

1. INTRODUCTION

1.1 Procedural History

In 2005, BHP Navajo Coal Company (BNCC) sought to expand mining operations into a 3,800-acre area of the Navajo Mine known as “Area IV North.” The United States Department of the Interior Office (DOI) of Surface Mining Reclamation and Enforcement (OSMRE) prepared an Environmental Assessment (EA) for the Surface Mining Control and Reclamation Act (SMCRA) Permit Revision Application (NM-0003-F-R-01) and concluded that the expansion of operations proposed would have no significant impact on the quality of the human environment, and thus approved the Permit Revision Application on October 7, 2005. On June 13, 2007, Diné Citizens Against Ruining Our Environment (Diné C.A.R.E.) and San Juan Citizens Alliance challenged OSMRE’s approval in the United States (U.S.) District Court of the District of Colorado in *Diné C.A.R.E v. Klein* (Civil Action No. 07-cv-1475-JLK). On October 28, 2010, the Colorado District Court issued a decision vacating OSMRE’s approval of the mine plan and remanded the matter back to OSMRE. BNCC immediately ceased all mine preparation activities in Area IV North, pursuant to OSMRE’s instructions. Between the 2005 OSMRE approval and the ruling in 2010, approximately 268 acres of the 3,800-acre resource area were disturbed for mine pit development and infrastructure in preparation of mining activities. Of that total, approximately 216 acres was for preparation of the area to be mined including developing the crossing of Cottonwood Arroyo, and approximately 52 acres was disturbed for power lines and ancillary roads.

Following the 2010 remand, BNCC submitted a revised Permit Revision Application to OSMRE, seeking permission for a more modest expansion of its operations into Area IV North, and OSMRE prepared another EA (OSMRE 2012a) to analyze the potential environmental impacts of this action. On the basis of the 2012 EA, OSMRE determined that there would be no significant impacts as a result of this action and approved the SMCRA Permit revision. Based on OSMRE’s approval, BNCC resumed operations in Area IV North in 2012. Shortly thereafter, petitioners filed another suit alleging that OSMRE’s EA failed to comply with the National Environmental Policy Act (NEPA). On March 2, 2015, the Colorado District Court granted a petition for review of agency action and ruled that OSMRE failed to adequately consider the reasonably foreseeable combustion-related effects of Navajo Transitional Energy Company’s (NTEC’s) proposed expansion of operations at the Navajo Mine.

On April 6, 2015, the District Court vacated the EA/Finding of No Significant Impact (FONSI) and the 2011 Area IV North SMCRA permit revision. The Court’s decision noted that all parties agreed that OSMRE may be able to comply with NEPA relating to its consideration of the permit revision application by tiering to the comprehensive Environmental Impact Statement (EIS) for the Four Corners Power Plant and Navajo Mine Energy Project (FCPP/NMEP EIS), published May 1, 2015. Therefore, this EA incorporates by reference relevant sections of the EIS, as noted in specific EA sections.

The Colorado District Court decision does not vacate or remand the other permits approved pursuant to the 2012 FONSI; therefore, this EA assumes that those approvals remain valid.¹

This EA has been prepared to extend the analyses in the 2012 EA by tiering to the analysis presented in the FCPP/NMEP EIS, published on May 1, 2015. The FCPP/NMEP EIS is incorporated by reference in to this EA (specific sections, data, and conclusions that are incorporated are noted within the individual resource sections in Chapters 3, 4, and 5), and is publically-available on OSMRE's website or by request to OSMRE. This EA adds analysis not included in the 2012 EA to address the reasonably foreseeable combustion-related effects of NTECs proposed expansion of operations at the Navajo Mine. This EA therefore addresses both mining and the effects of the coal combusted at the FCPP associated with Area IV North coal. Emissions associated with Area IV North coal occurring prior to July 2016 are directly analyzed in this EA, emissions associated with any remaining coal from Area IV North that would be combusted after July 2016 is evaluated in the FCPP/NMEP EIS and incorporated by reference in this EA.

As described above, the 2012 EA analyzed an action previously proposed by BNCC. The current owner of the mine is NTEC,² and NTEC is the project proponent seeking to meet its coal supply obligations through July 6, 2016. NTEC proposes to meet its coal supply obligations by:

1. Implementing a mine plan revision to develop coal reserves located in a portion of Area IV North within BNCC's existing Navajo Mine coal lease and mine permit area located on the Navajo Nation Indian Reservation, San Juan County, in northwestern New Mexico (Navajo Mine).
2. Continuing to mine in Area III of the Navajo Mine.
3. Realigning the Burnham Road through Areas III and IV North of the Navajo Mine.

In addition, NTEC proposed to consolidate several existing Clean Water Act (CWA) Nationwide Permits (NWP) for operations in Area III and Area IV North, and for impacts to waters of the U.S. associated with the proposed realignment of Burnham Road into a single Individual Permit (IP).

This EA has been prepared to add analysis to that provided in the original 2012 EA. The 2012 EA assessed the potential environmental consequences of the proposed mining, reclamation, and road realignment activities, allowed for public involvement in the process, and assisted decision makers by disclosing the potential effects of proposed mining activities in both Area IV North and Area III. The 2012 EA addressed all the Federal actions proposed in support of pre-2016 mining under the current coal supply agreement. Post-July 6, 2016 mining activities are associated with a new and different coal supply agreement that was the subject of a subsequent NEPA analysis (OSMRE 2015). Any remaining coal from Area IV North that would be combusted after July 2016 is directly considered in the FCPP/NMEP EIS.

¹ All of the permitted actions, with the exception of remaining mining activity under the SMCRA permit, have already been completed. The impact evaluation of these other actions was included in the 2012 Final EA, and the completion of the actions occurred prior to the 2015 remand by the U.S. District Court.

² In 2014, the Navajo Mine was purchased from BNCC by NTEC. The mine operations were transferred to Mine Management Company (MMCo) and all environmental permits similarly transferred. NTEC retains the SMCRA permits for the mine. Therefore, BNCC is used when discussing mine operations prior to 2014 and NTEC is used when referring to mine operations between 2014 and 2016.

This EA includes the analyses of the 2012 EA, and provides additional analysis by tiering to (incorporating by reference) the FCPP/NMEP EIS, published on May 1, 2015, to address the reasonably foreseeable combustion-related effects of NTECs proposed expansion of operations at the Navajo Mine. For purposes of compliance with the District Court's order, this EA considers combustion-related impacts of the coal combusted at the FCPP until July 2016 as indirect effects.

This EA was prepared in accordance with the requirements of NEPA and the Council on Environmental Quality (CEQ) and DOI regulations implementing NEPA. OSMRE is the lead Federal agency responsible for development of this EA because it has the decision-making authority regarding the proposed mine plan revision under SMCRA. As such, this EA follows OSMRE's 516 DM 13, which is the department manual guiding OSMRE's implementation of the NEPA process. OSMRE is responsible for approval or denial of the proposed Area IV North mine plan revision. The U.S. Army Corps of Engineers (USACE) issued an IP in accordance with the CWA for impacts to waters of the U.S. in Areas IV North and III and along the proposed Burnham Road realignment. The Bureau of Land Management (BLM) was responsible for assuring ultimate maximum recovery of the coal in accordance with their Resource Recovery Protection Plan (R2P2),¹ and the Bureau of Indian Affairs (BIA), along with OSMRE, was an authorizing agent for realignment of the Burnham Road. With the exception of the SMCRA permit, the authorized activities under the other Federal actions have been completed, as described in greater detail in Section 1.2.

1.2 Relevant Project Timelines

1.2.1 Baseline Period

On February 15, 2011, BNCC submitted a proposal to revise its mine plan for Area IV North. The 2011 proposal was based on BNCC's calculations of the amount of coal required to supply FCPP through July 6, 2016, at the historic coal consumption rate of 8.5 million tons per year (Mtpy) required for the operations of Units 1 through 5 at FCPP. On March 16, 2012, OSMRE approved BNCC's application and issued a revised permit. Therefore, the Baseline Period refers to existing conditions in the Project area prior to March 2012.

1.2.2 Impact Analysis Period

This EA analyzes the consequences of the Proposed Action, including consideration of combustion-related effects from March 2012 through to July 6, 2016. OSMRE selected July 6, 2016, as the Proposed Action end date for analyzing combustion-related impacts for two reasons:

1. The 2012 EA which was remanded by the Court analyzed the effects of mining at the Navajo Mine in Area IV North through July 6, 2016. The conclusions with regard to mining remain valid

¹ The BLM regulations at 43 CFR 3480.0-4 provide that certain sections of Part 3480, including the maximum economic recovery (MER) standard (43 Code of Federal Regulations [CFR] 3480.0-5(a)(21)), do not apply to Indian lands, but BLM's regulations at 43 CFR Part 3590 "also govern operations for all minerals on Indian tribal lands and allotted Indian lands leased under 25 CFR parts 211 and 212" (43 CFR 3590.0-7). Therefore, the BLM's ultimate maximum recovery regulation at 43 CFR 3590.0-5(h) extends to the oversight of all minerals on Indian lands. The ultimate maximum recovery standard and the MER standard achieve the similar management objective of maximum mineral development. In this EA, the Mine Plan approved by the BLM for the Proposed Action is referred to as a Resource Recovery and Protection Plan (R2P2).

and are carried forward in this EA. Thus, to be consistent with the remanded 2012 EA, OSMRE's EA consider operations through July 6, 2016.

2. The remand decision directed OSMRE to address the combustion-related impacts of the Proposed Action. The FCPP/NMEP EIS analyzed the combustion-related effects of burning Navajo Mine coal at FCPP commencing July 6, 2016 (as well as all other effects of FCPP operations post-2016 through 2041). The FCPP/NMEP EIS comprehensively analyzed impacts from past, present, and future mine and power plant operations through 2041, including evaluating mercury and selenium deposition impacts, among other impacts, on threatened and endangered species, through and including the time period of the Area IV North Proposed Action. The Record of Decision issued on July 15, 2015, approved NTEC's renewal of the Navajo Mine SMCRA permit, which authorizes on-going continued operations including blending of coal mined from Area IV North with other mine sources in order to meet FCPP requirements, approved NTEC's Pinabete permit application, and renewed FCPP's BIA lease, among other actions.

When considering the combustion of the total volume of coal to be mined under this SMCRA Permit Revision for Area IV North, OSMRE took into account the rate of combustion at FCPP, and NTEC's contractual obligations to supply a specific quality of coal to FCPP which necessitates blending coal from various areas of the lease.

Combustion Rate. Since OSMRE's March 16, 2012, approval of the Area IV North permit revision, BNCC and its successor NTEC supplied approximately 8.5 million tons of appropriate quality coal annually to FCPP prior to closure of FCPP Units 1, 2, and 3 (March 16, 2012, through December 31, 2013). The closure of Units 1, 2, and 3 reduced the combustion rate of coal at the FCPP. Therefore, beginning on January 1, 2014, BNCC/NTEC began supplying approximately 5.8 million tons of appropriate quality coal annually to FCPP. BNCC/NTEC must, therefore, be able to supply a total of 30.8 million tons of appropriate quality coal to fulfil its contractual obligations through July 6, 2016. Consequently, the volume of coal to be mined in Area IV North under this Proposed Action was evaluated in the 2012 EA because with the operation of Units 1-5, that volume would have been combusted by 2016; the same mining-related effects are also analyzed in this EA. However, with the reduction in combustion rate, that volume of coal will now be used beyond July 6, 2016. Based on the current mine plan, it is estimated that it will require approximately 4 years to complete coal recovery in Area IV North (which would be conducted concurrent with mining activities in the Pinabete area beginning in 2016), and an additional 3 to 6 months to blend the mined coal through Navajo Mine stockpiles and burn at the FCPP. Timing is predominantly impacted by the demand requirement of FCPP, the actual coal uncovered during the mining operations, and the appropriate blending for coal quality with other mined coal sources. This timing is based on Navajo Mine's estimated rates from the current long-term plan, and is subject to change based on the mine plan and sales forecast changes. The effects of the combustion of the Area IV North coal that is blended with other mined coal sources, including the Pinabete Permit area, after July 2016 was comprehensively analyzed in the FCPP/NMEP EIS, as described below. Therefore, although there is a change in the rate of coal combustion, all of the mining-related effects and all of the combustion-related effects from the Proposed Action at Area IV North are fully analyzed in compliance with NEPA.

Coal Quality. FCPP was designed and constructed specifically to burn low-rank, low-sulfur, bituminous coal. Therefore, NTEC must meet coal specifications for heating value, sulfur, and ash content for efficient FCPP operation. The quality of the coal that NTEC delivers to FCPP cannot deviate from the narrow range of contractual specifications even though the quality of the coal found in situ within the mine pits can vary substantially. The heating value of the coal found within the Navajo Mine typically ranges from 7,800 to 9,500 British thermal units (BTU) per pound. The target heating value of coal delivered to FCPP under the coal supply agreement is 8,700 to 8,750 BTU per pound with a contractual minimum of 8,500 BTU per pound. To meet the target heating value and contractual specifications, NTEC blends coal mined from multiple locations and seams within the lease. NTEC maintains approximately 1 million tons of coal as minimum working stockpile inventory available for coal blending. This amount represents an approximately 2-month reserve supply of coal. As such, the coal mined from Area IV North under the Proposed Action will be blended with coal reserves from other locations and seams within the lease in order to meet the BTU coal specifications required per the contract between NTEC and the FCPP. Blending of sources to meet contractual requirements is the typical operation, and is addressed in the FCPP/NMEP EIS in describing the Proposed Action of both renewal of the Navajo Mine SMCRA permit together with consideration of the new Pinabete Mine SMCRA permit.

Summary of FCPP/NMEP EIS Analyses Incorporated by Reference. Based on the analysis provided in the FCPP/NMEP EIS, OSMRE selected Alternative D, which included approval of the Pinabete SMCRA permit, approval of the renewal of the Navajo Mine SMCRA permit, approval of the lease renewal for the FCPP with an alternative ash disposal configuration, approval of a realignment of Burnham Road, and approval of rights-of-way renewals for four transmission lines. During the period of time after July 6, 2016 when Area IV North coal would be blended with other mined sources, including the Pinabete permit area, for combustion at FCPP (which would extend to approximately 2020), Arizona Public Service would be implementing measures to comply with the FIP for BART. Shutdown of Units 1, 2, and 3 occurred December 2013. Starting April 2018, the FCPP would have a period of planned outages to facilitate the installation of SCR on Units 4 and 5 for NO_x reduction, and the SCR units would be operational by July 2018. For most environmental resource categories, the environmental impacts described in this EA would be the same both before and after July 2016. However, as described in the EIS, the effects of SCR installation would change the rate of air emissions (reducing primarily the emissions of NO_x and slightly increasing sulphuric acid), the need for delivery of solid urea for ammonia production for the SCR, and delivery of hydrated lime for sulfuric acid reduction. In addition, during this time period, FCPP would begin installation and use of a new dry fly ash disposal area which would require ground-disturbance within the FCPP lease area. Although the reader is referred to the FCPP/NMEP EIS description of Alternative D and impact assessment (the primary issue areas being air quality and public health), a general summary of the findings of the FCPP/NMEP FEIS Alternative D environmental affects is provided below (Table 1.2-1):

Table 1.2-1 Impacts of FCPP Operation Post-2016 and Adopted Mitigation Measures by Resource Area per the FCPP/NMEP EIS

Selected Alternative D Ash Disposal Alternative	Mitigation Measures
AIR QUALITY (See section 4.1.4.5 of the FCPP/NMEP EIS)	
Air emissions would not result in exceedances of any NAAQS. Deposition impacts within 50 kilometers of FCPP would be negligible.	No mitigation measures are recommended
CLIMATE CHANGE (See section 4.2.4.4 of the FCPP/NMEP EIS)	
Climate Change impacts from stationary sources (Units 4 and 5) would be minor relative to other sources. Climate Change impacts from mobile sources (e.g., vehicles and equipment) would be negligible relative to other sources.	No mitigation measures recommended
EARTH RESOURCES (See section 4.3.4.4 of the FCPP/NMEP EIS)	
Impacts to landforms and topography would be considered minor.	No mitigation measures recommended
Impact to soils would be considered minor. Impacts to geology and mineral resources would be negligible.	No mitigation measures recommended
Impacts to paleontological resources would be considered negligible given the eroded nature of the deposits in the area of the proposed DFADAs	No mitigation measures recommended
CULTURAL RESOURCES (See section 4.4.4.4 of the FCPP/NMEP EIS)	
Potential impacts to archaeological resources and TCPs. OSMRE has consulted with the Navajo THPO and SHPO for determinations of Project effects. Impacts would be minor.	A PA for the FCPP has been developed that defines mitigation for adverse effects on historic properties. Otherwise, no additional mitigation is required.
WATER RESOURCES /HYDROLOGY (See section 4.5.4.4 of the FCPP/NMEP EIS)	
Impacts would be negligible.	Under the No Action Alternative, OSMRE recommends APS conduct heavy metal sampling and analysis and conduct remediation activities as needed at Morgan Lake.
VEGETATION (See section 4.6.4.4 of the FCPP/NMEP EIS)	
Indirect impacts would be permanent and minor. Direct impacts would occur resulting in a reduction of overall vegetative cover and permanent loss of productivity during facility life.	No mitigation measures recommended
WILDLIFE & HABITATS (See section 4.7.4.4 of the FCPP/NMEP EIS)	
Minor impacts from air and noise pollution would occur. Impacts would be moderate because of the permanent loss of habitat.	No mitigation measures recommended
SPECIAL STATUS SPECIES (See section 4.8.4.5 of the FCPP/NMEP EIS)	
Impacts would be long-term and minor to negligible.	No mitigation measures recommended
LAND USE & TRANSPORTATION (See section 4.9.4.4 of the FCPP/NMEP EIS)	
Minor impacts to the transportation system would result from increased truck trips delivering ammonia to the power plant.	No mitigation measures recommended

Selected Alternative D Ash Disposal Alternative	Mitigation Measures
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SOCIOECONOMICS (See section 4.10.4.4 of the FCPP/NMEP EIS)

Population and Demographics

No impacts	No mitigation measures recommended
<i>Economic Background</i>	
No impacts	No mitigation measures recommended
<i>Indicators of Social and Economic Well-Being</i>	
No impacts	No mitigation measures recommended
<i>Navajo Public Services</i>	
No impacts	No mitigation measures recommended

ENVIRONMENTAL JUSTICE (See section 4.11.6.4 of the FCPP/NMEP EIS)

If a breach of the ash disposal impoundments occurred, potential impacts to tribal lands would be minor.	No mitigation measures recommended
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INDIAN TRUST ASSETS (See section 4.12.4.4 of the FCPP/NMEP EIS)

Any impacts to cultural resource ITAs would be minor. Access restrictions would be expected to result in minor impacts to grazing, hunting, and gathering resources. Impacts to paleontological ITAs would be minor.	No mitigation measures recommended
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VISUAL RESOURCES (See section 4.13.4.4 of the FCPP/NMEP EIS)

The overall impacts from changes to the FCPP would be negligible, and the overall impacts from changes to the DFADAs would be moderately adverse. Therefore, the overall impacts from implementation of the new lease agreement at the FCPP would be low adverse.	No mitigation measures
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NOISE & VIBRATION (See section 4.14.6.4 of the FCPP/NMEP EIS)

Noise from continued operation of the power plant would be minor. Short-term increases in noise during installation of SCR would be minor.	No mitigation measures recommended
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HAZARDOUS AND SOLID WASTES (See section 4.15.4.4 of the FCPP/NMEP EIS)

The recommended ammonia option (urea) would have negligible impacts. Impacts from a potential accidental release from the surface impoundment dam would be minor.	No mitigation measures are recommended.
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RECREATION (See section 4.16.4.4 of the FCPP/NMEP EIS)

No impacts	No mitigation measures recommended
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HEALTH AND SAFETY (See section 4.17.4.4 of the FCPP/NMEP EIS)

Impacts would be negligible.	No mitigation measures recommended
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1.3 Other Relevant Actions that Occurred During the Impact Analysis Period

Based on the approval of the revised SMCRA permit, BNCC commenced work in Area IV North in March 2012. Mining in Area IV North ceased on April 6, 2015 as a result of the vacatur by the District Court. The following additional events occurred subsequent to issuance of the revised mine permit in March 2012 and prior to the April 6, 2015 cessation of mining. While these events have already occurred, for the purposes of this NEPA analysis, the baseline period is considered to be prior to implementation of any of these actions and the period of consideration for the impact analysis is 2012-2016. The analysis therefore, necessarily, considers some operations and Federal actions that have already occurred.

1.3.1 Change in Mine Ownership

When the 2011 Permit Revision Application was submitted, the mine was leased and operated by BNCC. On April 29, 2013, the Navajo Nation Council formed NTEC, Limited Liability Company (LLC). On December 30, 2013, BHP changed its name to Navajo Mine Coal Company (“NMCC”) and BHP sold 100 percent of its interests in NMCC to NTEC. On January 6, 2014, NMCC was merged into NTEC. BHP Billiton New Mexico Coal, Inc. (BBNMC) subsequently established a new subsidiary company, BHP Billiton Mine Management Company (MMCo), for the purpose of managing the operation of Navajo Mine on behalf of NTEC. OSMRE addressed the SMCRA permit transition in a separate EA (OSMRE 2013). The 2014 NTEC EA is incorporated by reference into this document, and is available from the OSMRE website, or by request from OSMRE.

1.3.2 Completed Area IV North Mining Activities

Under the March 16, 2012 revised permit, BNCC, NTEC’s predecessor-in-interest and SMCRA permittee at the time, was authorized to disturb approximately 830 acres in Area IV North, in order to supply coal to FCPP through the end of the current coal supply agreement (CSA) term, July 6, 2016. Based on OSMRE approval, BNCC began operations in Area IV North in 2012. As of March 1, 2015, 530 of the 830 acres of Area IV North were disturbed, and 135 acres of the 310 mineable acres were mined.

1.3.3 Completion of Burnham Road Realignment

In November 2012, BNCC submitted applications to BIA for the right-of-way (ROW) renewal of the Navajo Mine Access Road, which provides access in Area III. The Navajo Mine Access Road is 4,528 feet long, and no improvements or additional construction activities are proposed. In February 2013, BNCC also submitted an application to BIA for the ROW renewal of the Access Road/Power and Communication lines from the FCPP Lease Area to the Navajo Mine Lease Area. Upon transfer of ownership of the Navajo Mine to NTEC, the applicant for the ROW renewal of the Navajo Mine Access Road and Access Road/Power and Communication line changed from BNCC to NTEC. This ROW is 1.3 miles long and no improvements or additional construction activities are proposed for either ROW. In May 2013, BNCC submitted a ROW renewal for the El Paso Bridge Access Road ROW, which provides primary access from the bridge at the San Juan River near the Nenahnezad School approximately 6.6 miles ending at FCPP. This ROW renewal is in the original location since installation.

BNCC also proposed to realign the existing Burnham Road (BIA 3005 and Navajo Road N-5082) through Area III and Area IV North to support mining activities and to improve safety. The project straightened

the alignment, routed the road around existing and planned mining activities, and brought the road into compliance with BIA road design standards. Also, because OSMRE regulations prohibit or limit surface mining operations within 100 feet of public roads (30 CFR § 761.11[d]), the northern portion of the realignment provided the necessary distance from the active mining areas to meet this regulatory requirement. The realignment of Burnham Road has been completed and no further improvements are proposed.

1.3.4 USACE Clean Water Act Section 404 Individual Permit

In March 2012, the USACE authorized under Section 404 of the CWA approximately 1.7 acres of fill in waters of the U.S. associated with mining to meet BNCC's (and subsequently, NTEC's) contractual coal sales obligations to FCPP through July 6, 2016, and the relocation of the Burnham Road in order to maintain safe and reliable public access to the Navajo Nation's Burnham Chapter area. Some of the fill activity authorized by this permit has occurred since authorization in 2012.

1.3.5 BLM's Resource Recovery and Protection Plan

The BLM has approved the proposed R2P2, which addresses ultimate maximum recovery of the coal resources at Navajo Mine. This is a completed federal action.

1.3.6 EPA FIP for BART

The U.S. Environmental Protection Agency (EPA) published a Final Ruling regarding the Source Specific Federal Implementation Plan (FIP) for Implementing Best Available Retrofit Technology (BART) for FCPP: Navajo Nation (40 Code of Federal Regulations [CFR] 49) to implement BART at the FCPP in August 2012. The FIP for BART provides requirements for future air emission controls and operation of the FCPP. Under the FIP, FCPP could choose between two emissions control strategies (options) and notify EPA of its choice by July 1, 2013 (EPA 2012g); EPA provided an extension of the date to December 31, 2013. On December 30, 2013, Arizona Public Service (APS) notified EPA that it preferred the alternative FIP emissions control strategy. As such, Units 1, 2, and 3 were shut down on December 31, 2013. Thus, emissions from Units 1, 2, and 3 permanently ceased on that date. In addition, APS will install selective catalytic reduction (SCR) air emission control devices on Units 4 and 5 by July 31, 2018. On December 30, 2013, the purchase and sale transaction of Southern California Edison's share of Units 4 and 5 to APS was completed and Units 1, 2, and 3 were shut down. Thus, only Units 4 and 5 at the FCPP will continue operation into the future.

Because of the shutdown of Units 1, 2, and 3, the coal supply demand changed from 8.5 million tons per year to the current demand of approximately 5.8 Mtpy. This EA analyzes the actual emissions over the period of the SMCRA permit revision (2012-July 2016). Any remaining coal from Area IV North that would be blended with other mined sources and combusted after July 2016 is directly considered in the FCPP/NMEP EIS. The rate of coal combustion is such that the blending could occur for an additional 4 years.

1.3.7 Final Ruling on Disposal of Coal Combustion Residuals

The EPA published the Disposal of Coal Combustion Residuals (CCRs) from Electric Utilities final rule on December 19, 2014. The final rule regulates CCR as a Resource Conservation and Recovery Act (RCRA) Subtitle D solid waste, and includes regulation of CCR on Tribal Lands. Subtitle D wastes include municipal solid wastes. FCPP is required to comply with EPA's Final Rule, which provides specific deadlines for compliance. EPA issued minimum national criteria, including requirements for composite liners, groundwater monitoring, structural stability requirements, corrective action, and closure/post-closure care. The final rule addresses the risks from structural failures of CCR surface impoundments, groundwater contamination from the improper management of CCR in landfills and surface impoundments, and fugitive dust emissions. The rule includes location restrictions and requirements for liner design criteria; impoundment structural integrity; operating criteria regarding air, run-on and run-off, hydrologic and hydraulic capacity, surface impoundments, and inspections; groundwater monitoring and corrective action; closure and post-closure requirements; and record keeping, notifications, and posting on publicly accessible internet sites. EPA is also providing the opportunity for states to secure approval of its CCR program through the State Solid Waste Management Program.

Between 1971 and January 2008, BNCC placed coal combustion byproducts (CCB)¹ from the FCPP in mined-out pits or ramps in Area I and Area II at Navajo Mine. This activity was in accordance with the Navajo Nation lease agreement and the approved OSMRE SMCRA permit (SMCRA Permit Section 12 section 12.2.8 and Section 11 section 11.2.5.1.5). NTEC does not have any current agreements or plans to place CCB materials in the mine backfill for future reclamation within the permit boundary. CCB disposal is not included in NTEC's requested approvals considered in the 2012 EA. APS is responsible for and manages the disposal of all CCB material generated at its facility. APS's handling of CCR is addressed in this EA, and is currently regulated according to EPA's final CCR rule of 2014.

1.4 Background of the Navajo Mine

The following sections provide a brief overview of historical mine operations at Navajo Mine and describe recent regulatory reviews and approvals as they relate to the currently proposed mining activities. This background information is important as it puts the current proposals in context with past mine operations and permitting actions, and helps the public to understand the regulatory process associated with the proposed mine plan revision and associated permitting.

The Navajo Nation granted a 24,000-acre coal lease (Navajo Tribal Coal Lease 14-20-603-2505) in July 1957 to BNCC's predecessor, Utah Construction and Mining Company. The lease and associated ROWs have since increased to approximately 33,600 acres through a series of subsequent lease revisions and amendments. The entire lease area is located within the Navajo Nation Indian Reservation boundaries. The surface and mineral rights within the lease and permit areas are held in trust by the United States for the benefit of the Navajo Nation. The DOI exercises the trust responsibility for the United States. The lease is located south of the San Juan River at Fruitland, New Mexico and extends in a southerly direction for approximately 25 miles. The northern portion of the lease is narrow (1 mile) but the southern portion

¹ In the mining industry this material is referred to as coal combustion byproducts (CCBs); whereas the same byproduct is referred to as coal combustion residuals (CCR) in the power industry.

widens to approximately 4 miles. The lease is subdivided into six administrative areas known as Areas I, II, III, IV North, IV South, and V (Figure 1.4-1). NTEC (previously BNCC) delivers coal from the Navajo Mine to the FCPP, which generates and supplies electricity to customers in New Mexico, Arizona, Texas, and until 2013 also to southern California.

Mining activities are complete in Area I at the north end of the lease area. A total of 4,078 acres were disturbed in Area I, of which 3,614 acres have been reclaimed. These mining activities took place in the early 1960s through the 1970s (Table 1.4-1). Mining in Area II is currently permitted by OSMRE in the Hosteen/Yazzie Pit. From approximately the early 1970s until the present, a total of 5,179 acres were disturbed in Area II, of which 2,877 acres have been reclaimed. Within Area III, there are two active pits, Lowe and Dixon (see Figure 2.1-1). Since approximately the early 1980s, a total of 3,730 acres have been disturbed in Area III, of which 1,434 acres have been reclaimed. Under the current permit, mining in the Lowe Pit will be completed prior to 2013, while Dixon Pit will continue to operate until approximately 2016. In Area IV North, approximately 216 acres of vegetation was cleared, which included approximately 32 acres of power lines and associated access roads, and approximately 20 acres of ancillary road were constructed following the 2005 OSMRE authorization to mine in Area IV North and before the 2010 vacature and remand. Total surface disturbance associated with these activities was approximately 268 acres. Operations in Area IV North commenced for the second time following the 2012 OSMRE approval until the 2015 vacatur and remand. As of March 1, 2015, 530 of the 830 acres of Area IV North were disturbed, and 135 acres of the 310 mineable acres were mined. No other mining activities have been conducted by BNCC within Area IV North. Also, no mining activities have been conducted by BNCC in the approximately 13,000 acres that comprise Areas IV South or V of Navajo Mine lease area.

Table 1.4-1. Summary of Resource Areas

Resource Area	Total Area (acres)	Disturbed / Reclaimed Area (acres) ¹	Mining Period	Comment
I	4,558	4,078/3,614	1960s–1970s	All pits inactive and reclaimed.
II	6,196	5,179/2,917	1970s–present	Portions of Hosteen and Yazzie pits kept as contingency reserves, will be mined prior to final reclamation in 2017.
III	5,003	3,730/1,434	1980s–present	Lowe and Dixon pits still active. Mining will continue in Dixon pit until approximately 2018 depending upon customer needs.
IV North	4,760	366/0	2012–present	Approximately 366 acres mined; 4,088 acres are permitted under the Pinabete Permit (NM-0042A), but no mining has occurred in NM-0042A.
IV South	6,075			1,481 acres are permitted under the Pinabete Permit (NM-0042A), no mining has occurred
V	7,024			Not currently permitted, no mining has occurred.

Notes:

OSMRE has approved an application to change the rate of contemporaneous reclamation under the existing Navajo Mine SMCRA Permit as a result of reduced coal demand from the shutdown of FCPP Units 1, 2, and 3.

¹Acreage represent mining and disturbance land status as of July 2011.

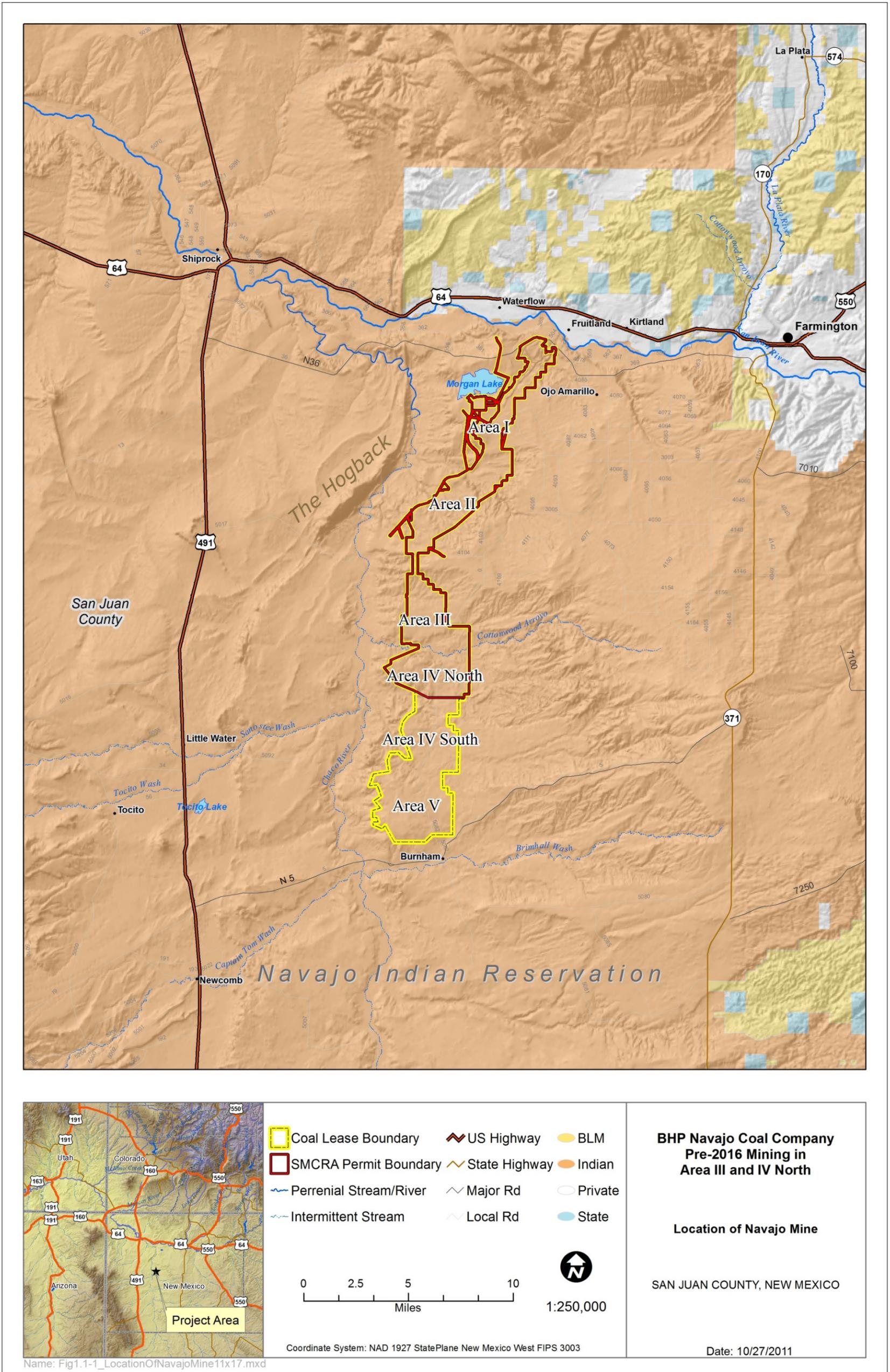
Areas disturbed within Areas I, II, and III that have not yet been reclaimed consist of approximately 1,800 acres of various essential infrastructure such as a rail line to the coal handling facilities, a road network, electric utilities infrastructure, stormwater and drainage controls, and a variety of equipment and maintenance shops. These infrastructure facilities will be reclaimed once all mining at Navajo Mine is complete.

The Federal SMCRA permit (NM-0003F) to mine coal at Navajo Mine was renewed for 5 years on September 8, 2010. The current coal reserves and coal supply contract allow mining to continue at its current rate through July 2016. The current OSMRE permit authorizes mining on about 13,430 acres of the Navajo Mine. Through March 2012, 13,255 acres were disturbed by mining operations described above and approximately 7,925 acres were reclaimed. The remaining disturbed areas will be reclaimed on an annual basis in coordination with OSMRE.

Until December 30, 2013, BNCC produced approximately 8.5 million tons of coal annually in accordance with contractual obligations with the FCPP. Since the closure of Units 1, 2, and 3 at the FCPP on December 30, 2013 in accordance with EPA's FIP for BART, an average of 5.8 million tons of coal have been produced annually to supply only Units 4 and 5. As a mine mouth plant, FCPP was designed and constructed specifically to burn coal from Navajo Mine. Based on these two production rates (8.5 Mtpy in 2012 and 2013 and 5.8 Mtpy 2014 through 2016), a total of 30.8 million tons of coal is required to meet NTEC contractual obligations with the FCPP. Therefore, NTEC must meet coal quality specifications for heating value, sulfur, and ash content so it can be burned in FCPP without damaging the power plant. The quality of the coal that NTEC delivers to FCPP cannot deviate from the narrow range of contractual specifications even though the quality of the coal from Navajo Mine varies more broadly depending on the chemical characteristics of the coal, which vary between locations and seams. Specifically, the heating value of the coal within Navajo Mine can vary from 7,800 to 9,500 British Thermal Unit (BTU) per pound with a contractual minimum of 8,500 BTU per pound. Therefore, to meet contractual obligations, NTEC must blend coal from multiple locations and seams to create a coal blend that meets the target heating value. To meet FCPP contractual obligations, NTEC maintains about 1.3 million tons of coal as working inventory available for coal blending. This model is based on 50 years of mine operations and represents the amount needed to create the target coal blend to meet contractual obligations.

Further, the Navajo Mine lease and BLM's R2P2 provisions require that NTEC achieve ultimate maximum recovery criteria of the Navajo coal resource. This minimizes or eliminates operations plans that can "sterilize" coal or eliminate opportunities to recover coal in any part of the Navajo Mine. These requirements override least-cost recovery. However, these requirements also take into account the need to retain contingency reserves to ensure a steady supply of sufficient quantities and quality of coal.

Figure 1.4-1. Location of Navajo Mine



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In order to continue to meet mine lease terms with the Navajo Nation and contractual coal tonnage delivery obligations with the FCPP through July 6, 2016, mining must continue moving southward to unmined areas within the lease and SMCRA permit areas. Since the 1960s, this gradual progression southward has been accomplished utilizing three to four active draglines in three to six permitted mine pits. Over its operational history, BNCC (and now NTEC) has maintained three to five open pits to ensure it can meet coal quality and quantity obligations in a timely and prudent manner. Having at least three active pits accommodates dragline logistics, allows for source flexibility, and provides necessary options for mixing coal to achieve required coal quality. This flexibility is vital to operations as it mitigates unforeseen events that can affect access to active pits and/or reserve stockpiles. For example, derailments of the coal hauling train can result in the isolation of particular producing pits; highwall failures in active pits can close down pits to mining activities, and draglines can be immobilized for mechanical reasons or accidents, which can stop mining activities in the pit until dragline repairs are made. The risks of highwall failures and immobilized draglines are why operations plans rarely contemplate two draglines in a single pit.

Additionally, as pits are typically mined from west to east, costs associated with higher strip ratios on the east side of the mine increase as the coal seams trend deeper. The strip ratio is the ratio between overburden that must be removed and the coal to be mined. The higher the strip ratio, the more overburden must be removed, which takes more time and increases the cost to produce each ton of coal. While pre-stripping can address that to some extent, it does so at greatly increased cost, inefficiency, and logistical difficulties. These operational criteria are described in more detail in the IP application package and 404(b)(1) alternatives analysis associated with the 2012 EA.

1.5 Background of Four Corners Power Plant Operations

The coal mined from Navajo Mine is burned only at the FCPP. There is no pending Federal authorization related to FCPP to be analyzed. Although coal combustion at FCPP is not part of the Proposed Action, this discussion is provided here as it is useful in considering combustion-related effects. This EA therefore addresses both mining and the effects of the coal combusted at the FCPP associated with Area IV North coal.

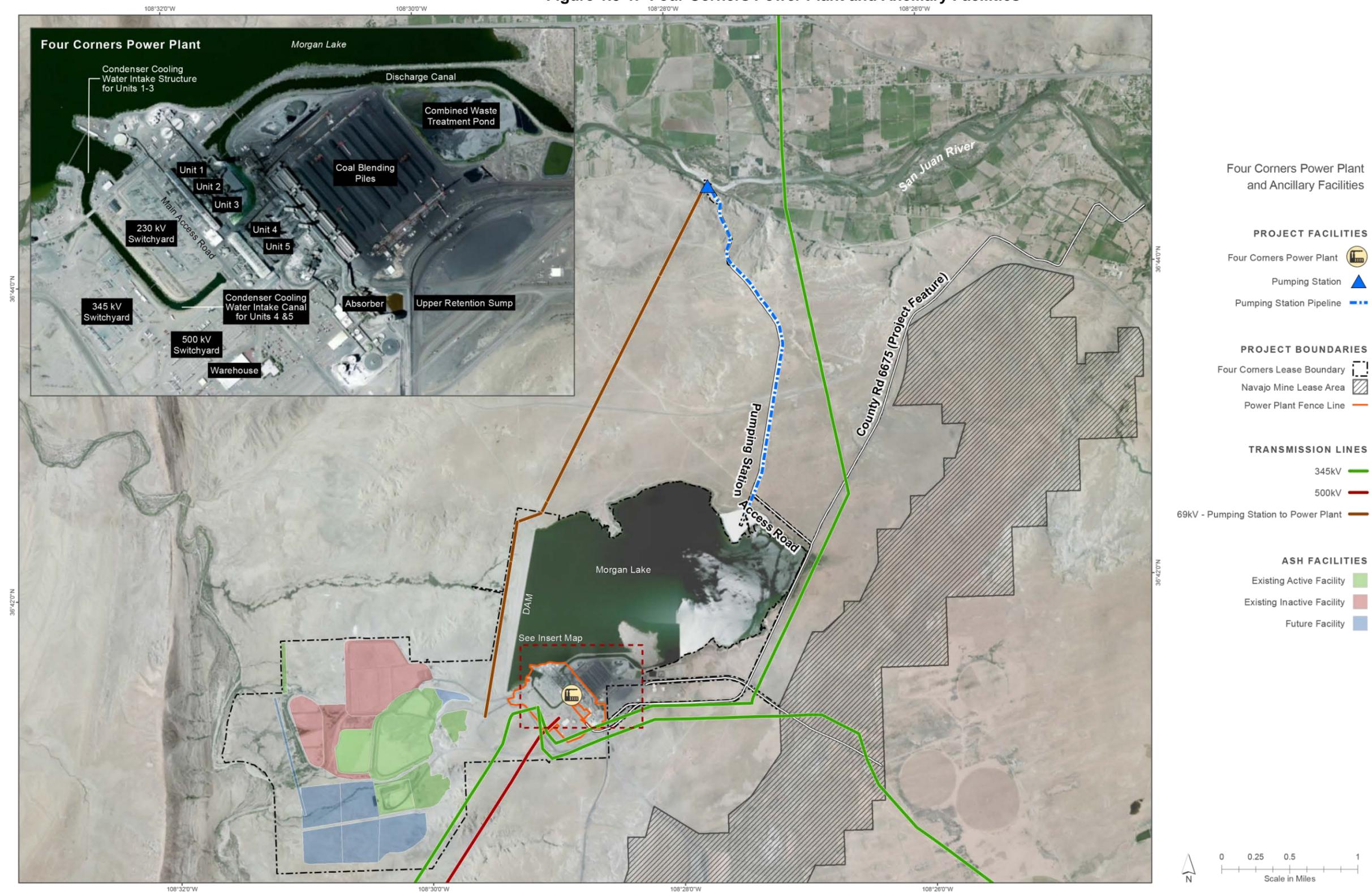
Prior to January 1, 2014, when compliance with BART requirements (BART, see Section 2.4) commenced, the FCPP consisted of five pulverized coal-burning steam electric generating units with a total generating capability of 2,100 MW:

- Unit 1, 170 net megawatt (MW), in service from 1962 to December 2013
- Unit 2, 170 net MW, in service from 1962 to December 2013
- Unit 3, 220 net MW, in service from 1963 to December 2013
- Unit 4, 770 net MW, in service since 1969
- Unit 5, 770 net MW, in service since 1970

In addition to the plant's generating units, the plant site contains other ancillary facilities (Figure 1.5-1) including:

- Morgan Lake and Morgan Lake Dam, located immediately north of the generating units. Morgan Lake is an approximately 1,200-acre human-made reservoir that provides water for industrial and domestic use at the plant, including cooling water. A 155-foot high earthen fill dam contains the reservoir. All of Morgan Lake is within the FCPP lease area and is maintained by the Navajo Nation for recreational uses, including angling, windsurfing, and boating. At maximum capacity, the lake contains 39,000 acre-feet of water. Associated structures include the water intake and discharge structures to and from the lake, intake structure, and a pump house on the San Juan River, a 2.5-mile-long pipeline to bring San Juan River water to Morgan Lake, and a 69-kilovolt (kV) transmission line from FCPP to the pump house.
- Fly ash storage silos and bottom ash dewatering bins located south of Unit 5. Lined dry ash disposal areas and lined ash impoundments (LAIs) are located west of FCPP's generating units.
- Three FCPP switchyards that connect the FCPP to the following eight high-voltage transmission lines: (1) APS FCPP to the Moenkopi Substation, (2) Public Service Company of New Mexico (PNM) FCPP to San Juan Switchyard, (3) PNM FCPP to West Mesa Switchyard, (4) APS FCPP to Cholla Substation (two lines), (5) PNM FCPP to Pillar/Ambrosia, (6) PacifiCorp FCPP to Pinto, and (7) Western Area Power Administration FCPP to Shiprock.
- Condenser cooling water intake canal located adjacent to the switchyard at FCPP and the condenser cooling water intake structures for Units 1, 2, and 3, and Units 4 and 5.
- A main access road, which runs north-south directly to the west of Units 1 through 5 turbine enclosures. A second main access road runs east-west from the generating units to the Ash Disposal Area. Secondary roads provide access to and around area structures, yards, and other ancillary facilities. An employee access road from the bridge crossing the San Juan River to FCPP.

Figure 1.5-1. Four Corners Power Plant and Ancillary Facilities



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1.5.1 Workforce

The FCPP workforce currently consists of 473 full-time employees and 1 part-time employee. The workforce is composed of the employment categories/skill level shown in Table 1.5-1. About 380, or 80 percent, of the employees are Native American.

Table 1.5-1. FCPP Workforce by Employment Category

Employment Category	Number of Employees	Percent of Labor Class that is American Indian
Professionals	73	66%
Technicians	102	73%
Office and Clerical	22	95%
Executive/Senior Level Officials	3	67%
Craft Workers (Skilled)	224	89%
First/Mid-Level Officials	43	67%
Laborers (Unskilled)	6	100%
Service Workers	1	100%
Total	474	80%

1.5.2 Coal Handling and Processing System

Coal for the units is supplied from the adjacent Navajo Mine, using a dedicated electric rail line between the mine and the plant. The train carrying the coal travels uncovered to the plant where it is off-loaded. The coal is delivered from NTEC’s Navajo Mine coal preparation plant by electric conveyor belts to the FCPP surge bins. These conveyor belts are covered with a sheet metal enclosure to prevent blowing dust and for personnel protection. A surfactant spray manifold discharges foam onto the open conveyor feed belts below the surge bins to mitigate fugitive dust emissions. From the two 1,500-ton surge bins, the coal is then transported via open conveyor belts to any of eight coal storage silos that support Units 4 and 5. The storage silos are equipped with a baghouse/cyclone type dust collector system. Each dust collector has been sized and manifolded to enable adequate dust removal from both surge bins. Once the coal reaches the storage silos, all additional coal transfer operations occur via closed piping. From the storage silos, the coal is transferred to feeders and then to the ball mills, which pulverize the coal.



1.5.3 Power Plant Operations (Historic Operation with Units 1 through 5 and Current Operation of Units 4 and 5)

The pulverized coal is dried by and mixed with preheated air and injected into the boilers through low nitrogen oxide (NO_x) burners where it is ignited. Low NO_x burners reduce NO_x formation by reducing the flame temperature. Natural gas igniters are used during startup and shut down for flame stabilization. Prior to their shutdown in December 2013, at full load, Units 1, 2, and 3 burned approximately 9,000 tons of coal per day¹. Units 4 and 5 burn approximately 19,000 tons of coal per day.

Heat energy given off during the combustion process is transferred through the furnace walls to convert water to steam. The steam is passed through primary and secondary super heaters and is heated to a final temperature of 1,000 degrees Fahrenheit (°F). This steam is piped to the turbine where its energy is used to rotate the shaft of an electric generator. The resulting electrical output is transformed to a higher voltage, delivered to the adjacent switchyard, and ultimately to the electric transmission system emanating from the plant.

Prior to the shutdown of Units 1, 2, and 3, hot flue gases resulting from the combustion process passed through the furnace, super heaters, economizer, and air heater into the Venturi scrubbers on the three units before discharging out of the stacks, which are 249 feet high for Units 1 and 2 (two flues in one stack) and 250 feet high for Unit 3. Venturi scrubbers remove 99.8 percent of entrained fly ash (particulate matter or PM) in the flue gas and more than 90 percent of the sulfur dioxide (SO₂) from Units 1, 2, and 3. Quicklime (lime or calcium oxide) is used for the removal of SO₂. Bulk lime is delivered to the lime handling areas at all units, where the lime unloading systems transfer the lime from the vehicle hoppers to storage silos. Lime unloading blowers generate air pressure to transfer the lime from the truck to the storage silos. The transfer air exits through a vent, which is equipped to remove lime dust from the transfer air. The lime is transferred from the lime silo via conveyor belts to attrition slakers, where water mixes with the lime to form lime slurry that is pumped into storage tanks. Pumps deliver the lime slurry from the storage tanks to the scrubbers for SO₂ removal, as needed. The attrition slakers have dust scrubbers to remove fugitive lime dust resulting from the mixing process.

On Units 1, 2, and 3, lime slurry was injected into the Venturi scrubbers, and chemical reactions of the lime with SO₂ produce calcium sulfite and calcium sulfate solids. The resulting slurry, a mixture of fly ash and flue gas desulfurization solids, is sent from the Venturi scrubbers to a thickener. The thickener underflow was pumped to the LAI where the solids settled and the liquid was decanted to the Lined Water Impoundment. That liquid was then pumped back to the scrubbers for reuse.

Units 4 and 5, which are larger and more modern, operate slightly differently than Units 1, 2, and 3. In 2012, APS installed an auxiliary boiler to provide steam for Units 4 and 5 in anticipation of the shut-down of Units 1, 2, and 3. The hot flue gases pass from the air heater into baghouses and a flue gas desulfurization system before discharging out of the flues, which are 380 feet high (flues for both Units 4 and 5 are contained in one stack). The baghouses (fabric filters) remove 99.9 percent of entrained fly ash (particulate matter) in the flue gas, and the flue gas desulfurization (FGD) system removes 88 to

¹ A brief description of the operation of Units 1 through 3 is provided since the operation of all five units occurred during the first half of the time period for this Proposed Action (2012 and 2013).

91 percent of the SO₂. In the FGD system, lime slurry is injected into absorber towers, and similar to the operations of Units 1, 2, and 3, the chemical reactions of lime with SO₂ produce calcium sulfite and calcium sulfate solids, which precipitate and create FGD slurry.

The FGD slurry is pumped to thickeners, where solids are concentrated in the bottom, as thickener underflow. The thickener underflow is pumped to the LAI (see Section 1.5.6.2 for additional information). The thickener overflow is returned to the scrubbers.

1.5.4 Plant Water Supply

All of the water supply for the plant is obtained from the San Juan River. Water is pumped from the river to Morgan Lake, and then pumped from the lake into the plant for use. An average of 27,682 acre-feet of water is pumped from the San Juan River to Morgan Lake annually. BBNMC holds the water rights for this water use (New Mexico Office of State Engineer Permit No. 2838). FCPP uses water for a variety of purposes, including SO₂ scrubbing, steam condenser cooling water, and air compressor and other equipment cooling water, dust control, washwater for vehicles and facilities, and domestic purposes. Units 4 and 5 together use approximately 5,000 acre-feet per year for operation of the SO₂ scrubbers. Units 4 and 5 evaporate approximately 13,000 acre-feet per year of cooling water. The average annual water consumption between 2000 and 2011 was 22,856 acre-feet per year. FCPP also has an agreement with Jicarilla Apache Water Authority for supplemental water, if required.

Discharge from the power plant to Morgan Lake from the condenser cooling water discharge canal is approximately 105°F. Cooling water from the main condensers and other equipment condensers is discharged to the condenser cooling water discharge canal that flows into Morgan Lake. The lake's water temperature ranges from 65 to 90°F depending on the time of the year. Between 2000 and 2011, approximately 4,826 acre-feet per year were discharged from Morgan Lake to No Name Wash, which flows to Chaco Wash, an intermittent wash that terminates at the San Juan River, approximately 5 miles northwest of the plant. Approximate natural evaporation from Morgan Lake is about 7,432 acre-feet per year and gains from precipitation are about 472 acre-feet per year. No groundwater is used at FCPP.

The intake structure on the river consists of two 10-foot by 10-foot intake bays, placed perpendicularly to the flow of the river. These intake bays are located just upstream of the APS weir. The weir includes a control gate that provides the ability to control water depths at the intake location. The intakes are screened to reduce fish intake, with screen opening of approximately 1 inch by 3 inches. Approach velocities toward the screens are 0.38 feet per second. There are no fish collection or return facilities associated with the intake (R. Grimes pers. comm. October 2014).

The intakes are operated in two modes, pumping either 17,000 gallons per minute (gpm), or 32,000 gpm (approximately 37 and 71 cubic feet per second [cfs], respectively) from the San Juan River. The intake is operated at any time of day, as needed. The 17,000 gpm mode is generally used during the October to May timeframe, and the 32,000 gpm mode is generally used during the May through October timeframe. This is driven primarily by the evaporation rate of Morgan Lake. These pumps run approximately 80 percent of the time.

1.5.5 Capacity Factor

Capacity factor is defined as actual utilization of the power-producing units, divided by their full load capacity. For generating units, this factor is typically expressed as actual megawatt-hours (MW-hrs) generated in a year versus design rating in megawatts times 8,760 hours per year (maximum theoretical MW-hrs). Since generating units must be periodically shut down for routine maintenance, repair, and replacement, capacity factor is always less than 100 percent, typically in the range of 80 to 95 percent for base load generating units, depending on overall reliability. Historic annual average capacity factor at FCPP is 86 percent.

1.5.6 Ash Production

Ash produced in the combustion process consists of bottom ash and fly ash (also known as CCR). Bottom ash accumulates along the inside walls and floors of the boiler units. The bottom ash inside the boiler is directed to the bottom ash hopper. The total production rate of furnace bottom ash for Unit 4 and Unit 5 is approximately 40 tons per hour during full load conditions. The total bottom ash production rate for Units 1, 2, and 3 was 20 tons/hour. The furnace bottom ash is collected and removed by means of a hydraulic-vacuum system and delivered via sluice water pipelines to dewatering bins. In the bins, the sluice water is decanted and the bottom ash is unloaded to trucks for disposal. Two dewatering bins are each 35 feet in diameter with a storage capacity of approximately 21,600 cubic feet, or 400 tons, with a bottom ash density of 37 pounds per cubic foot. Each bin is elevated for 20-foot truck clearance, with trucks periodically hauling the ash from the dewatering bins to the Dry Fly Ash Disposal Area (DFADA) or to construction sites for the buttresses of the dams and access roads.

Fly ash constitutes approximately 80 percent of the FCPP's total ash output. Units 1, 2, and 3 produced fly ash at a total rate of approximately 70 tons/hour. Fly ash is produced by Units 4 and 5 at a total rate of approximately 150 tons per hour during full load conditions. The fly ash from the boiler passes through the flue gas draft system to the fabric filter dust collectors ("baghouses"), which remove fly ash from the flue gas. A fly ash handling system then removes the fly ash from the baghouse hoppers and conveys it to silos for storage. The ash is mixed with scrubber process water for dust control and to aid in compaction. Trucks then transport the dry fly ash (no free liquid) to a lined DFADA on site for disposal. The baghouse system for Units 4 and 5 is designed to remove not less than 99.87 percent of fly ash from the flue gas.

1.5.6.1 On-site Ash/Flue Gas Desulfurization Disposal System

The FCPP has disposed of fly ash and bottom ash since 1962 and FGD waste since 1979, when the Venturi particulate scrubbers on Units 1, 2, and 3 were retrofitted to remove SO₂.

Units 1, 2, and 3 ash/FGD waste slurry historically was sluiced to impoundments in the Ash Disposal Area located approximately 1 mile west of the power plant. Prior to 2008, ash and FGD wastes generated by Units 4 and 5 were hauled to the adjacent mine for placement in mined-out areas regulated by the OSMRE. Since 2008, fly ash generated by Units 4 and 5 has been trucked to a lined DFADA located within the on-site Ash Disposal Area. A portion of the fly ash is also sold for beneficial reuse. FGD slurry from Units 4 and 5 scrubbers is pumped to thickeners. The thickeners underflow is pumped to the LAI in the Ash Disposal Area where the solids settle and the liquid is decanted to the Lined Water Impoundment. The liquid is pumped back to the scrubbers for reuse, and the bottom ash is trucked to the DFADA. From 1962

to the present, approximately 33.5 million tons, or 20,800 acre-feet, of fly ash, bottom ash, and FGD solids have been placed into the Ash Disposal Area.

1.5.6.2 Description of Ash Disposal Facilities

The Ash Disposal Area currently consists of the following facilities, each of which is described in detail below:

- Ash Ponds 1 and 2/Evaporation Ponds 1 through 4
- Ash Pond 3/Lined Decant Water Pond
- Ash Ponds 4 and 5/LAI
- Ash Pond 6
- DFADA Sites 1 and 2
- Gridded Disposal Area

1.5.6.2.1 Ash Ponds 1 and 2 and Evaporation Ponds 1 Through 4

Ash Ponds 1 and 2 were constructed in the 1960s by erecting a dike on existing ground downstream from the power plant. Ash slurry was allowed to flow through existing washes until it was captured by the dike. The ash ponds were not lined and contain an average depth of approximately 24 feet of ash. Ash Ponds 1 and 2 were taken out of service when Ash Pond 3 was constructed in 1976.

In the late 1970s, Evaporation Ponds 1 through 4 were constructed on top of Ash Ponds 1 and 2. The evaporation ponds were constructed with a single liner of 20 milliliter (mL) high-density polyethylene (HDPE) and a 1-foot layer of earth and gravel fill placed over the liner on the sides of the ponds. The evaporation ponds were used for storage of seepage intercept water, runoff, and other industrial water from the FCPP. FCPP began phasing out the use of the evaporation ponds in 2001. The evaporation ponds have not been in use since October 2011 and have since been reclaimed.

1.5.6.2.2 Ash Pond 3 and Lined Decant Water Pond

Ash Pond 3 is currently inactive and was used as an impoundment for the fly ash and FGD solids from Units 1, 2, and 3. The west embankment of Ash Pond 3 is the tallest of all embankments surrounding the pond, approximately 80 feet higher than natural grade.

The Lined Decant Water Pond was constructed on top of the western and southern embankments of Ash Pond 3 and is intended to collect and retain liquid decanted from the LAI (described below). The Lined Decant Water Pond is lined with two layers of HDPE Geosynthetic liner, each 60 mL thick. The liquid collected in the Lined Decant Water Pond is then pumped back to the plant for reuse in the scrubbers.

1.5.6.2.3 Ash Ponds 4 and 5 and Lined Ash Impoundment

Ash Pond 4 was constructed adjacent to and shares its western embankment with Ash Pond 3. The western embankment of Ash Pond 4 is the tallest of all embankments surrounding Ash Pond 4, approximately 40 feet higher than natural grade. Ash Pond 5 was constructed adjacent to and shares its southwestern embankment with Ash Pond 4. The northwestern embankment of Ash Pond 5 is the tallest of all

embankments surrounding Ash Pond 5, approximately 70 feet higher than the natural grade. Ash Ponds 4 and 5 are inactive and were used as impoundments for the fly ash and FGD solids from Units 1, 2, and 3.

Construction of the LAI began in 2003. It was built in five lifts over the top of Ash Ponds 4 and 5 and is lined with a single 60 mL HDPE liner. The LAI is used to impound FGD solids from Units 4 and 5 and was previously used to impound the fly ash and FGD solids from Units 1 through 3 until they were shut down on December 30, 2013. Once the solids settle in the LAI, the liquids decant into the Lined Decant Water Pond through either an outfall structure located on the downstream end of the LAI or are pumped through an 8-inch diameter HDPE drain pipe located in the southwestern corner of the LAI. Once the liquid has been pumped or gravity fed into the Lined Decant Water Pond, it is then pumped back into the plant for reuse in the scrubbers.

1.5.6.2.4 Ash Pond 6

Ash Pond 6, which is located on the northwestern side of the Ash Disposal Area, is currently inactive, but was used to impound the fly ash and FGD solids from Units 1, 2, and 3. Ash Pond 6 was designed in 1984 and constructed shortly thereafter. Ash Pond 6 borders Ash Pond 3 to the south and Ash Pond 5 to the southeast. The northern embankment of Ash Pond 6 is adjacent and parallel to the northern lease boundary of the site. Ash Pond 6 is constructed with a clay core embankment that has been keyed into the unweathered shale bedrock. The final lift of Ash Pond 6 is approximately 80 feet higher than natural grade on the western embankment.



*Photograph of the LAI at FCPP
(Source: Cardno ENTRIX)*

1.5.6.2.5 DFADA Sites 1 and 2

The DFADA is currently an active, lined landfill facility originally constructed in 2007 and is used for disposal of dry fly ash from Units 4 and 5, as well as small amounts of construction debris from the FCPP. DFADA Site 1 is tallest on its western berm at approximately 110 feet above natural grade. Both DFADA Sites 1 and 2 have composite liner systems consisting of compacted clay liner and a 60 mL HDPE liner. Both sites are projected to reach capacity by 2016.

1.5.6.2.6 Gridded Disposal Area

The gridded disposal area, located east of and adjacent to the LAI, received coal dust and ash from plant cleanup, lime grit, and construction and other industrial debris until 2010. Asbestos-containing materials were formerly disposed in trenches dug in that waste. Asbestos disposal in the gridded disposal area was discontinued in 1997. In 1984, a portion of the gridded disposal area was used to land farm oil/solvent-contaminated soil (known as the former chlorinated hydrocarbon disposal area). This area is located immediately north of the asbestos disposal area. A thin layer of the contaminated soil was applied to the area to allow air contact, volatilizing the solvents from the soil. The soil was sampled and tested to ensure that residual solvent concentrations were at acceptable levels and then stabilized by applying a covering of ash.

This remediation plan was approved by the New Mexico Environmental Improvement Division, who inspected the site, took samples, and approved closure of the remedial activity.

1.5.6.3 Beneficial Reuse of Fly Ash

In 1997, a vendor established a fly ash beneficiation facility at the FCPP, which allows APS to sell fly ash to other companies to be reused in other materials, such as concrete. Fly ash collected from the baghouses of Units 4 and 5 is tested hourly by the vendor. Fly ash that does not meet the vendor's quality targets is conveyed to the ash silos for disposal. Fly ash that meets the vendor's quality targets is conveyed to the vendor's fly ash beneficiation facility where separation of coarse and fine particles takes place via a centrifugal air classifier. The coarse fly ash drops out and is returned to the power plant for disposal. The fine fraction becomes product, which is sold to other companies for reuse. An average of 240,000 tons per year of the fly ash is beneficially used, which represents approximately 20 percent of the total fly ash generated. The FCPP has beneficially used (recycled) more than 3.5 million tons (7 billion pounds) of fly ash since 1997, thereby reducing (i) the amount of fly ash that must be disposed at the site, (ii) the reusers' need for virgin materials and the energy required to acquire them, and (iii) the amount of greenhouse gas (GHG) emissions associated with developing new sources of virgin materials. Fly ash from the FCPP is used as an ingredient in concrete for the construction of dams, streets, freeways, bridges, buildings, sidewalks, driveways, parking structures, concrete blocks, and roof tiles. The EPA is currently considering whether to regulate the beneficial reuse of fly ash, and, if so, the most appropriate regulatory approach to be taken. While EPA states that they do not want to negatively impact the legitimate beneficial use of fly ash unnecessarily, they are also aware of the need to fully consider the risks, management practices, and other pertinent information related to fly ash.

1.5.7 Natural Gas Supply

Natural gas for boiler ignition and domestic service is supplied to Units 4 and 5 by El Paso Natural Gas Company. El Paso Natural Gas meters the gas flow at its 24-inch main, approximately 1.3 miles from the plant. A 6-inch diameter steel pipe supplies the units with natural gas. Natural gas is used in start-up for all five units and other minor uses at the FCPP. Gas leaves El Paso Natural Gas's meter at approximately 400 pounds per square inch gage (psig). A pressure reducing and metering station within the plant delivers gas to Units 4 and 5 at approximately 50 psig at full flow. The maximum capability of this gas system supplying Units 4 and 5 is approximately 800,000 standard cubic feet per hour.

1.5.8 Chemical Storage

The chemicals stored and used at the FCPP that are classified by EPA as Extremely Hazardous Substances are hydrazine and sulfuric acid (H₂SO₄). Hydrazine was only used in Units 1, 2, and 3 prior to their shutdown and was discontinued and no longer stored on site after January 2014. Other chemicals are used and stored in much smaller volumes throughout the facility in the form of spray cans and other small containers.

1.5.9 Plant Maintenance

Preventive maintenance is scheduled daily, weekly, monthly, quarterly, and annually, as appropriate for various components. Planned maintenance outages occur periodically for minor and major maintenance and are typically scheduled in the spring and fall in accordance with regional power demand. These

outages rotate between short (2- to 3-week) and long (1- to 3-month) durations annually. The need for unscheduled outages occasionally arises during which time the necessary maintenance is performed.

1.5.10 Ancillary Facilities

Ancillary facilities at the FCPP are used to transport the produced power. The following sections describe the switchyards and transmission lines associated with the FCPP.

1.5.10.1 Switchyards

A switchyard is a system of breakers, disconnects, and transformers, with voltage reactors and capacitor banks. The switchyards take the power generated by the FCPP and distribute the power through the equipment in the switchyard and the high-voltage transmission lines to load centers. Power from other generating sources, such as San Juan Generating Station (SJGS) and other power plants, is also wheeled through the switchyards (i.e., passed through and not related to FCPP operations). The FCPP has three switchyards, all of which are contained within the plant site lease area. All switchyards are secured with a 7-foot-high chain-link fence with three strands of barbed wire surrounding its perimeter. Entrance gates are locked at all times when unattended.

The operational performance of all three switchyards' oil-filled electrical equipment primarily is monitored remotely by APS in Phoenix. The power plant's control room monitors specific electrical equipment designated for the units. Substantial changes in the equipment's operating condition trigger an alarm indicating an adverse condition. This alarm prompts on-site investigation by APS personnel. Oil-filled equipment is monitored by APS and designed with several fail-safe engineering controls to prevent faulting.

500-kV Switchyard. This switchyard is located west of the warehouse and is directly connected to Unit 5 through three single-phase step-up transformers. Power in the switchyard may flow to and from Moenkopi Substation or the Four Corners 345-kV switchyard. Electrical equipment in the switchyard includes seven transformers, three shunt reactors, and three stationary storage tanks. The maximum amount of oil contained in all of this equipment is 190,966 gallons; the largest piece of oil-containing equipment is a transformer with a 34,690-gallon capacity. Discharge prevention measures to mitigate the off-site release of oil include secondary containment and 4 to 6 inches of gravel placed throughout the switchyard.

345-kV Switchyard. This switchyard is located northwest of the 500-kV switchyard and is directly connected to Unit 4 through three single-phase step-up transformers. Power in the switchyard may flow to and from the PNM San Juan (FC) line, PNM West Mesa (FW) line; the PacifiCorp line to Pinto, Utah; the Western Area Power Administration line to Shiprock, New Mexico; two APS 345-kV lines to Cholla Substation; and a line to the Four Corners 230-kV switchyard. Electrical equipment in the switchyard includes six transformers and four shunt reactors. The maximum amount of oil contained in all of this equipment is 22,628 gallons; the largest piece of oil-containing equipment is a shunt reactor with a 7,540-gallon capacity. Discharge prevention measures to mitigate the off-site release of oil include secondary containment and 4 to 6 inches of gravel placed throughout the switchyard.

230-kV Switchyard. The 230-kV switchyard is located north of the 500-kV switchyard and is directly connected to Units 1, 2, and 3 through single-phase step-up transformers. Following shutdown of Units 1, 2, and 3 on December 30, 2013, power in the switchyard continued to flow to and from the PNM Pillar

(AF-BI-BP) line; Navajo Mine; two plant emission abatement lines; the 69-kV substation; San Juan Pumping Plant line; and the Four Corners 345-kV switchyard. Electrical equipment in the switchyard includes 16 transformers, 1 shunt reactor, and 2 oil breakers. The maximum amount of oil contained in all of this equipment is 132,493 gallons; the largest piece of oil-containing equipment is a transformer with a 27,710-gallon capacity. Discharge prevention measures to mitigate the off-site release of oil include secondary containment and 4 to 6 inches of gravel placed throughout the switchyard.

1.6 Regulatory Framework

1.6.1 Surface Mining Control and Reclamation Act Permitting

OSMRE is responsible for ensuring compliance with SMCRA on Indian Lands 25 CFR 211.5 and 30 CFR Part 750. SMCRA objectives are, among other things, to assure that surface coal mining and reclamation operations are conducted in an appropriate manner to protect landowners, society, and the environment; to assure provision of the coal supply essential to the Nation's energy requirements, and to its economic and social well-being; and to strike a balance between protection of the environment and agricultural productivity and the Nation's need for coal as an essential source of energy (30 United States Code [USC] 1202).

OSMRE issued the first SMCRA permit for the Navajo Mine in 1989. Since then, the permit has been renewed and the life of operations permit area has been extended to include the currently permitted 13,430 acres of the mine, including the areas proposed for mining in Areas III and IV North. Although Area IV North is included within the permitted area, OSMRE must approve a mine plan specifying sequence and timing of mining before mining can occur there. Although OSMRE previously approved and granted the SMCRA permit for Area IV North, due to the remand of that permit, that mine plan is the subject of the Proposed Action currently pending before OSMRE, and is the subject of this EA.

1.6.2 Burnham Road Realignment Approvals

The BIA, as the public road authorizing agent for Navajo Nation public roads, had the authority to approve, approve with conditions, or disapprove the proposed realignment of Burnham Road.

OSMRE previously approved the Burnham Road realignment as part of its 2005 approval of BNCC's mine plan for Area IV North, and again approved the realignment following preparation of another EA in 2008 (OSMRE 2005, 2008a). The BIA approved the realignment in 2008 (BIA 2007), but that approval expired in 2010. In accordance with these approvals and the 2001 OSMRE Dixon Extension decision, OSMRE granted BNCC permission to build the temporary Burnham Road reroute, which was completed in 2009, to avoid active mining in Area III. BNCC now proposes to permanently realign the road through Areas III and IV North, and has requested re-approval from OSMRE, BIA, and the USACE. Accordingly, this EA again addresses the impacts of the realignment. In addition, the court's order in *Dinè C.A.R.E. v. Klein* ordered OSMRE to address the impacts of the Burnham Road realignment in its revised mine plan EA. The 2012 EA complied with that requirement and OSMRE and BIA approved the proposed realignment. The improvements to Burnham Road were completed.

1.6.3 Clean Water Act Permitting

Section 404 of the CWA requires a permit from the USACE prior to discharge of fill material into waters of the U.S. Surface coal mining would result in disturbance and fill in portions of several small ephemeral channels and tributary arroyos on the Navajo Mine, and therefore requires a CWA permit from the USACE. Navajo Mine operates under the authority of a variety of NWP's issued by the USACE. Table 1.6-1 lists recent NWP's issued by the USACE for mining activities in various areas of Navajo Mine and for the development of necessary infrastructure such as roads and utilities.

Table 1.6-1. Recent CWA Permits at Navajo Mine

Activity	Type of NWP	Date Issued	Action Number
Dixon Pit Extension	21	1/4/2002	2001-00473
Area IV North Mining	21	7/1/2005	2005-00272
Burnham Road Realignment	14	9/27/2007	2007 00496-DUR
Temporary Burnham Road Realignment	14	1/13/2009	SPA-2009-22-DUR
Mining Activities in Area IV North and Area III	21	4/27/2009	SPA-2008-520-DUR
Haul Road Crossing of Cottonwood Arroyo	14	9/27/2009	SPA-2007-00497-DUR
Mining Activities in Area II and III	21	4/8/2011	SPA-2011-00122-ABQ

All current mining activities are being conducted under the authority of NWP's. However, because the applicable NWP's require re-verification every 2 years and require reauthorization (with potential changes) every 5 years, BNCC made an operational decision to pursue a consolidated IP to authorize fill in waters of the U.S. associated with mining activities within Navajo Mine Areas III and IV North in support of pre-July 6, 2016 mining. Within the 2012 EA, approximately 1.7 acres of impacts to ephemeral washes were analyzed associated with mining in Area IV North (0.5 acre), Area III (1.1 acres) and associated with realignment of the Burnham Road (0.1 acre). For issuance of an IP, the USACE requires that a project avoid, minimize, and compensate for impacts to waters of the U.S. In order for the USACE to issue an IP, NEPA analysis and public interest evaluation are required. The USACE was a cooperating agency and utilized the 2012 EA for its permit approval, along with its Section 404(b)(1) Alternatives Analysis public interest evaluation, to assess alternatives and impacts of the Proposed Action. The USACE approved the action, and the authorized fill has been completed as of the date of this EA.

1.6.4 Resource Recovery Protection Plan

Under 43 CFR 3882, the R2P2 requires that mining operations be conducted in a manner that achieves maximum economic recovery (MER) of the available coal resource, or ultimate maximum recovery on Indian lands. MER and ultimate maximum recovery are key considerations in determining coal mining limits and methods. The BLM approved the R2P2 prepared for the 2005 Area IV North mine plan revision. As the currently proposed Area IV North mine plan revision has a smaller mining footprint than was previously authorized by the OSMRE and BLM, the BLM must reconsider the R2P2. Accordingly, BLM was a cooperating agency to the 2012 EA and used the results to assess alternatives and impacts of the Proposed Action. The BLM approved the R2P2 in 2012.

1.6.5 Endangered Species Act Consultation

During OSMRE's reconsideration of the effects of coal combustion associated with issuance of the Area IV North SMCRA permit revision, OSMRE is also reconsidering the potential impacts of issuing the permit on Federally listed species, and in light of OSMRE's Biological Assessment (BA) and U.S. Fish and Wildlife Services' (USFWS') recently finalized Biological Opinion (BO) for the FCPP and NMEP. Both of these documents are incorporated fully by reference into this EA, and are available on OSMRE's website, and by request from OSMRE. These documents were prepared based upon the best scientific and commercial information available, pursuant to statutory requirements, and include relevant data, including mercury emissions from FCPP as follows: OSMRE's cumulative effects analysis in the FCPP/NMEP EIS and BA included past effects from mining and coal combustion, i.e., 2002 to 2011, current impacts from mining and coal combustion, 2014 to 2016, and future impacts from mining and coal combustion, i.e., 2016-2041 This takes into account emissions from operation of all five units at FCPP during the time they were operating because Units 1, 2, and 3 were not shut down until December 2013. Annual emissions from 2012 through 2014 when all 5 units were operational are considered to be equivalent to past annual emission (2002-2011) and directly analyzed in this EA. Thus, the documents reflect the actual emissions in 2012, i.e., at the time OSMRE would have been considering NTEC's Area IV North revision application, and predicts future emissions.

These documents evaluated the ongoing mining and burning of coal from the Project and future operations for the next 25 years and the potential impacts of the Project on Federally listed species. These analyses considered the effects of past, present, and foreseeable future actions on listed species, and evaluated impacts based on the total impact associated with all of those actions. The past actions considered in the BO included the issuance of the Area IV North permit revision. Area IV North and all associated impacts, including atmospheric deposition from the burning of this coal at FCPP, lies entirely within the Action Area considered in the FCPP and NMEP. The potential effects associated with mining in Area IV North, including ground disturbance, effects on wetlands and water quality, water diversions, and atmospheric emissions and deposition, including mercury deposition, from FCPP are all fully evaluated in the BO. The BO concluded that the Project will not jeopardize the continued existence of the Colorado pikeminnow, razorback sucker, southwestern willow flycatcher, or yellow-billed cuckoo, nor will it adversely modify or destroy their designated critical habitats in the San Juan River Basin. The BO also concurred in OSMRE's determination that the Project was not likely to adversely affect the other relevant listed species. Although the effects of Area IV North were analyzed in both the BA and the BO for the FCPP/NMEP issued by USFWS, take was authorized commencing January 1, 2016. Therefore, OSMRE has determined that additional analysis is necessary to address potential take associated with NTEC's Area IV North Mine Plan Revision and has conducted analysis for the time period from September 1, 2015 to July 6, 2016. OSMRE has prepared a new BA for the Proposed Action considered in this EA during this time frame. This new BA is based on the thorough analysis conducted for the FCPP and NMEP. The Action Area, for purposes of the BA, encompasses all areas within the Deposition Area for air emissions associated with the FCPP.

The analysis in the BA evaluates the effects on species listed as threatened or endangered under the federal Endangered Species Act (ESA) that are likely to occur within the Action Area from combusting Area IV North coal at FCPP. The BA also provides conservation measures that would be implemented during this period. As a conservation measure for the Area IV North Mine Plan Revision, NTEC has proposed

entering into a binding agreement with APS to shut down the cooling water intake pumps located at the APS San Juan River Pumping Station during the October and November 2015 stocking period for endangered San Juan River fish species to prevent impingement and entrainment of stocked fish during such period and prohibiting commencement of mining in Area IV North until September 1, 2015, after spawning has occurred for 2015. Given the limited term of the Proposed Action, the fact that beginning in January 2016, legally binding conservation measures and reasonable and prudent measures will ameliorate the conditions for the listed species (as a result of the FCPP/NMEP BO), and the incorporation of the above-stated conservation measures in the Proposed Action, OSMRE is of the opinion that the Proposed Action will not affect the continued existence of endangered or threatened species or result in destruction or adverse modification of their critical habitats, as determined under the ESA of 1973 (16 USC 1531 *et seq.*). On the basis of the analytical results in the BA, OSMRE concluded that the proposed action may affect, but is not likely to adversely affect, listed species between September 1, 2015 and January 1, 2016. OSMRE submitted the BA to the USFWS and has requested a letter of concurrence for these findings. The analysis includes species listed as threatened or endangered by the Navajo Nation.

The potential effects on listed species that could result from Area IV North mining activities under the Proposed Action were addressed in a prior Section 7 Consultation, and the USFWS concurred with OSMRE's effects analysis in a letter dated January 19, 2012. OSMRE's determination and the USFWS concurrence remain valid and thus those effects are not readdressed in the new BA.

1.6.6 National Historic Preservation Act Consultation

The actions considered in the 2012 EA required an update to the Programmatic Agreement (PA) developed through consultation under Section 106 of the National Historic Preservation Act (NHPA). The existing PA was updated and implemented during the work authorized in 2012. The FCPP/NMEP EIS included Section 106 consultation, which led to the development of an amended PA for the Navajo Mine to address new mining activity, and a new PA for the operation of FCPP and associated transmission lines. No ground disturbing activity at FCPP or associated transmission lines are associated with this EA, and therefore no new Section 106 consultation is required. All future operations to 2041 of both Navajo Mine and FCPP are addressed through the recently-approved PAs. These agreements are incorporated by reference into this EA, and are available at the OSMRE website, or by request from OSMRE. Accordingly, no new Section 106 consultation is required for the action considered in this EA.

1.6.7 Summary

The proposed mine plan revision and IP required approvals or permits by various Federal agencies and the Navajo Nation. These agencies and their role in the proposed project are described below. As described in Section 1.2, these authorizations were granted after the 2012 EA, and much of the work so authorized has been completed (i.e., 404 permitted actions, Burnham Road Realignment, approval of the R2P2).

Table 1.6-2. Federal Action Agencies and Regulatory Authorities

Agency	Proposed Action	Authority
OSMRE	Approve mine plan revision under SMCRA, allowing mining and reclamation activities in a portion of Area IV North in accordance with the project purpose and need.	SMCRA, 30 USC §§ 1201 et seq.
Completed Actions		
OSMRE	Approval of Burnham Road realignment	SMCRA, 30 USC §§ 1201 et seq.
USACE	Issue an IP under Section 404 of the CWA for discharge of fill material into waters of the U.S. in support of mining operations in Areas III and IV North at Navajo Mine. Approval of Burnham Road realignment.	33 CFR 323 40 CFR 230
BIA	The SMCRA regulations require that a “public road authority” be designated, which would authorize the relocation of the road. Because the Burnham Road has historically been maintained by the BIA and is entirely within the Navajo Nation Indian Reservation, the BIA is recognized as the public road authority and can approve, deny, or approve with conditions the proposed relocation.	25 CFR §169 25 USC §323
BLM	Approve the revised R2P2, which requires conducting mining operations in a manner that achieves MER of the available resource. MER is a key consideration in determining mining limits and methods.	43 CFR 3482.1(b)

In addition to the required Federal authorizations that trigger NEPA compliance, several agencies within the Navajo Nation had regulatory review and approval authority. The Navajo Nation Department of Fish and Wildlife (NNDFW) issues a Fish and Wildlife Clearance letter concurring with the Biological Evaluation (BE) in accordance with Navajo Nation Code (NNC). The Navajo Nation Historic Preservation Department (NNHPD) issues a Cultural Clearance letter concurring with Section 106 compliance of the NHPA. The Navajo Nation Environmental Protection Agency (NNEPA) issues a Water Quality Certification (WQC) in accordance with its authority under Section 401 of the CWA.

1.7 Purpose and Need

The four Federal action agencies’ statements of purpose for each of their Proposed Actions, and background information on project purpose and need, are provided below. The Purpose and Need is unchanged from the 2012 EA, with the exception of correcting the actual amount of coal mined and combusted at FCPP. Section 1.2 describes the changes and actions that have occurred at Area IV North between the 2012 EA and the cessation of mining on March 1, 2015. Although these changes include the Federal actions by the agencies listed below, and the completion of the actions so approved, the Purpose and Need is still that of 2012.

1.7.1 OSMRE Statement of Project Purpose

The purpose of and need for the proposed significant permit revision to mine coal in Area IV North is to continue to provide a coal supply in accordance with NTECs contract obligations with the FCPP through July 6, 2016, and permanently reroute the Burnham Road to eliminate existing public safety hazards and maximize recovery of the Navajo Nation's coal resource. The Burnham Road realignment also provided road improvements on the remainder of the proposed reroute for the benefit of local residents and communities.

1.7.2 USACE Statement of Project Purpose

The USACE determined the basic and overall project purposes for the proposed discharge in waters of the U.S. under Section 404(b)(1) of the CWA are as follows: The basic project purpose included revision of the current mine plan and public transportation safety. The overall project purpose was continued operation of the Navajo Mine through July 6, 2016, to meet contractual obligations with the FCPP, while maintaining safe, reliable public access to the Burnham Chapter area.

1.7.3 Bureau of Indian Affairs Statement of Project Purpose

BIA was the public road authorizing agent regarding the realignment of the Burnham Road. The BIA issued a Road Relocation Permit. The original permit was issued in September 2008 requiring construction by December 21, 2009. The BIA used the information contained in the 2012 EA to decide on re-issuing the expired permit. After relocation was approved, the road was incorporated into the BIA road inventory and will be maintained by the BIA. The purpose of the proposed realignment of the Burnham Road was to eliminate public safety hazards and maximize recovery of the Navajo Nation's coal resource. The Burnham Road realignment provided road improvements on the remainder of the proposed re-route for the benefit of local residents and communities.

1.7.4 BLM's Statement of Project Purpose

The BLM had approval authority regarding the proposed R2P2. The purpose was to provide for ultimate maximum recovery of the available coal resource.

1.7.5 Background on Project Purpose and Need

1.7.5.1 Mining to Fulfill Coal Supply Contract Obligations

NTEC's proposed mining in Areas III and IV North of the Navajo Mine is needed to supply sufficient quantities and quality of coal to meet its contract obligations to the FCPP through July 6, 2016—the date when the current coal sales contract between NTEC and the owners of the FCPP expires—and to comply with requirements under NTEC's lease with the Navajo Nation for MER to the Navajo Nation from production of coal.

To accomplish these objectives, NTEC must obtain OSMRE's approval of a revised mine plan for a portion of Area IV North. The proposed mine plan revision addresses the methods and timing of mining within an approximately 704-acre portion of Area IV North in order to produce, in conjunction with ongoing mining operations—the necessary quantity and quality of coal to meet NTEC existing contract requirements with FCPP. NTEC supplies approximately 8.5 million tons of appropriate quality coal

annually. NTEC must therefore be able to supply 43.6 million tons of appropriate quality coal in the next 5 years to fulfill its contractual obligations through July 6, 2016. As described in Section 1.1, currently permitted mining activities at Navajo Mine are ongoing in Areas II and III. These current activities have the maximum potential to produce 30.8 million tons of coal between now and when the BNCC coal delivery contract with FCPP expires. The proposed mine plan revision for a portion of Area IV North is needed to produce the additional approximately 12.7 million tons of appropriate quality coal required by the contract¹. Accordingly, NTEC estimates that production of the required coal would require mining and ancillary facilities on 830 acres within Area IV North (refer to Figure 2.1-1).

It is the purpose of this Act—[30 USC 1202] Section 102(f)—to assure that the coal supply essential to the Nation’s energy requirements, and to its economic and social well-being is provided and strike a balance between protection of the environment and agricultural productivity and the Nation’s need for coal as an essential source of energy.

1.7.5.2 Need for USACE Permit

Because several arroyos and washes cross Areas III and IV North of the Navajo Mine, mining will affect waters of the U.S. and require a USACE permit under Section 404 of the CWA. BNCC, and subsequently NTEC, elected to apply for a CWA IP from the USACE (refer to Section 1). This action consolidated the various NWP’s under which the mine currently operates into a single IP for purposes of mining prior to 2016. A separate IP will be sought for mining that may be proposed under a potential post-2016 coal supply agreement. The objective was to comply with USACE requirements to avoid and minimize fill in waters of the U.S. to the extent practicable, and to mitigate unavoidable impacts to aquatic resources.

1.7.5.3 Need for R2P2

The Federal regulations require NTEC to conduct mining operations in a manner that achieves maximum recovery of the available coal. The R2P2 is a key factor in determining the location and configuration of mine pits, strip layouts, and infrastructure locations. All resources within the Area IV North lease boundary are economically recoverable using surface mining methods. Under the R2P2 regulations, stripping limits were established that maximize recovery of the resource while allowing sufficient space

¹ Since OSMRE’s March 16, 2012 approval of the Area IV North permit revision, BNCC and its successor NTEC supplied approximately 8.5 million tons of appropriate quality coal annually to FCPP prior to closure of FCPP Units 1, 2, and 3 (March 16, 2012 through December 31, 2013). Beginning on January 1, 2014, BNCC/NTEC began supplying approximately 5.8 million tons of appropriate quality coal annually to FCPP. BNCC/NTEC must therefore be able to supply a total of 30.8 million tons of appropriate quality coal to fulfill its contractual obligations through July 6, 2016. Continued mining through the highwall in Area IV North is necessary to achieve MER of coal from the lease area, and will facilitate mining in the Pinabete area. Based on the current mine plan, it is estimated that it will require approximately 4 years to complete coal recovery in Area IV North, (which would be conducted concurrent with mining activities in the Pinabete area beginning in 2016). Timing is predominantly impacted by the demand requirement of FCPP, the actual coal uncovered during the mining operations, and the appropriate blending for coal quality with other mined coal sources. This timing is based on Navajo Mine’s estimated rates from the current long-term plan, and is subject to change based on the mine plan and sales forecast changes.

The effects of burning the coal mined from Area IV North and the Pinabete Permit area are analyzed in both this EA and the FCPP/NMEP EIS, respectively, as described in this EA. The FCPP/NMEP EIS includes data regarding emissions from FCPP, including mercury deposition, for the period 2000-2011, which reflects historic operations of all five FCPP units. With the closure of Units 1, 2, and 3, the amount of coal supplied to FCPP, and the amount of combustion related impacts have reduced significantly, as described in the FCPP/NMEP EIS.

between the perimeter of the stripping area and the lease boundary for surface infrastructure (roads, power and water lines, coal stockpiles) and spoils placement, as well as retention of contingency reserves.

1.7.5.4 Need for Burnham Road Realignment

BNCC sought to realign a public road (BIA 3005—Burnham Road—also known as Navajo Road N-5082). The northern portion of the proposed realignment was necessary due to the road's close proximity to current mining operations in Area III. In addition, the remaining portions of the proposed realignment through Area IV North and accompanying road improvements provided important safety and access benefits for local Navajo residents and others that used Burnham Road for local and through traffic.

1.7.5.5 Project Benefits

Since coal mined at the Navajo Mine is held in trust by the U.S. for the benefit of the Navajo Nation, mining provides important benefits to the Nation, including royalties and tax revenues, and employment opportunities for tribal members. The objective of the proposed project is to continue to provide those benefits to the Navajo Nation.

1.7.6 Summary

In summary, NTEC's objectives are/were to:

1. Provide sufficient quantities and quality of Navajo coal in accordance with the existing coal supply contract through July 6, 2016.
2. Eliminate the safety hazards and disruptions associated with blasting and mining activities along the portion of the Burnham Road in proximity to proposed pre-2016 mining activities, and efficiently and effectively provide safety, access, and other road improvements on the remainder of the proposed Burnham Road realignment for the benefit of local residents and communities.
3. Provide important coal royalty and tax revenues directly to the Navajo Nation inasmuch as the coal mined at Navajo Mine is held in trust by the United States for the benefit of the Navajo Nation.
4. Provide important employment opportunities for the Navajo Nation and other communities surrounding the Navajo Mine.

1.8 Issues Identified through Public Workshops and Conferences

The following sections describe the public involvement that occurred for the 2012 EA addressing the Proposed Action. In addition, this EA uses the results of recent public involvement associated with the FCPP/NMEP EIS published in May 2015. The Proposed Action is the same as in 2012, and the EIS consultation was conducted in 2012 and 2014. While the EA will be made available for a 30-day public review period, no public workshops are planned for this EA. The summary of issues in this section is taken from the 2012 EA, and is supported by the summary of issues provided in the FCPP/NMEP EIS, which has been incorporated by reference into this EA.

1.8.1 Public Workshops

In April 2011, two public workshops were held at the Tiis Tsoh Sikaad (Burnham) and Nenahnezad Chapter Houses on the Navajo Nation near the project site. The USACE and OSMRE personnel made presentations and a series of 14 posters was displayed. Technical personnel from OSMRE, the USACE, the Navajo Nation Surface Mining Program, BIA, and BLM along with a Navajo-English translator and a court reporter were available to answer and record questions and comments, and comment forms were available for written comments.

The workshops were advertised in three area newspapers and two radio stations for 2 weeks prior to the workshops. In addition, an informational flyer announcing the workshops was posted at several public locations and businesses in the area and at eight neighboring chapter houses.

1.8.2 Comment Summary

A summary of comments received during and after the public workshops is provided in Table 1.8-1. Eighteen individuals commented, which provided 87 individual comments. Seventeen individuals provided verbal comments to a court reporter at the public workshops, and OSMRE received one letter co-authored by representatives from the San Juan Citizen’s Alliance, Diné Citizens Against Ruining Our Environment, and Center for Biological Diversity.

Table 1.8-1. Comment Summary

Resource Area	Number of Comments	Comments Received
NEPA Process	18	<ul style="list-style-type: none"> • Request extension of public comment period. • Request public hearings. • EIS is required for project, mine acreage chosen to avoid preparation of EIS. • Project purpose and need not identified. • Analysis should include connected actions including burning coal at FCPP.
Public Outreach	15	<ul style="list-style-type: none"> • Request to provide area chapter houses with additional project information. • More public notices of the workshops needed. • More interpreters needed at workshops. • Workshop format was not appropriate. • Meeting time inconvenient. • Request to have all documents translated in Navajo.
Dust and Air Quality	14	<ul style="list-style-type: none"> • Concern for impacts to human health, water resources, and livestock that drink water that contains coal dust. • Recommendation of air monitoring of dust levels at the mine and surrounding area. • Request for cumulative air impact analysis.

Resource Area	Number of Comments	Comments Received
Health	6	<ul style="list-style-type: none"> • Concern for regional health impacts related to exposure to dust and air pollutants. • Request for a comprehensive health analysis.
Water	6	<ul style="list-style-type: none"> • Concerns about dust contaminating livestock water and nearby surface water. • Recommendation that OSMRE update their Cumulative Hydrologic Impact Assessment. • Concern that the wetland mitigation project is not close enough to the Project Area. • Concern about impacts to groundwater from past coal combustion by-product (CCB) disposal at the mine.
Biological	6	<ul style="list-style-type: none"> • Information on species that occur in the area. • Mercury pollution and CCB disposal would have an indirect and cumulative impact on two fish species. • Concerns about whether the USFWS is being consulted. • Concern over delays in reclamation, invasive species, dust, and habitat loss.
Cultural	4	<ul style="list-style-type: none"> • Concern for unmarked graves in the area. • Clay from nearby waterways is used by elders. • Request for a detailed analysis of mitigation measures for cultural resources in the Project Area.
Economics	4	<ul style="list-style-type: none"> • All comments were all in support of the project and indicated that moving forward with development would benefit the local economy and the Navajo people through jobs, revenues, education, and local community support.
Waste Management	2	<ul style="list-style-type: none"> • Concerns about CCB disposal and management.
Geology/Paleo	1	<ul style="list-style-type: none"> • Statement that there is a high diversity of paleontological resource in the area.
Land Use	1	<ul style="list-style-type: none"> • An individual inquired about different land lease areas near the project site and was concerned about timing of their release back to the people of the Navajo Nation.
Noise	1	<ul style="list-style-type: none"> • Concern was expressed about the noise and vibration that occurs at the mine.
Soil	1	<ul style="list-style-type: none"> • Concern that strip mining destroys topsoil, prehistoric items, and affects vegetation growth.
Burnham Road	1	<ul style="list-style-type: none"> • The road is unfinished through Chaco Wash and promised improvements are not yet in place.
Environmental Justice	1	<ul style="list-style-type: none"> • Request that the project “raise the bar” on environmental justice compliance.

Resource Area	Number of Comments	Comments Received
Other	6	<ul style="list-style-type: none"> • Shepherds that may need to set up new camps. • Request for agency memoranda of understanding and the project’s communications protocol document. • Concerns about contemporaneous reclamation and the project reclamation bond. • Mitigation of impacts to tribal member rights and customary use areas.

Notes:

EIS - Environmental Impact Statement

FCPP - Four Corners Power Plant

OSMRE - Office of Surface Mining and Reclamation Enforcement

CCB – Coal Combustion Byproduct

USFWS - U.S. Fish and Wildlife Service

1.8.3 OSMRE Informal Conference

OSMRE conducted the informal conference on June 15, 2011 at the Nenahnezad Chapter house. The conference was advertised in area newspapers and public service announcements on regional radio stations, and with flyers posted at chapter houses and in other public locations on the Navajo Nation Reservation, as well as in Farmington, New Mexico. The comment period began with the publication of a legal notice of the project on March 24, 2011 and comments were taken through June 30, 2011.

One hundred and one individuals signed the attendance sign-in sheet and 19 individuals provided public testimony during the conference. Eighteen testified in support of the permit revision and cited positive impacts to employees and their families, as well as to local and regional socioeconomics as their reasons for supporting the permit renewal. The one individual that did not support the permit renewal indicated that she was a resident near the mine and did not receive the support from BNCC she expected related to water supply, and also cited concerns about coal dust in the area affecting human and livestock health. In addition, OSMRE received four emails and one letter during the comment period. Three emails stated support for the permit renewal citing job security and regional economic benefits. The fourth email cited BNCC management issues and the opinion that BNCC was not complying with original agreements regarding mining made with the Navajo Nation in the 1960s. The letter was submitted by the NNHPD – Traditional Culture Program, which questioned whether the proposed project would impact two Navajo traditional cultural resources—the Hogback and the San Juan River.

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