



CERTIFICATION AND FINANCING PROPOSAL

WASTEWATER SYSTEM REHABILITATION PROJECT

PIEDRAS NEGRAS, COAHUILA

Submitted: May 2, 2014

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EXECUTIVE SUMMARY

WASTEWATER SYSTEM REHABILITATION PROJECT PIEDRAS NEGRAS, COAHUILA

Project:	The proposed project consists of the rehabilitation of wastewater collection infrastructure, including repairs to two sections of the Rio Bravo Collector, replacement of a gravity main sewer collector along the Arroyo El Soldado, repairs to Lift Station No. 4, and the replacement of damaged manhole covers in Piedras Negras, Coahuila (the “Project”).
Project Objective:	The purpose of the Project is to eliminate untreated wastewater discharges in the Rio Grande by rehabilitating wastewater infrastructure, contributing to the reduction of water pollution and the risk of waterborne diseases.
Expected Project Outcomes:	The Project is expected to generate environmental and human health benefits related to the following Project outcomes: <ul style="list-style-type: none">• Eliminate an estimated 2.3 million gallons per day (mgd) or 100 liters per second (lps) of untreated wastewater overflows.¹• Contribute to the safe and sanitary operation of the wastewater collection system.
Population benefitted:	65,000 residents of Piedras Negras, Coahuila. ²
Project Sponsor:	Sistema Municipal de Agua y Saneamiento de Piedras Negras, Coahuila (SIMAS).
Project Cost:	\$3,033,375 pesos (US\$242,670). ³
NADB Grant:	Up to US\$250,000 from NADB's Community Assistance Program (CAP), to cover up to 90% of the project cost in pesos. ⁴

¹ Source: SIMAS.

² Source: Ibid.

³ Unless otherwise noted, all U.S. dollar figures are quoted at an exchange rate of \$12.50 pesos per dollar.

⁴ Since the project costs are in pesos, the Bank is requesting a dollar amount that will allow for possible fluctuations in the exchange rate.

BOARD DOCUMENT BD 2014-10
 CERTIFICATION AND FINANCING PROPOSAL
 CAP PROGRAM, PIEDRAS NEGRAS, COAH

**Uses & Sources of
 Funds:**

Uses	Amount (USD)	Amount (MXP)	%
Construction*	\$ 242,670	\$3,033,375	100.0
TOTAL	\$ 242,670	\$3,033,375	100.0
Sources	Amount (USD)	Amount (MXP)	%
SIMAS	\$ 24,260	\$303,250	10.0
NADB CAP Grant	218,410	2,730,125	90.0
TOTAL	\$ 242,670	\$3,033,375	100.0

*Includes costs related to construction and value-added tax (VAT).

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1. ELIGIBILITY

Project Type

The project falls within the eligible sector of wastewater collection and treatment.

Project Location

The Project is located in the community of Piedras Negras, in the state of Coahuila de Zaragoza, and is adjacent to the U.S.-Mexico border. The Project is in the border region defined as within 100 kilometers (62.5 miles) of the U.S.-Mexico International border.

Project Sponsor and Local Authority

The Project sponsor is the local water and wastewater utility, *Sistema Municipal de Agua y Saneamiento de Piedras Negras* (SIMAS or the "Sponsor"). The legal instrument that demonstrates the Sponsor's legal authority was published in the Official Journal of the State of Coahuila de Zaragoza on August 31, 1993. SIMAS has the legal authority to build, rehabilitate, expand, manage, operate, preserve and maintain water and wastewater systems in Piedras Negras, Coahuila.

2. CERTIFICATION CRITERIA

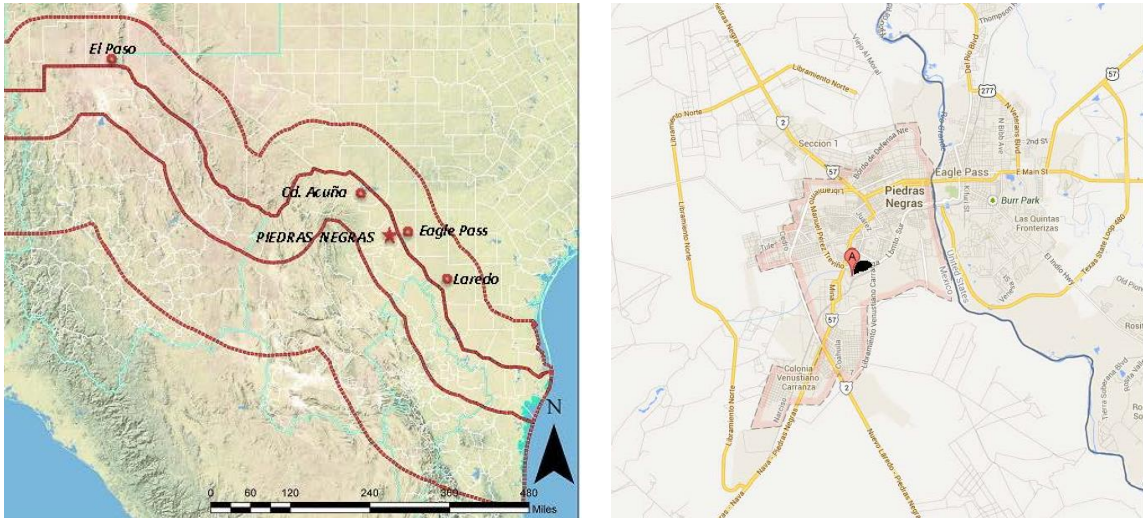
2.1. TECHNICAL CRITERIA

2.1.1 Project Description

Geographic Location

The Project is located in Piedras Negras, a community situated in the northern part of the state of Coahuila, along the Rio Grande and across from the city of Eagle Pass, Texas. Figure 1 shows the approximate location of the Project.

Figure 1
PROJECT LOCATION MAP



Community Profile

As reported in the last census taken by Mexico's national statistical institute, INEGI, the city of Piedras Negras had a population of 151,970 residents in 2010, and projections indicate that the current population may be nearly 156,500 residents.⁵ The region is characterized by a wide range of economic activities, including industrial manufacturing, mining, trade, and services.

According to INEGI, the economically active population in Piedras Negras in 2010 was approximately 59,400 residents.⁶ Average household income in Piedras Negras was estimated at US\$7,779/year in 2000, which was lower than the average for the Mexican border, which was estimated at US\$11,905/year.⁷

The status of public services in Piedras Negras is described in the following table.

⁵ Source: Population projections developed by Mexico's national population council, *Consejo Nacional de Población* (CONAPO).

⁶ Source: INEGI, 2010 Population and Housing Census.

⁷ Source: INEGI, 2000 Population and Housing Census.

**Table 1
 BASIC PUBLIC SERVICES AND INFRASTRUCTURE***

Water	
Coverage	99.4%
Supply source	Rio Grande River and Escondido River
Number of hookups	49,073
Wastewater Collection	
Coverage	97.8%
Number of connections	46,052
Wastewater Treatment	
Coverage**	100%
Treatment facilities	Process: Activated sludge process Capacity: 520 liters per second (11.9 million gallons a day)
Solid Waste	
Collection coverage	100%
Final disposal	Sanitary landfill
Street Paving	
Coverage	92%

* Source: SIMAS, 2013.

**Calculated based on the percentage of collected wastewater discharges treated at the existing treatment facility.

Local Wastewater System

The local wastewater collection system in Piedras Negras provides 98% coverage. The system consists of a network of sewer lines, subcollectors, drains, outfalls, and four lift stations. Currently, the local wastewater collection system serves an estimated 46,052 connections.⁸

The city has a wastewater treatment plant that is operated by the company AREMA under a 20-year concession agreement. The wastewater treatment plant has an installed capacity of 520 liters per second (lps) or 11.9 million gallons a day (mgd). Treated wastewater is used in the thermoelectric processes of the power plants of the Federal Electricity Commission (CFE) located downstream from the treatment facility.⁹

The Rio Bravo Collector conveys wastewater to the treatment plant and is approximately 6,810 meters (22,342 ft.) long. In June 2013, heavy rainfall caused severe damage to two sections of the collector, interrupting wastewater conveyance to the treatment plant. As a result, approximately 100 lps (2.3 mgd) of untreated wastewater was discharged directly into the Rio

⁸ Source: SIMAS.

⁹ Source: Ibid.

Grande. Additionally, 154 manholes were damaged and require repairs to ensure the proper operation of the system.

In September 2013, SIMAS completed a technical evaluation and prepared the final designs for repairing several sections of the Rio Bravo Collector and ancillary works. The proposed works were considered in the preliminary proposal for the implementation of actions to mitigate the damage caused by the heavy rains, under the provisions of the Natural Disaster Relief Fund (FONDEN); however, due to the limited amount of funding, the works were not implemented with resources from this fund.

The implementation of this Project will eliminate direct raw sewage discharges into the Rio Grande and will ensure the proper use and maintenance of the wastewater collection infrastructure in the community.

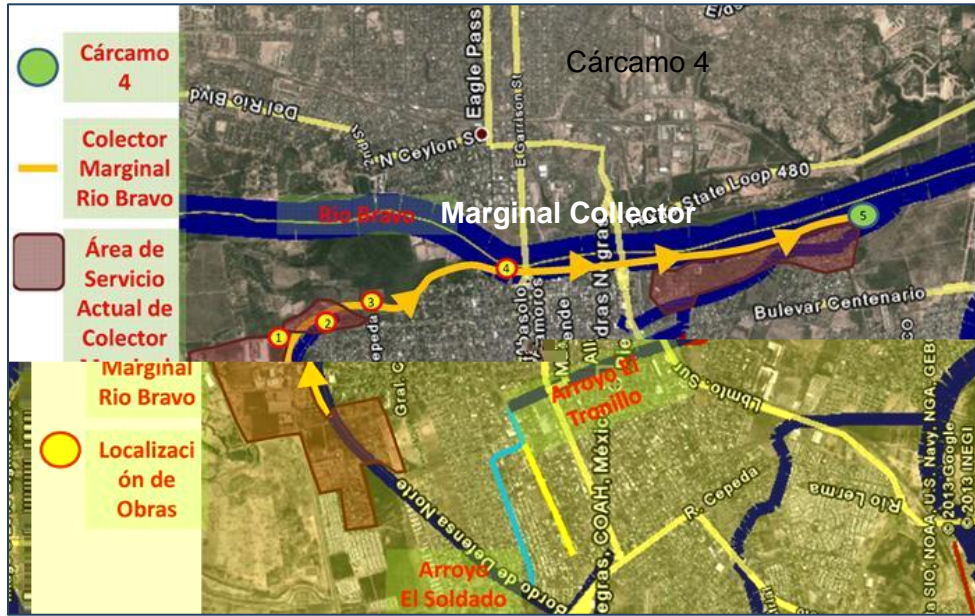
Project Scope and Design

The Project includes the following components:

- a) Replacement of the Rio Bravo Collector in the Campo Venados section and within the Escalante site.
- b) Replacement of the gravity main sewer collector at the Arroyo El Soldado to repair the connection at the Santa Maria subdivision.
- c) Repairs in Lift Station No. 4, including desilting of the wet well, the replacement of the perimeter fence and rehabilitation of the access road to the lift station.
- d) Repairs to 154 manhole frames and covers located throughout the city.

Figure 2 shows the general layout of the Project components.

Figure 2
PROJECT LAYOUT



Construction permits will be the responsibility of SIMAS and are considered a construction task. The utility has already initiated this process. Table 2 shows the proposed project implementation schedule for the pending Project milestones.

Table 2
PROJECT MILESTONES

Key Milestones	Status
Initiation of procurement	Anticipated: 3 rd quarter of 2014
Construction period	Six months

2.1.2. Technical Feasibility

Design Criteria

The final design for the Project was developed in accordance with the technical specifications of the Water, Wastewater Collection and Treatment Manual developed by the Technical Section of Mexico's National Water Commission (CONAGUA). CONAGUA performed a technical assessment to verify compliance with the technical guidelines and regulations applicable to the proposed projects and approved the final designs.¹⁰

¹⁰ Official Document No. B00.E.21.0.2-3050/2013, issued by CONAGUA on November 19, 2013, and Official Document No. B00.E.21.0.2.-3121/2013, issued by CONAGUA on November 26, 2013.

Selected Technology

The Project to rehabilitate the Rio Bravo Collector will be carried out on two sections of the existing wastewater collection infrastructure. Repairs to the collector will be implemented in accordance with the diameters and slopes of previously installed lines, ensuring the continuity of the system's hydraulic conditions. The material selected for the proposed Project is PVC, the same as the existing pipe, which has proven to be reliable. The Sponsor also took into consideration the availability of materials, capital costs, operation and maintenance requirements, and green building practices.

For replacement of the manhole frames and covers, the Sponsor has proposed installing frames and covers made of high-density polyethylene. The selected material offers acceptable durability and allows for reliable operation. Additionally, the Project includes repairing damage to manholes caused by flooding.

2.1.3. Land Acquisition and Right-of-Way Requirements

All the construction tasks of the proposed Project will take place within existing municipal rights-of-way. No additional land or rights-of-way acquisition is anticipated.

SIMAS has initiated the process to identify and obtain necessary permits from the local Department of Public Works. A response from the municipal government is still pending. Construction permits will be obtained prior to the disbursement of grant funds.

2.1.4. Management and Operations

The management and operation of the proposed Project will be the responsibility of the local water utility, SIMAS, which has sufficient resources and staff available for these purposes. SIMAS, as the Project Sponsor, and the State Water Commission, will provide procurement and construction supervision during Project implementation.

SIMAS has an Operation and Maintenance manual that includes the primary tasks necessary to ensure proper operation of the rehabilitated infrastructure. Additionally, the City has implemented Municipal Wastewater System Discharge Rules and Regulations that allow it to regulate discharges to the system and optimize its operation.

SIMAS serves approximately 49,073 water connections and 46,052 sewer connections, as well as treats 100% of the wastewater collected by the sanitary sewer system.

Operation and maintenance costs are not anticipated to increase due to the implementation of the Project. SIMAS has consistently managed a sufficient annual operating budget to address normal operation and maintenance activities for the wastewater collection infrastructure, including funds to support the grant match requirement for the rehabilitation of the Project components. The Sponsor will be required to demonstrate that it has sufficient funds and an adequate accounting structure as a condition for receiving the CAP grant.

2.2. ENVIRONMENTAL CRITERIA

2.2.1. Compliance with Applicable Environmental Laws and Regulations

Applicable Laws and Regulations

In accordance with the regulations of the Coahuila State Ministry of Environment (SEMA), on April, 1, 2014, SEMA issued Official Letter No. SEMA 509/2014 indicating that the Project for the community of Piedras Negras does not require an environmental impact assessment or authorization (MIA).

Since the Project will be constructed within the existing infrastructure alignment, no consultation with Mexico's National Institute of Anthropology and History (INAH) is required. No cultural or historical resources are expected to be disturbed.

Environmental Studies and Compliance Actions

As indicated in the official letter from SEMA, no environmental studies are required for this Project.

Pending Environmental Tasks and Clearances

There are no pending environmental tasks or authorizations.

Compliance Documents

As indicated in Official Letter No. SEMA 509/2014 issued by SEMA on April 1, 2014, no formal environmental authorization (MIA) is required for the Project.

2.2.2. Environmental Effects/Impacts

Existing Conditions and Project Impact – Environmental

In June 2013, Piedras Negras experienced uncharacteristically heavy rains that caused flooding throughout the city and significantly damaged the existing wastewater collection infrastructure. Two sections of the Rio Bravo Collector collapsed and caused direct discharges of raw sewage into the Rio Grande. As a result of the floods, the frames and covers of manholes located throughout the city also suffered substantial damage. This situation triggered additional deterioration of the wastewater collection system.

The purpose of the Project is to eliminate untreated wastewater discharges by rehabilitating the wastewater collection infrastructure, contributing to the reduction of water pollution and the risk of waterborne diseases.

Environmental benefits expected as a result of the implementation of this Project include:

- Eliminate an estimated 100 lps (2.3 mgd) of untreated wastewater overflows;¹¹ and
- Contribute to the safe and sanitary operation of the wastewater collection system.

The improvements to the wastewater system infrastructure will ensure reliable service and eliminate the risks associated with exposure to untreated wastewater due to direct sewage discharges. The availability of adequate wastewater collection infrastructure protects the health of residents and prevents the pollution of natural resources, locally and downstream. The environmental impact resulting from Project implementation will be positive overall, given that the Project will help prevent raw wastewater overflows and discharges.

Mitigation of Risks

Only minor environmental impacts are anticipated from the implementation of the Project, provided that the tasks are carried out in accordance with best management practices. Potential impacts that may be present during the construction phase include:

- Airborne dust emissions;
- Gas emissions from construction machinery; and
- Temporary roadway blockages and the presence of workers in the area.

Mitigation measures that will be implemented are as follows:

- Application of treated wastewater to reduce airborne dust emissions;
- Vehicle tune ups to reduce emissions; and
- Placement of warning signs to prevent potentially hazardous situations.

Natural Resource Conservation

The Project contributes to the conservation of natural resources by reducing the risks of water pollution and soil contamination.

No Action Alternative

The no-action alternative was not considered viable, since failing to rehabilitate the wastewater collection system would result in ongoing sewage overflows, which pose a significant hazard for the environment and health of local residents, as well as for communities and residents downstream.

Existing Conditions and Project Impact – Human Health

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 may become ill after drinking water that has been contaminated with these organisms, eating

¹¹ Source: SIMAS.

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.

SIMAS asked Coahuila Health Services for statistics related to waterborne diseases in Piedras Negras. This agency reported that, according to the National Health System, Helminthiasis and Intestinal Amebiasis were the second and third leading cause of disease during 2013.

There is a risk of exposure to untreated wastewater from sewage spills, which increases the vulnerability of area residents to waterborne diseases. The infrastructure improvements to be implemented under this Project will reduce this risk and prevent potential health threats. According to the World Health Organization (WHO), access to safe water and sanitation facilities, as well as better hygiene practices, can reduce ascariasis-related morbidity by 29% and diarrhea-related morbidity by 32%.¹²

Transboundary Impacts

The Project will specifically address an unsafe and unsanitary transboundary condition caused by the discharge of untreated wastewater into the Rio Grande River, a shared binational water body. Additionally, due to the proximity of Piedras Negras to Eagle Pass, Texas, there are frequent border crossings between the two communities; therefore, the environmental and health conditions of Piedras Negras may affect the residents of Eagle Pass.

The Sponsor presented the Project to the Mexican Section of the International Boundary and Water Commission (CILA), who reviewed the Project information and issued Official Letter No. CILA/AC/111-14, dated April 15, 2014, expressing no objection to the implementation of the Project tasks.

No negative transboundary effects are expected.

2.3. FINANCIAL CRITERIA

2.3.1. Uses and Sources of Funds

The total estimated cost of the Project is \$3,033,375 pesos. The Project Sponsor requested a grant for \$2,730,125 pesos from NADB through its Community Assistance Program (CAP) to complete the financing of the Project. Table 4 presents a breakdown of total Project costs, as well as the sources of funds.

¹² Source: WHO: Water, Sanitation, and Hygiene Links to Health: Facts and Figures – updated November 2004" (http://www.who.int/water_sanitation_health/publications/facts2004/es/index.html).

Table 3
PROJECT COSTS AND SOURCES OF FUNDS*

Uses	Amount (USD)	Amount (MXP)	%
Construction**	\$ 242,670	\$3,033,375	100.0
TOTAL	\$ 242,670	\$3,033,375	100.0
Sources	Amount (USD)	Amount (MXP)	%
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NADB CAP Grant	218,410	2,730,125	90.0
TOTAL	\$ 242,670	\$3,033,375	100.0

* Exchange rate of \$12.50 pesos to the dollar.

**Includes costs related to construction and value-added tax (VAT).

Since the Project costs will be paid in pesos, the Bank is proposing that the Board approve a CAP grant for up to US\$250,000, to cover any possible variation in the dollar amount based on fluctuations in the exchange rate. At no time will the CAP grant exceed 90% of the total project cost in pesos.

2.3.2 Compliance with CAP Program Criteria

The Project complies with all CAP criteria. It is located within the U.S.-Mexico border region served by BECC and NADB, is being sponsored by a public-sector entity and is in an environmental sector eligible for NADB financing. Additionally, as a wastewater project, it is considered a priority under the provisions of the CAP program. As shown in the above table, the Project Sponsor has agreed to use its own equity to cover 10% of the project cost, which is the minimum required under the program.

The Project Sponsor is ready to initiate bidding for construction once funding has been approved. Upon completion of the Project, an estimated 65,000 residents will directly benefit from improved wastewater collection and treatment services and the reduced risk of exposure to sewage spills.

2.3.3. Conclusion

For the above reasons, NADB proposes providing a CAP grant for up to US\$250,000 to SIMAS for the construction of the Project in Piedras Negras, Coahuila.

3. PUBLIC ACCESS TO PROJECT INFORMATION

3.1. PUBLIC CONSULTATION

BECC published the draft certification and financing proposal for a 14-day public comment period beginning April 11, 2014. The following Project documents are available for public review:

- Final Design of the Project to Repair Damage to the Rio Bravo Marginal Collector in the Familia Escalante site, Campo Venados, and Arroyo El Soldado Junction in the City of Piedras Negras, Coahuila, which was developed by SIMAS in 2013.
- Final design developed by SIMAS in 2013 to replace and reinstall 154 high-density polyethylene manhole frames in the city of Piedras Negras, Coahuila.
- Final Design to desilt and clean Lift Station No. 4, replace the perimeter fence, and rehabilitate the access road to the lift station.
- Official Letter No. SEMA 509/2014, issued by SEMA on April 1, 2014, confirming that no formal environmental authorization is required for the Project.
- Official Document No. B00.E.21.0.2.-3050/2013 issued by CONAGUA on November 19, 2013, validating the final design for the improvements to Lift Station No. 4 and the replacement of 154 high-density polyethylene manhole frames and covers.
- Official Document No. B00.E.21.0.2.-3121/2013 issued by CONAGUA on November 26, 2013, validating the final design for the repairs to the Rio Bravo Collector.
- Official Document No. CEAS-DG-DT/0039/14 issued by CEAS on January 24, 2014, validating the Project.
- Official Letter No. CILA/AC 111/14 dated April 15, 2014, expressing no objection to the implementation of the Project.

The public comment period ended on April 25th. Two comments were received in support of the Project: one from a resident of Eagle Pass, Texas, and the other from the State Ministry of Environment in support of the project.

3.2. OUTREACH ACTIVITIES

As a regular business practice, SIMAS reports to its Board of Directors and requests approval on projects financed by federal programs, the state government, the municipal government and other sources of funding. These actions are approved by the Board members who represent various sectors of the Piedras Negras community, including the National Chamber of Processing Industries (CANACINTRA), the Association of Notaries, Chamber of Commerce, the Maquiladora

Industry, the Association of Customs Brokers, the Rotary Club and the Association of Civil Engineers.¹³ The Board has been informed of the actions proposed under the Project.

BECC conducted a media search to identify potential public opinion about the Project. The articles reported on the need to implement the works, emphasizing the negative environmental impacts caused by the discharge of untreated wastewater into the Rio Grande, as well as the steps taken by the municipal and state governments to fund these works. No opposition to the Project was detected in the media search.

References to the Project were found on the websites listed below:

- *Zocalo Saltillo* (July 3, 2013) “*Analizan fondos de Nadbank para reconstrucción*” (NADBank funds for reconstruction work discussed). The article focused on the analysis of the damage caused by the flood and the availability of funding from NADB. <http://www.zocalo.com.mx/seccion/articulo/analizan-fondos-de-nadbank-para-reconstruccion-1372822210>
- *Zocalo Saltillo* (July 10, 2013) “*Acción inmediata*” (Immediate Action). The article focused on the work carried out in hydraulic networks damaged by heavy rains. <http://www.zocalo.com.mx/seccion/opinion-articulo/accion-inmediata-1373430400>
- *Zocalo Saltillo* (July 10, 2013) “*Invertirán 17 mdp en obra hidráulica*” (17 million pesos to be invested in water works). The article focused on the work carried out in hydraulic networks damaged by heavy rains. <http://www.zocalo.com.mx/seccion/articulo/invertiran-17-mdp-en-obra-hidraulica-1373436213>
- *Zocalo Saltillo* (October 18, 2013) “*Se reúne Óscar López con Nadbank y Cocef*” (Oscar Lopez meets with NADBank and BECC). The article reports that the Mayor of Piedras Negras met with Bank and BECC officials to discuss environmental infrastructure projects. <http://www.zocalo.com.mx/seccion/articulo/se-reune-oscar-lopez-con-nadbank-y-cocef-1382068112>
- *Zocalo Saltillo* (October 18, 2013) “*Buscarán hoy fondos de Cocef y Nadbank*” (Funding from BECC and NADBank will be sought today). The article focused on accessing grant funds from NADB. <http://www.zocalo.com.mx/seccion/articulo/buscaran-hoy-fondos-de-cocef-y-nadbank-1372740341>
- *Zocalo Saltillo* (March 24, 2014) “*Presentan resultados en proyectos de Cocef*” (BECC project results presented). The article focused on the results and scope of the projects currently being worked by the BECC. <http://www.zocalo.com.mx/seccion/articulo/presentan-resultados-en-proyectos-de-cocef-1395723825>

¹³ *Cámara Nacional de la Industria de la Transformación (CACINTRA).*

- *Piedras Negras website* (March 24, 2014) “*Analizan avances de proyectos para el desarrollo de Piedras Negras*” (Progress on projects for development of Piedras Negras discussed). The article focused on the results and scope of the projects currently being worked by the BECC.<http://www.piedrasnegras.gob.mx/2014/03/analizan-avances-de-proyectos-para-el-desarrollo-de-piedras-negras/>.