April 6, 2005

FINDING OF NO SIGNIFICANT IMPACT

To All Interested Agencies, Parties and Private Groups:

In accordance with the guidelines of the Council on Environmental Quality, at 40 Code of Federal Regulations (CFR), Part 1500, and the implementing procedures at 40 CFR Part 6, *Procedures for Implementing the Requirements of the Council on Environmental Quality of the National Environmental Policy Act*, the U. S. Environmental Protection Agency (EPA) has performed an Environmental Assessment (EA) of the following proposed action:

Applicant: Colonia Anapra, Ciudad Juarez in the State of Chihuahua, Mexico

Proposed Action: Funding assistance for the proposed Wastewater Collection and Treatment System through the Border Environment Infrastructure Fund.

- Estimated BEIF/EPA share (WWTP) (US Dollars):	$1,920,000
- Estimated State/JAMAS share (Collection System):	$1,500,000
- Additional Funding Other Sources (WWTP)	$1,200,000
Total Cost estimate for construction to year 2006:	$4,620,000
Cost estimate for expansion of the WWTP to year 2011:	$ 610,000

Proposed Project. Colonia Anapra developed as an irregular outgrowth of Ciudad Juarez, Chihuahua, across the Rio Grande from the cities of El Paso, Texas, and Sunland Park, New Mexico, in northwest Ciudad Juarez. Anapra is proposing to construct a wastewater treatment plant (WWTP) with a design capacity of approximately 2.28 million gallons per day (MGD) to serve the Colonia and provide an improved level of sanitation for its residents. Concurrently, the local water utility, *Junta Municipal De Agua Y Saneamiento De Juarez (JAMAS*), will design and construct the sewer collection system. The WWTP would have three modules, each with a capacity of approximately 0.75 MGD, with the first two modules built to provide service to the year 2011. Construction of the third module would begin in 2011 to provide treatment capacity to the year 2022. The existing potable water distribution system currently serves 90 percent of Anapra. Two small areas with approximately 25 families are supplied drinking water via trucks. The current population of Anapra is approximately 18,400 people and is expected to grow to 44,000 people within 20 years.

Findings. The Border Environment Cooperation Commission (BECC) was established to help preserve, protect, and enhance the environment of the border region. In carrying out its mission, the BECC cooperates with the International Boundary Water Commission (IBWC), the North American Development Bank (NADBank) and other agencies. The IBWC has jurisdiction over

water quality, conservation and use issues of water projects along the U.S.-Mexico international border and inland into both countries. The NADBank analyzes the applicant community's need for funding from the Border Environmental Infrastructure Fund (BEIF), its capacity to assume the debt, and the ability of its residents to afford the costs associated with the proposed project and system as a whole. The NADBank compiles the financial package that ensures completion of a functional system at a cost affordable to the community. BEIF funding is intended for communities along the border that cannot afford to develop essential infrastructures, and requires the preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for certification by the BECC.

On the basis of the EA, EPA Region 6 has made a preliminary determination that the project is not a major Federal action significantly affecting the quality of the human environment and that preparation of an Environmental Impact Statement (EIS) is not warranted. The project individually, cumulatively, or in conjunction with any other action will not have a significant adverse effect on the quality of the environment. Comments regarding this preliminary decision not to prepare an EIS and issue a Finding of No Significant Impact (FNSI) may be submitted to the U.S. Environmental Protection Agency, Office of Planning and Coordination (6EN-XP), 1445 Ross Avenue, Suite 1200, Dallas, Texas 75202-2733. All comments will be taken into consideration.

This preliminary decision and the FNSI will become final after the 30-day comment period expires if no new information is provided to alter this finding. No administrative action will be taken on this decision during the 30-day comment period. Copies of the EA and requests for review of the Administrative Record containing the information supporting this decision may be requested in writing at the above address, or by telephone at (214) 665-8150.

Responsible Official,

/S/

Richard E. Greene
Regional Administrator

Enclosure

ENVIRONMENTAL ASSESSMENT
COLONIA ANAPRA, CIUDAD JUAREZ, CHIHUAHUA, MEXICO
WASTEWATER TREATMENT SYSTEM PROJECT THROUGH THE BORDER ENVIRONMENTAL INFRASTRUCTURE FUND (BEIF)

1.0 PROPOSED ACTION

1.1 Purpose and Need for Action. Anapra is a colonia originally settled by individuals migrating towards the border and without title to the land. The current population of Anapra is approximately 18,400 people and is expected to grow to 44,000 people within 20 years. It has no wastewater treatment or collection system and its wastewater is collected in latrines and some on-site septic tanks. The existing wastewater situation has contributed to the transmission of waterborne diseases and nitrate poisoning from latrine leachate. High incidences of infectious diseases such as hepatitis A, shigellosis, and other diarrhoeal diseases have been reported from the region. Also, high nitrates can lead to methaemoglobinaemia (blue-baby syndrome). These diseases are the primary causes of death and hospitalization in the region. The potable water distribution system currently serves 90 percent of Anapra. Drinking water is trucked to two small areas with approximately 25 families.

The Border Environment Cooperation Commission (BECC) was established to help preserve, protect, and enhance the environment of the border region. In carrying out its mission, the BECC cooperates with the International Boundary Water Commission (IBWC), the North American Development Bank (NADBank) and other agencies. The IBWC has jurisdiction over water quality, conservation and use issues of water projects along the U.S.-Mexico international border and inland into both countries. The NADBank analyzes the applicant community's need for funding from the Border Environmental Infrastructure Fund (BEIF), its capacity to assume the debt, and the ability of its residents to afford the costs associated with the proposed project and system as a whole. The NADBank compiles the financial package that ensures completion of a functional system at a cost affordable to the community. BEIF funding is intended for communities along the border that cannot afford to develop essential infrastructures, and requires the preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) for certification by the BECC.

1.2 Description of the Proposed Action. Colonia Anapra is part of the Municipality of Ciudad Juarez, Chihuahua and is located northwest of Ciudad Juarez, across the Rio Grande (which forms the international boundary between the United States and Mexico) from the cities of El Paso, Texas and Sunland Park, New Mexico (Figure 1). Anapra is proposing to construct a wastewater treatment plant (WWTP) with a design capacity of approximately 2.28 million gallons per day (MGD) to serve the Colonia and provide an improved level of sanitation for its residents. Concurrently, the local water utility, *Junta Municipal De Agua Y Saneamiento De Juarez (JAMAS*), will design and construct the sewer collection system. The WWTP would have three modules, each with a capacity of approximately 0.75 MGD, with the first two modules built to provide service to the year 2011. Construction of the third module would begin in 2011 to provide capacity to the year 2022.

- Estimated BEIF/EPA share (WWTP) (US Dollars):	$1,920,000
- Estimated State/JAMAS share (Collection System):	$1,500,000
- Additional Funding Other Sources (WW TP)	$1,200,000
Total Cost estimate for construction to year 2006:	$4,620,000
Cost estimate for expansion of the WWTP to year 2011:	$ 610,000

2.0 ALTERNATIVES

2.1 Alternatives Available to the EPA.

2.1.1 Approval for Grant Funding for the Project as Proposed. Depending on available funding, EPA can recommend approval of the grant for the proposed project without modification.

2.1.2 Approval for Grant Funding for a Modified Project. Information received during the EA process could result in identification of significant adverse impacts that would require modification of the project to mitigate the impacts. Modification of the project may allow the EPA to accept the project as modified and recommend approval of the grant funding.

2.1.3 Recommend Preparation of an EIS. A determination that the project as proposed could result in potentially significant adverse impacts to the environment that cannot be satisfactorily mitigated would preclude a recommendation of approval of the grant funding. The preparation of an Environmental Impact Statement (EIS) would then be recommended to evaluate the potentially significant impacts. The EIS process includes a scoping meeting to identify critical facts and issues, a Draft EIS, a public comment period on the Draft EIS, a public hearing on the Draft EIS, the Final EIS, a public comment period on the Final EIS, and a Record of Decision.

2.2 Alternatives Considered by the Applicant. The applicant evaluated four alternatives which were developed based on a comprehensive study to achieve adequate control and management of the wastewater generated in the Colonia. No other alternatives were considered other than those documented.

2.2.1 No-action Alternative. Under the No-action Alternative, the WWTP, pump stations and collection system would not be constructed, allowing a public health hazard situation to continue endangering the health and safety of area residents. The anticipated growth and increase in population in the area would tend to further exacerbate the situation and could result in significant adverse effects in Anapra, with the potential to affect actions and activities on the U.S. side of the border.

2.2.2 Alternative 1. On the basis of the March 2003, study conducted by Solano Consultores, S.A. DE C.V., Mexico for Colonia Anapra, and recommended by the BECC, the preferred alternative is Alternative 1. Alternative 1 would build the sewer collection system, the mechanical (extended aeration process) WWTP at Site 2, and the pump station at Site 1. The WWTP would be designed to have three modules, each with a capacity of approximately 0.75 MGD. The first two modules would be built to provide service to the year 2011, and the third module would be constructed beginning in 2011 to provide treatment capacity to the year 2022. The proposed total capacity of the WWTP system is approximately 2.28 MGD. Treated effluent

would be reused and transported by gravity for public services such as irrigation. Any surplus treated effluent would be pumped to the Benito Juarez Reservoir. Both Site 1 and Site 2 are located less than one mile from the U.S.-Mexico border. Approximately four families would be relocated from Site 1 to areas with water and sewer services. No opposition is expected to their relocation. The selection was based on least impact to the environment, cost, practicality, and comprehensive service to Anapra residents.

2.2.3 Alternative 2. Alternative 2 would also build the sewer collection system, but both the mechanical (extended aeration process) WWTP and pump station would be constructed at Site 1. The WWTP would be designed to have three modules, each with a capacity of approximately 0.75 MGD, with the first two modules built to provide service to the year 2011. Construction of the third module would begin in 2011 to provide capacity to the year 2022. The proposed total capacity of WWTP system is approximately 2.28 MGD. Treated effluent would be pumped to a holding tank and distributed for reuse in designated areas. Any excess reusable water would be diverted to the Benito Juarez Reservoir. Approximately four families would be relocated from Site 1 to areas with water and sewer services. No opposition is expected to their relocation.

2.2.4 Alternative 3. Alternative 3 would also build the sewer collection system, but the WWTP would be constructed at Site 3 and the pump station at Site 1. The proposed WWTP would be lagoon-based system as opposed to the activated sludge system proposed for both Alternatives 1 and 2. The WWTP would be designed with three modules, each with a capacity of approximately 0.75 MGD. The first two modules would be built to provide service to the year 2011. Construction of the third module would begin in 2011 to provide capacity to the year 2022. The proposed total capacity of the WWTP system is approximately 2.28 MGD. Wastewater would be pumped from Site 1 to be treated at Site 3. Site 3 is less than two miles from the U.S.-Mexico border. The treated effluent would be pumped to a tank and reused for irrigation. Everything else would be the same as for Alternatives 1 and 2. Site 1 is near the U.S.-Mexico border. Approximately four families would be relocated from Site 1 to better areas where they will have access to water and sewer services. No opposition is expected in their relocation.

3.0 AFFECTED ENVIRONMENT

3.1 Affected Environment.

3.1.1 Land Use. Site 1 is topographically the lowest point in Colonia Anapra. The site is flat and has been previously disturbed. Except for four families that will be displaced, the site is mostly vacant land with garbage strewn throughout. Site 2 is located on a hill near Site 1, less than a mile from the border. Site 2 has also been previously disturbed with garbage dispersed at the bottom of the hill. Site 3 is the Benito Juarez Reservoir site and has been entirely disturbed. The reservoir is normally dry.

The majority of the land surrounding the project area is undeveloped. Land within a half-mile radius on the U.S. side of the border, near Sites 1 and 2, is undeveloped barren lands that may have been used for cattle operations but do not appear to have been used recently. Land use

in the urban areas of the city of Juarez has not been substantially modified since 1995. Specific land uses found in Anapra include housing, construction material and equipment storage yards, service oriented commerce, junk shops, undeveloped, and abandoned roads. Housing constitutes 45.17 percent of the urban area of Juarez and uncultivated land makes up 11.3 percent. Land use defined as roads decreased by 3 percent since 1995 to 22.78 percent, mixed use decreased to 2.275 percent, and undeveloped land dropped to 2.73 percent. Land use classified as industrial increased from 6.44 percent in 1995 to 8.34 percent, and land use classified as service oriented commerce rose to 7.40 percent.

The city of El Paso is located nearly two miles east of Site 3 on the eastside of Sierra de Cristo Rey, the surrounding hills, and the Rio Grande. The Rio Grande in this area runs north to south forming the western boundary of the city before cutting east and forming the southern boundary. Immediately across the Rio Grande in El Paso is the Southern Pacific Railroad line and Interstate Highway 10 (IH 10). Land use in this area includes the El Paso campus of the University of Texas, several areas of residential and light commercial development, two high schools, and Arroyo Park. The Sunland Park community is approximately one-half mile north of Site 2. Land use in the section of Sunland Park south of the Rio Grande consists primarily of residential development and light commercial establishments such as gas stations and convenience stores.

Geology, soils, and cultural resources would not be affected on the U.S. side of the border and there would be minimal effects expected at the Mexican side. According to field surveys conducted on July 24, 2003, Sites 1 and 2 are highly disturbed desert shrub habitats with sparse stands of typical desert shrub vegetation. In the vicinity of the proposed construction areas of both Sites 1 and 2 there are large areas with no vegetation. Due to the disturbed nature and proximity to regular human activity, these areas do not support wildlife sensitive to human activity. The area between Sites 1 and 2, and Sunland Park is less disturbed than Sites 1 and 2, and is more likely to support desert wildlife, although none was observed. Site 3 is a more densely vegetated desert shrub habitat that appears to include either creosotebush or tarbush.

3.2 Water Resources.

3.2.1 Surface Water. The proposed project area is located approximately one mile from the Rio Grande. Water quantity and quality in the Rio Grande is of major concern in the region. The water quality varies greatly due to the size of the basin and range of geologic and climatic conditions. Chloride, sulfate, and total dissolved solids concentrations are increasing in the Rio Grande due to repeated use of water for irrigation, especially in the west Texas portion of the basin. Metals and pesticides have been identified sporadically and elevated fecal coliform densities occur in the river downstream of major U.S.-Mexico border cities due to municipal waste treatment facilities in Texas and untreated wastewater in Mexico. Most of the water from the Rio Grande is diverted for irrigation and municipal uses before reaching El Paso and, together with extended droughts in the desert environment, creates challenges for U.S. and Mexico officials.

In Mexico, the treated effluent is required to meet the Mexican Official Norms for Environmental Protection NOM-003-ECOL-1997 (Table 2, *Environmental Assessment*

Document) which establishes the maximum permissible limits of polluting agents in the discharge of treated wastewater into waters of the nation and resources to protect water quality and make its re-utilization possible.

3.2.2 Groundwater. Anapra is situated over the Mesilla Basin which is part of the Rio Grande aquifer system extending into Mexico and into El Paso, Hudspeth, Jeff Davis, and Presidio counties on the U.S. side of the border. The Mesilla Basin lies largely in New Mexico and Mexico, with the western part of El Paso County in the southern end of the basin. The alluvial aquifer in the Mesilla Basin is a source of water for the municipal and industrial needs of El Paso. El Paso relies more on Rio Grande surface water and the Hueco Basin, which is also the main water resource for Ciudad Juarez. The Hueco Basin underlies parts of New Mexico, Texas, and Mexico. The unconsolidated alluvial deposits in the Hueco Basin consist of gravel, sand, silt, and clay and locally are as much as 9,000 feet thick in a deep trough adjacent and parallel to the Franklin Mountains. The deposits that comprise the Hueco Basin alluvial aquifer include the Rio Grande alluvium, which is probably not more than 200 feet thick. The alluvial deposits of the Mesilla Basin are of late Tertiary and Quaternary age and are composed of gravel, sand, silt, and clay. The deposits are predominantly coarse-grained around the margins of the basin and fine-grained near the basin center. The basin fill in the southeastern part of the Hueco Basin is mostly fine-grained and probably consists largely of playa deposits.

The regional demands for fresh groundwater have resulted in depletion of water in storage in parts of the Hueco Basin alluvial aquifer. Results of intensive pumping include declining water levels, decreased well yields, and deteriorating water quality. Planners anticipate that the demand for water in the region will soon exceed supply. To reduce demands and to increase future supplies, officials are implementing conservation practices and alternative supply programs.

3.3 Air Resources. The ambient air quality of Anapra is similar to the air quality of El Paso since the El Paso-Juarez region shares a common airshed. El Paso is a nonattainment area for ozone, carbon monoxide (CO), and particulate matter (PM), but according to recent studies, El Paso could meet the national ambient air quality standards were it not for its proximity to Ciudad Juarez. Vehicle emissions, especially older vehicles from Ciudad Juarez and at the congested border bridges are major contributors to the air quality of the area. The burning of car tires in Juarez and Anapra, the Camino Real landfill in Sunland Park on the U.S. side of the border, the dust from unpaved roads in Anapra and other areas along the border, and the frequent dust storms during the months of March and April, all contribute to the ambient air quality of the area.

Under the No-Action Alternative, the sewer collection system and WWTP would not be constructed. No new emissions would be generated and there would be no impacts to the ambient air quality. However, increased odor could be a problem as latrines are added with population expansion. The increased odor could present a negative impact to both the U.S. and Mexico. Alternative 1 would be constructed and operated in Colonia Anapra, Mexico. It is not likely that construction emissions would have a measurable impact on air quality in the United States or Mexico. Construction emissions, including the installation of the sewer connection lines and reclaimed water lines, would be temporary and easily mitigated with

appropriate control measures. Alternative 2, similar to Alternative 1, is not likely to have construction emissions with a measurable impact on ambient air quality in the United States. Alternative 3 would be located at a different site further away from the international border in Colonia Anapra. Similar to Alternative 1, it is not likely that construction emissions would have a measurable impact on air quality in the United States.

Air emissions from the operation of the new WWTP and pump station could enter the United States and contribute to the existing degraded air quality conditions along the U.S.-Mexico border because of the prevailing wind patterns. Implementation of appropriate control technologies on stationary sources (pump stations, generators, etc.) and during construction, to the extent practicable, would reduce emissions from the new facilities and limit contributions to pollutant levels in the Colonia Anapra and north at the international border. The engineering of the pumping station will consider proper design and operation, to avoid septic conditions, to address odor issues. Likewise, the wastewater treatment plant final design and operation manual will consider and address odor mitigation measures, both in the treatment process line and the treatment, dewatering and disposal of sludge units.

Real-time air quality data from Ciudad Juarez, Mexico is transmitted via a two-way radio system to the Texas Commission on Environmental Quality to collect real-time air quality data along the U.S.-Mexico border. Data samples include carbon monoxide, ozone and meteorological parameters. The EPA and Mexico's Instituto Nacional de Ecologia (INE) have developed national strategies to improve air quality based on the national ambient air quality standards. Both countries have established similar ambient air quality standards for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), particulate matter of 10 microns or less in diameter (PM_{10}), and lead (Pb).

3.4 Biological Resources. The proposed project study area is located within the Chihuahuan Desert, which is predominantly a shrub desert. Creosote bush (*Larrea tridentata*) is nearly ubiquitous. Tarbush (*Flourensia cernua*) is an indicator species for the Chihuahuan Desert life (Chihuahuan Desert Home Page, 2003). Tarbush is not as dominant as creosote bush, but forms extensive stands under proper soil and moisture conditions. Other common plants in the northern portions of the desert include four-winged saltbush (*Atriplex canescens*), Mariola (*Parthenium incanum*), and mesquite (*Prosopis glandulosa*). Succulents include a variety of small- to medium-sized cacti, yuccas (*Yucca elata, Yucca torreyi*), and agaves (*Agave lecheguilla*). Commonly observed grasses include black gramma (*Bouteloua eriopoda*) and tobosa grass (*Hilaria mutica*). Other plants include ocotillo (*Fouquieria spendens*), sotol (*Dasylirion* spp.), and the barrel cactus (*Ferrocactus wislizenii*) (Chihuahuan Desert Homepage, 2003).

The area surrounding Juarez is primarily a desert underbrush ecosystem characterized by small-leafed plants with traces of natural vegetation formed by pastures of salt tolerant species. Desert underbrush is found in the alluvial sandy ground occupying the flatland, valley floor, and the low areas of the alluvial fans. Some of the more noticeable types of vegetation are the creosote bush, mesquite, sweet acacia (*Acacia famesiana*), desert alchemy (*Flourensia cemua*), burro bush ambrosia (*Franseria dumosa*), cat claw mimosa (*Mimosa* spp.), chaparro prieto (*Acacia amentaceae*), and prickly pear cactus (*Opunita* spp.).

3.4.1 Wildlife Communities. Habitat at Sites 1 and 2 is highly disturbed and the encroachment of human activity and development have increasingly resulted in habitat loss. Mammalian wildlife frequenting Sites 1 and 2 are most likely limited to domestic animals. No mammalian species were observed at any of the proposed construction sites during a reconnaissance survey conducted on July 24, 2003. Mammalian scat was observed at Site 1. Sensitive wildlife, such as threatened and endangered species, are not likely supported by the habitat nor are they likely to frequent the area for any significant amount of time. Avian species observed at Sites 1 and 3 included common species, such as sparrows, crows, doves, and hawks. No other wildlife was observed at the time of the site visit.

Wildlife in the Anapra area are those typically found in the Chihuahuan Desert, including small insects, reptiles, amphibians, birds, and mammals. Animal species common to the Chihuahuan Desert include the desert cottontail (*Sylvilagus audubonii*), black-tailed jack rabbit (*Lepus californicus*), cactus mouse (*Peromyscus eremicus*), kit fox (*Vulpes velox*), cactus wren (*Campylorhynchos brunneicapillus*), greater roadrunner (*Geococcyx californianus*), mojave rattlesnake (*Crotalus scutulatus*), coachwhip snake (*Masticophis flagellum*), New Mexican whiptail lizard (*Cnemidophorus neomexicanus*), red-spotted toad (*Bufo punctatus*), and tiger salamander (*Ambystoma tigrinum*) (Chihuahuan Desert Homepage, 2003).

The following birds are commonly observed in rural areas outside the city of Juarez: the large crow, chalk-browed mockingbird (*Mimus saturninus*), acadian flycatcher (*Empidonax virescens*), various types of hawks and falcons, mourning dove (*Zenaida macroura*), and white wing dove (*Zenaida asiatica*). Reptiles include the rattle snake, house snake, various species of lizards, and chameleons. Insects and arachnidsinclude include grasshoppers, bees, wasps, centipedes, whip scorpion (*Mastigoproctus giganteus*), tarantulas, beetles, butterflies, ants, termites, black widow (*Lactrodectus* sp), daddy long legs (Family *Pholcidae*), and other species (BECC, 2003).

3.4.2 Threatened and Endangered Species. A site visit and reconnaissance survey was conducted on July 24, 2003. Due to the disturbed nature and proximity to urbanized areas, Sites 1 and 2 are not likely to support sensitive wildlife. Site 3 and the area between Anapra and Sunland Park is less disturbed and more removed from human activity, and could potentially support or be frequented by some threatened or endangered species. However, no threatened or endangered species were observed during the site visit. Listed endangered and threatened species that could potentially occur in the project area include the following:

Least tern (Sterna antillarum). Least terns nest on coastal beaches and estuaries near shallow waters and have been known to nest on manmade structures. Least terns have been observed in the El Paso area [Texas Parks and Wildlife Department (TPWD), 1998] at Rio Bosque Park and Feather Lake Wildlife Sanctuary (El Paso Audubon Society, 2003a/b). However, it is not likely that they would occur within Anapra due to the lack of adequate water supply.

Southwestern willow flycatcher (Empidonax traillii extimus). Southwestern willow flycatchers nest in riparian habitat characterized by a dense stand of intermediate sized shrubs or trees. With the loss of preferred habitat throughout the Southwest, southwestern willow flycatchers have been observed utilizing salt cedar (*Tamarix* sp.) thickets for nesting [U.S. Bureau of Reclamation

(USBR), 1996]. Due to the poor quality of the vegetation at the project site and the lack of riparian habitat, it is unlikely that this species would use the area.

Northern aplomado falcon (Falco femoralis septentrionalis). The northern aplomado falcon requires open country habitat, especially savanna and open woodland, and sometimes very barren areas, grassy plains and valleys with scattered mesquite, yucca, and cactus. Until 2002, when northern aplomado falcons successfully nested near Deming, New Mexico, the northern aplomado falcon was considered extirpated from the United States, with small populations remaining in Mexico (Forest Guardians, 2002).

Rio Grande silvery minnow (Hybognathus amarus). This species was formerly one of the most widespread and abundant species in the Rio Grande basin of New Mexico, Texas, and Mexico (NatureServe Explorer, 2003). As of the early 1990s, the species occupied less than 10 percent of its historic range (Bestgen and Platania, 1991; Bestgen and Propst, 1996). The current distribution of the species is in the middle of New Mexico outside of the project area.

Sneed's pincushion cactus (Escobaria sneedii var. sneedii). Sneed's pincushion cactus is found in dry limestone outcrops on rocky slopes in the desert mountains of the Chihuahuan Desert. The species flowers April through September with the peak season in April (TPWD, 2003a). The Sneed pincushion cactus was historically known only from the Anthony Gap area of the Franklin Mountains in Doña Ana County, New Mexico. It is presently known from most of the Franklin Mountains of El Paso County, Texas and Doña Ana County, New Mexico. It also occurs at the southern end of the Organ Mountains of New Mexico and in the Guadalupe Mountains of Texas and New Mexico. In all, there are 20 documented localities for this taxon; nine in the Franklin Mountains, two in the Organ Mountains, and nine in the Guadalupe Mountains [New Mexico Natural Heritage Program (NMNHP) 1985; U.S. Fish and Wildlife Service (FWS) 1986; FWS, 2003c]. None of the 20 documented locations are within the project area.

3.4.3 Listed Threatened Species. The NMNHP identifies 25 sensitive or endangered plant species occurring in Doña Ana County on the U.S. side of the border. The FWS lists eight species of birds, five mammals, and one fish as threatened or endangered occurring in either Doña Ana County or El Paso County (FWS, 2003a). The Texas Parks and Wildlife Department (TPWD) identifies two sensitive or endangered plant species occurring in El Paso County. None of these species or their habitat is known or expected to occur in areas affected by the project alternatives. The potential for occurrence of the sensitive plants is very low due to the highly disturbed nature of the landscape and small areas of native plant habitat in the area.

Bald eagle (Haliaeetus leucocephalus). Bald eagles have been observed at Rio Bosque Wetland Park along the Rio Grande in El Paso (El Paso Audubon Society, 2003a). Bald eagles visit the El Paso area during annual migrations to forage on fish and other food resources along the Rio Grande. Bald eagles typically nest in areas in proximity to streams or lakes with adequate food supply and away from human disturbance. The portions of the Rio Grande in the project area are surrounded by human activity that commonly detracts from bald eagles' desire for nest selection. There are no known bald eagle breeding areas in the El Paso area (Ortego, 2003).

Mexican spotted owl (Strix occidentalis lucida). Mexican spotted owls require remote, shaded canyons of coniferous mountain woodlands (pine and fir) for habitat. These owls are nocturnal predators of mostly small rodents and insects. They maintain day roosts in densely vegetated trees, rocky areas, or caves. The project area does not include the vegetative cover required by this species. Trees necessary for roosting are not found in the project area; therefore, this species is not likely to be found within the project area (TPWD, 2003a).

Numerous sensitive wildlife species are known or are expected to occur in the Chihuahuan Desert and, in particular, the general area of the proposed project. The Solano Consultores study identifies several plant species in the Anapra area considered to be in danger of extinction. Wildlife species known to be in danger of extinction in the State of Chihuahua include the beaded lizard, iguanas, vipers, and the desert tortoise (BECC, 2003). Because of the highly disturbed and/or urban nature of the project area, it is not likely that any of the species would occur in the project area. No special habitats are known to occur in the project area due to the conversion of land to other uses, and highly disturbed nature of the remnant native habitats.

3.5 Cultural Resources. Evidence of human occupation in southern New Mexico, West Texas, and North Central Mexico spans more than 12,000 years and suggests that during the Paleo-Indian period, from ca. 10,000 B.C. to 6000 B.C., humans inhabiting southern New Mexico were organized in small, highly mobile, hunter-gatherer groups who subsisted on available game. Material remains of Paleo-Indian populations include large lanceolate projectile points with prominent basal fluting, side scrapers, end scrapers, gravers, and drills.

3.5.1 Archaic period (6,000 B.C. - 200 A.D.). This period represents a continuum of human occupation lasting some 5,000 to 6,000 years in the American Southwest. During this period, subsistence strategies gradually shifted from the available resources in the preceding Paleo-Indian period to a broader-based hunting and gathering adaptation. Archaic period occupations may be distinguished by the recognition of a variety of projectile point styles (stemmed, shouldered, and side- and corner-notched), bifaces, flake scrapers, and drills. These sites typically consist of lithic and fire-cracked rock scatters that are often situated on mesa tops overlooking substantial arroyos or arroyo systems.

3.5.2 Formative period (A.D. 200-1450). This period is defined by the inception of ceramics. Early in this period, discrete ceramic and architectural traditions emerged that represent discrete culture regions. As defined by Lehmer (1948), the study areas lie within the Jornada Branch, a desert-adapted expression within the larger Mogollon culture region. The Jornada Branch includes three phases - Mesilla, Doña Ana, and El Paso, defined by changes in ceramic attributes and tradewares, and to some extent, residential structure types.

3.5.3 Precontact period (A.D. 1450-1581). This is a relatively brief span of approximately 130 years between abandonment of the region by Pueblo groups and the first documented encounter between Native Americans and Spanish explorers. Several cultural groups may have used the study areas during the Precontact period. According to Beckett and Corbett (1992), the Chinarra, Concho, Jano, Jocome, Manso, Suma, Piro, and Tarahumara may have occupied the local region. Unfortunately, archaeological evidence representing these groups has not been found or at least has not been recognized.

3.5.4 Protohistoric period (A.D. 1581-1659). The Protohistoric period represents the temporal span between first European-Native American contact and the Historic or settlement period. Many of the aboriginal groups inhabiting the region during the Pre-contact period also may have been present during the Protohistoric period. Contact between Native Americans and Europeans, however, undoubtedly wrought changes to aboriginal lifestyles. Not only did the introduction of new materials such as metals revolutionize subsistence activities, but a defensive (and offensive) posture was initiated among some Native American groups. This posture often resulted in a changed campsite preference (i.e., defensive overlook), which, along with the changes in material culture, is potentially visible in the archaeological record. The Mescalero Apache represent the only documented aboriginal Protohistoric inhabitants of the region.

3.5.5 Historic period (A.D. 1659-present). The date used for the onset of the Historic period is based on developments within the El Paso and Rio Grande valley areas. The first missions were established in El Paso by Fray Garcia in 1659 (Peterson and Brown, 1994) and northward expansion followed. As a result of the Pueblo Revolt in 1680, the Spanish were driven out of New Mexico and retreated south to El Paso. Within a month of the revolt, several thousand Spanish and Pueblo Indian refugees had arrived in the El Paso area. This area became the northernmost outpost of New Spain until the reconquest of Santa Fe by Governor Don Diego de Vargas in 1692.

3.6 Socioeconomics. The population density of Anapra is lower than that of Juarez, which has a population density of about 23.5 habitants per acre. Only 22.8 percent of residences in Anapra are considered multifamily housing. The type of housing material used for construction of homes reflects the level of the socioeconomic status of the region. The building materials used on the various types of homes in Anapra can be anything from quarry materials to adobe, concrete, wood, and sheets of cardboard. The demographic composition of the study area is predominantly Hispanic.

The primary sources of employment for inhabitants of Anapra are primarily bonded assembly plants known as *maquiladoras* in the city of Juarez. In recent years, there has been a reduction in employment due to the relocation of the *maquiladoras* to other parts of the country. The rate of unemployment increased by 3.2 percent in 2001 at the time when the city of Juarez had the fifth highest unemployment rate in the country and the largest loss of employment. Commercial activity within Anapra includes a grocery store, pharmacy, hardware, tortilla factory, and mechanic shops.

Public services in Anapra include electricity, street lights, public telephone, education and daycare facilities, a community center, clinic, churches, a police station, gasoline station, potable water utility office branch, and other services. Several parcels of land have been subdivided by the primary inhabitants to allow multifamily usage. In many cases, electrical lines servicing the primary residence on a property are split to provide electricity to the other residences on the subdivided lots. Propane and butane tanks are available through a distributor, but there is no natural gas service. Anapra roads are for the most part unpaved.

Gastrointestinal problems account for 47 percent of the diseases in the area usually from drinking water or by eating raw or undercooked foods that have been in contact with

contaminated water, and by poor personal sanitation. Anapra has high rates of hepatitis A, measles, shigellosis and tuberculosis, paralleling the statistics of conditions along the New Mexico border. Infectious diseases are the leading cause of death along the New Mexico border. Among the most common organisms or parasites found in untreated wastewater are E.coli (*Escherichia coli*), cholera (*Vibrio cholerae*), hepatitis A (*Enterovirus ssp*), Giardia (*Giardia lamblia*), Cryptosporidium (*Cryptosporidium parvum*), and helmint eggs.

4.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION

4.1 Potential Effects Associated with the No-action Alternative. The No-action Alternative would not implement the proposed project and there would be no direct impacts on the environment, no new emissions would be generated, and therefore, no air quality impacts. Without construction of the WWTP, Anapra would remain without sanitary sewerage collection and treatment system and residents would continue to live in an existing health hazard that would continue to get worse. Continuation in the use of latrines and onsite septic systems would tend to increase mortality rates, waterborne diseases, and the spread of infectious diseases such as hepatitis A, measles, shigellosis, tuberculosis, helminthes eggs, and protozoan, which can have a negative impact to both sides of the U.S.-Mexico border. An increase in odor would result as latrines are added with population expansion.

4.2 Potential Effects Associated with Alternative 1. Alternative 1 would build an activated sludge mechanical WWTP at Site 2 and the pump station at Site 1. The WWTP would consist of three modules with a capacity of approximately 0.75 MGD each. The proposed construction site is undeveloped but some clearing of vegetation, if present, might be necessary. At least four families would be relocated, but residents would benefit from the wastewater treatment system. The rate of waterborne and infectious diseases, the leading cause of death along the New Mexico border would be reduced or eliminated. Installation of the sewerage collection system would result in temporary disruption of existing roads and rights-of-way (ROW). Fugitive air emissions generated during the construction would be temporary and localized. There would be no impact to water resources from the installation of the sewerage collection lines.

Alternative 1 will be constructed and operated in Colonia Anapra, Mexico, and it is not likely that construction emissions would have a measurable impact on air quality in the U.S. or Mexico. Construction emissions will be temporary and can be easily mitigated with appropriate control measures. Air emissions from operation of the new treatment and pumping stations could contribute insignificant amounts of pollutants to the ambient air quality of the general area. Because of the prevailing wind patterns, odors emanating from operation of the new WWTP and pump station could be carried into the U.S. and contribute to the existing degraded ambient air quality of the metropolitan area. Proper operation of the facilities and the implementation of control technologies would help attenuate the effects of odors in the general area. Noise from construction and operation activities would attenuate over distance to background levels.

This alternative would benefit the available water resources in the area by reusing effluent to irrigate crops and other applications. The effluent would be treated to meet the standards of both the United States and Mexico. Since the proposed facilities would be constructed in a disturbed urban environment, there would be no impact to biological resources

and no mitigation would be required. A survey of the general area of the proposed treatment plant sites revealed no cultural resources. Concurrence would be obtained from the Instituto Nacional de Antropología e Historia (INAH) in Mexico once the final location and footprint of the plant is determined. No cumulative impacts to any resources is anticipated, and no mitigation is required in the United States and none expected in Mexico.

4.3 Potential Effects Associated with Alternative 2. The only difference between Alternative 2 and Alternative 1 is that Alternative 2 would build the activated sludge mechanical WWTP and pump station on Site 1. The impacts from Alternative 2 would be similar to those described for Alternative 1. About four families will be relocated from Site 1, but residents will benefit from the wastewater treatment system. As with Alternative 1, the water quality of the area would be improved and would decrease or eliminate the transmission of waterborne diseases caused from poor sanitation and organisms and parasites found in wastewater. The available water resources in the area would benefit through the reuse of treated wastewater for irrigation and other such applications.

Direct impacts could occur from the clearing of native vegetation, if present. Indirect impacts could include possible habitat fragmentation, isolation, and disturbance through increased human activity. Although reconnaissance of the general area of the proposed locations of the treatment plants revealed no cultural resources, the INAH would have to concur once the final location and footprint of the plant is determined. No mitigation is required in the U.S. and none expected in Mexico. Cumulative impacts resulting from implementation of Alternative 2 would be beneficial.

4.4 Potential Effects Associated with Alternative 3. This alternative is similar to alternatives 1 and 2 except that the WWTP would be located a little further away from the border. Site 3 is the Benito Juarez reservoir area, which is normally dry. The site is well-vegetated and would require clearing to construct the WWTP system. The habitat loss would not be significant, however, since the habitat in the surrounding areas is similar to that found at Site 3. Indirect impacts could include habitat fragmentation and isolation, and disturbance through increased human activity. There are no known occurrences of any threatened or endangered species on the proposed site. Municipal services would be upgraded with the creation of the wastewater treatment system in an area currently without any wastewater collection system. Impacts to water resources and water quality would be primarily beneficial since the available water resources would be improved by reusing treated wastewater for irrigation and other such applications, and by decreasing or eliminating the transmission of waterborne diseases from the poor sanitation measures and organisms and parasites found in wastewater.

Emissions from the operation of the treatment and pumping stations could contribute to the ambient air quality of the general area because of the prevailing wind patterns. However, using appropriate control technologies on stationary sources (pump stations, generators, etc.), and during construction, would reduce emissions from the new facilities. Implementation of Alternative 3 would displace the existing football field at the western edge of Site 3 and would require replacement with similar access and parking availability. This alternative would also remove Site 3 from being used as a stormwater collection area and would require an alternate site for stormwater storage during significant storm events.

A survey of the general area of the proposed construction sites revealed no cultural resources and the INAH will be asked to concur with this finding once the final location and footprint of the plant is determined. Should the lagoon-based treatment system not meet the future demand of the area, additional treatment plant capacity would have to be built. Any cumulative impacts resulting from implementation of Alternative 3 would be positive.

4.5 Unavoidable Adverse Impacts. No significant unavoidable adverse impacts are expected to occur. A temporary increase in employment may be generated locally during construction of the treatment plant and pump station. Additionally, local businesses, such as gas stations and convenience stores, may see a temporary increase in business from nonresidents working on the construction of the treatment plant.

4.6 Relationship of Short-Term Uses and Long-Term Productivity. In the short term, construction of the WWTP facilities and collection system will cause temporary traffic disruptions and increased truck traffic and fugitive dust emissions. The long-term benefit of providing the population with a wastewater treatment system will more than offset any short-term inconveniences.

4.7 Irreversible and Irretrievable Commitments of Resources. The only irreversible irretrievable commitment of resource would be the financial, energy and equipment, and substantive resources used to construct the WWTP and facilities.

5.0 LIST OF PARTIES ON THE MAILING LIST

U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
International Boundary and Water Commission
Border Environment Cooperation Commission
North American Development Bank
Texas Commission on Environmental Quality
Texas Parks and Wildlife Department
Texas Water Development Board
Secretaria de Comunicaciones y Obras Publicas
Secretaria de Planeacion y Evaluacion
Secretaria de Desarrollo Urbano y Ecologia
Junta Rural de Agua y Saneamiento de Puerto Palomas, Chihuahua
Comision Nacional del Agua, Subdireccion General Tecnica
Junta Municipal de Agua Y Saneamiento de Juarez (JAMAS)
Instituto Nacional de Antropología e Historia (INAH)
Secretaria del Medio Ambiente, Recursos Naturales Y Pesca (SEMARNAP)
State Epidemiologist, Ciudad Juarez
El Paso Water Utilities

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