

DOE/EA-2077

**ENVIRONMENTAL ASSESSMENT FOR
THE WASTE ISOLATION PILOT PLANT
NORTH ACCESS ROAD BYPASS**



U.S. Department of Energy
Carlsbad Field Office
Carlsbad, New Mexico

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ACRONYMS & ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AGSC	Above Ground Storage Capability
BLM	U.S. Department of Interior, Bureau of Land Management
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH	contact-handled
DOE	U.S. Department of Energy
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U. S. Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FR	Federal Register
IO	isolated occurrences
LWA	WIPP Land Withdrawal Act of 1992
NAR	North Access Road
NARB	North Access Road Bypass
NEPA	National Environmental Policy Act
NMCRIS	New Mexico Cultural Resources Information System
NMDOT	New Mexico Department of Transportation
NOA	Notice of Availability
PVS	Permanent Ventilation System
SAR	South Access Road
SVS	Supplemental Ventilation System
TRU	transuranic
UG	underground
vpd	vehicles per day
WIPP	Waste Isolation Pilot Plant
WLWA	WIPP Land Withdrawal Area

1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

The Waste Isolation Pilot Plant (WIPP) is the nation's only approved repository for the disposal of defense related/defense generated transuranic (TRU) and mixed hazardous TRU waste (henceforth called TRU waste). The mission of the WIPP Project is to realize the safe disposal of TRU waste from TRU waste generator sites controlled by the U.S. Department of Energy (DOE).

The WIPP Project was authorized by Title II, Section 213(a) of Public Law 96-164 (U.S. Congress 1979). Congress designated the WIPP facility "...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 exempted from regulation by the Nuclear Regulatory Commission." The WIPP facility is operated by the DOE. Transuranic waste that is disposed in the WIPP facility is defined by Section 2(18) of the WIPP Land Withdrawal Act of 1992 (LWA) (Public Law 102-578 as amended by Public Law 104-201) as: "...waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for—

- (A) high-level radioactive waste;
- (B) waste that the Secretary has determined, with the concurrence of the Administrator, does not need the degree of isolation required by the disposal regulations; or
- (C) waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with part 61 of title 10, Code of Federal Regulations."

The WIPP facility is a deep geologic repository mined within a 2,000-foot-thick bedded-salt formation. The WIPP repository sits in the middle of a 41-square-kilometer (16-square-mile) area under the jurisdiction of DOE pursuant to the LWA. The underground (UG) portion of the repository, where waste is emplaced for disposal, is 2,150 feet beneath the surface.

The Proposed Action is to divert non-WIPP traffic on the North Access Road (NAR) and South Access Road (SAR) away from the WIPP facility entrances, thereby separating WIPP facility traffic from non-WIPP traffic. One of the tools used to implement the Proposed Action would be the construction of the North Access Road Bypass (NARB), which has an objective of diverting through traffic away from the entrances into the parking lot for the WIPP facility (Alternative 1). The bypass would relocate non-WIPP associated traffic approximately 1.5 miles to the west of the current NAR and SAR intersection. The NARB would connect the curve of the SAR with the curve of the NAR, thus offering more uniform traffic passage for all non-WIPP associated traffic. This would allow for a safer, less congested WIPP roadway to accommodate current WIPP operations and other surface activities.

1.2 Project Location

The WIPP facility is located 26 miles southeast of Carlsbad, New Mexico (see Figure 1, General Location of the WIPP Site). The NAR provides access to the WIPP facility from U.S. Highway 62/180, which is approximately 13 miles to the north of the WIPP site boundary. The SAR provides access to the WIPP facility from State Highway 128, which is approximately 3.75 miles to the south of the WIPP Exclusive Use Area. The NARB project (Figure 2, Proposed NARB Project Area) consists of a roadway that would be approximately 3 miles in length and would connect the existing NAR and SAR at a location west of the WIPP facility. The portions of the existing SAR and NAR extending to the WIPP facility shall remain as local access for WIPP personnel and other authorized traffic to the WIPP facility parking area.

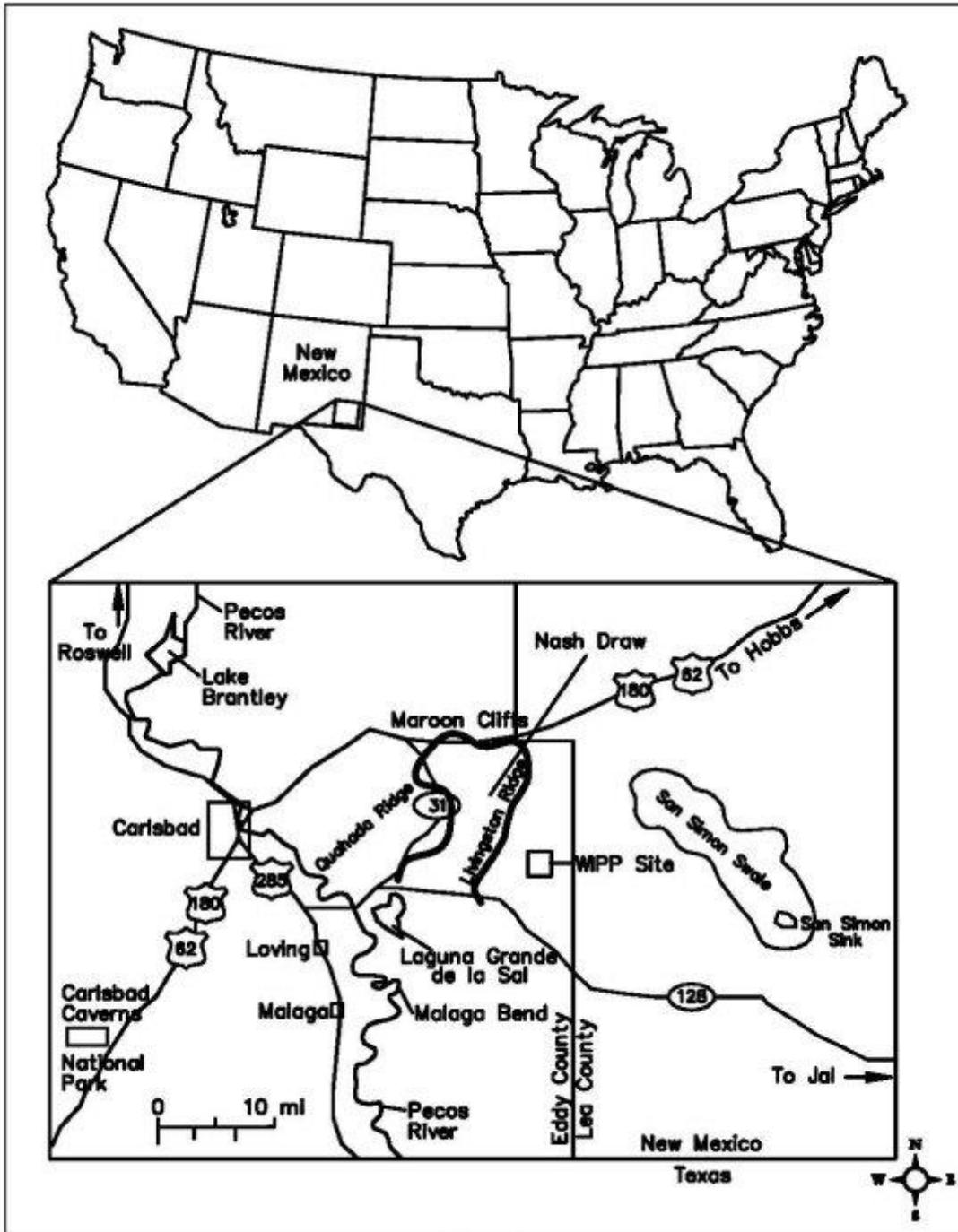


Figure 1. General Location of the WIPP Site

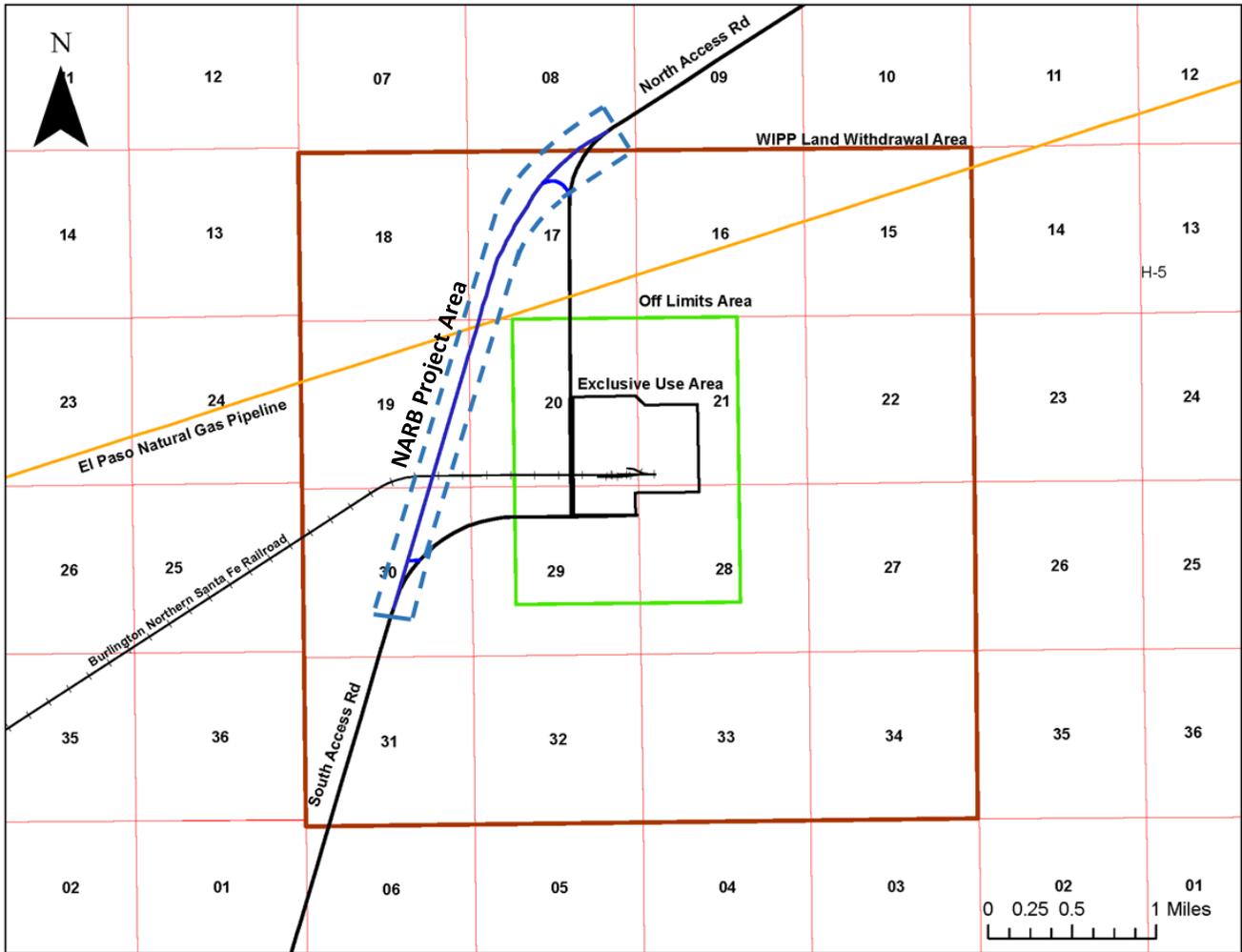


Figure 2. Proposed NARB Project Area (dotted blue line)

1.3 Purpose of and Need for the Proposed Action

The Proposed Action is to divert non-WIPP traffic on the NAR and SAR away from the WIPP facility entrances, thereby separating WIPP facility traffic from non-WIPP traffic. Currently, the NAR is a two-lane asphalt road that is used by the WIPP TRU waste transportation trucks, WIPP employee vehicles, non-WIPP private vehicles, and commercial trucks, primarily oil and gas industry vehicles.

Increasing oil and gas industry activity has resulted in an increased number of large vehicles on the NAR. A traffic study conducted by the NARB designer, in support of the new NARB design (Alternative 1), determined that current use is at approximately 1,555 vehicles per day of non-WIPP traffic passing the parking lot entrance(s) (RPKA 2018). Of this traffic, approximately 65 percent are oil/gas/water trucks. The oil and gas industry trucks are generally large vehicles carrying loads consisting of drilling water, other oil field supplies or products, and equipment. These large vehicles require long distances to negotiate a stop.

Oil and gas industry activity began increasing in southeastern New Mexico in 2013. By the end of 2019, the oil rig count within the New Mexico portion of the Delaware Basin is estimated to increase three-fold (greater than 200 active rigs) with an estimated peak of greater than 500 in 2021 (Baker Hughes, NGI's Shale Daily calculations). According to Petroleum Services Association of Canada (see Figure 3, Direct and Indirect Jobs Associated with Oil Rig Equipment), each oil rig requires approximately 145 workers with an estimated 17 trucks per rig. This combined data predicts that an additional 3,400 trucks would be added to the current 1,555 vehicles per day of non-WIPP traffic, which will more than triple the current traffic flow along the WIPP access roads. In addition to the increase in the number of rigs, a sand loading facility is planned south of the WIPP facility. Sand required for fracking arrives by train and is then loaded onto trucks to support local operations. The addition of the sand loading facility will increase oilfield related traffic on the WIPP SAR/NAR, which serves as a connector between two highly utilized roadways, State Road 128 and Highway 62/180.

The purpose of the Proposed Action is to provide a means for non-WIPP traffic, including oil and gas industry traffic, to be diverted from the NAR and SAR (i.e., be separated from WIPP facility¹ traffic at the location where the traffic slows in order to turn in to the WIPP facility parking lot). The Proposed Action is needed to reduce traffic congestion in the area caused by large oil and gas industry trucks. This would allow for a safer, less congested WIPP roadway to accommodate current WIPP traffic associated with WIPP operations and other surface activities near the WIPP facility (e.g., monitoring, construction).

¹ In the context of this Environmental Assessment, the term "WIPP facility" represents the operations areas located near the center of the 16-section WIPP Land Withdrawal Area.

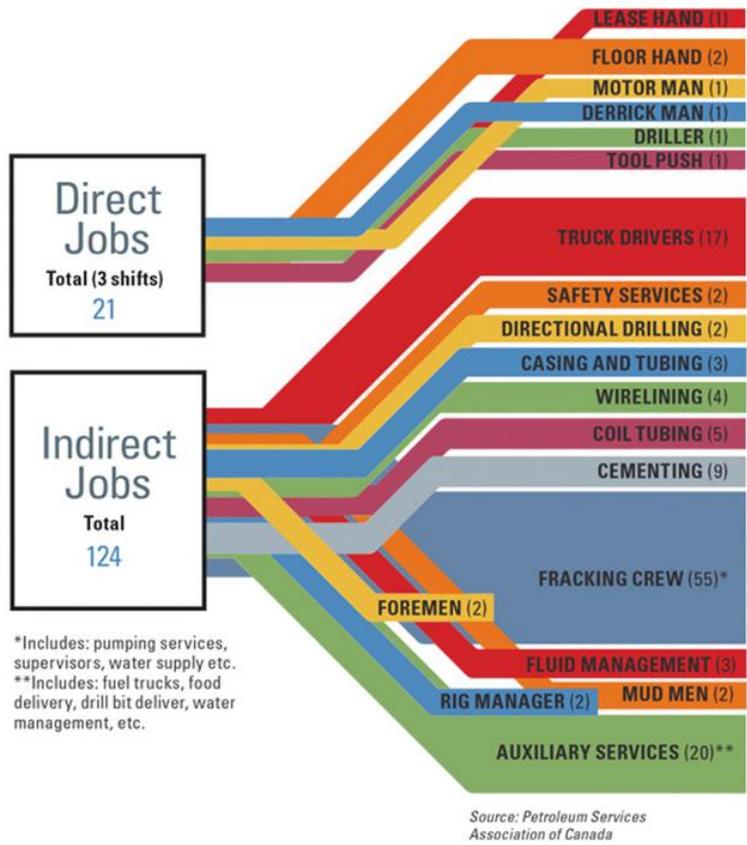


Figure 3. Direct and Indirect Jobs Associated with Oil Rig Equipment

1.4 National Environmental Policy Act (NEPA) Process and Public Involvement

The NEPA requires federal agencies to consider the potential environmental impacts of their proposed actions and alternatives. The DOE prepared this Environmental Assessment (EA) to determine whether the potential environmental impacts of the Proposed Action would be significant to human health and the environment in accordance with the DOE's NEPA implementing procedures, 10 Code of Federal Regulations (CFR) Part 1021, and the regulations promulgated by the Council on Environmental Quality (CEQ) for implementing NEPA (40 CFR Parts 1500-1508). A Draft EA was released for a 30-day public review and comment period. After that, the DOE completed a Final EA, and issued a Finding of No Significant Impact.

The resource-specific environmental impact analysis presented in this EA was performed in compliance with relevant environmental laws applicable to the resource areas analyzed. Key documents previously prepared for the WIPP (e.g., DOE/EIS-0026-S-2, *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement [SEIS-II]* [DOE 1997]) were reviewed regarding their applicability to the subject EA. This review was conducted with respect to resource-specific existing conditions (i.e., the affected environment). This is because the previously prepared NEPA documents cover/address the geographic area of the proposed project. The impact analysis in this EA has been prepared specifically for this project in order to provide sufficient information to support a decision regarding the environmental impacts of the proposed project. In further effort to reduce excessive paperwork, as directed by the regulations promulgated by the CEQ for implementing NEPA, 40 CFR 1500.4(j), the DOE has incorporated by reference the NEPA analysis previously conducted for the WIPP Project, 40 CFR 1502.21. Where appropriate, the DOE has conducted impact analysis specific to the NARB to support a decision regarding the environmental impacts of the Proposed Action.

Consultations with other agencies (e.g., State Historic Preservation Officer, U.S. Fish and Wildlife Service) were not required or undertaken in connection with this EA for the following reasons:

- According to the most recent annual site environmental report (DOE/WIPP-17-3591, *Waste Isolation Pilot Plant Annual Site Environmental Report for 2016*, September 2017 [DOE 2016a]), there have been no substantive changes in the biological resources at the WIPP site since the 1997 SEIS-II. No species of plants or animals that are protected by the *Endangered Species Act* were identified within the WIPP Land Withdrawal Area (WLWA) (*Supplement Analysis for the Waste Isolation Pilot Plant Site-Wide Operations*, DOE/EIS-0026-SA-10 [DOE 2016b]).
- In August 1978, the Agency for Conservation Archaeology from Eastern New Mexico University conducted an archaeological survey of the area around the WIPP facility (Schermer 1978). The Agency for Conservation Archaeology surveyed various north/south corridors in the areas south of the WIPP site. None of these corridors indicated any archaeological sites within or near the corridors except in areas farther south than the project area. A Class III cultural resource inventory (BLM 10-NM-523-0041) was conducted in the area of the Proposed Action and no historic properties were identified.

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Environmental Assessment for the Waste Isolation Pilot Plant North Access Road Bypass

As noted above, a Draft EA was released for a 30-day public review and comment period via the publication of a Notice of Availability (NOA) on July 31, 2018, in the following regional newspaper publications:

- Carlsbad Current-Argus
- Albuquerque Journal
- Santa Fe New Mexican
- Roswell Daily Record
- Hobbs News-Sun

The publication of the NOA initiated a 30-day public review and comment period commencing on July 31, 2018, and ending on August 29, 2018. No public comments were provided on the Draft EA within the 30-day public comment period. This Final EA is available at the following WIPP website:

<http://wipp.energy.gov/nepa-documents.asp>

Or write:

CBFO Point-of-Contact:
Anthony Stone, Carlsbad Field Office
P.O. Box 3090
Carlsbad, New Mexico, 88221-3090

This Final EA is also available on the following DOE NEPA website:

<https://www.energy.gov/nepa/listings/environmental-assessments-ea>

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action is to divert non-WIPP through traffic on the NAR and SAR away from the WIPP facility entrances, thereby separating WIPP facility traffic from non-WIPP traffic.

As noted in section 1.3, a traffic assessment (RPKA 2018) was conducted in early 2018 as part of the design process. This assessment identified an average daily traffic rate of 1,555 vehicles per day (vpd) on the WLWA. Of this total, 1,015 vpd (65 percent) were bypassing the WIPP facility, while 540 vpd (35 percent) were accessing the WIPP facility. The bypass traffic was composed of 44 percent trucks and 56 percent cars, while the WIPP site traffic was composed of 4 percent trucks and 96 percent cars.

The Proposed Action would shift 1,015 vpd, including 442 trucks per day, away from the WIPP site. This would increase safety for WIPP personnel by decreasing traffic volumes at the facility driveways and would increase safety for the bypass traffic by eliminating the need for it to travel through the more congested area by the WIPP facility. This also enhances the safety for TRU waste shipments, which travel to the WIPP facility on the NAR. The current underlying cause of traffic congestion is the overall increase in non-WIPP traffic, including oil and gas industry vehicles, where the WIPP facility is located.

One of the tools used to implement the Proposed Action would be the construction of the NARB (Alternative 1). The contractor selected to construct the NARB would possess the equipment, labor resources, applicable subcontractor contacts, management, and materials resources to execute the NARB project.

The first stage of construction is mobilization and would include identifying a location near the proposed roadway for a hot mix asphalt batch plant, a materials staging area, and other properties, as necessary, to commence work. A storm water pollution prevention plan, or equivalent, would also be established to accommodate the necessary disturbed areas, as applicable. Finally, a Notice of Intent would be filed prior to any soil disturbance, as needed. Traffic control would be provided by the contractor and would ensure access to the WIPP facility would not be impacted by NARB construction activities. Coordination with the U.S. Bureau of Land Management (BLM) for the portion of the bypass that will be on BLM land occurs through a Memorandum of Understanding between the DOE and the BLM.

After initial mobilization, the contractor would perform excavation and set up temporary construction facilities, such as testing laboratories, office space, sanitary facilities, a laydown yard, water facilities, and fuel areas. A fence contractor would begin installing barbed-wire fencing after sufficient survey and staking is completed.

Mainline construction would begin with clearing and grubbing of the surveyed area. Large brush and debris that requires disposal outside of the right-of-way limits would be disposed in accordance with applicable standards and regulations. During clearing and grubbing, and during other subsequent phases of earthwork, on- and off-highway water trucks would be present to control dust.

Subgrade and sub pavement layers of construction would progress in a linear fashion from the south to the north. Heavy equipment would be used to shape the roadway grade. Subgrade materials would be worked, placed, treated, compacted, and tested according to specifications.

As paving operations complete, final grading and cleanup would be performed ahead of seeding operations. The seed mixture is specified by DOE/WIPP-93-004, Rev. F, *WIPP Land Management Plan* (DOE 2017a), which is the governing document for land use within the WLWA. The Land Management Plan incorporates BLM-approved seeding and range management practices.

The final activity would be de-mobilization at which time any remaining construction equipment, temporary offices, associated equipment, and tanks would be removed. Final surveys and as-built drawings would be completed. Final documentation would be delivered to the DOE. The area would also be left clean and ready to accept seeding or other reclaiming efforts, as appropriate.

2.2 Alternative 1 – Construct the North Access Road Bypass (NARB)

The NARB would relocate non-WIPP associated traffic approximately 1.5 miles to the west of the NAR. The routing of the NARB would connect the curve of the NAR to the SAR, offering a more uniform passage for all non-WIPP associated traffic while allowing WIPP facility traffic to more safely and efficiently access the WIPP parking area entrance. The roadway design would be based on New Mexico Department of Transportation (NMDOT) guidelines, which incorporate the American Association of Highway Transportation Officials (AASHTO) Standards (Standard Specifications for Highway and Bridge Construction, New Mexico State Department of Transportation, 2014). For their design standards, the DOE has adopted the AASHTO and other policies, guides, and standards, which also include “A Policy on Geometric Design of Highways and Streets” (Green Book) (2004), the AASHTO “Roadside Design Guide” (2002), and NMDOT Standard Drawings and Design directives.

Additional design specifications for the NARB include the following:

- Asphalt Institute Standard Thickness Design, Asphalt Pavement Structures for Streets and Highways
- Manual on Uniform Traffic Control Devices for Streets and Highways, as modified by the State of New Mexico
- AASHTO Site Planning Guides

Also, specifications with regard to seeding and range management would be based on requirements imposed by DOE/WIPP-93-004, Rev. F, *WIPP Land Management Plan* (DOE 2017a), which is the governing document for land use within the WLWA. The Land Management Plan incorporates BLM-approved seeding and range management practices.

The NARB would be approximately 3 miles in length and would connect to the existing NAR and existing SAR (see Figure 2). Traffic control signage would be placed along the NARB. The portions of the existing SAR and NAR extending to the WIPP facility shall remain as local access for WIPP personnel and other associated traffic to the WIPP facility’s existing parking area.

The paved width of the NARB would be approximately 40 feet. The NARB would have two 12-foot driving lanes, two 8-foot shoulders, which match the existing SAR and NAR, and turn lanes for the local access roads as warranted. A minimum horizontal clearance of approximately 3 feet would be maintained between the edge of paving and any structure projecting above shoulder grade. Objects in or near the roadways would be prominently marked in accordance with the standards contained in the Manual on Uniform Traffic Control Devices for Streets and Highways, as modified by the State of New Mexico.

The overall construction area of the NARB would be within a 150-foot-wide easement area. The formal land survey of the NARB area has been performed to facilitate the performance of a cultural/archaeological survey and a biological survey, which provide an outline for the NARB work zones. The contractor would work within the 150-foot-wide easement, which would be set by the location of the new barbed-wire fencing. The disturbed areas inside this construction zone would be graded for water drainage and re-seeded per applicable standards as part of the NARB project.

2.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and all traffic between Highway 62/180 and State Road 128 would continue to have the same routing. As noted in Section 1.3, due to increased oil and gas industry traffic in southeast New Mexico, there would be more non-WIPP associated traffic mixing with WIPP associated traffic, including TRU waste shipments, along the SAR and NAR. The potential for vehicle-to-vehicle or vehicle-to-pedestrian collisions, and fatalities, would increase. Implementation of the No Action Alternative would result in failure to correct the congestion and safety concerns associated with increased non-WIPP road traffic.

3.0 AFFECTED ENVIRONMENT

This section presents a discussion, by relevant resources, of the current condition of the affected environment. In compliance with NEPA regulations (40 CFR §1502.15), a description of the affected environment focuses only on those resources potentially subject to impacts. In addition, the level of analysis is commensurate with the anticipated level of impact (or the sliding scale approach). Accordingly, the discussion of the affected environment (and associated environmental consequences) focuses on air quality, grazing range, soil, biological resources, cultural resources, and utilities. Conversely, the following resource areas were evaluated, but not carried forward for detailed analysis in this EA because the Proposed Action and supporting action alternative would have only negligible impacts on these resources:

- **Geology:** The geology and seismology in the area surrounding the WIPP site boundary has not changed since publication of 1997 SEIS-II (DOE 1997). Although more recent seismic activity data are available, they do not indicate any change in the geological or seismological characteristics of the area. Seismic activity is not expected to impact the proposed NARB.
- **Hydrology:** There are no hydrological resources (groundwater, floodplains, or wetlands) in the project area that can be impacted by the Proposed Action. No major surface water bodies are located within 10 miles of the WIPP site boundary. The Pecos River is about 12 miles west of the WIPP site boundary at its closest point. The NARB project does not have the potential to discharge to waters of the United States or a storm sewer. In the vicinity of the WIPP site boundary, there are limited occurrences of potable water, and several water-bearing zones produce poor-quality water at significant depths below the surface. The presence of a caliche layer near the surface indicates that runoff that infiltrates into the subsurface is evaporated. Hydrological features are not expected to be impacted by the proposed NARB.
- **Noise:** The DOE requires its facilities to comply with Occupational Safety and Health Administration standards regarding noise exposure to workers. The WIPP facility noise sources with the potential to exceed those standards are mitigated and are maintained in compliance with those standards. The types of equipment to be used for NARB construction would include graders, compactors, loaders, and bulldozers. As with the NAR construction, mufflers along with engineering controls (earplugs/ear muffs) would reduce the noise impacts to workers near the area of construction. Chapter 9 of the 1980 Final Environmental Impact Statement (FEIS) for the WIPP contains the most recent thorough noise evaluation for construction activities. The evaluation in the FEIS included the 12-mile length of the NAR with similar construction equipment as the Proposed Action. Because the NARB would be shorter than the existing NAR and would be constructed using similar equipment, the duration and magnitude of temporary noise impacts is less than what was analyzed in Chapter 9 of the 1980 FEIS; therefore, the Proposed Action would not notably impact noise resources in the region.
- **Waste Management:** The waste expected to be produced during construction of the NARB would be primarily vegetation cleared from the right-of-way along with minor

amounts of miscellaneous construction wastes such as concrete and asphalt. These wastes along with other potential hazardous and non-hazardous wastes would be managed and disposed of in accordance with applicable state regulations. For example, industrial non-hazardous wastes would be disposed of in a permitted landfill. Impacts to waste management would be negligible.

- **Greenhouse Gases:** Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. The area of the Proposed Action is within the Pecos River air-shed and is classified as a Class II Air Quality Area. A Class II area allows moderate amounts of air quality degradation. The primary causes of air pollution in the project area are from motorized equipment and dust storms caused by strong winds during the spring. Particulates from nearby oil and gas production, agricultural burning, recreational and industrial vehicular traffic, and ambient dust can also affect air quality. Air quality in the area near the Proposed Action is generally considered good, and the Proposed Action is not located in any of the areas designated by the U. S. Environmental Protection Agency (EPA) as “nonattainment areas” for any listed pollutants regulated by the Clean Air Act.

The EPA’s Inventory of *U.S. Greenhouse Gas Emissions and Sinks 1990-2014*, stated that:

In 2014, total U.S. greenhouse gas emissions were 6,870.5 million metric tons or MMT carbon dioxide (CO₂) Eq. Total U.S. emissions have increased by 7.4 percent from 1990 to 2014, and emissions increased from 2013 to 2014 by 1.0 percent (70.5 MMT CO₂ Eq.). The increase in CO₂ emissions from fossil fuel combustion was a result of multiple factors including: (1) colder winter conditions in the first quarter of 2014 resulting in an increased demand for heating fuel in the residential and commercial sectors; (2) an increase in transportation emissions resulting from an increase in vehicle miles traveled (VMT) and fuel use across on-road transportation modes; and (3) an increase in industrial production across multiple sectors resulting in slight increases in industrial sector emissions. Since 1990, U.S. emissions have increased at an average annual rate of 0.3 percent.

- **Socioeconomics:** The Proposed Action would not change workforce requirements and would not notably impact socioeconomic resources in the region.
- **Environmental Justice:** Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, Executive Order (EO) 12898 (POTUS, 1994) requires that “each Federal Agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health effects of its programs, policies, and activities on minority populations and low-income populations.” Due to the remote location of the WIPP facility and the large land withdrawal area, there are no minority or low-income populations adjacent to the

project area that would be impacted by the Proposed Action. Therefore, impacts related to EO 12898 would not occur.

A large number of minority and low-income individuals are located in Eddy and Lea Counties, New Mexico. In this area, 53 percent of the population is classified as minority, while 15.5 percent is classified as low-income. Although the number of minorities exceeds 50 percent of the total population in the area, the number is not meaningfully greater than the state average based on 2010 Census data². The number of low-income individuals does not exceed 50 percent of the total population in the area (DOE/EIS-0026-SA-10). Therefore, no disproportionate impacts to low-income and minority populations are anticipated.

- **Transportation:** The Proposed Action would result in long-term beneficial impacts to transportation on the NAR and SAR as the NARB would accommodate all non-WIPP associated traffic volumes. Impacts associated with NARB construction activities would be short-term and less than significant.
- **Climate:** As discussed in 1997 SEIS-II, the regional climate is semiarid, with low precipitation and humidity and a high rate of evaporation. Climate-related impacts such as increased heat, drought, and insect outbreaks, declining water supplies, reduced agricultural yields, health impacts in cities due to heat, and flooding and erosion are not anticipated to affect the WIPP facility or the Proposed Action, as described in 1997 SEIS-II.

Following are the resources carried forward for analysis:

3.1 Air Quality

Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. The area of the Proposed Action is within the Pecos River air-shed and is classified as a Class II Air Quality Area. A Class II area allows moderate amounts of air quality degradation. The primary causes of air pollution in the project area are from motorized equipment and dust storms caused by strong winds during the spring. Particulates from nearby oil and gas production, agricultural burning, recreational and industrial vehicle traffic, and ambient dust can also affect air quality. Air quality in the area near the Proposed Action is generally considered good. The Proposed Action is not located in any of the areas designated by the EPA as “non-attainment areas” for any listed pollutants regulated by the Clean Air Act.

² Recent information from the Bureau of Business and Economic Research indicate that the population of Eddy County has increased from 53,829 in 2010 to 57,578 persons in 2015 and the number of persons in poverty has decreased from 8,138 in 2011 to 7,015 in 2015. The decrease in the population at or below the poverty level is an indicator that the Proposed Action would have negligible impacts.

University of New Mexico, Bureau of Business & Economic Research, March 21, 2018, <http://bber.unm.edu/eddy>

3.2 Grazing Range

The Proposed Action is within the Livingston Ridge (№ 77027) and Antelope Ridge (№ 77032) grazing allotments. The Livingston Ridge allotment is comprised of 55,581 acres and permitted to a livestock rancher operating a year-round cattle business. Range improvement projects such as windmills, water delivery systems (pipelines, storage tanks, and water troughs), earthen reservoirs, fences, and brush control projects may be located within the allotment. Land ownership of the subject allotment is divided between Federal, State, and private (deeded) lands. Acreages distributed by ownership are as follows

- 41,608 acres Federal ownership (2,880 acres within the WLWA boundary)
- 13,063 acres State Trust lands
- 910 acres private (deeded) land

The Antelope Ridge allotment contains 77,574 acres and is permitted to a livestock rancher operating a year-round cattle business. Range improvement projects such as windmills, water delivery systems (pipelines, storage tanks, and water troughs), earthen reservoirs, fences, and brush control projects may be located within the allotment. Land ownership of the subject allotment is divided between Federal, State, and private (deeded) lands. Acreages distributed by ownership are as follows:

- 66,757 acres Federal land (7,360 acres within the WLWA boundary)
- 8,749 acres State Trust lands
- 2,068 acres private land

3.3 Soil

The area of the Proposed Action is mapped as BD – Berino-Dune sand complex, 0 to 3 percent slopes, and KB – Kermit-Berino fine sands, 0 to 3 percent slopes. These are sandy type soils.

Typically, these soils are deep, well-drained to excessively drained, non-calcareous to weakly calcareous sands. They are found on undulating plains and low hills in the “sand country” east of the Pecos River. Permeability is moderate to very rapid, water-holding capacity is low to moderate, and little runoff occurs. These soils are susceptible to wind erosion and careful management is needed to maintain a cover of desirable plants and to control erosion. Reestablishing native plant cover could take 3-5 years due to unpredictable rainfall and high annual average temperatures (BLM 2010).

Low stability soils such as the deep sands found in this area typically contain only large filamentous cyanobacteria. Cyanobacteria, while present in some locations, are not significant. While they occur in the top 4 millimeters of the soil, this type of soil crust is important in binding loose soil particles together to stabilize the soil surface and reduce erosion. The cyanobacteria also function in the nutrient cycle by fixing atmospheric nitrogen, contributing to soil organic matter, and maintaining soil moisture. Cyanobacteria are mobile and can often move up through disturbed sediments to reach light levels necessary for photosynthesis. Horizontally, they occur in

nutrient-poor areas between plant clumps. Because they lack a waxy epidermis, they tend to leak nutrients into the surrounding soil. Vascular plants, such as grasses and forbs, can then utilize these nutrients (BLM 2010).

3.4 Biological Resources

3.4.1 Vegetation

Vegetation within the general Project Area is dominated by short- and mid-grasses such as black grama, bush muhly, various dropseeds, and three-awns. Bluestems, bristlegrass, lovegrasses, and hooded windmillgrass make up some of the less common grasses. Shrubs include mesquite, shinnery oak, sand sagebrush, broom snakeweed, and yucca. A large variety of forbs varies from year to year, and season to season. Common forbs include bladderpod, dove weed, globemallow, annual buckwheat, and sunflower (BLM 2010).

3.4.2 Wildlife and Habitat

The Proposed Action occurs in a transition zone between the Chihuahuan Desert habitat (to the west) and a sand shinnery habitat (to the east). This area is primarily dominated by mesquite scrublands intermixed with various grasses. This mesquite scrubland community extends across the southern Great Plains, occupying portions of north and west Texas, western Oklahoma, and southeast New Mexico. Portions of Eddy and Lea counties consist of mesquite scrublands. The characteristic feature of the mesquite scrubland habitat is co-inhabited by various species of grasses and cacti.

Various bird, mammal, reptile, and invertebrate species inhabit this ecosystem in southeast New Mexico. Herbivorous mammals include mule deer, pronghorn, and numerous rodent species. Carnivores include coyote, bobcat, badger, striped skunk, and swift fox. Two upland game bird species, scaled quail and mourning dove, are prevalent throughout southeast New Mexico. Many species of songbirds commonly nest in the habitat. A much larger number of bird species use the habitat during migration or for non-nesting activities. Common avian predators include northern harrier, Swainson's hawk, red-tailed hawk, kestrel, burrowing owl, and Chihuahuan raven. Numerous snake and lizard species also inhabit this ecosystem.

In 1996, the DOE conducted a Threatened and Endangered Species Survey to investigate the potential for impact to rare, threatened, endangered, or sensitive plant or animal species as a result of the potential actions presented in SEIS-II (DOE 1997). The 1996 survey included an assessment of suitable habitats for these species. No threatened, endangered, or state-listed species were found on the WLWA during the survey. The data reported in the survey, which support the conclusions of other studies (Lynn 2000), suggest that dense and permanent populations of these species are not presently established on WIPP lands.

Two species, previously listed as threatened or endangered, live in the shinnery oak sand dunes areas near the WIPP site. These two species are the Dunes Sagebrush Lizard (*Sceloporus arenicolus*) and the Lesser Prairie Chicken (*Tympanuchus pallidicinctus*). On June 19, 2012, the proposal to list the Dunes Sagebrush Lizard was withdrawn under:

- the New Mexico Game and Fish Endangered Species Act

- the U.S. Fish and Wildlife Endangered Species Act (candidate species)

The U.S. Fish and Wildlife Service withdrew the proposed rule to list the Dunes Sagebrush Lizard as endangered under the Endangered Species Act of 1973 based on the conclusion that the threats to the species, as identified in the proposed rule, no longer are as significant as believed (*Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule to List Dunes Sagebrush Lizard*, 77 Federal Register [FR] 36871).

On July 20, 2016, the U.S. Fish and Wildlife Service published a final rule formally vacating the previous listing of the Lesser Prairie Chicken as threatened under the Endangered Species Act. The listing of the Lesser Prairie Chicken was vacated in order to comply with a court order regarding a challenge to the listing (*Endangered and Threatened Wildlife and Plants; Lesser Prairie Chicken Removed from the List of Endangered and Threatened Wildlife*, 81 FR 47047).

3.5 Cultural Resources

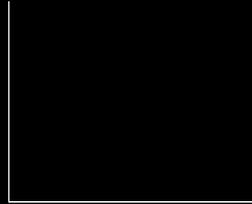
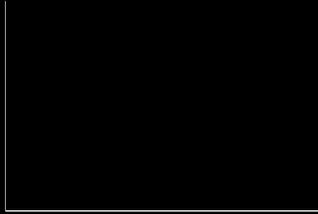
The project falls within the Southeastern New Mexico Archaeological Region. This region contains the following cultural and temporal periods: Paleoindian (ca. 12,000 – 6,200 B.C.), Archaic (ca. 6,200 B.C. – A.D. 500), Ceramic (ca. A.D. 500 – 1540), Protohistoric and Spanish Colonial (ca. A.D. 1400 – 1821), and Mexican and American Historical (ca. A.D. 1822 to early 20th century). Sites, in which evidence of past activity is preserved (either prehistoric or historic), representing any or all of these periods are known to occur within the region (BLM 2010). A more complete discussion can be found in *Living on the Land: 11,000 Years of Human Adaptation in Southeastern New Mexico: An Overview of Cultural Resources in the Roswell District*, Bureau of Land Management, published in 1989 by the BLM.

Fieldwork was conducted on December 12-14, 2017, by Statistical Research Inc., 2018. The survey area consisted of a single linear corridor situated on lands administered by the DOE and the BLM. The survey corridor includes both construction-work spaces and the permanent right-of-way. The following documents and forms were used to assist in completing the study, which are included in the survey crew's final report: New Mexico Cultural Resources Information System (NMCRIS) Investigation Abstract Form, a BLM authorization form, a table providing legal descriptions, a U.S. Geological Survey 7.5-minute topographic map of the project area, the results of Statistical Research Inc.'s pre-field search of BLM and NMCRIS records, a table of the isolated occurrences (IOs), survey plat maps, and geographic information system shape files of the proposed segment. There were no previously recorded sites that NMCRIS or BLM data showed intersecting the planned corridor. The survey crew (Statistical Research Inc., 2018) did not encounter any new or previously recorded sites, but did record three IOs (see Figure 4, Area of Cultural Survey with Isolates). The IOs are:

- IO-1: 3 fire-altered sandstone
- IO-2: 1 fire-altered caliche
- IO-3: 1 fire-altered caliche

3.6 Utilities

An existing gas pipeline located within the project area, which is owned by Enterprise Products, supports the local oil and gas industry.



Redacted in accordance with NHPA, Section 304, and ARPA, Section 9.

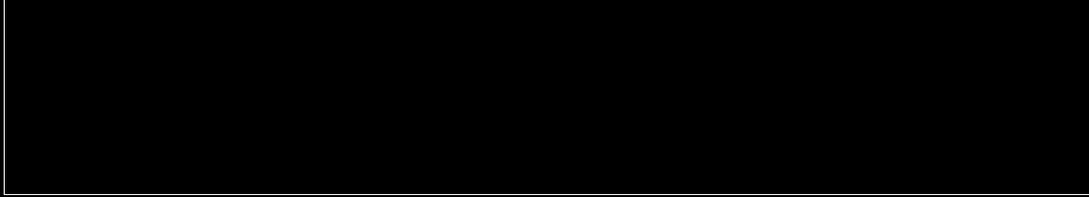


Figure 4. Area of Cultural Survey with Isolates

4.0 ENVIRONMENTAL IMPACTS OR CONSEQUENCES

This section presents a discussion of the potential resource-specific impacts of the Proposed Action and action alternatives. The discussion includes direct, indirect, and cumulative impacts and presents best management practices and industry standard protection measures that would be incorporated into the Proposed Action to reduce impacts to a negligible level.

4.1 Air Quality

4.1.1 Alternative 1

The Proposed Action would not adversely affect long-term air quality. The winds that frequent the southeastern part of New Mexico generally disperse odors and emissions. Air quality would be impacted temporarily from exhaust emissions, chemical odors, dust caused by vehicles traveling to and from the project area, and from motorized equipment used during construction of the road. Potential impacts of road construction could include the creation of dust and releases of greenhouse gas and volatile organic compounds during construction. Impacts to air quality would diminish upon completion of the construction phase of the Proposed Action.

The EPA has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. The DOE uses the following standard practices to minimize impacts to air quality on lands managed at the WIPP facility in southeastern New Mexico, where applicable:

- Using existing disturbed areas when available
- Minimizing additional surface disturbance
- Reclaiming and quickly establishing vegetation on areas not necessary for production
- Periodic watering of unsurfaced access roads during dry periods
- Removal and reuse of caliche for other projects

Potential direct and indirect impacts to air quality would be reduced to a negligible level by following standard practices for minimizing disturbances during construction. Emission sources used during construction of the NARB would comply with the EPA Air Quality Standards.

4.1.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. Consequently, the existing conditions (as described in section 3.1) would remain unchanged. Therefore, no impacts to air quality would occur under the No Action Alternative.

4.2 Grazing Range

4.2.1 Alternative 1

Two existing roadway tangents would be extended and joined by a large-radius horizontal curve. Vertical alignment was determined based on anticipated geotechnical recommendations for section thickness to ensure pavement longevity and AASHTO design guidelines for vertical curves to ensure required sight distance over terrain undulations to meet safety standards. Vertical profile was also designed with an elevation above the existing ground in most locations to minimize

hazards from occasional drifting snow and blowing dust or sand. Vertical alignment was further affected by required cover for unobstructed livestock crossings.

Three under-road livestock crossings (see Figure 5, Locations for Under-Road Livestock Crossings) would be located in existing depression areas to minimize vertical rise in roadway height required to pass over these structures. Fencing and cattle guards would be designed to maximize use of existing fencing and minimize loss of grazing area while providing adequate setback from the roadway. Drainage would be designed to minimize the potential for ponding in crossing structures.

Structural components of Alternative 1 would include livestock crossings in the form of 8-foot-high x 10-foot-wide box culverts. Standard NMDOT box culvert (see Figure 6, Under-Road Livestock Crossings) drawings would be used to ensure availability and to decrease item costs.

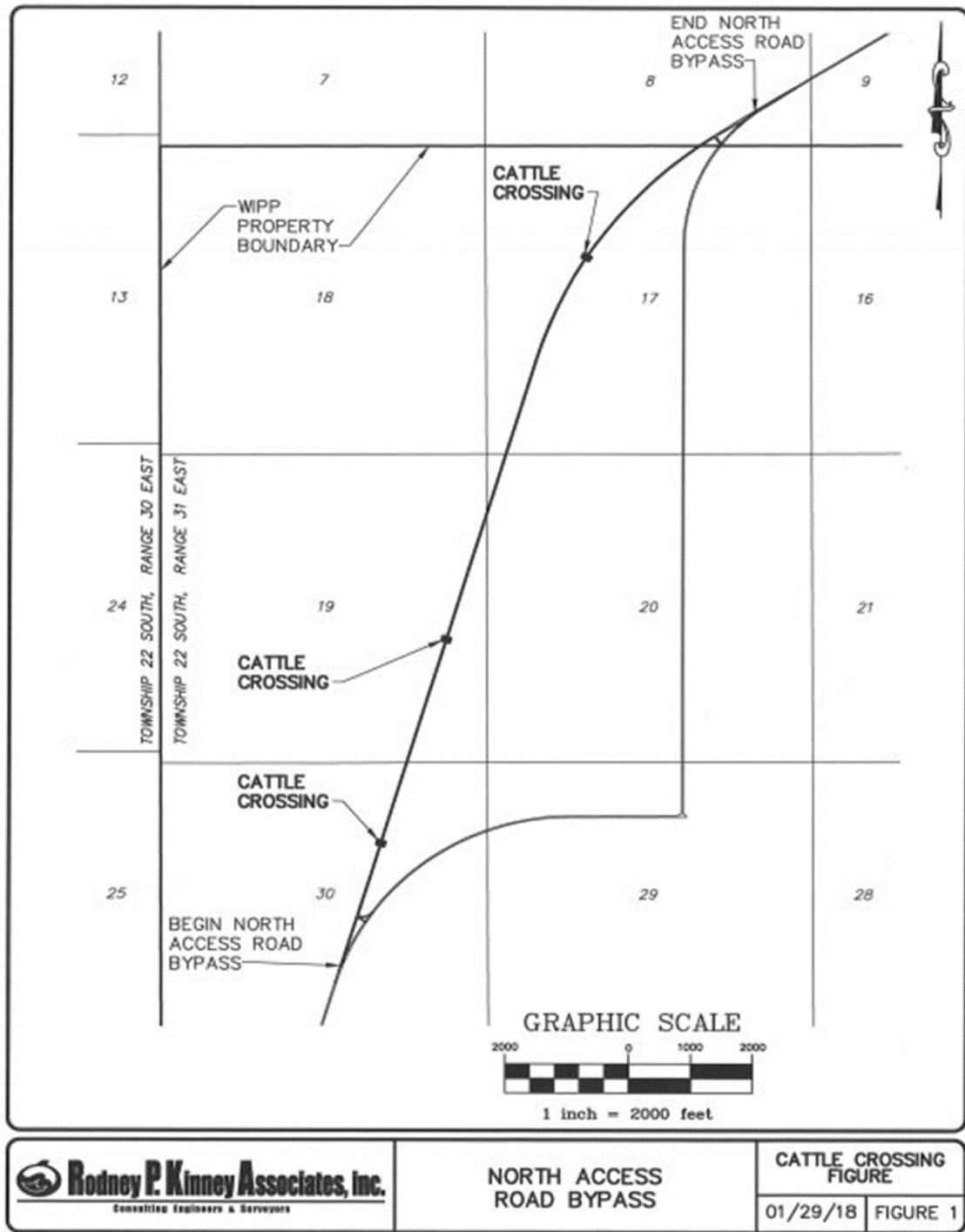


Figure 5. Locations for Under-Road Livestock Crossings

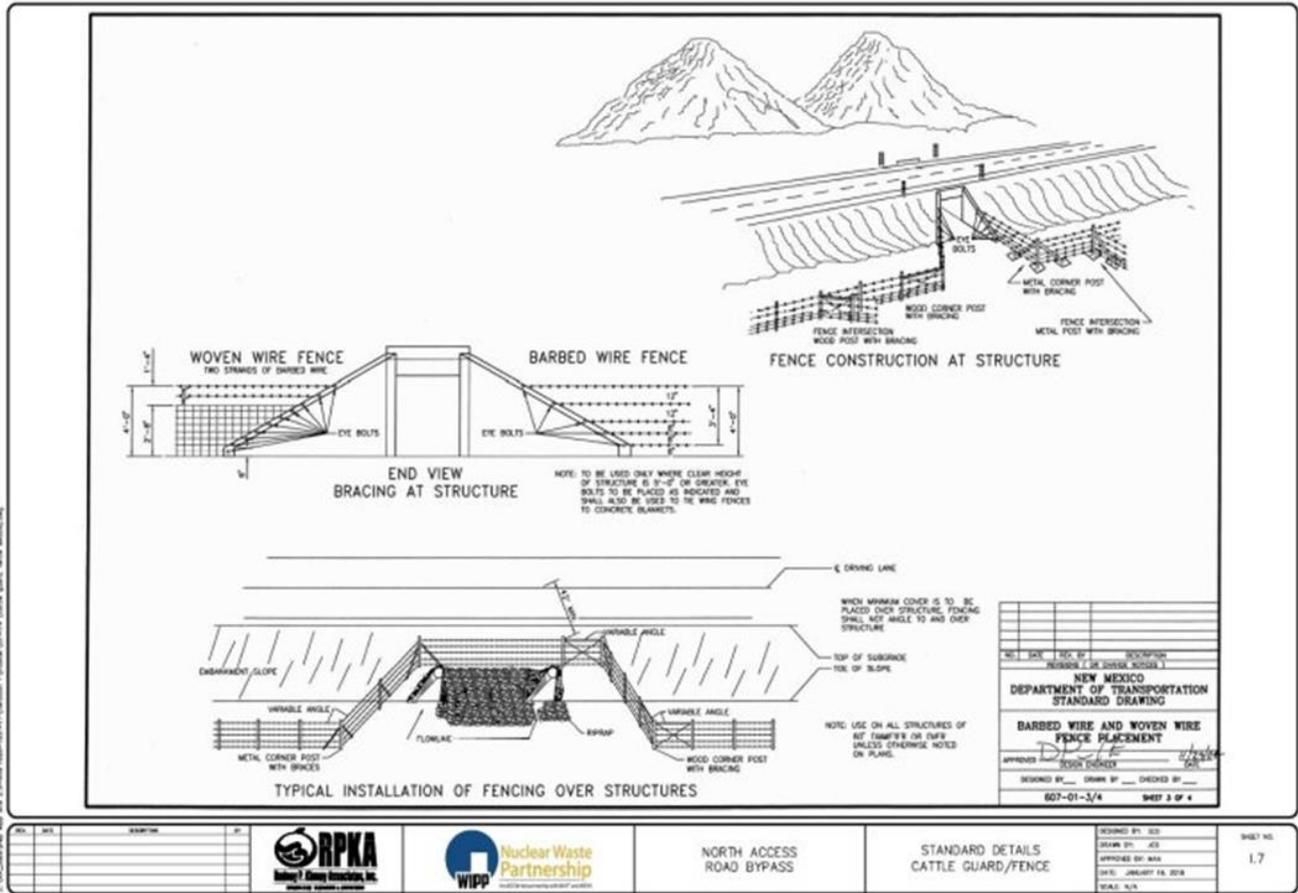


Figure 6. Under-Road Livestock Crossings

The following potential issues were identified with regard to implementing the Proposed Action:

- Other land use authorizations, which include a gas pipeline owned by Enterprise Products Co. and treatment thereof.
- Loss of vegetation. Based on analysis and field investigations, Alternative 1 construction and operation would impact a total of approximately 60 acres of land, including 17 acres (about 28 percent) of permanent disturbance consisting of easement, roadway, and sand sagebrush steppe, which would be converted to roadway land use.
- Impacts to ranching operation.

To address the issues described above, the following measures would be incorporated into Alternative 1 to reduce direct and indirect impacts to a negligible level:

- The existing gas pipeline, owned by Enterprise Products, would be protected and undisturbed during the term of NARB construction and operation. The NARB designer would incorporate any crossing treatments and/or encasing of existing pipeline as requested by Enterprise Products into the final NARB design packages prior to construction.
- The loss of approximately 17 acres of vegetation out of approximately 7,600 acres of the grazing allotment within the WLWA would not adversely affect the Animal Unit Months, which would be authorized for livestock use in this area.
- Direct and indirect impacts to the ranching operation would be reduced to a negligible level by the following BLM standard practices which include:
 - Utilizing existing surface disturbance
 - Minimizing additional vehicular use
 - Placing parking and staging areas on caliche-surfaced areas
 - Reclaiming the areas not necessary for road use
 - Quickly establishing vegetation on the reclaimed areas; minimize cut and fill
 - Conducting periodic surveys of sensitive wildlife habitat to ensure habitat avoidance
 - Controlling dust by limiting construction activities
 - Providing fencing to prevent livestock loss due to traffic collisions and provide three cattle tunnels to re-connect grazing plots

4.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. Consequently, the existing conditions (as described in section 3.2) would remain unchanged. Therefore, no impacts to the grazing range would occur under the No Action Alternative.

4.3 Soil

4.3.1 Alternative 1

There would be a potential for wind and water erosion due to the erosive nature of the soils once the cover is lost. There would be the potential for soil contamination due to spills or leaks during construction activities. Soil contamination from spills or leaks could result in decreased soil fertility, less vegetative cover, and increased soil erosion. Direct and indirect impacts to soil resources would be reduced to a negligible level by following standard practices such as cleaning up spills and releases and re-establishing vegetation as soon as practicable on the disturbed areas that are not permanent portions of the NARB.

Impacts to soil resources would be reduced by following standard practices such as utilizing existing surface disturbance, which includes placing parking and staging areas on caliche surfaced areas. By utilizing existing surface disturbances for parking and staging areas, additional surface disturbance would be minimized.

4.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. Consequently, the existing conditions (as described in section 3.3) would remain unchanged. Therefore, no impacts to soil would occur under the No Action Alternative.

4.4 Biological Resources

4.4.1 Alternative 1

According to the most recent annual site environmental report (DOE/WIPP-17-3591, *Waste Isolation Pilot Plant Annual Site Environmental Report for 2016*, September 2017 [DOE 2016a]), there have been no substantive changes in the biological resources at the WIPP site since 1997 SEIS-II. During 2016, no species of plants or animals that are protected by the Endangered Species Act were identified within the WLWA (*Supplement Analysis for the Waste Isolation Pilot Plant Site-Wide Operations*, DOE/EIS-0026-SA-10 [DOE 2016b]).

Most recently, a Federal and State listed species assessment using meandering transects of all NARB project areas was performed in December 2017. The survey included a 600-foot-wide assessment encompassing potential road and construction workspace along the NARB project corridor for the length of the proposed road. One raptor stick nest and 33 avian nests (all of unknown origin) were observed and field located in the 600-foot-wide survey area encompassing the 140-foot-wide NARB project area.

The majority (61 of 74) of Federal and State listed species occurring within the project area have no potential to be affected by the Proposed Action, as their specific range or baseline habitat requirements do not occur within or adjacent to the NARB project area. The 13 remaining species are characterized as having “low” potential to be affected by the Proposed Action (Tetra Tech, 2017).

The NARB project would be constructed and operated using applicable typical industry-standard Best Management Practices (BMPs) and environmental BMPs (which include U.S. Fish and Wildlife Services and BLM Carlsbad Field Office commonly recommended construction and

operation BMPs and voluntary conservation measures). These practices would be incorporated into construction contracts, land use permits, or plans for development as applicable. Therefore, direct and indirect impacts would be negligible.

4.4.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. Consequently, the existing conditions (as described in section 3.4) would remain unchanged. Therefore, no impacts to biological resources would occur under the No Action Alternative.

4.5 Cultural Resources

4.5.1 Alternative 1

The cultural survey team declared the survey negative (i.e., no new or previously recorded sites [either prehistoric or historic]) and documented such in the NMCRIS as activity number 139541 (Statistical Research Inc. 2017, *An Archaeological Survey and Inventory of the WIPP North Access Road Bypass*). Therefore, direct and indirect impacts would be negligible.

4.5.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. Consequently, the existing conditions (as described in section 3.5) would remain unchanged. Therefore, no impacts to cultural resources would occur under the No Action Alternative.

4.6 Utilities

4.6.1 Alternative 1

The existing gas pipeline located within the NARB project area, which is owned by Enterprise Products, would be protected and undisturbed during the term of the NARB construction and operation. The NARB designer would incorporate any crossing treatments and/or encasing of existing pipeline as requested by Enterprise Products into the final NARB design packages prior to construction; therefore, direct and indirect impacts would be negligible.

4.6.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. Consequently, the existing conditions (as described in section 3.6) would remain unchanged. Therefore, no impacts to utilities would occur under the No Action Alternative.

5.0 CUMULATIVE IMPACTS

The CEQ regulations in "Cumulative Impact" (40 CFR § 1508.7) define cumulative impacts as "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." This chapter presents an analysis of the resource-specific cumulative impacts resulting from implementation of the Proposed Action in conjunction with any reasonably foreseeable projects to be initiated at the WIPP site. The focus of the cumulative impacts analysis in this Final EA is on reasonably foreseeable projects that would be within the same geographic space and temporal space as the Proposed Action. Past and present actions at the WIPP site are represented in the resource impact analysis discussed in this document, and in the NEPA analyses referenced herein.

5.1 Reasonably Foreseeable Projects Considered for Cumulative Impacts Analysis

5.1.1 Above Ground Storage Capability (AGSC) Project

The purpose of the proposed AGSC project would be to improve TRU waste shipping throughout the DOE complex and to improve the WIPP disposal process efficiency by adding the capability to temporarily store TRU mixed waste above ground in concrete overpack containers at the WIPP site. As a result of the proposed AGSC project, the DOE plans to provide a 65,280-cubic-foot contact-handled (CH) TRU mixed waste concrete container storage unit on the surface of the WIPP facility. This additional surface storage capacity would be for TRU waste in containers shipped to WIPP in TRUPACT-II and HalfPACT shipping packages and would be managed as CH TRU waste. The proposed storage time for the concrete overpack containers on the surface at WIPP is up to 365 days. Up to 408 concrete overpack containers of CH TRU mixed waste would be proposed to be stored on the concrete pad. The impact analysis presented in the Draft EA prepared for this project indicates that impacts for the resources analyzed would be negligible (*Draft Environmental Assessment for Above Ground Storage Capability at the Waste Isolation Pilot Plant*, DOE/EA-2064).

5.1.2 New Permanent Ventilation System

The DOE has begun implementing a three-phase ventilation system upgrade to support increased UG operations at the WIPP. The first phase, the Interim Ventilation System, is already operational. The second phase is the addition of the Supplemental Ventilation System (SVS), which became operational early in Fiscal Year 2018. The SVS facilitates full-scale mining operations by creating an unfiltered exhaust path for construction air. The third phase of the ventilation upgrade includes construction and installation of a new Permanent Ventilation System (PVS) (*Supplement Analysis for the New Permanent Ventilation System*, DOE/EIS-0026-SA-11 [DOE 2017b]). The PVS would support simultaneous waste emplacement, mining, and mine maintenance operations. The PVS would include a salt reduction building, a new filter building along with its appurtenances, and a new shaft and access drifts. The PVS would be expected to be operational in the 2021 timeframe. The impact analysis presented in the supplement analysis prepared for this project indicates that impacts for the resources analyzed would be negligible.

5.2 Cumulative Impacts Analysis

The DOE has prepared this Final EA to determine whether the potential environmental impacts of the Proposed Action would be significant to human health and the environment in accordance with the DOE's NEPA implementing procedures, 10 CFR Part 1021, and the regulations promulgated by the CEQ for implementing NEPA, 40 CFR Parts 1500-1508. As indicated above, resource impacts associated with the reasonably foreseeable projects would be negligible. As reflected in this EA's environmental resource impact analysis, these impacts would also be negligible. Based on the analysis presented in this EA, the DOE's Proposed Action does not represent substantial changes to the 1997 SEIS-II and to portions of the 1980 FEIS not considered in 1997 SEIS-II that would be relevant to environmental concerns. There would be no new circumstances nor information relevant to environmental concerns that bear on the Proposed Action or its potential environmental impacts that would warrant additional NEPA analysis. Therefore, the Proposed Action, in conjunction with the reasonably foreseeable projects, would not result in significant resource-specific cumulative impacts. It should be noted that it is anticipated that the NARB project would be constructed and operational before both the AGSC project and the PVS project are fully implemented.

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Appendix A
Public Outreach

A Draft EA for the proposed NARB project was released for a 30-day public review and comment period via the publication of a Notice of Availability (NOA) on July 31, 2018, in three local and two regional newspaper publications. No public comments were provided during the 30-day public comment period, July 31 through August 29, 2018, on the Draft EA.

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