Border Environment Cooperation Commission

Wastewater Collection and Treatment System for
La Union, Doña Ana County, New Mexico

I. General Criteria

1. **Type of Project.** The project consists of construction of a wastewater collection system and forcemain to convey wastewater to the existing West Mesa Santa Teresa Border Regional Wastewater Treatment Facility (WM/ST WWTP). The project also includes expansion of the WM/ST WWTP.

2. **Location of Project.** The community of La Union is an unincorporated community located in Doña Ana County, New Mexico approximately 12 miles north of the U.S/Mexico Border. The population of La Union is approximately 1,003 people, and is expected to reach 1,942 people by the year 2020. To determine the population a historical growth rate of 4.0% was used and reduced to 3.5% by the end of the planning horizon.

3. **Description of Project and Tasks.**

The community of La Union at present does not have any form of wastewater collection and treatment system other than on-site disposal systems. The on-site disposal systems include individual septic tanks with leach fields, or cesspools. Health concerns have been expressed due to the possible failure of these disposal systems and lack of adequate area for proper treatment through percolation. Many of these on-site systems are not properly sized or properly constructed. As this area continues to develop with on-site disposal systems, not only is the biological contamination of the groundwater inevitable, but also nitrogen contamination.

In order to address this lack of wastewater service, the proposed project will include providing service to the residents through 4-inch diameter sewer services connected directly to each customer's plumbing system. The wastewater will be collected by a conventional gravity sewer system with a small portion of pressure sewer and conveyed through a forcemain approximately 9.0 miles long to an existing wastewater treatment plant located in Santa Teresa. The existing wastewater treatment plant, was completed in September 2001, is located on a site owned by Dona Ana County 100 acres in size, includes an activated sludge type treatment process (sequencing batch reactor), and is designed to treat and denitrify wastewater to a total Nitrogen content of less than or equal to 10 mg/l. This project does not include the construction of the existing wastewater treatment plant but does include expansion of the WWTP by 2004. The entire treated effluent from the wastewater treatment facility will be used for grass irrigation. Off-season irrigation surplus flows will be disposed through a series of pressure-dosed leach fields. Sludge handling will be by aerobic digestion, decanting, and drying on asphalt-paved sludge drying beds. The wastewater sludge will be transported to the solid waste landfill located west of Las Cruces. The capacity of the treatment facility is 300,000 gallons per

day (gpd) and an expansion of 150,000 gpd for the plant will be needed in 2004 to meet 2020 demands. The standard per capita wastewater flow for residential areas of 85 gallons per day was used. Additionally, this community is predominately residential with a few small commercial establishments.

A summary of the components are addressed below:

Collection and Conveyance System:

- 42,000 LF of 8-inch gravity sewer line
- Grinder pump stations
- 600 LF of 2-inch forcemain for pressure sewer
- 500 LF of 1/2 – inch forcemain for pressure sewer
- 45,000 LF of 6-inch forcemain
- 5 Lift Stations
- 267 hook-ups

Treatment System Upgrades

- Lift station pump and yard piping upgrade
- Fourth parallel train of SBR treatment for 150,000 gpd
- Grit chamber
- Laboratory casework and equipment

Effluent Disposal System:

- 150,000 gallon addition to effluent storage pond
- Effluent pump station expansion and control system upgrades
- Second center pivot irrigation unit
- Two additional exfiltration galleries

Sludge Disposal System:

- One additional sludge drying bed

4. **Compliance with international Treaties and Agreements.** The project sponsor submitted a statement that the project complies with the rights and obligations established in applicable treaties and agreements

II. Human Health and the Environment

1. **Human Health and Environment**. The community of La Union at present does not have any form of wastewater collection and treatment system other than on-site disposal systems. The on-site disposal systems include individual septic tanks with leach fields, or cesspools. Health concerns have been expressed due to the possible failure of these disposal systems and lack of adequate area for proper treatment through percolation. Many of these on-site systems are not properly sized or properly constructed. The soils in the area are generally well drained loamy sands, which have high permeability. Due to the development density and highly permeable soils, the potential for contamination of the shallow groundwater is high. As this area continues to develop with inadequate on-site disposal systems, biological and nitrogen contamination of the groundwater is inevitable.

   Hepatitis A is a liver disease associated with unsanitary disposal of sewage and inadequate or contaminated water supplies. The incidence rate of Hepatitis A for Dona Ana County was 36.2 cases per 100,000 persons in 1997, which is over 79% higher than for the State of New Mexico. The baseline value in 1994 for Hepatitis A was 16 cases per 100,000 persons in New Mexico. In addition, the number of cases of Shigella in Dona Ana County is 12% higher than for the rest of the State. Shigellosis often results from poor sanitation, lack of water/wastewater facilities, contaminated water and food and is common is colonias areas.

2. **Environmental Assessment:** An Environmental Information Document (EID) was developed for the collection and conveyance portion of the system in association with the planning documents. After preliminary review by BECC, Dona Ana County and the New Mexico Environment Department (NMED), a revised EID was submitted to NMED and NMED consequently developed the Environmental Assessment (EA) for submittal to EPA. EPA issued the FONSI for the collection and conveyance portion of the system (Finding of No Significant Impact) for public review on October 13, 2001. The wastewater treatment plant and its expansion received a FONSI from EPA in December 1999.

3. **Compliance with Environmental and Cultural Resources Law and Regulations.** As part of the environmental review, the EID considered any and all crosscutting environmental and cultural/historical laws, Executive Orders and regulations, including among others, Significant, Unique or Important Farmlands, National Natural Landmarks, Wilderness Protection, Wild and Scenic Rivers, Wetlands Protection, Floodplain Management, Fish and Wildlife Protection, Endangered Species Protection, Historical, Architectural, Archeological, and Cultural Sites, Air Quality, and Environmental Justice. The project is in compliance with all applicable environmental and cultural resource laws and regulations.

   A plant and wildlife Threatened, Endangered and Sensitive (TSE) species survey was conducted in July 2001. The survey consisted of a pedestrian survey of the project areas. The survey concluded that the site did not provide suitable habitat for any of the regional listed threatened or endangered species. The proposed lift station and treatment plant sites appear to have been or are under cultivation. Areas where collection pipelines are to be installed have been converted to residential use. No evidence of any TSE plants and animals were noted.

   A cultural resource survey was conducted in July 2001. During the survey, no registered properties, standing historic buildings and archaeological artifact were identified. The cultural resource survey report recommended that no further culture resources studies are necessary prior to development of the proposed wastewater treatment site. Monitoring, however, is recommended during installation of the wastewater collection pipelines, due to the presence of multiple archaeological sites in the regional vicinity. Subsurface artifacts may be uncovered during excavation, and care must be taken not to damage them. The complete cultural resource survey report was submitted to the State Historic Preservation Office for review and concurrence. In addition, the new Section 106 regulations for Native American/Tribal consultation have been concluded. The Mescalero Apache raised no issues of concern.

III. Technical Feasibility

1. **Appropriate Technology**.

   Recognizing the severity of the lack of adequate waste treatment in the border region of New Mexico, the U.S. Environmental Protection Agency (EPA) provided funding for Facility Planning in the Colonias areas of Dona Ana County, administered by the NMED. A Facility Plan was completed for the La Union area in 1997. This facility plan recommended a gravity collection sewer system and a local treatment plant or conveyance to the Anthony Waster and Sanitation District (AWSD) treatment plant.

The West Mesa/Santa Teresa (WM/ST) Wastewater Facilities Plan was completed in February 1999. This plan recommended a treatment plant for the WM/ST service area that included La Union. A Technical Memorandum was completed in April 1999 which consolidated the La Union and WM/ST facility plans into a single stand alone document and reviewed the area on a regional basis. An analysis was completed in July 2000 further evaluated the option for La Union to flow to the WM/ST Border Regional wastewater treatment facility, and confirmed that this was the most cost-effective option.

The results of these numerous plans were a recommendation that La Union flows be conveyed to the WM/ST Border Regional wastewater treatment plant. Additionally, these planning documents included a planning horizon of 20 years and completed the following alternative analysis:

- Wastewater Collection Alternatives: Two alternatives were analyzed which include the pressure sewer system and the selected alternative of a conventional gravity system. A small portion of the community will be served by pressure sewer due to the narrow right-of-ways available.
- Wastewater Treatment Alternatives: Three alternatives were analyzed which include conveyance to the Anthony WWTP, conveyance to the South Central WWTP certified in June 2001 and the selected alternative of conveyance to the ST/WT Border Regional WWTP.

The alternatives discussed above were ranked based on reliability, reduction of energy use, water supply implication, process complexity and appropriateness, environmental impacts, and implementability. The selected alternative and the best alternative was selected used on a combination of these criteria, lowest initial investment and lowest operation and maintenance cost during the planning period.

2. **Operation and Maintenance Plan.** Doña Ana County currently has certified operation and maintenance staff for the WM/ST Border Regional facility. Additionally, many of the manuals are already prepared for this facility. For the collection and conveyance portion of the facility, the New Mexico Environment Department requires that a project plan of operation be prepared during the construction phase as well as an O&M manual for the lift station. After approval of the manual, an operator training course will be conducted as the facility is coming on-line. Additionally, a monitoring period of one year is required; quarterly project performance reports will be completed.

3. **Compliance with applicable design norms and regulations.** This project is in compliance with applicable design standards and regulations which are required by the New Mexico Water Quality Control Commission and NMED Groundwater Bureau

IV. Financial Feasibility and Project Management

1. Financial Feasibility.

The project has a total project cost is $7,316,100 which includes $400,500 for hookups and $1,547,500 for expansion of the ST/WM Border Regional WWTP The following table summarizes the estimated project cost.

ITEM	Total Project Costs
Planning Phase	
Planning	$43,000
Total Planning Phase	**$43,000**

Phase 1 Collection and Conveyance	
Engineering/Administration	$550,480
Construction	$3,956,550
Land Acquisition, Easements, or Special Permits	$60,000
Contingency @ 10%	$456,700
NMGRT @ 6%	$301,420
Subtotal:	$5,325,150
Hook-Up Costs	$400,500
Total Phase 1 w/Hook-ups	$5,725,650
TOTAL(Including Planning)	**$5,768,650**
Phase 2 – WM/ST WWTP Upgrade (Year 2004)	
Engineering/Management	$173,100
Construction	$1,154,000
Land and Easement Acquisition	0
Contingency @ 10%	$132,700
NMGRT @ 6%	$87,600
Total Phase 2	**$1,547,400**
TOTAL	**$7,316,050**

The project has received $414,000 in funding from BECC for facility planning and final design. The remaining unfunded portion of will be funded through a combination of BEIF and loan funds. The NADB is currently completing its financial analysis. There a final determination of the BEIF component has not been completed. The following table summarizes the proposed financial structure of the project.

ITEM	Total Project Costs	BECC TA Funds (Grant)	Proposed NM State Revolving Loan Fund (Loan)	Proposed BEIF Funds (Grant)
Planning Phase				
Planning	$43,000	$43,000	0	0
Total Planning Phase	**$43,000**	**$43,000**	0	0
Phase 1 (Year 2003)				
Engineering/Administration	$550,480	$371,000	$179,480	
Construction, land, contingency, and taxes	$4,774,670	0	$711,928	$4,062,742
Subtotal	$5,325,150	$371,000	$891,408	$4,062,742
Hook-Up Construction	$400,500	0	0	$400,500
Total Phase 1 w/Hook-ups	$5,725,650	$371,000	$891,408	$4,463,242
TOTAL (Including Planning)	**5,768,650**	**$414,000**	**$891,408**	**$4,463,242**
Phase 2 – WM/ST WWTP Upgrade (Year 2004)				
Engineering/Administration	$173,100	To be determined		
Construction, land, contingency, and taxes	$1,374,300			
Total Phase 2	**$1,547,400**			

TOTAL ALL PHASES	**$7,316,050**			
Transition Funds		**$306,202**		

2. **Rate Model**: There are currently no wastewater facilities serving this area and therefore no historic fee/rate schedules. The financial model shows an initial user fee of $21.00 per residential connection per month, billed as a fixed rate. It is anticipated that the user fees will initiate in FY 2002. The financial model also illustrates in each year revenues are sufficient to offset expenses, with the cumulative total funds from all sources building each year. Included in the expenses is a repair/replacement line item that builds at a rate of 10 to 20% of the total operations and maintenance expenses for that year. The percentage increases as the utility ages.

3. **Project Management**. Organizationally, the utility will be managed by County staff and operated by one or more contract operations companies. Initially, the County utility staff will include a Utility Administrator, Assistant Utility Administrator, Financial Specialist, General Foreman, Utility Operations, Senior Secretary/Administrative Assistant, Customer Service Manager, and Project Manager. Key support personnel will include field coordinator and various field personnel. Other support will come from personnel in various County departments.

V. Public Participation

1. **Comprehensive Public Participation Plan**: A draft public participation plan as submitted in April 2000. Due to the La Union being considered for inclusion in the South Central Wastewater project the plan was never approved. After certification of the South Central project and the exclusion of La Union from it, another plan was submitted and approved in August 2001. The activities carried out related to this Plan are summarized below.

2. **Steering Committee:** Steering committee organizational meetings were held March 22 and April 3, 2000. Additional meetings were held April 13, May 3, and July 10, 2000. On July 31 and August 22, 2001 the committee met to finalize the public participation plan and strategize for the public process in La Union for certification. . The steering committee is composed of: Irma Lazarín, Co-chair; Arnold Plaza, Co-Chair; Sister Mary Ellen Quinn, Church representative; Alfredo Holguín, of the Gadsden Independent School District; Martín Lopez, of RCAC; Frank Malin, Antonio Hernandez, Perfecto Gutierrez and Rosalio Ramos, all of them local citizens.

3. **Local Organizations:** Organizations contacted to present the project and solicit support include:

La Union Town Council
Volunteer Fire Department
Our Lady of Refuge Catholic Church
La Union Mutual Domestic Board

Gadsden Ind. School District	The Department of Health - Sunland Park
Diocese of Las Cruces	Elephant Butte Irrigation District

4. Public Information: Project information was available at La Union Station, La Union Mercantile Store and La Union Mutual Domestic offices. Additional information was available at the Doña Ana County offices and the offices of the consulting engineer in Las Cruces. Other outreach methods developed by the steering committee included mailers, flyers, dissemination at public events, and door-to-door notification of the public meetings. Notices for public meetings were advertised in the Las Cruces Sun News and in the water bills. Public meeting notices were posted at the Doña Ana County offices, La Union Mercantile Store, La Union Station, La Union Elementary School, US Post Office, Our Lady of Refuge Church and the Roadway "Y" Center. Fact sheets were available at the public meetings.

5. Public Meetings: Two public meetings were held. One meeting was held in conjunction with the NEPA required meeting. The first public meeting was held on September 24, 2001 and the second public meeting was held on October 10, 2001. Returned surveys from both meetings show a 98% support rate for the project.

VI. Sustainable Development

1. Definition and Principles The proposed project complies with BECC's definition of Sustainable Development: "*Conservation oriented social and economic development that emphasizes the protection and sustainable use of resources, while addressing both current and future needs, and present and future impact of human actions.*"

The project is in general compliance with the definition as follows:

- Social impacts are positive because the colonia properties are added to the tax base of the area, allowing for increased social services and improvements to schools.
- It has a positive economic impact because it will strengthen property values. Increased value will mean better chances for homeowners to access credit, improve their lives, and increase their net worth.
- It improves the impact of current human activity on the environment while at the same time eliminating further degradation to the environment.
- It has been developed with protections for water resources, floodplains, cultural resources, and threatened, endangered and protected species.

It addresses current need for services in the rural communities outside of the city limits, and incorporates modest historical expectations for growth. Future growth can be managed and regulated by the countywide wastewater utility.

Principle 1: The project is centered on the needs of the residents of the communities of La Union in Dona Ana County, New Mexico.

Principle 2: The rights of the residents to adequately raise their standard of living and develop their properties are recognized and underlie the reasons for undertaking the project.

Principle 3: Environmental protection is integral to the project.

Principle 4: Stakeholders have been involved and have had the opportunity to participate in the decision-making process. This not only includes the local residents, but also local, regional, state, and federal agencies with statutory interest and standing in the issues at hand.

2. **Institutional and Human Capacity Building.** This project is one of several in the southern New Mexico region and is a component of the County's commitment to regional planning. This is a significant development in the planning necessary to successfully address emerging infrastructure needs and is a basic component of sustainable development. Dona Ana County has begun the process of strengthening its institutional infrastructure. A significant amount of technical and managerial training and development will be directed into the area. Operations and personnel will receive extensive training on equipment and environmental issues.

3. Conformance with Applicable Local/Regional Conservation and Development Plans.

The project conforms to the following local and regional plans:

- Dona Ana County Comprehensive Plan, 1994
- Dona Ana County Wastewater Facilities Plan, 1997
- Dona Ana County Resolution 96-36, passed May 14, 1996

4. Conservation of Natural Resources.

The project will eliminate the inadequate on-site wastewater disposal systems currently used in the project area as sources of potential ground and surface water contamination. Protection of the Rio Grande as a source of water for neighbors to the south, including El Paso, is enhanced. The County is developing a series of comprehensive ordinances to address statutory requirements of the Clean Water Act and its related laws. These ordinances have been drafted and are structured on EPA model ordinances.

Dona Ana County participates in local and regional water conservation programs and efforts. The County's leadership is committed to developing water conservation goals and policies as part of its water management program. Reuse alternatives have been considered in planning for all facility development. Appropriate alternatives will be implemented to support each facility's capacity and water management program goals. Also, it is recognized that legal/institutional capacities and economic incentives must exist if water users are to significantly conserve water. Dona Ana County is committed to developing these policies and assisting the community water providers for similar policy development.

5. Community Development.

Through the development of this project and the close working relationships developed with the community members, individuals have realized the importance of addressing environmental issues as a community. This has fostered and strengthened the existing community groups, empowering them to take action on their own behalf. A number of private nonprofit agencies and task forces have banded together to advocate infrastructure development in the unincorporated colonias areas. The Colonias Development Council, an independent community organization of over 15 government and private agencies, has

applied for a grant from the U.S. Department of Housing and Urban Development. By providing the integral infrastructure of sewer collection and treatment, the planning area will appear more attractive and inexpensive for new community services, such as schools, churches, and recreational facilities, encouraging them to move into the area.