



Environment

Submitted to:
Bureau of Land Management
Carlsbad, New Mexico

Submitted by:
AECOM
Fort Collins, Colorado
June 2010

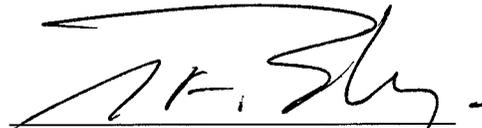
HB In-Situ Solution Mine Project Environmental Impact Statement Socioeconomic and Environmental Justice Technical Report

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1.0 Introduction

This Socioeconomics Technical Report (STR) has been developed in support of the socioeconomics assessment for the HB In-Situ Solution Mine Project Environmental Impact Statement. The STR describes existing conditions for key socioeconomic resources. These conditions provide the baseline against which the temporary, short-term and long-term socioeconomic effects of the proposed project will be assessed. The scope of the STR reflects public concerns identified in scoping, as well as guidelines for impact assessment as defined by the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and the Bureau of Land Management's (BLM's) planning guidelines.

2.0 Affected Environment

2.1 Analysis Area

The proposed HB In-Situ Solution Mine Project would be located in east-central Eddy County, New Mexico, about 20 miles east of the City of Carlsbad (2008 population 25,629), the Eddy County seat. Eddy County and Carlsbad comprise the primary study area for socioeconomic effects of the Proposed Action and alternatives. Eddy County provides most of the services to the project area, and the majority of the project's construction and expanded operations work forces are likely to live in Carlsbad, based on the distribution of Intrepid's current work force (**Table 1**).

Table 1 Residency Distribution of Intrepid's Current Work Force, October 2009.

	Carlsbad	Loving	Hobbs	Elsewhere in New Mexico	Out of State
Number of Workers	550	36	22	13	8
Percent of Total	87.4%	5.7%	3.5%	2.1%	1.3%

Source: Intrepid Potash, November 2009

The Eddy County community of Artesia is over 30 miles from the project area and is unlikely to be substantially affected by construction and operation of the Proposed Action or alternatives. Less than 1 percent of Intrepid's current work force (a total of three workers) currently lives in Artesia. Permanent and temporary employees at the Federal Law Enforcement Training Center have absorbed much of the available housing in both Carlsbad and Artesia (Waters 2010). The Village of Loving has no motels, recreational vehicle (RV) parks, or mobile home parks and is therefore unlikely to host construction workers. Although Loving could accommodate a few additional operations workers, based on the existing distribution of Intrepid's current work force, it is unlikely to experience substantial socioeconomic impacts from implementation of the HB In-Situ Solution Mine Project.

A few of Intrepid's present work force live in Hobbs (2008 population 30,746), located about 35 miles east of the project area in neighboring Lea County. More than a 15 motels and several large RV parks are located in Hobbs, nearby Eunice (2008 population 2,771) and the surrounding area. These accommodations serve tourists, the region's natural resource industry, and much of the nonlocal construction work force for the Louisiana Energy Service's National Enrichment Facility (NEF) (New Mexico Business Weekly 2008).

The NEF construction activity is scheduled to scale back from about 700 to 350 to 400 construction workers in late 2010/early 2011. As the scale back occurs, some Hobbs and Lea County-based construction contractors and workers who currently work at the NEF may become available and commute to the HB In-

Situ Solution Mine project. Others may seek permanent jobs at the NEF, which will be ramping up to its anticipated operations level of 350 workers during this period (Brooks 2010). The decline in construction activity also may trigger a weakening in demand for temporary housing, resulting in lower rates, which could attract some temporary construction workers working on the proposed HB In-Situ Solution Mine Project despite Hobbs being more distant from the project area than is Carlsbad. However, the number of such workers is likely to be small and they would, in essence, be replacing a temporary population already being served. It is therefore unlikely that Hobbs would experience substantial socioeconomic impacts from the proposed HB In-Situ Solution Mine Project.

The potential for effects on other sectors of the local economy (e.g., oil and gas, ranching and grazing, and outdoor recreation) and the linkages to the regional economy also is considered in subsequent sections of this assessment.

2.2 Socioeconomic Setting and Communities of Place

2.2.1 Eddy County

Settlement of southeastern New Mexico by people of European descent began in the latter part of the 1800s, after the passage of the Homestead Act. Eddy County, formed in 1889, was initially settled by ranchers and later by farmers as irrigation projects were developed. A railroad linking El Paso, Texas, with Roswell, New Mexico, was constructed through the county during the 1890s and passed through the Town of Eddy, which became Carlsbad in 1899.

In addition to farming and ranching, the historic economic base for Eddy County includes tourism and recreation, initiated by discovery of Carlsbad Caverns, which became a National Monument in 1923 and a national park in 1930; oil and natural gas, which began with the 1909 discovery of oil near the Town of Dayton, 8 miles south of Artesia; and potash, which was discovered east of Carlsbad in 1925 (Eddy County 2007). Other major employers include the United States (U.S.) Department of Energy's Waste Isolation Pilot Plant (WIPP), and the Federal Law Enforcement Training Center (FLETC). WIPP, the first transuranic waste storage facility in the nation, was authorized by Congress in 1980 and began disposal operations in 1999. WIPP is located about 30 miles east of Carlsbad and employs about 600 people. FLETC, located near Artesia, provides law enforcement training for local, state, federal, and international agencies. At any one time, the center trains about 1,000 men and women who live in dormitories on-site and are instructed and supported by 300 to 400 staff who live in nearby communities (Eddy County 2008; Carlsbad 2009).

2.2.2 City of Carlsbad

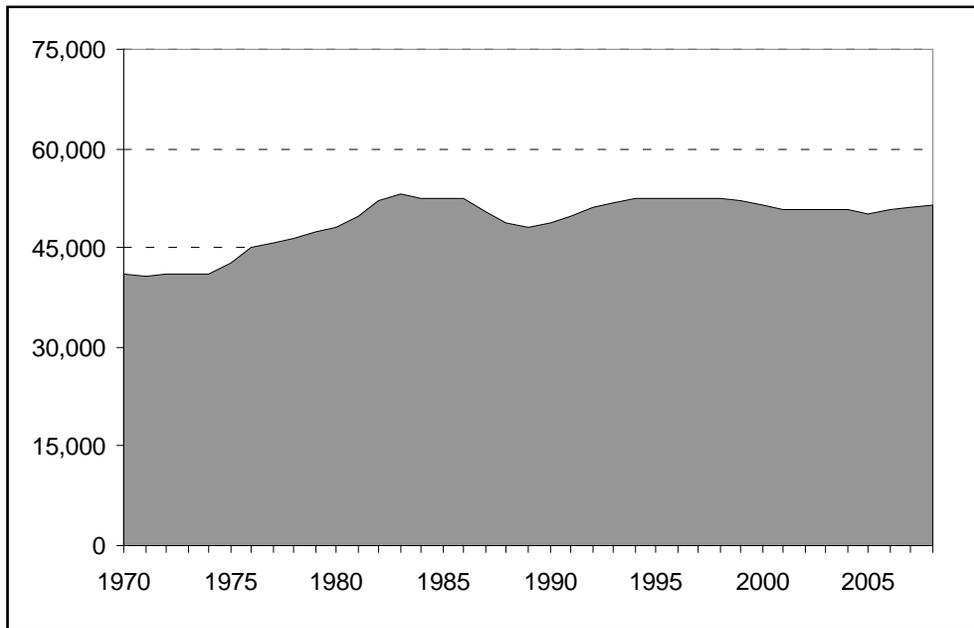
The City of Carlsbad (2008 population 25,629) is located near the center of Eddy County on the Pecos River, about 275 highway miles southeast of Albuquerque. Carlsbad is the governmental and commercial center of Eddy County and the Carlsbad Medical Center and the Carlsbad campus of New Mexico State University provide regional health care and higher education services. Carlsbad hosts a number of service companies for the potash and oil and gas industries and is a tourism service center for Carlsbad Caverns, one of the largest tourist destinations in New Mexico. Increasingly, Carlsbad is seen as a retirement community because of climate, the amenities afforded by the Pecos River, and area recreation attractions such as golf courses (City of Carlsbad 2009).

2.3 Population and Demographics

2.3.1 Population Trends

Long-term population growth trends in Eddy County reflect a series of important economic and demographic influences and events (**Figure 1**). Eddy County experienced a near-decade long period of population growth spanning the late 1970s and early 1980s. Oil and gas development in the region was the major driver of this growth as the potash industry had matured and actually experienced declines in production. Resident population peaked at 53,266 in 1983. A brief period of marked population contraction followed when the county lost about 5,000 residents. Renewed growth occurred in the early 1990s, but since then, population

has trended gradually downward. Between 2000 and 2008, the U.S. Census Bureau estimates a net loss of 298 residents in Eddy County.



Source: U.S. Bureau of Economic Analysis 2009; U.S. Census Bureau 2009a.

Figure 1 Eddy County Population, 1970 to 2008

Settlement patterns within Eddy County have remained relatively unchanged in recent years. Approximately half of the population resides in Carlsbad and another 20 percent in Artesia. Approximately 1,300 residents live in Loving, with the remainder in unincorporated areas of the county, as shown in **Table 2**. A slight shift in population settlement occurred as Artesia gained 302 residents, but those gains were more than offset by declines in the remainder of the county.

Table 2 Population Settlement within Eddy County, 2000 to 2008

Area	2000	2004	2008	Change
Eddy County	51,658	50,803	51,360	-298
Carlsbad	25,625	25,309	25,629	4
Artesia	10,692	10,646	10,994	302
Loving	1,326	1,337	1,340	14
Remainder of the County	14,015	13,511	13,397	-618

Source: U.S. Census Bureau 2009a,b.

Despite the strong economic gains in recent years, net out-migration from the community has been the dominant trend affecting local population levels. Between 2000 and 2008, net out-migration of nearly 1,900 residents more than offset the net natural increase of approximately 1,600 residents¹, as shown in **Table 3**.

¹ Natural increase, defined as the net difference between the number of births and deaths among residents.

Table 3 Components of Population Change, Eddy County, 2000 to 2008

Type of Population Change	Number of People
Natural Increase	1,583
Net International Migration	305
Net Domestic Migration	-1,894
Total Population Change – Eddy County	-298

Source: U.S. Census Bureau 2009a,c.

The median age of Eddy County residents is 37.0 years, with 13.9 percent of all residents aged 65 and over. Both of these values are slightly above the comparative statistics for the state; 35.8 years for the median age and 12.8 percent of residents 65 and older. At the same time, Eddy County has a larger share of youthful residents under the age of 18 (**Table 4**).

Table 4 Age Distribution and Median Age of the Resident Population 2006 to 2008

Location	Under 18 (%)	18 to 64 (%)	64 and Over (%)	Median Age
New Mexico	25.5	61.7	12.8	35.8
Eddy County	26.1	60.0	13.9	37.0

Source: U.S. Census Bureau 2009d.

The local population has a higher percentage share of whites and lower shares of minorities and residents who are Hispanic or Latino than does the statewide population (**Table 5**). The differences reflect historical influences and events. One such factor is that there are no Indian reservations in Eddy County, unlike in many parts of New Mexico. The establishment of large profitable ranches, followed by rail service, the subsequent promotion of the area's climate to outsiders for seasonal residence and vacations, and the discovery of oil and gas, all promoted an immigration of whites to the area, the influences of which continue to the present day.

Table 5 Racial and Ethnic Population Composition, 2000

Location	Percent of the Total Population			
	White and not Hispanic or Latino	American Indian and Alaska Native and not Hispanic or Latino	Other Races, Two or More Races, and not Hispanic or Latino	Hispanic or Latino Ethnicity
New Mexico	41.9	8.7	4.9	44.5
Eddy County	53.7	0.3	3.9	42.1

Source: U.S. Census Bureau 2000.

2.3.2 Projected Long-term Population Growth

Long-term population projections are presented for Eddy County in **Table 6**. Those projections, prepared by the University of New Mexico Bureau of Business and Economic Research (UNMBBER) and released in 2008, anticipated a 2010 population of 54,145, climbing to 60,764 by 2030. The projected growth represents

a compounded annual growth rate of 0.6 percent. Those projections, however, likely reflect a continuation of pre-recession natural resource development trends. Thus, it would be reasonable to expect that the recent economic downturn could manifest itself in lower growth in the future.

Table 6 Long-term Population Projections to 2030 for Study Area Counties

	2005	2010	2015	2020	2025	2030
Eddy County	52,167	54,145	56,331	58,294	59,731	60,764

Source: UNMBBER 2008.

2.4 Employment, Labor Force, and Economic Structure

Changes in labor market conditions in the study area over time portray the economic growth that has occurred locally more so than the changes in population described previously. From 2000 to 2009, the local labor force expanded by more than 5,600 workers (24.3 percent) and the number of employed climbed by 25 percent. Between 2003 and 2008, strong economic growth in the area nearly halved the number of unemployed. Since then, the global recession, mortgage-lending crisis, and sharp curtailment in energy development activity contributed to a doubling of unemployment (**Table 7**). Unemployment continued to climb through 2009, reaching 6.0 percent by year's end.

Table 7 Trends in Eddy County Labor Market Conditions, 2000 to 2009

Year	Labor Force	Employed	Unemployed	Average Annual Unemp. Rate (%)
2000	23,273	21,951	1,322	5.7
2001	23,497	22,323	1,174	5.0
2002	23,831	22,430	1,401	5.9
2003	24,099	22,647	1,452	6.0
2004	24,168	22,781	1,387	5.7
2005	24,557	23,415	1,142	4.7
2006	25,362	24,461	901	3.6
2007	26,413	25,672	741	2.8
2008	27,845	27,063	782	2.8
2009 (est.)	28,930	27,419	1,511	5.2
% Change 2000 to 2009	24	25	14	-9

Source: U.S. Bureau of Labor Statistics 2010.

The economic growth that occurred in Eddy County for several years prior to the current economic recession was associated with an increase in energy resource development, strength in the region's tourism and recreation economy, residential construction, lifestyle migration, and the opening of the FLETC in Artesia. Employment data shown in **Table 8** show the increases in mining and construction that were two key drivers of the growth. Although not shown in **Table 8**, mining and construction also are key sectors in the Lea County economy, with nearly 5,400 mining jobs and 2,340 construction jobs reported in June 2009. Many of the latter are associated with the NEF, which as described above is anticipating reductions in the size of its

construction work force in late 2010/early 2011. The timing of those reductions relative to the demand for workers for the proposed HB In-Situ Solution Mine Project could be an important factor affecting the number of temporarily relocating NEF workers.

Table 8 Trends in Eddy County Mining and Construction Employment, 2000 to 2009

Industry	2003	2004	2005	2006	2007	2008	2009 (June)
Mining	2,492	2,699	2,821	3,124	3,359	3,752	3,515
Construction	1,162	931	1,064	1,113	1,491	1,921	1,815
Total Covered Employment	19,677	19,743	20,234	21,051	22,030	23,207	23,557

Source: U.S. Bureau of Labor Statistics 2010.

Non-farm private employment accounted for 83.9 percent of all jobs in Eddy County in 2007. In addition to mining and construction, the other key industries include retail and wholesale trade, health care, and accommodation and food services. The latter reflects the important role of tourism and recreation, much of which is tied to nearby Carlsbad Caverns National Park (400,000+ visitors per year), Guadalupe Mountains National Park (nearly 200,000+ visitors per year), and two state parks (150,000 to 200,000 visitors per year) (National Park Service 2010; Padilla 2010). The Carlsbad Youth Sports Complex hosts a number of sports tournaments each year, drawing participants and their family to the area (Burgess 2010).

Agriculture and government are two other important aspects of the local employment base. Farm employment accounted for 3.1 percent of all employment in Eddy County; about 40 percent higher than the statewide average. Public sector employment, including public education, stood at 13 percent in 2007, substantially lower than the 18.8 percent of covered employment statewide (**Table 9**). The opening and operations of the FLETC, which expanded over time, now account for a substantial segment of the government jobs in the county.

Table 9 Eddy County Employment, by Major Category, 2007

Geographic Area	Full and Part Time Employment by Category				% of Total Employment		
	Farm	Non-farm Private	Government	Total	Farm	Non-farm Private	Government
New Mexico	24,508	881,017	210,152	1,115,677	2.2	79.0	18.8
Eddy County	911	24,754	3,828	29,493	3.1	83.9	13.0

Source: U.S. Bureau of Economic Analysis 2009.

Despite the concentration of jobs in mining, the area's agriculture, tourism and federal government sectors provide Eddy County's economy with a greater degree of economic diversity than many rural economies that are heavily dependent on a single major industry or source of economic production. This diversity diminishes the regional economy's susceptibility to severe economic distress from adverse changes to a single element of its economic base and enhances its economic resilience.

Natural resource development, ushered in by the discovery of oil in 1909 and the discovery of potash in 1925, has long been an integral mainstay of the area economy. Not only does such development provide many jobs, but the capital investment, spending, and production generates substantial tax revenues to

support state and local government and public education (Eddy County 2007). Several indicators of the industry's importance include the following:

- In 2007, the local mining industry reported total employee earnings of \$383 million, equivalent to 21 percent of the total personal income in Eddy County in that year.
- During the second quarter of 2009, a total of 116 mining establishments were reported in Eddy County by the New Mexico Department of Labor: 38 active in oil and gas extraction, 8 in conventional mining, and 70 in support activities for mining. Irrespective of the differences in the numbers of establishments, each of the three segments had about 1,150 employees.
- For tax year 2008, the net taxable value on oil and gas and mineral production in Eddy County topped \$1.4 billion, with another \$286 million in net taxable value on oil and gas equipment.
- The combined \$1.7 billion in taxable value on oil and gas and mineral production ranked Eddy County third highest among New Mexico counties in terms of resource-related valuation; neighboring Lea County (oil and gas) was first, followed by San Juan County (coal and gas) (New Mexico Taxation & Revenue Department 2009).
- In 2007, local potash production had a market value of approximately \$270 million. The market value of oil and gas production was not reported for the same period, but was several times greater based on the reported production of 21.1 million barrels of oil and 262.5 million MCF (MCF = 1,000 cubic feet of gas) of gas.

The area of commercially viable potash is surrounded by existing oil and gas development and also overlies commercially recoverable carbon-based reserves. The overlap of resources and management of the area under the 1986 Secretary's Potash Order has contributed to tensions between the two industries (see Section 2.8.3).

2.4.1 Farming and Ranching

The local agriculture industry is another element of the area's economic base. Recently released data from the 2007 Census of Agriculture provides the following characteristics regarding local farming and ranching in the area (U.S. Department of Agriculture 2009).

- There were 543 farms and ranches in Eddy County, with a total associated land area of 1.11 million acres.
- Compared to 2002, there were 33 more farms and ranches, but they operated 75,000 fewer acres.
- In 2007 the farms and ranches produced a combined \$94.8 million in crops and livestock sales, of which 58 percent came from livestock sales. The three top commodities, ranked in terms of market value, are milk and dairy products, hay and other forage, and cattle and calves.
- Dairy operations comprise an important element of the local agriculture industry with 12 farms reporting a combined total of 12,742 dairy cattle in 2007. Those numbers compare to 175 farms and ranches reporting a total of 17,781 beef cattle.
- About 46 percent of all farms and ranches were operated by individuals indicating that agriculture was their primary occupation. Operators on the remaining 54 percent had a primary occupation away from the agricultural operations.
- About 43 percent reported no sales or less than \$5,000 in sales of livestock or farm products in 2007, 24 percent having annual sales of \$50,000 or more.
- Many farmers and ranchers in the area utilize grazing on public lands to help sustain their operations. Grazing on public lands allows ranchers to use available private irrigated lands to grow hay for use as winter feed or for sale as a cash crop. Although the degree of dependency on grazing is unknown, there are approximately 4,500 animal unit months of grazing within the project area.

2.5 Personal Income and Poverty

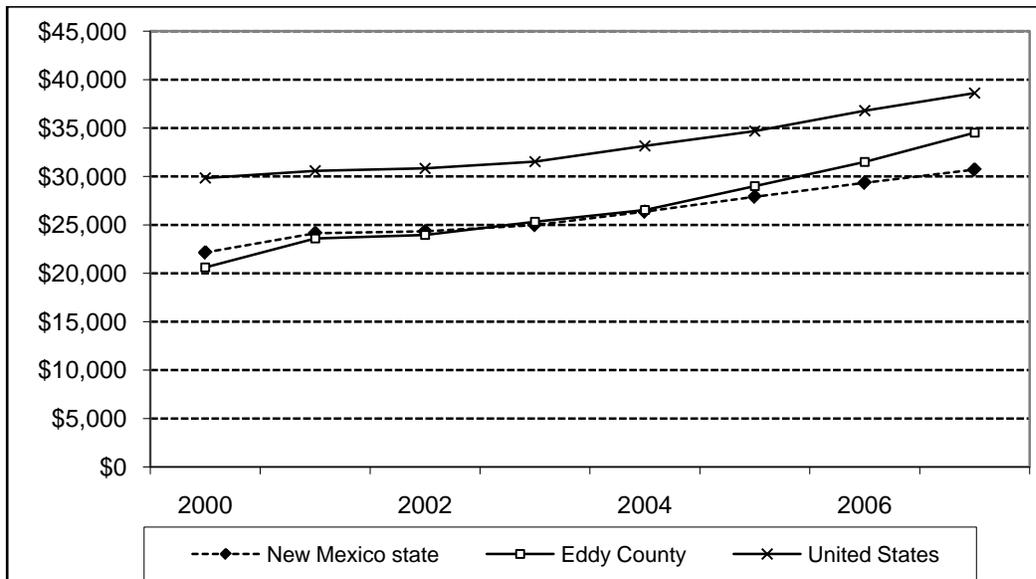
Personal income is an important measure of economic well-being for communities and individuals. Total annual personal income trends in the study area reflect the key economic and demographic conditions described above. For the period of 2000 to 2007, Eddy County registered a 66 percent increase in total personal income, from \$1.06 to \$1.76 billion (Table 10), 16 percent higher than the 50 percent growth registered statewide. In 2007, Eddy County accounted for nearly 3 percent of statewide personal income. General inflationary trends would account for about 20 percent of the changes, and population changes account for a small portion, but the majority of the increases reflect economic growth and rising income. The residual translates into real per capita income growth over time.

Table 10 Changes in Total Personal Income (in millions), 2000 to 2007

Year	New Mexico	Eddy County	Lea County
2000	\$40,318.4	\$1,059.6	\$1,103.5
2007	\$60,318.4	\$1,759.3	\$1,887.7
% Change	50	66	71

Source: U.S. Bureau of Economic Analysis 2009.

For many years, per capita income in Eddy County lagged or was comparable to the statewide average, both of which lag behind the national average. In recent years, local personal income growth in Eddy County has outpaced that across the state such that per capita personal income in 2007 was nearly \$4,000 per person higher in Eddy County, compared to the statewide average (\$34,523 versus \$30,706). Despite the relatively rapid growth in income locally, per capita income in Eddy County continued to lag behind the national average by nearly \$4,100 per resident, as shown in Figure 2. In real terms after adjusting for inflation, per capita personal income increased by 40 percent in Eddy County from 2000 to 2008, compared to 16 percent across the state and 8 percent across the nation.



Source: U.S. Bureau of Economic Analysis 2009.

Figure 2 Trends in Per Capita Income, 2000 to 2007

The trends in total and per capita personal income in Eddy County manifest themselves in modest reductions in the local incidence of poverty and higher median household incomes. In 2008, an estimated 15.3 percent of all residents of Eddy County had incomes below the established poverty income, with approximately 600 fewer residents in poverty, compared to 2004. During that same period, the median household income in Eddy County climbed more than \$7,400, surpassing the statewide median in the process (U.S. Census Bureau 2009e).

2.6 Housing

Existing housing conditions within the study area are described in this section.

2.6.1 Eddy County

Eddy County housing stock has changed little since the 2000 census, adding about 259 units or just over one percent of total housing units by 2008 (see **Table 11**). However, the U.S. Census Bureau reports the issuance of building permits for more than 700 new units during that same period, suggesting that much of the construction was for replacement demand. Virtually all of the permits were for new single family units (U.S. Census Bureau 2009f).

Table 11 Eddy County Housing Estimates: 2000 – 2008

Location	2000	2001	2002	2003	2004	2005	2006	2007	2008	Change 2000- 2008
Eddy County	22,249	22,357	22,381	22,383	22,384	22,371	22,415	22,456	22,534	285 or 1%

Note: All estimates as of July 1, except for 2000, which uses the April U.S. Census housing count.

Source: UNMBBER 2009.

According to the Eddy County Comprehensive Plan (Eddy County 2008), 69.2 percent of total units in the year 2000 were detached single family homes, 17.4 percent were mobile homes, 9.4 percent were multi-family structures of two or more units, and 2.1 percent were single family attached units. An estimated 87.1 percent of all Eddy County housing units were occupied in 2000, of which 74.3 percent were owner-occupied and 25.7 percent were renter-occupied.

Affordable work force housing is an issue for municipalities in Eddy County, resulting in some workers not being able to find affordable housing in the communities where they work (Eddy County 2008).

2.6.2 Carlsbad

The bulk of the non-local portion of the construction work force for the proposed project would likely reside in Carlsbad, as would the majority of new operations work force. The non-local construction work force would seek temporary housing accommodations such as hotels, motels and RV parks. Depending on availability and rates, some may choose to commute to the Hobbs area, despite the increase in commuting distances. The few new operations workers would seek conventional housing such as single family homes and condominiums, rental houses and apartments, and mobile homes. The City of Carlsbad completed a Housing Analysis and Strategic Plan for the Greater Carlsbad Area (housing analysis) (Carlsbad 2009). Key findings of the housing analysis were that:

- Carlsbad is experiencing a housing shortage that impacts the community's quality of life and hinders the expansion potential of the local economy.

- Young, working families and retirees are the primary market for housing. The greatest need is for multi-family rentals, particularly two and three bedroom units. There also is a need for single-family detached homes.
- There is a tremendous need to rehabilitate or replace an old and poorly maintained housing stock.
- There is an unmet demand for low-income and affordable housing.
- There are a number of constraints and impediments to the development of new housing in Carlsbad, including the absence of utility (water, wastewater, and storm drainage) infrastructure in certain areas of the city, and the difficulty in obtaining financing in the current (early 2010) market. Nevertheless, there is some active residential subdivision activity in the community.

The housing analysis identified 12,501 housing units within the Greater Carlsbad area (the city and the planning area within a 5-mile radius of the city limits). There was an estimated total of 11,452 units within the city limits. Of the Greater Carlsbad total, 10.3 percent (1,398 units) were mobile homes and trailers and about 9 percent (1,082) units were in multi-family complexes of 3 to 50 or more units. The remainder included attached and detached single family units, and boats, RVs, and vans.

According to the housing analysis, over 70 percent of the housing is owner-occupied. Although both the 2000 Census and the housing analysis estimated the vacancy rate at over 12 percent, only 2 percent were vacant for rent and 6 percent were vacant for sale at the time of the census. The housing analysis states that interviews with apartment managers revealed a vacancy rate in apartment buildings approaching zero; not a single apartment complex manager contacted for the housing analysis reported a vacancy and all had waiting lists.

The housing analysis reported 120 housing units for sale during October and November 2008, representing less than 2 percent of the total housing stock. The housing market remains tight, as demonstrated by information from the National Association of Realtors indicating 168 units currently listed for sale in Carlsbad, 32 of which are listed at or over \$300,000 (National Association of Realtors 2009).

Regarding existing and future housing needs, the housing analysis identified an existing need for 20 to 50 market-rate temporary housing units and a future need for an additional 50 units per year. 120 market-rate ownership units are currently needed, as well as 100 to 120 additional units in the future. In addition a total of 1,617 units are needed for low-income and cost-burdened households. There is a need for transitional housing units for special needs populations, a need to rehabilitate or redevelop 916 units that are currently in poor condition (some of these units overlap with the low income need), and a need to develop 20 to 30 units per year for retirees.

Currently, there is substantial subdivided land within the city that is being developed on a lot by lot basis. There also are two single-family home subdivisions that have been approved, one with about 200 units and the other with about 85 units. Some new home construction occurred in these subdivisions in recent years.

Two other subdivisions have received zoning approval, one includes lands zoned for about 200 multi-family apartments and 100 single family homes, and the other is zoned for about 185 apartments. The subdivisions are intended to support market rate sales and rentals. At the time of this assessment (first quarter 2010) the developers of these subdivisions were still seeking development financing (Shumsky 2010).

Carlsbad has 10 major motels and 4 major RV parks. During the last surge in oil and gas development, these motels were used heavily by oil and gas field workers, which sometimes resulted in a lack of availability for tourism and recreation visitors (Burgess 2010).

2.7 Public Infrastructure, Services, and Local Government Fiscal Conditions

Public infrastructure and services within the socioeconomic study area are provided by Eddy County, the City of Carlsbad, and by a number of special districts and volunteer agencies.

2.7.1 Water

There are 30 public water systems within Eddy County. The City of Carlsbad's water system serves the community likely to host most of the work force associated with the proposed HB In-Situ Solution Mine Project.

Carlsbad is served by two separate well fields. Approximately 98 percent of Carlsbad's water is pumped from 9 wells located 7 miles southwest of the city. The remainder is provided by the Double Eagle well system located in northwestern Lea County, which draws water from the Ogallala aquifer. Carlsbad is currently implementing a \$45.3 million capital improvement program for its water and wastewater systems (City of Carlsbad Undated).

2.7.2 Wastewater

The Carlsbad Sewage Collection System is operated by the Carlsbad Water Department. The system includes a combination of gravity-fed collection mains and 12 lift stations. All 12 lift stations feed a single primary lift station, which pumps all collected sewage to a wastewater treatment plant. The plant treats an average of more than 2.5 million gallons of sewage per day, and is designed to treat up to 6 million gallons per day (City of Carlsbad 2003).

2.7.3 Solid Waste Disposal

Eddy County operates the Sandpoint Landfill, which is located approximately 12 miles east of Carlsbad on Highway 62/180. The City of Carlsbad provides solid waste collection services (Eddy County 2008; City of Carlsbad 2003).

2.7.4 Law Enforcement

There are 10 local law enforcement agencies operating in Eddy County. The Eddy County Sheriff's Department would provide law enforcement services to the project area and along access routes to the area. The Sheriff's Department operates a dispatch center for the rural and unincorporated parts of the county. Eddy County also operates a detention center for adults and juveniles. Carlsbad maintains a municipal police department and has its own dispatch center (Eddy County 2008).

2.7.5 Emergency Response (Fire and Ambulance)

There also are 12 volunteer fire departments (VFDs) in Eddy County. The VFDs maintain a total of 20 fire stations and 65 pieces of firefighting equipment (Eddy County 2008). The La Huerta VFD serves the project area and the Otis VFD provides backup, if needed. Carlsbad maintains a staffed fire department that serves the city, but which also immediately responds to structure fires near and within the project area and will respond to rangeland fires in that area within 5 minutes if no volunteer agency responds. Emergency Medical Technicians from the Carlsbad Fire Department respond to injury accidents and health care emergencies within and near the project area, with back-up from the VFDs when available (Arnwine 2010; Burgess 2010)

2.7.6 Health Care

The Carlsbad Medical Center is the acute care hospital that would serve workers from the proposed project, both for routine health care and for emergency care such as major injuries sustained at work. Two other health care facilities, the Carlsbad Family Health Center and the Surgical Center of Carlsbad, provide routine health care services for residents of the community. Eddy County provides a variety of public health care and indigent health services.

2.7.7 Public Education

The Carlsbad Municipal School District operates 11 primary schools, 2 middle schools, and 1 high school. There is one private elementary school in Carlsbad. Fall enrollment for the 2009-2010 school year is 5,837 students (Eddy County 2008; New Mexico Public Education Department 2010).

2.8 Mining as it Relates to Public Sector Fiscal Conditions

Public sector fiscal conditions in the region are integrally linked to natural resource development and the presence of public lands in the study area. State and many local entities derive substantial revenues from development activity. The major revenue sources include payments in lieu of taxes on federal lands, gross receipts taxes on the taxable value of commodities sold, (as well as on purchases by energy firms, their vendors and employees), mineral royalties and severance taxes, and ad valorem taxes on the value of production and mining equipment. Recent receipts from several of these sources are highlighted below in order to demonstrate their significance.

- Payments in lieu of taxes (PILTs): PILTs are transfers from the federal government to counties with PILT-eligible property within their boundaries to help defray the costs of providing emergency services on those lands and to offset some of the property tax revenue loss due to the public ownership of lands and minerals. PILTs totaling \$3.1 million were made to Eddy County in fiscal year 2009 (U.S. Mineral Management Service 2009).
- Federal mineral royalties: federal mineral royalties are collected on mineral and oil and gas production from federal lands. Approximately one-half of the receipts are returned to the state in which the production occurred. These funds accrue primarily to the state general fund, with subsequent disbursements to fund public education and other programs. In fiscal year 2009, federal mineral royalties, rents, and bonus bids on new leases totaled \$765.1 million in New Mexico. The majority of the total was derived on the value of natural gas and crude oil produced. Approximately \$388 million was disbursed to the state during the same period. An accounting of those revenues on a county specific basis is not readily available, but the revenues would be substantial given the level of production in Eddy County.
- Oil and gas taxes: New Mexico imposes a severance tax, a conservation tax, and an emergency school tax on sales value of oil and gas produced. The current combined tax rate is 7.09 percent. These taxes are levied on all production, regardless of ownership. The total proceeds from those taxes is typically more than double the receipts from the federal mineral royalties (New Mexico Energy, Minerals and Natural Resources Department 2009).
- Gross receipts taxes (GRTs): similar in some respects to a sales tax, the New Mexico GRT is levied on the sales and leases of most goods, property and services. The rate varies between 5.375 percent and 8.6875 percent across the state, as counties and municipalities have the option to levy GRT as well. The rate in Eddy County ranges from 5.625 percent in unincorporated areas of the county to 7.3125 percent in Carlsbad (New Mexico Taxation and Revenue Department 2009). As shown in **Table 12**, GRTs levied directly on mining and oil and gas extraction generated \$20.5 million in Eddy County in 2009. That total represents 14.6 percent of all GRTs in Eddy County, and also more than 17 percent of the statewide total of \$118.3 million from mining and oil and gas extraction.
- The contributions of mining and oil and gas extraction would be even greater if the indirect and induced effects associated with exploration, development, and production were included.

Table 12 Direct Contributions of Mining and Oil and Gas to Eddy County and Statewide Gross Receipts Taxes, 2009

	State of New Mexico			Eddy County		
	Gross Receipts (millions)	Taxable Gross (millions)	Gross Tax (millions)	Gross Receipts (millions)	Taxable Gross (millions)	Gross Tax (millions)
Mining and Oil and Gas Extraction Industries	\$3,522.1	\$1,899.9	\$118.3	\$772.4	\$333.6	\$20.5
Total – All industries	\$95,490.4	\$45,876.1	\$3,086.1	\$3,475.7	\$2,150.5	\$140.4
Mining and Oil and Gas % of Total	3.7	4.1	3.8	22.2	15.5	14.6

Source: New Mexico Taxation and Revenue Department 2009.

- Eddy County and other local taxing authorities assess and collect ad valorem property taxes on mineral production and the value of mining related equipment located within its taxing boundaries. For the 2008 tax year, the aggregate net taxable value assessed on such production and equipment in Eddy County exceeded \$1.69 billion, approximately two-thirds of the county's total net taxable value of \$2.77 billion. Eddy County collected more than \$20.7 million in ad valorem/property taxes that same year.²

Public service demands associated with such activity also factor into public sector expenditures. However, because of the limited scale of the incremental demands associated with the proposed HB In-Situ Solution Mine Project, a full analysis of public sector conditions is outside the scope of this assessment.

2.9 Social Organization and Conditions

This section focuses on those social conditions within Eddy County and within and near the project area that would likely be affected by the proposed HB In-Situ Solution Mine Project. Information for this section was obtained from public scoping comments, newspaper articles, interviews with local officials and staff, and secondary sources as cited.

Residents of Eddy County are familiar with potash mining, other forms of natural resource development, and major construction projects. Many in Eddy County and Carlsbad welcome the boost in economic activity associated with construction projects and resource development. Some enthusiasm toward certain aspects of natural resource development has been tempered by the recent collapse of I & W Inc.'s brine well³ on the outskirts of Carlsbad. Concern about subsidence associated with injecting water into salt formations has been heightened by the collapse of this and two other brine wells in Eddy County, and amplified by the media coverage surrounding the collapse and the efforts by the city, county, state, and the Carlsbad Brine Well Working Group to address the issue.

² Taxable values are a function of both production and commodity prices and therefore subject to substantial year-to-year fluctuation (New Mexico Taxation and Revenue Department 2009; New Mexico Department of Finance and Administration 2009b).

³ A well that is drilled into a salt layer, into which fresh water is injected to create salt water (brine) needed for oil and gas operations. The fresh water can dissolve the salt, creating a cavern under the ground (New Mexico Energy, Minerals, and Natural Resources Department 2010a).

Ranching, outdoor recreation, oil and gas production, and potash mining have coexisted as elements of the Eddy County social and economic fabric for over 80 years. Each of these activities is a vital element of the Eddy County economy and each provides a measure of economic diversity for the county. The potential for conflict arises when two or more of these economic activities occupy the same space, are in close proximity to each other, or limit access to resources for development.

In the case of the proposed HB In-Situ Solution Mine Project area, ranching, outdoor recreation, oil and gas production, and potash mining activities are all present within and near the study area.

2.9.1 Ranching and Grazing

Portions of five grazing allotments are contained within the project area. Ranching and grazing operator's concerns include the effects of aboveground pipelines on livestock and movement, the effects of subsidence on rangeland, range improvements and surface water resources, the effect of groundwater pumping and injection on surface water resources, reductions in forage associated with pipeline and power line rights-of-way, and the effects of construction activities and mine operations on the production of the forage adjacent to these activities.

2.9.2 Outdoor Recreation

The primary outdoor recreation activity occurring in and near the project area is off-highway vehicle (OHV) use, although hunting and other forms of dispersed recreation also occur. Approximately one-fifth of the 55,000-acre Hackberry Lake OHV Area lies within the project area. The area is managed by the BLM and is designated for intensive use of motorcycles, sand dune buggies, and other OHVs. Camping occurs in association with these activities although there are no developed campgrounds, restrooms, or drinking water available in the area.

There are private lands within the Hackberry Lake OHV Area where grazing, mining, oil and gas development, and communication and utility rights-of-way also are present. The Desert Rough Riders, an OHV organization, holds a BLM special recreation use permit to host an annual 2-day motocross and OHV event each September, called the Carlsbad 100 Desert Race at Hackberry Lake.

All though outdoor recreation users are accustomed to sharing the project area with other uses, a key concern is the potential for aboveground pipelines to alter the character of the OHV area landscape and pose a hazard for OHV users.

2.9.3 Oil and Gas

There are currently 23 producing oil wells and 29 producing gas wells within the project area, as well as 52 plugged and abandoned oil wells and 8 plugged and abandoned gas wells. A total of 60 unsuccessful wells (dry holes) have been drilled in the area and there are 1 injection well, and 3 disposal wells. There also are gathering systems and other ancillary facilities such as tanks. Oil and gas exploration continues within the project area.

At the most basic level, the concerns of the oil and gas industry include the potential effects of the proposed mining project on existing oil and gas facilities and operations and the potential that the proposed project may constrain future development of oil and gas within the project area. While oil and gas operators who hold leases within the project area have some specific concerns related to the HB In-Situ Solution Mine Project, these concerns are set against a tension between the oil and gas industry and potash mining interests that dates back to virtually to the time when the two industries initially began operating in Eddy and Lea counties.

2.9.4 Potash Mining

Four inactive mine workings are located within the project area. The concerns of the potash industry essentially mirror those of the oil and gas industry, seeking to ensure that existing and future oil and gas

development does not limit the potash industries' ability to develop the potash resource. The tension between these two industries arises from competing economic interests for collocated resources and from concerns regarding potential safety and liability associated with concurrent development involving both industries.

2.10 Environmental Justice

Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (U.S. Environmental Protection Agency 1998). Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, tasks "each Federal agency [to] make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high adverse human health and environmental effects of its programs, policies, and activities on minority populations and low-income populations."

Implementation of EO 12898 for NEPA requires the following steps:

1. An identification of the presence of minority and low-income populations and Indian Tribes in areas that may be affected by the action under consideration.
2. Determination if the action under consideration would have human health, environmental, or other effects on any population.
3. Determine if environmental, human health, or other effects would be disproportionately high and adverse on minority or low-income populations or Indian Tribes.
4. Provision of opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices (CEQ 1998).

The remainder of this section describes the minority and low income status of populations within the socioeconomic study area.

The portion of Eddy County surrounding the project area has a very low population density. Population density is typically measured in geographic units employed by the U.S. Census Bureau to enumerate population. The lowest census geography is the Census Block. Census Blocks are assembled in Census Block Groups, which are in turn assembled in Census Tracts. Census Blocks near the project area contain less than 10 persons each and many are vacant. The closest Census Blocks with more than 10 persons are at least 8 miles from the project area. There is ranch within the project boundary and a residence approximately 2 miles to the south of the project boundary on Highway 31.

Census Block Group 1 (CBG 1) of Census Tract 9, which surrounds the project area, includes 1,567 square miles and has a total population of 2,725 persons (or 1.7 persons per square mile). Most of the population in CBG 1 is contained in areas surrounding the communities of Artesia, Riverside, and Loco Hills. The population density outside of these population centers is less than 1 person per 3 square miles. Loco Hills is over 15 miles from the project area and is the closest population center. The Census does not estimate population for Loco Hills, but the population around Loco Hills is estimated to be between 100 and 150 persons.

The City of Carlsbad, about 20 miles west of the project area. The city's distance from the project area, its racial and ethnic composition, existence of substantial levels of intervening oil and gas development, public response to scoping, limited scale of incremental impacts, established operations of the mine, and effective land use buffer created by the Secretary's order, effectively dismiss Environmental Justice as an issue in the City of Carlsbad.

2.10.1 Potentially Affected Minority and Low-income Populations and Groups

Table 13 presents 2000 Census information on the prevalence of minority populations in Eddy County, Carlsbad, and the rural area surrounding the project area. As can be seen from the table, the concentration of minority populations in each of these geographies is substantially lower than the New Mexico statewide average.

Table 13 Percentage of Minorities in Geographic Comparison Areas

Geographic Area	Percentage of Total Population				Variation in the Percentage of Minority Population to the Statewide Average
	White Alone and Non-Hispanic	Hispanic or Latino	Other Racial and Ethnic Minorities	Total Racial and Ethnic Minorities	
United States	69.1	12.5	18.3	30.9	n/a
New Mexico	44.7	42.1	13.2	55.3	n/a
Eddy County	57.7	38.8	3.6	42.3	-13.0
Census Tract 9	63.1	34.6	2.3	36.9	-18.4
Block Group 1, Census Tract 9	63.0	34.1	2.9	37.0	-18.3
Carlsbad	58.8	36.7	4.4	41.2	-14.1

Note: Racial minorities includes all persons identifying themselves in the census as a non-white race, including "Black or African American," "American Indian and Alaska Native," "Asian," "Native Hawaiian and Other Pacific Islander," "Some other race alone," and "Two or more races." Ethnic minorities include persons who identify themselves as Hispanic or Latino. Hispanic or Latino persons can identify themselves as part of any race.

Source: 2000 U.S. Census, U.S. Census Bureau, Summary File 1.

Table 14 identifies the prevalence of low-income populations in Eddy County, Carlsbad, and the rural area surrounding the project area. As with minority populations, the concentration of low-income populations in each of these geographies is lower than the New Mexico statewide average. In some cases the population below 150 percent of the poverty level is slightly, but not meaningfully, higher than the statewide average.

Based on the absence of human habitation within the project area, the very low population densities in areas surrounding the project area, and the comparatively low prevalence of minority and low-income populations in the area surrounding the project, the City of Carlsbad, and Eddy County in general, no Environmental Justice populations have been identified for this assessment.

Table 14 Percentage of Low-Income Population in Geographic Comparison Areas

Geographic Area	Percentage of Total Population Below 100% of Poverty Level	Percentage of Total Population Below 150% of Poverty Level	Percentage of Low-income Population Above/Below Statewide Average
United States	2.4	20.9	n/a
New Mexico	18.4	30.6	n/a
Eddy County	17.2	31.1	-1.2

Table 14 Percentage of Low-Income Population in Geographic Comparison Areas

Geographic Area	Percentage of Total Population Below 100% of Poverty Level	Percentage of Total Population Below 150% of Poverty Level	Percentage of Low-income Population Above/Below Statewide Average
Census Tract 9	17.2	33.1	-1.2
Block Group 1, Census Tract 9	13.9	26.5	-4.6
Carlsbad	16.5	30.5	-2.0

Source: 2000 U.S. Census, U.S. Census Bureau, Summary File 3.

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