

THE WASTE ISOLATION PILOT PLANT
STATUS AND RELATED SOCIOECONOMIC IMPACTS

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ABSTRACT

The Waste Isolation Pilot Plant (WIPP) has been "authorized as a defense activity of the Department of Energy...for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States..." (PL 96-164). As reported in previous conferences, WIPP continues ahead of schedule and below budget with full facility construction well underway. To date, based on recent review, the socioeconomic impacts have been negligible and steps have been taken to ensure that they remain that way throughout operations.

INTRODUCTION

Project Status

The Waste Isolation Pilot Plant Project completed its site suitability or characterization phase with the completion of the Site and Preliminary Design Validation (SPDV) Program which was described in detail in earlier papers. The only ongoing site studies currently in progress are being conducted at the request of the State of New Mexico to provide greater detail in selected hydrologic studies. With the completion of SPDV in the spring of 1983, plans for full facility construction were finalized, contracts awarded and construction initiated in August of 1983.

Recent Socioeconomic Studies

In 1983, DOE determined that further socioeconomic review of WIPP was desirable to provide an update on the impacts being experienced and a more current projection on future impacts. This request was assigned to Westinghouse Electric Corp. Using cost and scheduling data, a Westinghouse subcontractor, Adcock and Associates, prepared two reports:

Socioeconomic Impact Review, Waste Isolation Pilot Plant (WIPP) Project¹

A Tax Impact Study of the Waste Isolation Pilot Plant (WIPP) Project²

The first report provides an abbreviated update of the analyses performed to support the WIPP Final Environmental Impact Statement (FEIS)³ issued by the Department of Energy in October 1980. The report reviews impacts on population, housing, economy and employment, transportation and traffic, community services, and local government financing. Details beyond the scope of this paper are available by reviewing this report.

The second report utilizes the current construction schedule and budgetary estimates to provide projections of statewide direct and indirect total economic impacts and state and local tax revenue impacts. This includes impacts by level of

local government and by individual counties (Eddy and Lea) and communities (Carlsbad, Hobbs and Loving). Figure 1 shows the relative orientation of the site and the communities evaluated as a part of our studies.

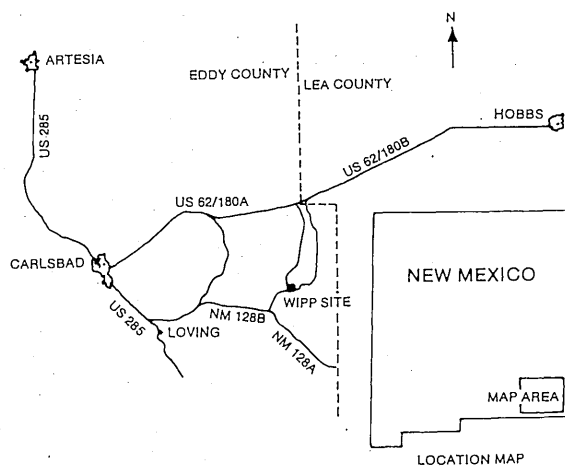


Fig. 1 WIPP Socioeconomic Impact Area.

SOCIOECONOMIC REVIEWS

History of Socioeconomic Reviews

Before proceeding to discuss the recent socioeconomic studies completed for WIPP, it is important to understand the earlier studies conducted for the Final Environmental Impact Statement by DOE and the study prepared by the University of New Mexico⁴.

Socioeconomics in the FEIS

In October of 1980, the Department of Energy issued the WIPP Final Environmental Impact Statement. Included in Chapters 7 and 9 and Appendices H and M, were the analyses and data utilized by the DOE in evaluating the socioeconomic impacts resulting from WIPP. These analyses looked at population, housing, employment, transportation,

community services and local government finances. A key indicator of the potential socioeconomic impacts of a small community (or communities) is the average number of direct and indirect jobs created or supported by a new project such as WIPP. Excessive peaks and valleys stretch community services to their limit while providing inadequate time periods to collect tax revenues for increases in necessary services. Figure 2 shows the original projections

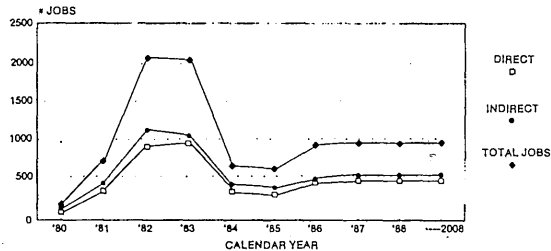


Fig. 2 Average Annual Jobs Created or Supported By WIPP Construction and Operation-1980 Estimate.

for employment (Table 9-29, FEIS). Equally important to the absolute magnitude of jobs is the ratio of newcomers to new positions. The FEIS estimated this ratio to be 50% for construction, design and management activities and further noted that the resulting local hiring should significantly reduce past unemployment statistics -- thus improving the local economy. Operational impacts were projected to be less than construction impacts. The FEIS contains similar analyses for the remaining socioeconomic factors for WIPP. These analyses will be used for comparison purposes with the most recent analyses described in a later section. However, the FEIS does draw the following general conclusions.

- o There will not be much affect on social programs and services.
- o Industries will experience increases in business.
- o Interviews with city officials indicate that Carlsbad and Hobbs can accommodate the WIPP related growth.
- o The most widely recognized social impacts would result from a temporary housing shortage.
- o Factors that will mitigate any social impacts include the temporary nature of the housing shortage, minimal appreciable effect on public services and low-levels of in-migration.
- o WIPP will exert no significant adverse impacts on tourism over an extended period.
- o WIPP is not likely to cause overcrowding at Carlsbad schools.

Finally, the FEIS concludes that "if the economic activities in Eddy and Lea Counties are appreciably different, then the degree of migration or employment of local individuals may change significantly." This becomes important to today's expected impacts discussed later since the FEIS goes on to conclude "in general, if the economic conditions are not as bright as forecast, the impacts of the WIPP will not be as great...."

Other Socioeconomic Reviews

Another comprehensive socioeconomic review for the WIPP Project was conducted under the direction of Dr. R. Cummins for the State of New Mexico⁴. This study, in addition to reviewing the socioeconomic impacts enveloped by the FEIS, also addressed numerous, more broad reaching impacts including risk-related impacts potentially faced by the State. It is not the purpose of this paper to discuss these more abstract impacts in great detail -- only to compare those predicted earlier (1980-1981) with the most recent review¹ conducted by Westinghouse and its contractor. Other than risk-related considerations not addressed in the FEIS, Cummins reaches similar conclusions to those of the FEIS. In particular, Cummins concludes:

Apart from risk considerations, WIPP-related benefits to the State are unequivocally greater than WIPP-related costs, only under circumstances in which costs associated with emergency preparedness and highway upgrading..., plus costs associated with any accident, are not borne by the general citizenry of the State.

Finally, it is important to note that DOE and the State reached agreement on the three areas of concern expressed by Cummins as part of the Supplemental Stipulated Agreement signed late in 1982.⁵

December 1983, Socioeconomic Review

Since performance of the earlier socioeconomic reviews the economic climate has changed significantly -- particularly in the Eddy/Lea County region. In recent years both the mining and oil and gas businesses have experienced rapid economic declines with related business closures/reductions and subsequently, significant numbers of work force reductions. As projected in the FEIS, if the regional economy declines one can easily project less significant socioeconomic impacts to result from the WIPP Project since many of the crafts required for WIPP become more readily available from the mining and hydrocarbon industries. Furthermore, the most recent study also shows reduced impacts, partially as a result of increased efficiency resulting from phasing the construction of WIPP as evidenced by a comparison of Fig. 2 and Fig. 3 for the peak construction years of 1982 and 1985 respectively. (See also Fig. 4.)

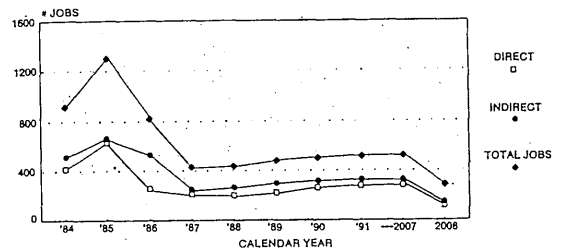


Fig. 3 Average Annual Jobs Created or Supported By WIPP Construction and Operation-1983 Estimate.

To estimate the WIPP-related indirect impacts, a two county regional interindustry (input/output) computer model was constructed. The details of this model development are discussed in the WIPP FEIS and are not included herein for the sake of brevity and because input/output modeling is a very common, well accepted methodology for performing socioeconomic analyses. Also discussed in the FEIS are the

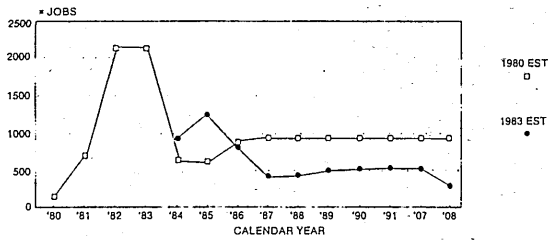


Fig. 4 Comparison of Average Annual Total Jobs Created or Supported By WIPP-1980 vs. 1983 Estimates.

assumptions used for modeling relative to the allocation of impacts between Carlsbad, Hobbs, Loving and the remainders of Eddy and Lea County. Essentially two scenarios are created -- Scenario 1 resulting in maximum impact to Eddy County (especially Carlsbad) and Scenario 2 representing the reasonable maximum impact for Lea County (especially Hobbs). Discussed below are the specific results of the December 1983 socioeconomic review conducted by the WIPP Project.

Population

Eddy and Lea Counties have experienced several population trends during the past 70 years (e.g. potash mining in Eddy County has caused peaks and valleys in 1940 and 1970 respectively). Figures 5 and 6 show the baseline populations with appropriate

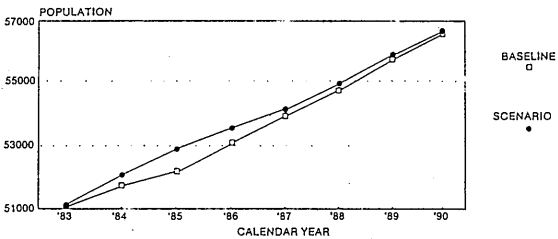


Fig. 5 Population Impacts of WIPP - Eddy County.

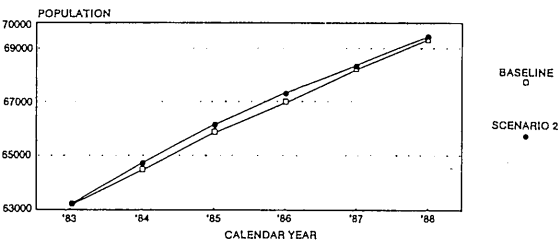


Fig. 6 Population Impacts of WIPP - Lea County.

adjustments resulting from application of scenarios 1 and 2. We conclude that the overall impact of construction and operation of the WIPP will not be significant. The 1983 review indicates the maximum impact will occur in 1985 at the peak of construction when between 950-1000 people will be directly or indirectly related to WIPP. This impact compares favorably to the FEIS estimate for 1983 (previous peak construction period) of 2250 (FEIS Table 9-30). The economic conditions within the two counties today support local hiring for many of the crafts jobs. In fact, skilled labor hiring has run as high as 90% local under the present contract. Consequently, in today's economy, the in-migration impacts will most certainly be less than those of a fully employed

economy as assumed in arriving at the projected WIPP impacts shown on Fig. 4.

Housing

Earlier studies indicated that the most significant adverse socioeconomic impact would likely be a housing shortage in the City of Carlsbad at the peak of WIPP construction activities. Less significant shortages were also possible in Hobbs and Loving. As can be seen from Fig. 7, Carlsbad will

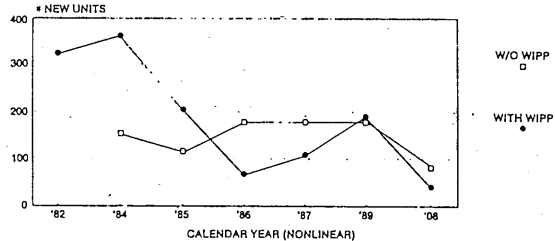


Fig. 7 Annual New Housing Needs in Carlsbad.

still experience a significant increase in the need for additional housing in 1984 -- approximately 208 additional units required for WIPP. Although not insignificant, the present projection is much less than the 450 units projected for the peak year in the FEIS. The 208 when combined with the baseline housing without WIPP of 156 units yields a total need for new housing of 364 units in 1984 (based on 1983 projections). (Note the FEIS projection for total units was 890 units, 450 for WIPP and 440 baseline without WIPP.) The present projection of 364 units should result in little or no housing shortages based on proven capabilities in 1982 to construct 330 new units. Thus, no shortage is predicted for Carlsbad using the latest socioeconomic review results. Projected housing impacts in Hobbs and Loving are also within previously demonstrated capabilities for new construction. In conclusion, housing shortages originally predicted by the FEIS and UNM studies are no longer expected to occur. One factor not considered in the 1983 review was the recent decision by DOE to relocate the Albuquerque Project Office to the site. This decision will amplify the 1984 estimates by an additional 50-75 units, further stressing the ability of Carlsbad to provide new units but well within the combined capabilities of Hobbs, Loving and Carlsbad.

Economy and Employment

The economy of Eddy and Lea Counties relies on three basic industries -- mining, hydrocarbon exploration and to a lesser degree tourism. Agriculture also provides employment, but with nearly 1000 persons employed in 1981, the total farm income in Eddy County was negative. In 1981, mining contributed 28.6 percent to total personal income by place of residence (45.0 percent by place of work) for Eddy County. Hydrocarbon related industries in Lea County accounted for 37.3 percent of total personal income earned by place of residence in 1981.

Unfortunately, both mining and hydrocarbon related economic conditions are considerably softer today than in 1981 (see Fig. 8). Unemployment in 1983 reached 14.6 percent in Eddy County and 6.7 percent in Lea County. In September 1983, the number of unemployed persons in the two counties exceeded 5900. Requirements for construction personnel on WIPP are well suited to the available personnel with an estimated one of three unemployed persons

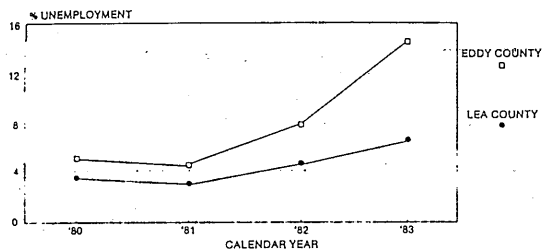


Fig. 8 Current Unemployment Statistics.

experienced in areas directly applicable to WIPP. Department of Energy statistics indicate that 90 percent of WIPP employees in craft positions were local hires. Construction management and design personnel have migrated to the area in greater percentages since many of these employees were already employed by WIPP contractors in other locations. Of the 259 people employed in all areas at the WIPP Site as of February, 1984, about 73% lived in New Mexico.

Projections of WIPP manpower needs have decreased from 1980 to 1983 (See Fig. 4). This reduction should serve to minimize the socioeconomic impacts of worker in-migration especially when considered in conjunction with the current unemployment statistics in Eddy and Lea Counties. However, this partial solution to unemployment may exist only through 1987 when the required manpower shifts from construction to operating personnel.

As some indication of the commitment (and resulting impacts) of WIPP Project Contractors to ensuring that the two-county area receives some of the economic benefits of the project, Westinghouse has evaluated its own procurement activities which do not include the major construction contracts. As of December 1983, Westinghouse had more than \$640,000 of active, site related procurement activities with 59% (\$379,000) placed in the Lea and Eddy County areas. (Note that this dollar figure does not include any completed, closed out contracts -- thus the actual total economic activity has obviously been greater than discussed here. For example, in 1983 Westinghouse's total (active and closed) procurement activity for Carlsbad totalled about \$373,000.) The remaining forty-one percent is not in the two-county area (due primarily to lack of required skills or services) although most of it is elsewhere in New Mexico.

Personnel Transportation and Traffic

Transportation facilities in Carlsbad and Hobbs appear adequate to handle the peak WIPP related increase in traffic of 2.5 percent. WIPP related traffic on selected State and Federal highways is more significant as shown by Fig. 9. However the actual volume of traffic is well within design capacity of the existing highways. Thus, transportation and traffic impacts of the WIPP project will be minimal for both urban and rural highways. Recent DOE plans to provide buses for worker transportation should serve to further decrease the impact on local highways.

Community Services

A review of community services for Carlsbad, Hobbs and Loving indicates that no unacceptable impacts will be created by WIPP in any of the

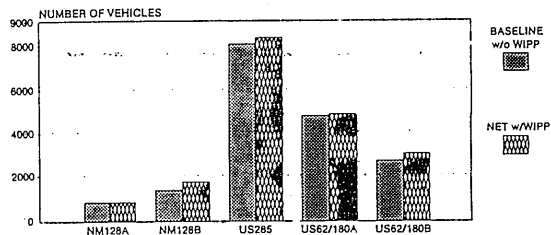


Fig. 9 Projected 1985 Average Traffic (Peak Year).

following areas:

- Water Supply & Waste Water Treatment,
- Educational Facilities,
- Law Enforcement,
- Fire Protection,
- Health Care Facilities, and
- Recreation.

Impacts range from the need to add a small number (1-2) of policemen or firemen to shortening the life of sanitary landfills by 1-3 months. In summary, impacts on community services will be minimal.

Local Government Finances

Local government finances must be reviewed for three categories -- County, Municipal and School Districts. Each of these were reviewed in 1983 and it was concluded that no significant financial problems existed nor would any be created by WIPP. Although both Eddy and Lea County expenditures exceeded revenues in fiscal year 1982-83, both counties had significant cash reserves at the end of the year (\$5.6 million for Eddy County and \$11.8 million for Lea County). The impact of WIPP will be to increase expenditures somewhat more than it increases revenue -- the maximum deficit being only \$46,000 at the peak of construction.

Municipal finances are slightly more complex. Carlsbad expenditures in FY83 were \$1.4 million less than revenues; however, Carlsbad ended the fiscal year with cash balances of \$0.7 million. Despite very little cash reserve the city does have substantial reserve bonding capacity. The projected impact from WIPP in its peak year will be a positive (revenues) \$100,000. The average impact should produce \$70,000 per year of net revenue to the city during construction and \$20,000 per year during operations.

Hobbs expenditures in FY83 exceeded revenues by about \$4.3 million. Because Hobbs began the year with considerable cash reserves (11.7 million), it remains financially sound despite the fact that it has no reserve bonding capacity without voter approval. As with Carlsbad, Hobbs can expect to receive more in revenues than it will expend as a result of the WIPP Project. The net income to Hobbs from WIPP will peak at \$110,000 during FY85 and average \$70,000 per year during construction and \$30,000 per year during operation.

The village of Loving also exceeded its revenues in FY83. Loving finished the year with a positive cash balance of \$55,000 and can be expected to rely heavily on outside grants for revenue as it has in the past. The impacts of WIPP, although positive, will be very small -- \$1000 to \$1500 per year.

In New Mexico, the majority of school district

revenues come from the State -- 93-94% for Carlsbad, Hobbs and Loving. Enrollment is the key basis for determination of State and Federal funding and with Carlsbad and Loving enrollment on the decline, reductions in funds are projected. The impact of WIPP will be to increase revenues only slightly (\$10-20 thousand per year in Carlsbad, \$5-15 thousand in Hobbs and only a few hundred dollars per year for Loving.)

December 1983 Tax Impact Review

Significant in any discussion of socioeconomic impacts is the resultant tax revenue impacts resulting from projects such as WIPP. Westinghouse and its subcontractor, Adcock and Associates, have also reviewed this area of interest. In order to prepare this report, two new interindustry (input/output) models were developed for Statewide impacts and impacts over the Eddy/Lea County region. The model considers both direct and indirect effects on the generation of tax revenues to provide a complete picture of the WIPP impact. Direct tax revenues are those resulting from expenditures by DOE or one of its contractors on the WIPP Project. Indirect tax revenues result from expenditures of employees of the WIPP Project which support or generate further economic activity beyond the construction of WIPP (e.g. the purchase of gas which is taxed). The interindustry modeling technique is considered more rigorous by most economists because of its ability to distinguish between levels of impact created by specifically defined activities, whereas other techniques average impacts for all activities. After developing the interindustry model, tax coefficients were analyzed and revised based on State specific data. Finally, actual and projected expenditures for the WIPP project were reviewed and categorized according to the specific activities available in the interindustry model.

Calculated tax impacts were developed in both constant 1983 dollars and current (inflation corrected) dollars to provide the interested reader a perception on the potential impacts of inflation. To avoid further discussion on inflation in this paper, only the constant 83 dollars results will be given. The Statewide impacts of WIPP from 1975 to 2008 result in \$1.84 billion in direct and indirect activity which in turn will cause or support \$111.4 million in tax revenues (36% which will be generated before 1988). Figure 10 depicts the cumulative tax impact projections for WIPP on a yearly basis.

A review of the two county area (Eddy and Lea Counties) was also conducted. Again in constant 1983 dollars, the impacts of WIPP from 1975 to 2008 will result in \$1.15 billion of direct or indirect activity. This activity will cause or support \$73.7 million in State and Local taxes. Of these taxes, \$44 million will go to the two county region. Figure 11 shows how the tax monies are split between municipalities, counties, schools and the State.

MITIGATING ACTIONS TAKEN ON WIPP

As can be readily understood by the above discussion of socioeconomic impacts on WIPP, very little significant impact is predicted to occur. This fact is the result of construction phasing and a recently depressed economy in Eddy and Lea counties as a result of the declining hydrocarbon and mining industries. In addition to phased construction, very little has been required to mitigate the more classical socioeconomic impacts. The only other action has been to delay the move of some project

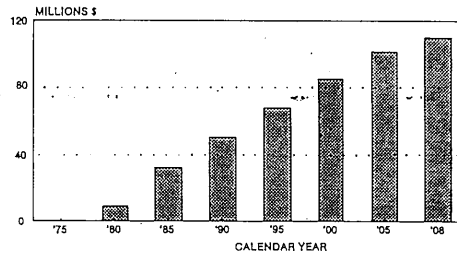


Fig. 10 Cumulative Statewide WIPP Tax Revenues.

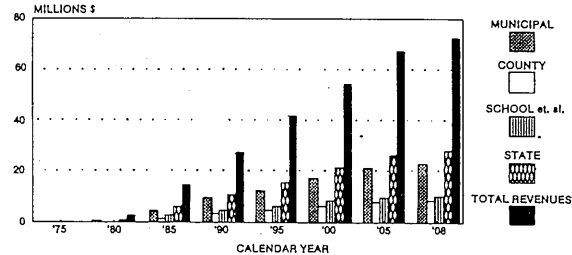


Fig. 11 Eddy and Lea Counties WIPP Tax Impacts Cumulative Revenues Generated or Supported.

contractors and DOE personnel until their presence at the site is required. This has served to diffuse the influx of new inhabitants to a level easily consistent with the local communities' abilities to adapt.

CONCLUSION

This paper has discussed the status of the Waste Isolation Pilot Plant presently under construction by the Department of Energy near Carlsbad, N.M. It has been shown that while proceeding ahead of schedule and below budget, the WIPP project has experienced negligible adverse socioeconomic impacts. Furthermore, it has recently been projected that those few adverse impacts which will occur in the future will be even less than earlier predictions. This highly successful project has accomplished this task of minimizing adverse impacts through phased construction, unique economic conditions in the site locale and through a Supplemental Stipulated Agreement signed in 1982.

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