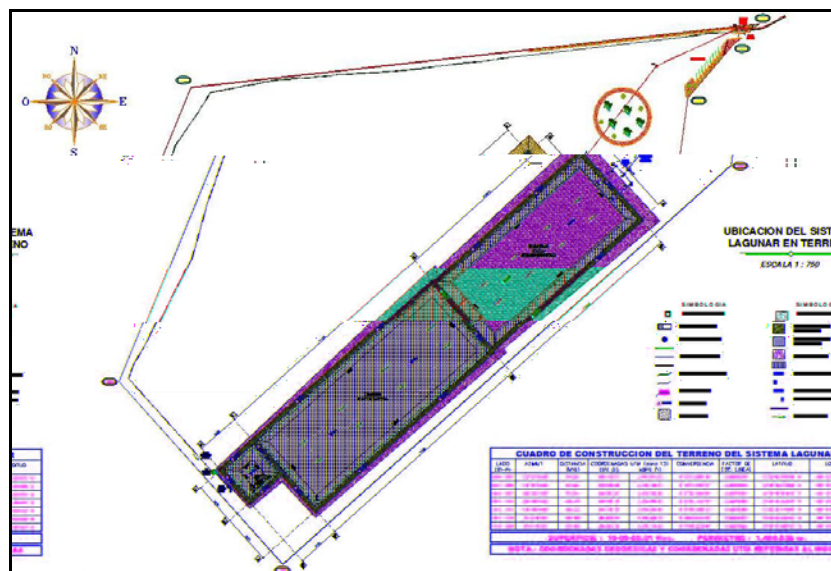
**Wastewater Treatment**

The project includes the construction of a regional WWTP in El Millon with capacity of 0.13MGD to serve the three communities.

The design of this regional plant includes the construction of an anaerobic lagoon, a secondary lagoon and a polishing pond, in addition to a sewage pump station and a pressurized conveyance line.

The final designs for the wastewater collection and treatment projects include the implementation of green building practices as part of the technical construction specifications.

- a) Materials native to the region will be used to stabilize, improve, and protect the levees that form the lagoons and prevent mudslides and wastewater from overflowing to the exterior.
- b) Solar cells will be used to power lighting system as well as the reclaimed water irrigation system in the area surrounding the WWTP.
- c) Native vegetation from the region will be used to populate green areas included in the project design, which will be irrigated with treated water.



**Fig. 3 El Millon WWTP layout**

## **Appropriate Technology**

### **Assessment of alternatives:**

#### **Wastewater Collection**

In order to design an appropriate wastewater collection system that will operate efficiently, final designs were developed for the construction of wastewater collection systems in the three communities. These include the construction of sewers, sub-collectors, mains, and residential discharge outlets that will collect and convey wastewater from the two communities to the El Millon WWTP for treatment.

Alternatives considered during the proposal review included:

**Alternative 1.** No action alternative. This alternative was dismissed, given that this scenario would allow for continued contamination of surface and ground water, as well as overall environmental contamination as a result of the disposal of wastewater produced by both communities directly into the ground or agricultural drains, with the associated health issues caused by water-borne diseases. The environmental and human health cost is too high.

**Alternative 2.** Construction of separate wastewater collection and treatment systems, including sewer lines, subcollectors, and mains to collect wastewater produced by each of the three communities individually. This alternative was dismissed due to the high operation and maintenance costs associated to the handling and conveyance of wastewater to each treatment site, in addition to the issue of having to secure three different sites for treatment facilities.

**Alternative 3.** Construction of wastewater collection systems, including sewer lines and subcollectors to collect sewage produced by the three communities and convey it to a single treatment facility. This was the preferred alternative, as it entails lower operation and maintenance costs and requires only one site for the treatment facility.

#### **Wastewater Treatment**

In the case of the WWTP, in addition to the assessment of the "one regional facility" vs. "three individual facilities" scenarios, the technical and financial features of four different treatment technologies were also reviewed and assessed. These technologies are as follows:

- Anaerobic and facultative lagoons system with polishing in maturation lagoon.

- Facultative lagoon system.
- Anaerobic and facultative lagoons system with polishing in artificial wetlands.
- Activated sludge system.

The preferred alternative was the system that includes "Anaerobic and facultative lagoons with polishing in maturation lagoon," inasmuch as it involves the lowest operation and maintenance costs and the greatest ease of operation, since skilled operators are not required to run it.

### **Property and Right-of-Way Requirements**

**Requirements:**

Inasmuch as wastewater collection lines (sewer lines) will be laid on municipal rights of way and thoroughfares, no additional land needs to be purchased for the project.

In the case of the main collector, JCAS has obtained the necessary permits for its construction pursuant to the layout proposed in the Final Design.

The site where the wastewater treatment facility will be established it is owned by the JCAS de Chihuahua.

### **Project Tasks and Timelines**

**Project timeline:**

Project is scheduled to begin approximately in July of 2010 and completion is expected in approximately 24 months from the beginning of the construction works.

Figures 4 and 5 show the proposed task schedules for the wastewater collection and wastewater treatment projects, respectively.

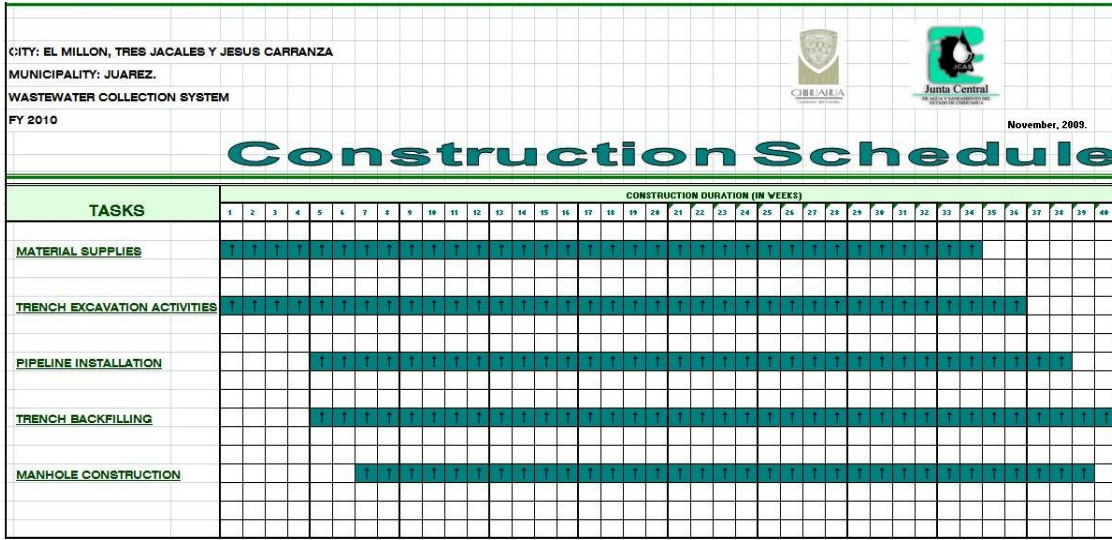


Fig. 4 Wastewater Collection System Task Schedule.

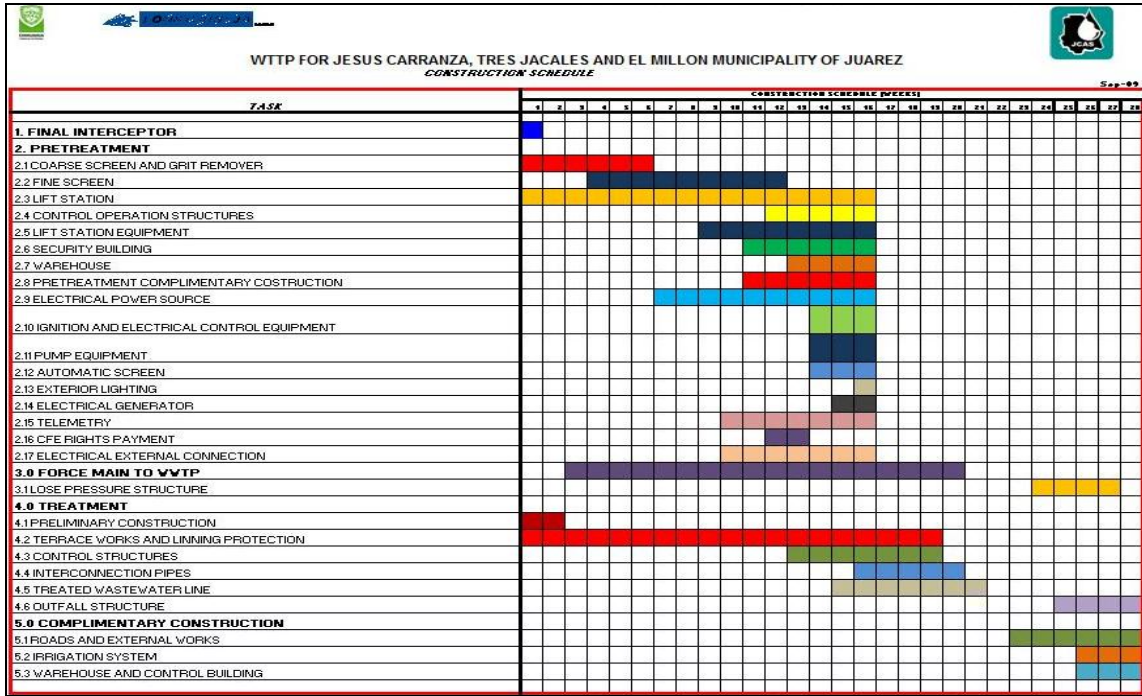


Fig. 5 Wastewater Treatment Plant Task Schedule

### 3.b Management and Operations

#### Project Management

**Resources:**

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

The state utility JCAS of the State of Chihuahua will provide JRAS assistance for the operation and oversight of the proposed project.

#### Operation and Maintenance

**Organization:**

JRAS of Dr. Porfirio Parra has a President, Secretary, Treasurer, three members at large, and assistance for the operation and maintenance of the system, and also has the support of the JCAS, which its staff is specialized in the operation and maintenance of wastewater collection and treatment systems.

**Pretreatment:**

Inasmuch as the project area only includes residential users, JRAS has determined that the pretreatment program will consist of ensuring conformance with Official Mexican Standard NOM-002-ECOL-1996, which establishes the maximum permissible levels of contaminants for wastewater discharges to urban or municipal wastewater collection systems. Compliance enforcement will be a responsibility of JRAS with assistance from JCAS.

**Operation plan:**

Final designs incorporate an operation and maintenance manual that includes the primary tasks needed to ensure a proper operation of the system and to prevent breakdowns in the proposed infrastructure.

The operation and maintenance manual presented as part of the final designs includes the primary activities needed to ensure the preventive maintenance of the wastewater collection and treatment system.

The operation and maintenance of the wastewater collection system and the wastewater treatment plant will be the responsibility of JRAS, under supervision of JCAS's technical staff.

**Permits, licenses, and other regulatory requirements:**

The project sponsor has obtained the following documentation:

- Wastewater discharge permit (CONAGUA)
- Finding of No Impact to historical or cultural properties (National Institute of Anthropology and History, INAH)
- Technical File Validation issued by CONAGUA



**Reviewing agencies:**

- Federal Environmental Clearance
- FONSI
  
- EPA,
- BECC
- CONAGUA
- JCAS of Chihuahua
- NADB
- IBWC
- CILA

**Pending Issues:**

None

**Criterion Summary:**

The projects comply with BECC's Technical Feasibility Criterion.

## 4. Financial Feasibility

### 4.a Verification of Financial Feasibility

#### Financial Conditions

**Information Presented:** JRAS de Porfirio Parra's financial statements.

**Summary of Financial Analysis:** The water and wastewater services are under the operational jurisdiction of JRAS Porfirio Parra and will receive support from JCAS the State water utility.

#### Project total cost, financial structure and other capital investment plans

**Concept:** Wastewater Collection and Treatment Projects for El Millon, Tres Jacales and Jesús Carranza, Municipality of Juárez, Chihuahua.

**Total Cost:** \$3,654,384 USD

#### Financial Structure:

Source	Type	Amount (USD\$)	%
Mexico	Grant	2,604,384	71.27
NADB-BEIF:			
El Millón	Grant	440,559	12.06
Tres Jacales	Grant	168,882	4.61
Jesús Carranza	Grant	440,559	12.06
<b>Total:</b>		<b>\$3,654,384</b>	<b>100.00</b>

#### Dedicated Revenue Source

**Revenue Source:** This does not apply because none of the funding sources being considered for these projects include loans or other reimbursable components.

### 4.b Legal Considerations

**Project Administration:** The projects will be managed by both the JRAS de Porfirio Parra and the JCAS, which have adequate staff to manage the proposed projects, as well as the capacity to address any potential emergency related to their operation and maintenance.

**Financing status:** N/A

#### Pending Issues:

None

#### Criterion Summary:

The projects comply with BECC/NADB Financial Criterion.

## 5. Public Participation

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

#### Local Steering Committee

**Date of Establishment:** A single Steering Committee was formed for the three projects due to there being a single sponsor and the proximity of the communities among themselves. The Steering Committee was formally installed on October 1<sup>st</sup>, 2009 at a meeting held in the JRAS of Porfirio Parra, Chihuahua.

**Steering Committee Members:** At this meeting, a Board of Directors was elected, comprised of the following individuals:

Chairperson: Ramona Elias,  
Secretary: Jesus Mendez Hinojos  
Alternates: Jesus Manuel Sanchez  
Jose Dolores Venzor  
Guillermo Archuleta

**Date of approval of Public Participation Plan:** The Comprehensive Community Participation Plan developed by the Steering Committee was approved by BECC on October 15, 2009.

#### 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 Steering Committee, with assistance from the project sponsor, prepared the following:

- Flyers
- Megaphone advertising

The above was used to inform the community about the project.

**Additional outreach activities:**

- Development and distribution of a project factsheet.
- Meetings with local organizations
- Project surveys to document the community's concerns or support for the projects.

**Public Meeting:** Advance notice for the Public Meeting was published on "Diario de Juarez," a local newspaper, on October 19, 2009, the meeting was held on November 20, 2009 at the Salon Ejidal El Millon.

This meeting was held to inform the public about the technical and financial aspects of the three projects.

The meeting was attended by 25 residents who answered a project survey. 100% of those surveyed said they were able to fully understand the projects and explicitly expressed their support.

### **Final Public Participation Report**

**Final Report:**

The Local Steering Committee and the project sponsor prepared and submitted a Final Public Participation Report which demonstrates that the proposed objectives were fully met to BECC's satisfaction.

### **Post-Certification Public Participation Activities**

**Post-Certification Activities:**

The project sponsor, in coordination with the Local Steering Committee, will provide 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 projects comply with BECC's Public Participation Criterion.

## 6. Sustainable Development

### 6.a Human and Institutional Capacity Building

**Project Operation and Maintenance:**

The projects sponsor will be the agency responsible for operating and maintaining the wastewater collection and treatment systems.

The project sponsor has the basic institutional and human capacity to operate and maintain the proposed wastewater collection and treatment system.

**Human and institutional capacity building:**

Actions within the scope of the project that contribute to institutional and human capacity building for the JCAS of Chihuahua and the JRAS of Dr. Porfirio Parra include:

- Operating a wastewater collection and treatment system that meets applicable 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.
- Basic technical training to the operations and maintenance staff responsible for the new infrastructure that will be built as a result of the project's implementation.

### 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 projects conform to applicable plans and actions described in the Master Plan for Improvements to Water, Wastewater Collection and Treatment Services for the communities of the Valle de Juarez, Chihuahua, and adhere to the U.S.-Mexico Border 2012 Environmental Program by meeting Goal 1 (reducing water contamination) and Objectives 1 (promoting an increase in the number of household connections to wastewater collection and treatment services) and 4 (promoting improve water utility efficiency).

One of the program's guiding principles is to reduce major risks to public health and conserving and restoring the natural environment.

### 6.c Natural Resource Conservation

- The final designs include the implementation of green building practices as part of the technical construction specifications.
- The projects will contribute to reduce environmental deterioration by constructing the wastewater collection and treatment systems, in order to reduce the risks of aquifer

contamination and human health hazards created by the discharge of raw wastewater to local streams and/or agricultural drains, and potential contact with raw wastewater by the population.

#### **6.d Community Development**

- The completion of these projects is crucial to the development of these communities. The tasks proposed by the projects will provide for the adequate management and disposal of wastewater, which will in turn contribute to reduce conditions that favor the proliferation of waterborne and arboviral diseases.
- The projects will promote communities development, as it will reduce contamination in the cities and improve the quality of life for local residents
- Treated wastewater may be applied to other uses, such as agriculture, as well as urban public use.
- The projects will help the cities to achieve greater wastewater collection and treatment coverage, helping the development of the communities, since it will reduce contamination caused by raw wastewater discharges.

#### **Pending Issues:**

None.

#### **Criterion Summary:**

The projects comply with BECC's Sustainable Development Criterion.

**Available Project Documents (in Spanish only):**

- Proyecto Ejecutivo de la Planta de Tratamiento de Agua Residual de El Millón. Junta Central de Agua y Saneamiento de Chihuahua. 2009.
- Proyecto Ejecutivo del sistema de Alcantarillado Sanitario de El Millón Chih. Junta Central de Agua y Saneamiento de Chihuahua. 2006.
- Proyecto Ejecutivo del sistema de Alcantarillado Sanitario de Jesús Carranza, Chih. Junta Central de Agua y Saneamiento de Chihuahua. 2006.
- Proyecto Ejecutivo del sistema de Alcantarillado Sanitario de Tres Jacales, Chih. Junta Central de Agua y Saneamiento de Chihuahua. 2009.
- Proyecto Ejecutivo del colector principal para las tres comunidades. Junta Central de Agua y Saneamiento de Chihuahua. 2009.
- Oficio de fecha 19 de junio de 2009 en el que la JCAS solicita al INAH un dictamen sobre la existencia de sitios arqueológicos en la zona de El Millón, Tres Jacales y Jesús Carranza.
- Oficio No. E/103-D/2009, en el que el INAH establece que no existe inconveniente para el desarrollo de este proyecto en el área de El Millón, Tres Jacales y Jesús Carranza debido a que no hay evidencia de monumentos o vestigios históricos o arqueológicos en el lugar.
- Resolución de la EPA “Finding of no significant impact” (FONSI) sobre los proyectos del municipio de Juárez con fecha 3 de noviembre de 2009.
- “Consulta ante SEMARNAT para determinar competencia y modalidad de evaluación ambiental”, Oficio DT-139/2008, Junta Central de Agua y Saneamiento del Estado de Chihuahua, 20 de febrero de 2009.
- “Respuesta de SEMARNAT sobre modalidad de Estudio de Impacto Ambiental”, Oficio No. SG.IR. 08-2008/067, Delegación Federal Chihuahua, Subdelegación de Gestión para la Protección Ambiental y Recursos Naturales. 26 febrero de 2008.
- “Dictamen del Impacto Ambiental del proyecto, Delegación Estatal de la SEMARNAT en Chihuahua, 6 de octubre de 2009.”
- “Plan Maestro para el mejoramiento de los servicios de agua potable, alcantarillado y saneamiento en poblaciones ribereñas del alto Bravo” Elaborado por la empresa ICISA, (COCEF, diciembre de 2000).