

## 4.11 Environmental Justice

Environmental Justice is defined by the EPA as *"The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people including racial, ethnic, or socioeconomic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies"* (EPA 1998b).

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-income Populations*, was issued in 1994 to focus the attention of Federal government agencies on human health and environmental conditions in minority and low-income communities. In addition, Executive Order 12898 was established to ensure that, if there were disproportionately high and adverse human health or environmental effects from Federal actions on these populations, that those effects would be identified and addressed. The Executive Order specifically requires that Native American populations are included in discussions and analysis of potentially affected minority and low-income populations.

According to a memorandum accompanying Executive Order 12898, environmental justice under NEPA should be considered in the following ways:

1. Environmental effects, including human health, economic, and social effects of Federal actions should be analyzed by each Federal agency.
2. When it is feasible, mitigation measures, as outlined in an environmental assessment, environmental impact statement, or record of decision, should address disproportionately high and adverse human health or environmental effects on environmental justice populations.
3. Effective community participation in the NEPA process should be provided by each Federal agency. This could include identifying potential effects and mitigation measures by working with the affected communities, in addition to improving accessibility of public meetings and applicable documents.
4. With regard to Federally-recognized tribes, the Executive Order also states that "the Department of the Interior, in coordination with the Working Group, and after consultation with tribal leaders shall coordinate steps to be taken pursuant to this order that address federally-recognized Indian tribes" (Clinton 1994).

Additionally, the BIA NEPA Handbook states that to comply with Executive Order 12898, "[t]he Bureau must therefore reach and communicate to the extent practicable with such [low income and minority] communities, from the earliest stages of planning through the decision to proceed with a proposed action, and to specifically address in the environmental analysis any such communities that might be affected by a proposed action" (BIA 2005).

The CEQ Environmental Justice Guidance (CEQ 1997) states that "[a]gencies should apply the guidance with flexibility, and may consider its terms a point of departure rather than conclusive direction in applying the terms of the Executive Order." The guidance also states that "[a]gencies should consider relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards, to the extent such information is reasonably available. For example, data may suggest there are disproportionately high and adverse human health or environmental effects on a minority population, low-income population, or Indian tribe from the agency action. Agencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action." In consideration of these cumulative effects, the EPA recommended the use of their Framework for Cumulative Risk Assessment, May 2003, which addresses HRA.

Subsequent to Executive Order 23898, Executive Order 13175 (November 6, 2000) states that when “implementing policies that have tribal implications....[a]gencies shall respect Indian tribal self-government and sovereignty, honor tribal treaty and other rights, and strive to meet the responsibilities that arise from the unique legal relationship between the Federal government and Indian tribal governments.”

#### **4.11.1 Region of Influence**

This environmental justice analysis focuses on the distribution of racial and low-income status' in areas potentially affected by the implementation of the Proposed Action. The aggregation of these potentially affected areas is referred to as the ROI. The ROI includes all of San Juan and McKinley counties, New Mexico and tribal areas (the Navajo and Hopi tribal trust lands). San Juan and McKinley counties are included in the ROI because they are the jurisdiction that some aspects of the Proposed Action and alternatives would take place. Tribal areas are included in ROI because the Proposed Action and alternatives would take place on Navajo Nation tribal trust land as well as Hopi tribal trust land (transmission line ROW). Furthermore, tribal areas are heavily populated with Native Americans, a recognized ethnic group, which according to Executive Order 12898 are required to be included in discussions and analysis of environmental justice.

#### **4.11.2 Identifying Environmental Justice Population Areas**

Since it is critical to identify small pockets of minority and low-income populations, data on minority and low-income status is analyzed using the most detailed areas for which relevant statistical data is available (census block groups). The proportion of minority and low-income populations, within each census block group in the ROI, is calculated using the following criteria:

- Minority is defined as the following racial and ethnic groups: Black or African American, Hispanic or Latino, Asian, American Indian or Alaska Native, and Native Hawaiian or other Pacific Islander.
- Low-income is defined as individuals that the Census identifies as living below the poverty line.

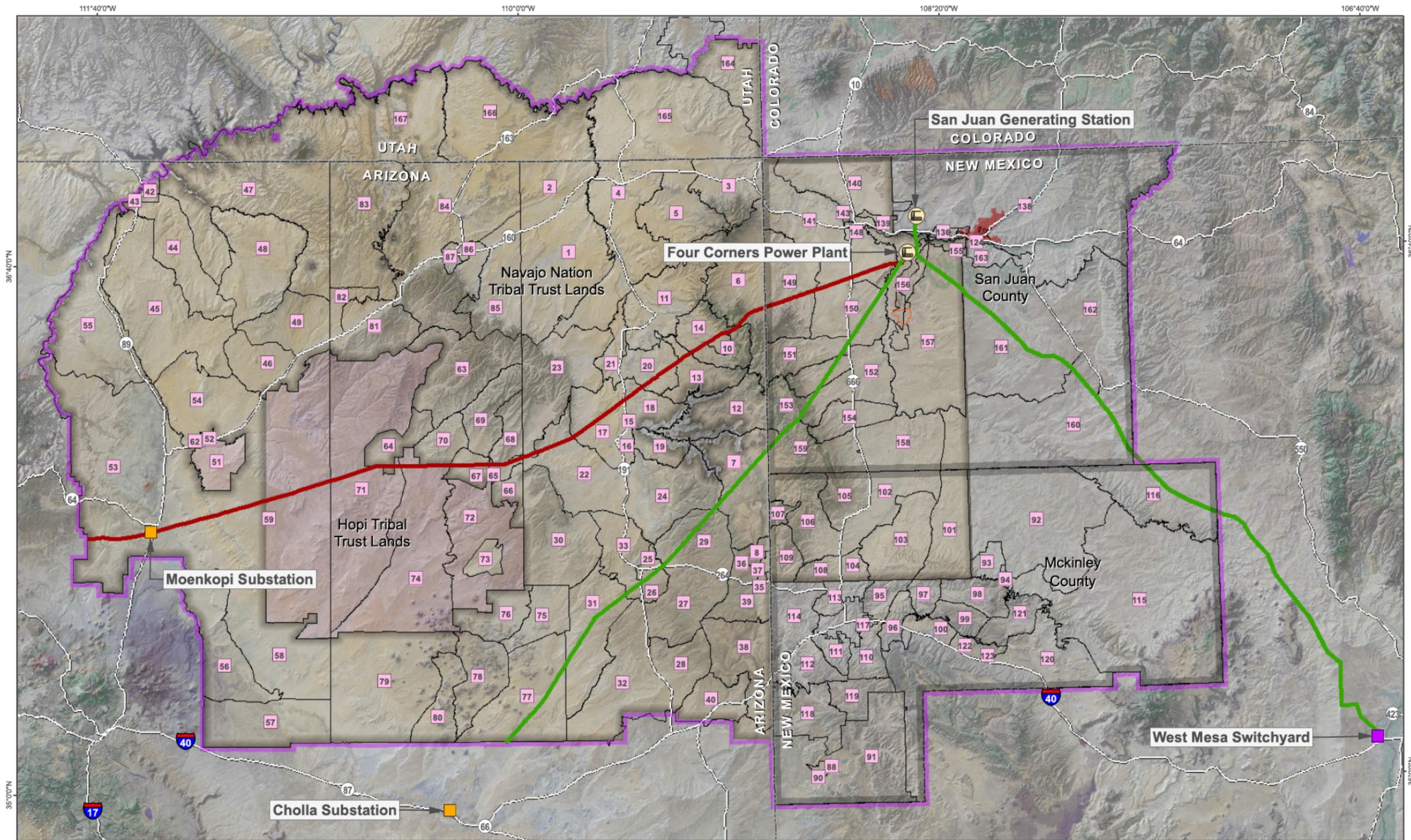
Once the proportions of minority and low-income residents in each census block group are calculated, the proportions are compared to reference areas. CEQ guidance (1997) is not specific as to the choice of reference population. For purposes of this analysis, the respective counties in which each census block group is located are used as the reference areas. Comparison of the Tribal area to the county area is most representative of the conditions in the ROI. The result of this comparison determines whether the census block group is considered an environmental justice population area. If there is a higher proportion of minority or low-income residents in a census block group than the proportion in the county in which the census block group is located, then the census block group is identified as an environmental justice population area.

The ROI is mapped, and data provided on low-income and minority status in Figures 4.11-1 and 4.11-2. The figures are used to highlight environmental justice population areas. In the environmental justice analysis, comparisons are also provided for state measures of social concerns.

**Four Corners Power Plant and Navajo Mine Energy Project**

ENVIRONMENTAL SETTING & CONSEQUENCES

**Figure 4.11-1**  
Minority Population in the Region of Influence

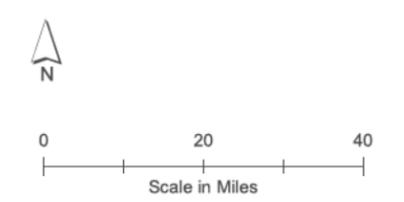


- PROJECT FACILITIES**
- Four Corners Power Plant
  - Substation
  - Switchyard
- PROJECT BOUNDARIES**
- Navajo Mine Lease Area
  - Proposed Pinabete SMCRA Permit Boundary
  - Region of Influence
- TRANSMISSION LINES**
- 345kV
  - 500kV
- CENSUS INFORMATION**
- Minority Population Block Groups
  - Census Block Groups in ROI
- OTHER FEATURES**
- County Boundaries
  - Hopi Tribal Trust Lands
  - Navajo Nation Tribal Trust Lands

Map Label	Block Group																				
1	040019426001	17	040019442013	33	040019449024	49	040059422023	65	040179400101	81	040179423001	97	350319436003	113	350319439021	129	350450003011	145	350459428024	161	350459432013
2	040019426002	18	040019442021	34	040019450011	50	040059449001	66	040179400102	82	040179423002	98	350319436004	114	350319439022	130	350450003024	146	350459428031	162	350459432014
3	040019427001	19	040019442022	35	040019450012	51	040059449002	67	040179400103	83	040179423003	99	350319436005	115	350319440001	131	350450004023	147	350459428032	163	350459432015
4	040019427002	20	040019443001	36	040019450013	52	040059449003	68	040179400111	84	040179424001	100	350319436006	116	350319440002	132	350450005031	148	350459428033	164	490379420001
5	040019427003	21	040019443002	37	040019450014	53	040059450001	69	040179400112	85	040179424002	101	350319437001	117	350319456004	133	350450005051	149	350459429001	165	490379420002
6	040019427004	22	040019443003	38	040019450021	54	040059450002	70	040179400113	86	040179425001	102	350319437002	118	350319457001	134	350450005053	150	350459429002	166	490379421001
7	040019440001	23	040019443004	39	040019450022	55	040059450003	71	040179400121	87	040179425002	103	350319437003	119	350319457002	135	350450005055	151	350459429003	167	490379421002
8	040019440002	24	040019443005	40	040019450023	56	040059451001	72	040179400131	88	350319403001	104	350319437004	120	350319460001	136	350450005056	152	350459429004		
9	040019440003	25	040019449011	41	040050021003	57	040059451002	73	040179400132	89	350319403002	105	350319438001	121	350319460002	137	350450006103	153	350459429005		
10	040019441001	26	040019449012	42	040050021006	58	040059451003	74	040179400133	90	350319403003	106	350319438002	122	350319460003	138	350450006121	154	350459429006		
11	040019441002	27	040019449013	43	040050021007	59	040059451004	75	040179400141	91	350319405001	107	350319438003	123	350319460005	139	350459428011	155	350459430001		
12	040019441003	28	040019449014	44	040059452001	60	040059452001	76	040179400142	92	350319435001	108	350319438004	124	350450001002	140	350459428012	156	350459430002		
13	040019441004	29	040019449015	45	040059422012	61	040059452002	77	040179400143	93	350319435002	109	350319438005	125	350450001004	141	350459428013	157	350459430003		
14	040019441005	30	040019449021	46	040059422013	62	040059452003	78	040179400151	94	350319435003	110	350319439011	126	350450002051	142	350459428021	158	350459431001		
15	040019442011	31	040019449022	47	040059422021	63	040179400081	79	040179400152	95	350319436001	111	350319439012	127	350450002053	143	350459428022	159	350459431002		
16	040019442012	32	040019449023	48	040059422022	64	040179400082	80	040179400153	96	350319436002	112	350319439013	128	350450002055	144	350459428023	160	350459432012		

**Note:** Minority Population is defined as a Census Block Group where percentage of minority population is greater than the county in which it is located.

**Source:** U.S. Census Bureau (2012)



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### 4.11.3 **Public Participation for Environmental Justice Communities**

Throughout the NEPA process, a variety of steps have been taken to involve minority, low-income, and Tribal populations in a meaningful way, in accordance with Executive Order 12898 - *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994). A primary purpose of Executive Order 12898 is to encourage minority and low-income populations to participate in the NEPA process so that the concerns of these populations can be analyzed during the environmental review process. The Executive Order 12898 guidance document states:

*“The Executive Order requires agencies to work to ensure effective public participation and access to information. Thus, within its NEPA process and through other appropriate mechanisms, each Federal agency shall, wherever practicable and appropriate, translate crucial public documents, notices and hearings, relating to human health or the environment for limited English speaking populations. In addition, each agency should work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.”*

Furthermore, EPA’s National Environmental Justice Advisory Council (NEJAC) published a report entitled “*Fostering Environmental Justice for Tribes and Indigenous People*” (January 15, 2013) that seeks to ensure that there is genuine and meaningful exchange of information between the Federal agencies and the affected tribe(s). The report emphasizes the meaningful involvement of tribes under the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and states:

*“A central-tenet of the UNDRIP is the recognition of indigenous peoples right to free, prior and informed consent as a requirement, prerequisite, and manifestation of the exercise of the fundamental, inherent right to self-determination as defined in international law.”*

As defined by the UNDRIP,

- *Free* is the absence of coercion and outside pressure, including monetary inducements (unless they are mutually agreed to as part of a settlement process)
- *Prior* is having sufficient time to allow for information-gathering and full discussion, including translations into traditional languages, before a project starts. It must take place without time pressure or constraints. A plan or project must not begin before this process is fully completed and an agreement is reached.
- *Informed* is having all the relevant information available reflecting all views and positions. This includes the input of traditional elders, spiritual leaders, subsistence practitioners and traditional knowledge holders, with adequate time and resources to consider impartial and balanced information about potential risks and benefits.
- *Consent* is the demonstration of clear and compelling agreement, in keeping with the decision-making structures of the indigenous peoples in question, including traditional consensus procedures. Agreements must be reached with the full participation of authorized leaders, representatives or decision-making institutions as decided by the indigenous peoples themselves.

These Environmental Justice guidance documents were carefully considered and applied during this NEPA process. Public participation with tribal members was fostered throughout the NEPA scoping period and public review period for the Draft EIS, the SMCRA informal consultation process, and the Section 106 NHPA consultation process. Among the methods applied were translations into traditional languages, seeking input from elders, and providing opportunities to provide input in a variety of ways to help reduce cultural and language barriers and allow community members to express their views and opinions in a manner familiar to them. The steps taken to provide outreach and meaningful involvement to local communities are described in more detail below.

#### **4.11.3.1 Public Scoping, Informal Conferences and Public Meetings**

OSMRE hosted nine public scoping meetings in August 2013, and nine public meetings in May 2014, following the release of the Draft EIS. All meetings were hosted around the Four Corners region in order to involve Native American populations to the greatest extent possible. The locations were selected to ensure that Navajo and Hopi tribal members would be able to access the venues, and as such meetings were held in Hotevilla Village, the Burnham Chapter House, Nenahnezad Chapter House, Shiprock High School and the Navajo Nation Museum, in addition to meetings in larger cities including Farmington, New Mexico; Albuquerque, New Mexico; Cortez, Colorado; and Durango, Colorado.

As required by NEPA, OSMRE conducted scoping in the early stages of EIS preparation to encourage public participation and solicit public comments on the scope and significance of the Proposed Action. The required NEPA scoping was substantially enhanced to ensure that the opportunity for participation was extended to the local minority, low-income, and Tribal populations. The 60-day scoping period (later extended an additional 45 days, for a total of 105 days, at the request the public) was initiated with the Federal Register Notice of Intent to prepare an EIS for the FCPP and Navajo Mine Energy Project, which was published on July 18, 2012. Concurrently, the Hopi and Navajo cooperating agency participants were notified about the initiation of scoping for the project and were able to pass this information to their communities. The scoping period was extended, in part, to ensure that tribal members would have sufficient time to gather information, engage in discussion and make informed comments about the project. Additional translated materials were provided during the extension time period to aid in this process.

Similarly, OSMRE conducted public meetings following the release of the Draft EIS to provide an opportunity for the public and other agencies to learn about and comment on the Proposed Action and alternatives, as well as the environmental analysis presented in the Draft EIS. The public comment period for the FCPP and Navajo Mine Energy Project Draft EIS began March 28, 2014. The 60-day public review period was announced via publication in the Federal Register. OSMRE extended the Draft EIS public comment period from May 27, 2014, to June 27, 2014, which provided an additional 31 days for the public to submit comments. The public comment period was extended, in part, to ensure that tribal members would have time to review the Draft EIS and make informed comments.

Public announcements for both the public scoping period and the Draft EIS comment period were also made via media releases in newspapers, public service announcements, notification fliers, and radio announcements. The public service and radio announcements were translated into native languages and all types of announcements were made widely available, including in remote areas.

The announcements were distributed in a variety of newspapers, including the Navajo-Hopi Observer, the Hopi Tutuveni and the Navajo Times, to ensure that the notification was provided in the periodicals that the Navajo and Hopi tribal members are most likely to read. Media announcements were provided multiple times to increase the likelihood that tribal members would read the announcement and to provide enough time for people to prepare for the meetings and make arrangements to attend. Two notifications were provided on the days immediately prior to the dates of the local scoping/public review meeting (assuming that the newspaper was published daily). Summaries of newspaper advertisements for scoping meetings and public meetings are provided in Table 5-1 and Table 5-2. Public service announcements providing the dates and times of the local scoping meetings and public meetings were distributed to 31 local radio stations. The public service announcements were translated and recorded in Navajo and Hopi. The English release and the Navajo and Hopi audio files were disseminated to radio stations based on the language of the radio station.

In addition, fliers announcing the scoping and public meetings were posted at various chapter houses on the Navajo Nation tribal trust lands and Hopi tribal trusts lands, including the Chinle, Coalmine Canyon, Nenahnezad, Shiprock, Tiis Tsoh Sikaad (Burnham), and Upper Fruitland chapter houses, as well as throughout local communities at community centers, post offices, libraries, grocery stores, gas stations, trading posts, town halls, and other gathering places to further reach tribal community members and remote

locations where interested stakeholders potentially resided. Many tribal members indicated that they had learned about both the scoping and public meetings through the various means of communication discussed above.

The nine scoping meetings and two informal conferences as well as the nine public meetings were all held in an open house format where members of the public could arrive at any time during the event. The goal of the open house setting was to provide a long and flexible time frame to maximize the number of people able to attend and participate in the meetings (4 hours for scoping meetings and informal conferences and 3 hours for public meetings). The flexible format of the meeting also provided a comfortable setting for the Navajo and Hopi tribal members to take in the information and provide their opinions and comments. In addition to the scoping meetings, informal conferences were held concurrently with the open house scoping meetings at the Tiis Tsoh Sikaad (Burnham) and Nenahnezad Chapter Houses. Multiple actions were taken to make the scoping and public meetings welcoming for the tribal members, such as preparing the meeting materials in Hopi and Navajo, providing oral forms of communication (i.e., on-site translators, videos, and subject area experts to describe the project) aligned with the verbal tradition of the Navajo and Hopi cultures, as well as providing refreshments at each of the meetings that were familiar and preferred by the Navajo and Hopi tribal members.

Hopi and Navajo translators were present at the meetings held on the Navajo and Hopi Reservations. Translators with strong understanding of the Hopi and Navajo cultures and languages were chosen to ensure that more than a word-for-word translation was provided but rather the cultural context of the issues was maintained throughout the translation process.

At each scoping and public meeting, OSMRE team members greeted meeting attendees as they entered and immediately notified tribal members that translators were present at the meetings to provide assistance, as desired. The translators were effectively utilized at each meeting; in general, they were consistently assisting tribal members throughout each of the meetings, and tribal members provided positive feedback that the translators were culturally aware and helpful.

Attendees at the meetings were encouraged to watch a project overview video, which was available in English, Navajo and Hopi. Attendees were able to watch the introductory video at any time throughout the meeting as it was provided on several laptop computers with headphones. This provided a safe and private venue for attendees to become acquainted with the project. The project overview video was also made available in all three languages via DVD following the scoping meetings; the DVDs were mailed to government and tribal representatives who attended a scoping meeting and to the Tiis Tsoh Sikaad (Burnham) and Nenahnezad Chapter Houses. A second, longer video was provided at the public meetings following the release of the Draft EIS that provided additional details about the environmental analysis contained within the Draft EIS.

At each scoping and public meeting a variety of posters were presented around the room. The information addressed the NEPA process, agency involvement, the proposed action and alternatives, and discussions of the environmental resource areas. The information provided at the meetings clearly identified the time and manner in which the public was able to directly participate by providing comments, and agency staff at the meetings encouraged attendees to do so. Subject matter experts were available at each poster to answer questions. While the posters were not translated into Hopi and Navajo, translators accompanied Navajo and Hopi speakers to each poster, as desired, to help understand the poster material and to assist tribal members to communicate with subject matter experts.

Comment collection stations were set up at each scoping and public meeting to facilitate the submission of written comments from the public. Translators were able to help tribal members prepare written comments, if desired. In addition, two court reporters were available at each meeting to record oral comments, in recognition of the fact that Navajo and Hopi cultures have a strongly oral tradition. The court reporter option was used frequently by tribal members. At all of the meetings held on tribal trust lands, the

majority of the comments received were oral as opposed to written. In addition, the translators helped facilitate some of the oral comments provided.

Based on comments received from tribal members during the initial scoping meetings, OSMRE filmed a video of the welcome table, the project description, and each of the posters, with narration provided by the subject matter experts. At the conclusion of the scoping meetings, the video was translated into Navajo and Hopi, and was distributed to select government and tribal representatives and the Tiis Tsoh Sikaad (Burnham) and Nenahnezad Chapter Houses. The purpose of the video was to enhance the outreach efforts to the affected Native American communities potentially affected by the Proposed Action. The longer, in-depth video provided at the public meetings following the release of the Draft EIS served a comparable purpose.

Overall, the scoping and public meetings were very well attended by Tribal members. A total of 455 attendees participated in the 9 scoping meetings and 391 attendees participated in the public meetings. A large percentage of meeting attendees were tribal members. In addition, the scoping meetings were attended by Navajo Nation President Ben Shelly, and members of his staff. Several tribal council members and Navajo and Hopi elders attended both the scoping meetings and public meetings. These tribal members had the opportunity to engage in discussion about their comments and concerns with knowledgeable team staff members, including the project managers and cooperating agency project leads.

Prior to the scoping meetings and public meetings, public information repositories were established at 29 and 28 locations, respectively, in the Four Corners region, including chapter houses, libraries, OSMRE offices, and BIA offices. Binders containing the notification advertisements and materials provided at the meetings, copies of each poster, the fact sheet booklet, and the comment form were sent to each information repository, with a letter requesting the binder be put on display and made available for public viewing. In addition, a hard-copy and CD-ROM of the Draft EIS was mailed to each information repository.

All of the actions described above help ensure that tribal members were informed and had the opportunity to meaningfully participate in the environmental review process, in accordance with the NEJAC recommendations.

#### **4.11.3.2 Additional Public Outreach and Consultation**

In addition to public participation during the scoping and Draft EIS public review process, the Navajo, Hopi, and other tribes were consulted as part of the Section 106 consultation process, which aims to preserve important natural aspects of the national heritage as well as historical and cultural aspects through consultation and coordination between the Federal government and affected tribes. As part of this process, OSMRE reached out to approximately 40 tribes (see Section 5.1.3.2).

OSMRE formed a Section 106 Working Group that met through teleconference calls and in person to discuss the consultation process that includes: OSMRE and third-party consultant, BIA, Navajo Nation, Hopi Tribe, BLM, EPA Region 9, USACE, New Mexico Historic Preservation Division, Arizona State Parks/SHPO, PNM, BNCC and consultants, APS and consultants, and the Advisory Council on Historic Preservation. OSMRE has worked closely with the tribes throughout the consultation process, holding in-person meeting to ensure that the tribes are fully engaged and that their traditions, policies and authorities are fully recognized, upheld, and protected.

OSMRE held additional in-person meetings on Hopi and Navajo Nation tribal trust lands to help increase their understanding of the project and ensure that there was a genuine and meaningful exchange of information between Federal agencies and the Hopi and Navajo people that would be affected by the project. Moreover, in response to comments related to cultural resources provided during the scoping period, additional site tours were conducted and a meeting was held at the Burnham Chapter house to ensure that concerns were understood and addressed.

#### **4.11.4 Affected Environment Pre-2014**

##### **4.11.4.1 *Minority Population Areas***

Figure 4.11-1 depicts all census block groups in the ROI and the counties in which they are located. The proportion of minority residents in each census block group is presented along with the proportion of minority residents in each county. The proportion in each census block group is compared to the proportion in the county (reference area) to determine whether particular census block groups are considered environmental justice minority population. Census block groups that are considered environmental justice minority population areas are highlighted in beige. Environmental justice minority population areas in the ROI comprise the vast majority of the land area in the ROI. The only portions of the ROI that are not considered an environmental justice minority area are census block groups to the north and east of the FCPP, in northeast San Juan County.

##### **4.11.4.2 *Low-income Population Areas***

Figure 4.11-2 lists all census block groups in the ROI and the counties in which they are located. The proportion of low-income residents in each census block group is presented along with the proportion of low-income residents in each county. The proportion in each census block group is compared to the proportion in the county (reference area) to determine whether particular census block groups are considered environmental justice low-income. Census block groups that are considered environmental justice low-income population areas are highlighted in pink. Environmental justice low-income population areas in the ROI comprise the majority of the land area in the ROI.

#### **4.11.5 Changes to Environmental Justice Affected Environment Post-2014**

Two completed Federal Actions have been incorporated into the baseline for this analysis: (1) the EPA has made its ruling with respect to BART to control air emissions; and (2) OSMRE has approved the SMCRA permit transfer from BNCC to NTEC (Section 2.4). These completed Federal Actions are considered part of the environmental baseline to which the effects of continuing operations and the Proposed Actions and alternatives are compared in the following section. The relevance to environmental justice is described in the following paragraphs.

In August 2012, EPA published its source-specific FIP for BART to achieve emissions reductions required by the CAA at FCPP (40 CFR Part 49.5512). EPA has required FCPP to reduce emissions of NO<sub>x</sub>. EPA has also set emission limits for PM, based on emission rates already achieved at FCPP, which contributes to visibility impairment in 16 mandatory Class I Federal areas around FCPP. This action would allow for FCPP to continue operations in compliance with the FIP. Although an EIS or EA was not prepared for EPA's consideration of allowing the continued operations of FCPP, the CEQ guidance on environmental justice (CEQ 1997) recommends that "*agencies should augment their procedures as appropriate to ensure that the otherwise applicable process or procedure for a federal action addresses environmental justice concerns.*"

In accordance with this guidance, the "EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This rule requires emissions reductions of two pollutants from a single stationary source, Four Corners Power Plant" (Executive Order 12898).

On April 29, 2013, the Navajo Nation Council enacted legislation to form the NTEC. This legislation was signed into law by President Ben Shelly on April 30, 2013. As stated in the resolution, NTEC sought to purchase the Navajo Mine and control the lease, mineral rights, and operations of Navajo Mine in order to:

*“promote and develop the Navajo Nation’s resources and new sources of energy, power, transmission, and attendant resources to develop the economic, financial, social and cultural well-being of the Navajo People and the Navajo Nation; and to promote the economic vitality of the Navajo Nation through the production of goods and services, to facilitate management of the Navajo Nation’s interest in the development of its energy portfolio and market, to steer the Navajo Nation into a more efficient, productive, vital, and sustainable energy portfolio and market in the best interests of the future generations of the Navajo Nation”* (Navajo Nation Council Resolution CAP-20-13 as amended May 23, 2013).

Further, the legislation authorizing the formation of NTEC states that “[t]he Navajo Nation’s approval of the creation, formation, organization establishment and operation is for the protection and promotion of the Navajo People’s and the Navajo Nation’s economic and financial best interests, which are tied and related to mining operations and the energy industry within the Navajo Nation, as a means to ameliorate the economic financial and social conditions of the Navajo People and the Navajo Nation.”

The CEQ guidance on environmental justice (CEQ 1997) states:

*“Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect should heighten agency attention to alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population.”*

The action of the Tribal Council is an expression by the affected community that investment in the Navajo Mine by the Navajo Nation would meet its goals of controlling the mineral resource and providing stable employment for members. The Navajo Nation has the authority to discontinue operations at the Navajo Mine, as well as the FCPP; however, the Navajo Nation decided to approve Lease Amendment #3 for the FCPP. The Navajo Nation also voted to create NTEC for purposes of purchasing the Navajo Mine; these actions were by super-majority votes of the Tribal Council. The Navajo Nation government representatives are elected by tribal members in a democratic process; thereby, decisions of the Navajo Nation government are considered representative of the tribe (the environmental justice community of concern for this project).

OSMRE completed an EA evaluating the proposed action of the transfer of the SMCRA permit from BNCC to NTEC. The EA analyzed the impacts of this action with consideration of environmental justice. The analysis found that some programs formerly offered by BNCC, such as the employee coal distribution program at Navajo Mine, do not formally transfer to NTEC, and it is not clear whether NTEC will continue this program now that the permit has been transferred, or if NTEC will expand the program. Therefore, the potential indirect impacts associated with the assets and liabilities assumed by the Navajo Nation were found to not disproportionately impact the low-income, minority, and Tribal populations within the ROI.

#### **4.11.6 Environmental Consequences**

The concept of environmental justice is rooted in the Civil Rights Act of 1964, which prohibited discrimination in Federally-assisted programs, and in Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, issued February 11, 1994. Executive Order 12898 was intended to ensure that Federal actions and policies do not result in disproportionately high adverse impacts to minority or low-income populations. Executive Order 12898 requires each Federal agency to incorporate environmental justice into its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental impacts, including social or economic effects, of its programs, policies, and activities implemented both directly and indirectly (for which it provides permitting or funding), on minority populations and low-income populations of the U.S. (CEQ 1997).

Additional guidance from the CEQ clarifies that environmental justice concerns may arise from impacts to the natural and physical environment that produce human health or ecological outcomes, or from adverse social or economic changes. The CEQ's environmental justice guidance (CEQ 1997) states that the analysis should consider relevant data concerning the potential for multiple or cumulative exposures to human health or environmental hazards in the affected population. This analysis considers multimedia and cumulative impacts, and references other sections of the EIS for additional detail. Although the analysis is formally organized by individual resource category, cumulative and multiple impacts are addressed in the most relevant resource category for those impacts.

An environmental justice analysis consists of three steps:

1. Identify whether an alternative has potential adverse social, economic, or health impacts.
2. Determine if potential adverse impacts would disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities.
3. Determine if disproportionate adverse impacts are major.

As discussed in Section 4.11.1, the ROI is characterized by a disproportionately high population of minority residents (Native American) and low-income residents on Navajo Nation tribal trust lands. While minorities and low-income residents in the ROI reside in places other than Navajo Nation tribal trust lands (on Hopi tribal trust lands or in the city of Farmington), this analysis focuses on Navajo populations because major impacts to the more distant Hopi tribal trust lands are not expected because there would be no change to transmission line operations. In addition, the city of Farmington is a mixture of minority/low-income populations and non-environmental justice populations. As such, impacts to residents of the city of Farmington would not disproportionately affect minorities or low-income residents.

The remainder of this section focuses on identifying the presence and significance of adverse social, economic, or health impacts of each alternative, and whether these disproportionately affect a minority or low-income population. This analysis is based on the information presented in other resource sections in this EIS. Where other resource sections have identified adverse impacts in comparison to the baseline condition, this section describes the potential associated social, economic, or health impacts and determines whether those impacts would disproportionately affect Navajo Nation tribal trust lands or populations, and if so, then assess whether the environmental justice impact is major.

The levels of significance of impacts are classified as major, moderate, minor, negligible or "no impact." An impact is considered major if it would result in a substantial adverse change to the environment. An impact is considered moderate or minor if it would not result in substantial adverse environmental effects but could still have some effect. In contrast to "no impact," a negligible impact could occur but at the lowest limits of detection of an effect. In cases where no impact would occur, this conclusion is noted. Quantitative thresholds are applied, where appropriate, to determine the level of significance (for example, quantitative thresholds are commonly used to determine impact levels in the areas of noise and air quality). Other issues are assessed qualitatively based on context and intensity.

#### **4.11.6.1 Alternative A – Proposed Action**

Under Alternative A, OSMRE would approve NTEC's Pinabete SMCRA Permit application and renew the existing SMCRA permit at the Navajo Mine. In addition, the BIA would approve Amendment #3 of the FCPP's lease with the Navajo Nation, as well as approve the grant of lease renewal for the four associated transmission lines.

#### **Air Quality**

This discussion of air quality considers the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population. Although the primary focus is air quality, there are also considerations of public health.

### Navajo Mine

Mobile source emissions from the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas, although quantifiable, are relatively small compared to future power plant emissions, about 6.8 percent of NO<sub>x</sub> potential to emit and about 0.1 percent of SO<sub>2</sub> potential to emit and, generally, consistent with EPA limits of precision of -2 to +5 percent for fossil fuel combustion (EPA 2012b). Thus, any reasonable variations in mining-related mobile source estimates are negligible. Section 4.17, Health and Safety, also presents HRAs for fugitive dust and diesel particulate matter, which concludes that exposure levels would be within the range that is protective of human health. In both cases, the impacts are minor and within regulatory target risk levels.

### Four Corners Power Plant

Mercury and other contaminants may be deposited in the soil due to power plant operations, and humans may ingest these contaminants through consumption of farm products grown in these soils, or fish harvested from local waters. Even in the worst-case scenario, assuming high consumption of fish and local farm products, risk assessment indicates that exposure would be below thresholds protective of human health. The HRA, following EPA guidance, considered consumption of beef, pork, chicken, eggs, and milk. Although sheep are not specifically quantified, the exposure factors for sheep are within those for the species considered, and therefore, sheep consumption would be within the risk levels quantified in Section 4.17. Section 4.17 also considers health risks from inhalation of fugitive dust and finds that the levels are within the target regulatory risk level.

San Juan County's most recent Community Health Profile includes a comprehensive overview of health indicators including respiratory health (San Juan County 2010). This study found that San Juan County has a higher incidence of chronic lower respiratory disease comprised of chronic bronchitis, asthma, and emphysema compared to New Mexico or the rest of the U.S. The study also points out that both teen and adult smoking is higher in San Juan County than all of New Mexico and the U.S. In addition, San Juan County's most recent Community Health Profile found that elevated levels of O<sub>3</sub> in San Juan County were linked to incidence of asthma-related medical visits (New Mexico Department of Health 2007).

Another study, whose area of analysis included the ROI, was undertaken to better understand the relationship between the perceived risk to respiratory health from ambient air quality and the risk presented by coal combustion inside of dwellings for cooking and heating. The study considered special exposures for vulnerable populations, and examined the relationship between coal combustion in homes in the Shiprock area and impacts on respiratory health. The study did not directly evaluate inhalation of coal dust from area mines or emissions from area power plants. The results from this study suggest that the risk of adverse impacts from home burning of coal could be reduced by making relatively simple and inexpensive changes to methods of home heating (Bunnell et al. 2010). With specific regard to the community coal stockpile at Navajo Mine, there is a permit system that limits the use and transport of coal. In addition, representatives from local chapter houses receive training on the safe use and transport of coal, and these representatives are expected to inform the community. Indian Health Services also has training videos that inform the local population on the safe home use of coal.

The analysis in this EIS used a combination of ambient air monitoring, Project emissions modeling, adherence to NAAQS, and human health risk assessments (HHRAs) to evaluate both the Proposed Action's contribution of harmful contaminants in the ambient air and whether or not that contribution has a disproportionate impact on the local population.

The results of the HHRA, the fugitive dust risk assessment, and the diesel particulate matter risk assessment (all found in Section 4.17, Health and Safety) indicated that continued operations of Navajo Mine and FCPP would be considered protective of sensitive subpopulations, such as children, the elderly, and the sick. Sensitive subpopulations such as the environmental justice community are protected by

these values because the toxicity values used are considered by EPA to be protective of sensitive subpopulations.

Section 4.1 (Air Quality) presents the results of modeling the potential changes to NAAQS as a result of the Proposed Action. With respect to O<sub>3</sub>, APS conducted photochemical modeling on a regional level to assess the impacts of NO<sub>x</sub> emissions from FCPP. The assessment was conducted by modeling FCPP emissions in combination with other regional sources and comparing the resulting O<sub>3</sub> concentrations to the current 8-hour O<sub>3</sub> NAAQS and also the former (1979-97) 1-hour O<sub>3</sub> NAAQS. O<sub>3</sub> impacts were assessed near FCPP (maxima), in nearby PSD Class I and sensitive Class II areas, and at existing O<sub>3</sub> monitoring sites (AECOM 2013b).

For consistency, APS utilized input data, configurations, and supporting information for the CAMx modeling program, which was used for the Four Corners Air Quality Study (NMED 2009). As part of the modeling procedure, the Four Corners Air Quality Study regional emissions inventory was updated with current data for other sources in the 4-km domain, and APS provided updated emissions for FCPP consistent with the final BART rule. The modeling period spanned May through August because monitored O<sub>3</sub> concentrations are highest during the summer months due to stronger sunlight, which drives photochemical reactions.

Future operation of the FCPP would emit SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> (also VOC and CO) and therefore contribute incrementally to ambient air quality deterioration, visibility impairment, and dry and wet deposition in the ROI. However, based on the findings of Section 4.1 (Air Quality), the Four Corners Region complies with the NAAQS, and as such the existing levels do not pose an adverse condition. For particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) the EPA (2009a) has noted that toxicity associated with exposure to airborne particulate matter can vary by particulate matter composition with the implication that the NAAQS for particulate matter may not be health protective in all cases. This concern is addressed in Section 4.17 (Health and Safety) as it pertains to fugitive coal dust emissions, and the risk analysis shows that the metals present in Navajo Mine coal and assumed to be present in fugitive dusts at the primary NAAQS for PM<sub>2.5</sub> of 12 µg/m<sup>3</sup> would not pose an unacceptable risk to public health.

Furthermore, boiler emissions from FCPP would decrease as a result of BART compliance, and would comprise about 17 percent of regional SO<sub>2</sub> emissions and about 5 percent of NO<sub>x</sub> emissions from electric power generation beginning in 2019, when SCR would be fully operational on Units 4 and 5. Thus, while NO<sub>x</sub> emissions from FCPP would decrease about 87 percent compared to the historic plantwide baseline, the relative reduction when other regional plants are taken into account would be smaller, about 34 percent overall. Similarly, plantwide SO<sub>2</sub> emissions from FCPP would decrease about 18 percent while the relative regional reduction would be about 4 percent. In general, such emissions decreases, attributable to BART compliance, would result in reduced pollutant levels in ambient air and provide a net clean air benefit. These conditions would be continued under the Proposed Action. Table 4.11-1 (also shown in Section 4.1, as Table 4.1-28) summarizes the reduced emissions as a result of compliance with the BART requirements.

**Table 4.11-1 Summary of Air Emission Reductions from BART Compliance at FCPP**

<b>Criteria Pollutants, Greenhouse Gases and Target Metals</b>	<b>Historic Pre-2014 Baseline Emissions Units 1, 2, 3, 4, 5 tons/yr</b>	<b>Estimated Post-2018 Baseline Emissions Units 4 &amp; 5 tons/yr</b>	<b>Pre-2014 vs Post-2018 Emissions Reduction percent</b>
Sulfur Dioxide (SO <sub>2</sub> )	11,971	9,800	18%
Nitrogen Oxides (NO <sub>x</sub> )	41,121	5,420	87%
Carbon Monoxide (CO)	2,096	1,580	25%
Filterable Particulate (PM)	1,976	830	58%
Carbon Dioxide Equivalents (CO <sub>2e</sub> )	15,439,236	11,396,710	26%
Arsenic (As)	1.78	0.06	96%
Lead (Pb)	1.82	0.07	96%
Mercury (Hg)	0.36	0.07	81%
Selenium (Se)	5.63	0.28	95%

Transmission Lines

No air quality impacts are associated with transmission lines.

Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*Yes. There are minor adverse impacts due to air quality for nearby residents.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*Yes. Impacts would primarily affect Navajo populations.*
- Step 3: Are disproportionate adverse impacts major?  
*No. Air quality, atmospheric deposition, and associated public health impacts are not considered major.*

**Earth Resources**

Navajo Mine

As described in Section 4.3, Earth Resources, Alternative A would result in extensive adverse impacts to landforms and topography during mining. Following reclamation the land surface would be reclaimed to the approximate original contour and impacts to landform and topography would be permanent but minor. Impacts associated with Burnham Road’s realignment would be considered minor.

Impacts with regard to soil erosion would be considered minor, and post-reclamation activities within the SMCRA Permit Areas would have permanent positive impacts to soils. Impacts to soil from primary and ancillary road construction, maintenance, and deconstruction would be considered minor.

The level of impacts to geologic features from primary and ancillary road construction would be considered negligible, and no impacts to mineral resources would occur.

With regard to paleontological resources, an inadvertent discoveries plan would be prepared as a condition of the Pinabete SMCRA permit and is part of the Navajo Mine SMCRA permit. The inadvertent

discoveries plan would seek to minimize the potential damage or destruction of paleontological resources by putting in place protocols for pre-surveying and monitoring activities, procedures for evaluating the significance of a discovery, and stipulate the level of training that personnel must have in order to conduct identification, collection, and curation activities. While ground-disturbing activities associated with the Project may damage or destroy paleontological resources, these protocols would ensure that the Navajo Nation is not deprived of the opportunity to realize benefits from these ITAs.

#### Four Corners Power Plant

Impacts to landform and topography would occur due to the construction of the DFADAs. These alterations would substantially change the surface relief of the Lease Area. Potential impacts to soil erosion would be considered minor, as the five additional DFADAs would affect approximately 1,450 of the 1.7 million acres on the Navajo Nation. Similarly, minor, long-term impacts to soil productivity would occur due to CCR disposal at the DFADAs. Impacts to geology and mineral resources are expected to be negligible. Alternative A within the FCPP Lease Area is unlikely to impact paleontological resources.

#### Transmission Lines

No impacts would occur to topography, soil, geology, mineral, or paleontological resources.

#### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*Yes. Minor impacts to soil productivity would occur, which could potentially affect the ability of Native American populations to use land for agricultural purposes in the future.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*Yes. The soil that would be impacted is on Navajo Nation tribal trust land.*
- Step 3: Are disproportionate adverse impacts major?  
*No. While the impact to soil productivity is considered major and permanent at the FCPP, post-reclamation activities would have permanent beneficial impacts on the majority of soils in the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas, so overall impacts would be reduced to minor. As such, the anticipated impacts would have no major adverse effect on the overall sustainability of Navajo agricultural production and food supply.*

### **Cultural Resources**

#### All Project Components

In accordance with Section 106 of the NHPA, and as outlined in 36 CFR Part 800.4(b)(2), OSMRE has developed two PAs for the proposed Project, one for the Navajo Mine APE, and the other for the FCPP and the transmission lines. The PAs provide a process for compliance with NHPA pursuant to 36 CFR Part 800.14(b) in parallel with NEPA. Specifically, 36 CFR Part 800.4(b)(2), states that an agency may defer final identification and evaluation of historic properties if it is specifically provided for in a PA or documents used by an agency to comply with NEPA. Accordingly, the identification and evaluation of historic properties within the APE will be completed as specific aspects are refined pursuant to 36 CFR Part 800.4(b)(1) and 36 CFR Part 800.4(c). The PAs provide procedures and responsibilities for the ongoing identification, evaluation, and mitigation of historic properties and procedures to minimize damage to historic properties. The PAs also include additional information including standards, guidelines, and unanticipated discovery protocols.

As potential impacts are identified, OSMRE will consult with THPO and SHPO and mitigation measures would be identified, and implemented, as specified in the PAs. Since potential impacts would be mitigated, no major impacts would occur (see Section 4.4, Cultural Resources, for additional information).

In considering “special exposures related to cultural or traditional use of resources near the Project Area,” it is important to understand the Navajo relationship with the land based on the principle of Diné Natural Law that “The rights to use the land, natural resources, sacred sites, and other living beings must be accomplished through the protocol of offering and these practices must be protected.” (Navajo Nation Code Sections 201-206). In applying this principal to extraction of coal resource at Navajo Mine, it would be appropriate for Navajos to make offerings to support the rights to use this natural resource. BNCC has built and NTEC will maintain a ceremonial Hogan within the Navajo Mine Lease Area. This Hogan was built so that employees and their families could conduct traditional ceremonies.

#### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*No. Potential significant impacts to cultural resources would be mitigated through the application of the PA.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*Yes. If a cultural resource was destroyed or damaged due to project-related activities, members of the Navajo Nation would experience a disproportionate effect from losing a tribal resource.*
- Step 3: Are disproportionate adverse impacts major?  
*No. Major effects would be mitigated through the application of the PAs.*

#### **Water Resources/Hydrology**

##### Navajo Mine

As described in Section 4.5, Water Resources/Hydrology, impacts to groundwater flow within the Navajo Mine SMCRA Permit and Pinabete SMCRA Permit Areas would be moderate due to the long rate of groundwater recovery.

Impacts to surface water quality would be minor due to erosion control measures and adherence to SMCRA regulations. Stock ponds located adjacent to active mining operations would be expected to experience minor impacts with respect to livestock use. Direct impacts related to peak flows and runoff volumes would be long term, yet negligible in severity. Minor changes in ephemeral flow may occur if some of the sediment and drainage control ponds were converted to permanent replacement livestock water ponds at the request of the Navajo Nation or the local water user.

Implementation of Alternative A would result in the loss of coal seam aquifers in the Fruitland Formation and a reduction in groundwater quantity as a result of mining operations. Impacts to the Fruitland Formation and groundwater quantity would be minor as mining operations would not affect the existing or future use of the Fruitland Formation, and current groundwater quality is already poor.

Reclamation activities would reduce overall TDS levels and aluminum loading.

##### Four Corners Power Plant

Continued operation of the Ash Ponds would have the potential to contaminate local groundwater and water quality in Chaco River, but this potential would be reduced through the operation of intercept trenches (see

Section 4.5, Water Resources/Hydrology). Operations regarding uptake and discharge of water from Morgan Lake would not adversely affect surface water quality of water bodies in the plant's vicinity.

The operation of SCR devices on Units 4 and 5 would require the use of ammonia and hydrated lime. Any potential spills of urea or lime during transport, or on-site would be unlikely to drain to nearby surface water features since both would be transported in dry form. In the unlikely event of a spill, actions identified in the SPCC Plan would be implemented to prevent and contain any adverse effects of the spilled material to the surrounding environment. No adverse effects would be expected occur to surface water quality from ammonia and lime use.

No changes to water rights would occur under Alternative A, so BBNMC would maintain the right to draw as much water as rights allow for the Project life.

Stormwater discharge during the FCPP's continued operations would have no adverse effects to water quality. No adverse impacts would occur to nearby surface waters resulting from the presence of DFADAs, to waters of the U.S., or to surface water quantity.

#### Transmission Lines

Impacts to groundwater would be considered negligible as maintenance activities and normal operation would not involve any ground-disturbing activities.

Short-term impacts to surface water from the operation of the transmission lines would occur only during maintenance and repair to the lines.

#### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?

*Yes. Stock ponds near the ROI used to sustain livestock would be adversely impacted. Also, minor adverse impacts to surface water flows and water quality are expected in the ROI; however, no known uses of this water would result in associated social, health, or economic effects.*

- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?

*Yes. The water resources that would be affected are located on tribal lands and are primarily used by the Navajo.*

- Step 3: Are disproportionate adverse impacts major?

*No. Impacts to surface water quality would be minor due to erosion control measures, impacts to stock ponds used for livestock sustenance would be minor, and impacts to peak water flows would be negligible.*

### **Land Use and Transportation**

#### Navajo Mine

Under Alternative A, mining activity in the Pinabete SMCRA Permit Area would result in three direct, minor, adverse impacts to existing land use: (1) three dwellings would require permanent relocation according to the compensation agreements described in Section 2 (one dwelling has already been relocated); (2) access to grazing areas in the Pinabete SMCRA Permit Area and surrounding area would be permanently altered through the removal of some two-track roads; and (3) up to 5,568 acres of forage area and all grazing area within five CUAs would be removed to realign Burnham Road and mine within the Pinabete SMCRA Permit Area. There are four residences located within 0.5 mile of the Proposed Pinabete SMCRA permit boundary. BNCC's agreement with the Navajo Nation for the Navajo Mine Lease requires compensation of families

and individuals with land use rights within the Lease Area (BNCC 2012g). Through compliance with the lease provisions, this impact although permanent, is considered minor.

Burnham Road's realignment would result in short-term to permanent beneficial impacts resulting from improved road surface conditions and increased traffic safety compared to baseline conditions. Permanent changes to this portion of the transportation network would provide access for post-mining land use for livestock grazing. A minor increase in truck traffic would occur due to road construction, but is not expected to significantly increase traffic on any local roads. Temporary use restrictions would occur on some public roads and unimproved access routes to ensure public safety during active mining operations such as blasting, resulting in a minor short-term impact. Adequate signage and security would be provided to communicate timing of such activities to the public and minimize the short-term impact of mining activities.

#### Four Corners Power Plant

Under Alternative A, no residents would be directly impacted by the DFADA construction because no dwellings are located in this area. None of the proposed changes to the current FCPP footprint would impact current or future agricultural operations on the Navajo Nation. No grazing occurs in the FCPP Lease Area; therefore, no impacts would occur.

Installation of SCR devices on Units 4 and 5 and the delivery of ammonia and lime for SCR operation would result in additional truck traffic; however, this increase in truck traffic would be long-term and minor.

#### Transmission Lines

Under Alternative A, no changes to land use would be associated with the four existing transmission lines. Continued operation of the transmission lines would not impact existing or future farming or grazing operations because no new construction activities would occur.

#### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*Yes. Navajo Nation members would be relocated and access to grazing areas on Navajo Nation tribal trust land would be restricted.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*Yes. Residents who would be relocated are all Navajo Nation members and grazing areas are used by Navajo more than any other ethnic group.*
- Step 3: Are disproportionate adverse impacts major?  
*No. Impacts related to relocation, increases in traffic, and restricted access to grazing areas would be considered minor.*

#### **Socioeconomics**

The transfer of ownership of the Navajo Mine from BNCC to NTEC will result in changes to revenues, royalties, and taxes, as well as changes to employment levels. However, this is considered part of the baseline because it is associated with the completed Federal Action of OSMRE's approval of the SMCRA permit transfer from BNCC to NTEC. Therefore, under Alternative A, no changes are expected to the baseline conditions of population and demographics, economic background, indicators of social and economic well-being, and Navajo public services. However, the use and transportation of ammonia and lime for FCPP operations could impact public services if an accidental release occurred on tribal trust land. The accidental release would require responses from some of the already overburdened Navajo

Nation public service agencies. APS has stated that it will use urea for the ammonia source, in part because its transportation does not entail these concerns.

Section 4.10, Socioeconomics, describes the primary social concerns and health status and risks in the Navajo Nation. Overall, as measured by common indicators, residents of the Navajo Nation are less well-off economically compared to San Juan County, the state of New Mexico, and the U.S. overall. Compared to these other areas, the Navajo Nation has higher rates of poverty and unemployment as well as lower median household income. On several social measures, residents of the Navajo Nation also experience more adverse conditions than surrounding counties – the Navajo Nation has higher mortality and crime rates, lower graduation rates, and poorer health outcomes and housing conditions.

As of 2000, approximately 15.9 percent of occupants on the Navajo Nation had no vehicle available to them; this percentage was almost three times higher than that of the state of New Mexico overall (5.5 percent). A little more than one-fifth (21.3 percent) of occupied housing units on the Navajo Nation lacked complete plumbing facilities, 20 percent more than homes in New Mexico (1.2 percent) overall. Approximately one-third of occupied housing units on Navajo Nation tribal trust lands were heated with gas or electricity. McKinley County was the third location with the smallest percentage of occupied homes heated with gas or electricity (62.9 percent). Occupied housing units in San Juan County, the city of Farmington, and the state of New Mexico were more than two times as likely to be heated with gas or electricity (83.4, 97.3, and 92.3 percent, respectively) than homes on the Navajo Nation.

Navajo Nation public services are funded through tribal government tax revenues. The tax and royalty revenue received by the Navajo Nation from the operations of the FCPP and Navajo Mine is, in part, used to fund Navajo Nation public services.

As NTEC takes ownership of the Navajo Mine, the baseline fiscal contribution of the Navajo Mine to the Navajo Nation is expected to be higher than with BNCC ownership since the Navajo Nation would be getting more than just the royalties. Because NTEC would be exempt from some local, state, and Federal taxes, their net revenues after taxes would be higher. Accordingly, more revenue would be available to the tribal government. NTEC remains responsible for continued royalty and tax payments to the Navajo Nation based on existing payment schedules. The Navajo Tribal Council has stated that a portion of the profits from NTEC operations would be directed to the investment in “research and development of renewable and alternative sources of energy, storage, and transmission technologies and facilities with priority given to the solar technologies and facilities with attendant storage and transmission capacity.” These could be applied in the area affected by the operation of the Navajo Mine and FCPP; however, that decision would be at the discretion of the Navajo Nation.

#### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?

*Yes. If Navajo Nation public services use resources to respond to an ammonia spill, then the Navajo Nation government and tribal members who use Navajo Nation public services would be impacted through the additional cost borne. Under OSMRE’s recommended option, and APS decision to use urea for ammonia, there would be no spill risk.*

- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?

*Yes. Navajo Nation public services are primarily used by the Navajo.*

- Step 3: Are disproportionate adverse impacts major?

*No.*

## Visual Resources

### Navajo Mine

As described in Section 4.13, Visual Resources, the overall impacts to scenic integrity and visual sensitivity from the issuance of a SMCRA permit for the Pinabete SMCRA Permit Area and renewal of the Navajo Mine SMCRA permit would be major and short-term during mining. However, interim reclamation would include backfilling of mine pits, re-contouring of the surface to its original surface elevations, and re-vegetation with the appropriate seed mixture to return the mined area to its original condition as closely as feasible. Reclamation would occur as soon as possible after the mining is complete and while mining would continue to occur in other portions of Pinabete SMCRA Permit Area. The interim reclamation of those portions of the Pinabete SMCRA Permit Area in which mining was complete would reduce impacts to minor levels. Moreover, these adverse effects to visual sensitivity by viewers, although permanent, would naturally decrease over time as viewers grow accustomed to the mining operations in the Pinabete SMCRA Permit portion of the lease and as reclamation would be implemented.

### Four Corners Power Plant

As described in Section 4.1, Air Quality, the reduction in emissions from Units 4 and 5 and reduced visible plumes would marginally improve visual sensitivity. The overall impacts to visual resources 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 to visual resources from approval of the new lease agreement at the FCPP would be minor and low adverse.

### Transmission Lines

No impact would occur to any of the landscape character units or to the visual sensitivity in any of the distance zones.

### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*Yes. Impacts to visual resources are located on tribal trust lands.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*Yes. Impacts to scenic integrity and visual sensitivity would be greater on tribal trust land than on nontribal land.*
- Step 3: Are disproportionate adverse impacts major?  
*No. Major temporary adverse impacts to scenic integrity would decrease over time and other adverse impacts are considered minor. Following reclamation, the land surface at the Navajo Mine would be reclaimed to the approximate original contour and impacts to visual resources would be permanent but considered minor.*

## Noise and Vibration

### Navajo Mine

As described in Section 4.14, Noise and Vibration, the overall influence of blasting and mining activities to the overall noise environment would be short-term. With the implementation of blasting activity controls, noise and ground-borne impacts from blasting operations would be minor. Noise from the mining activities would result in long-term, minor adverse impacts to the closest residence (approximately 2,745 feet southeast of the Pinabete SMCRA Permit Area) for the duration of the mining activity in the nearby area. However, this structure has been abandoned for several years and would not be considered a receptor.

No adverse noise impacts from coal transportation activities would occur, and impacts from ground-borne vibrations from the coal transportation activities would be minor. No major impacts would occur from noise or ground-borne vibrations from the construction of the Burnham Road realignment. Reclamation activities would result in minor adverse noise impacts to nearby residents for the duration of activity.

#### Four Corners Power Plant

Expanding the DFADA within the existing power plant boundaries would have no substantial effect on noise in the area. No major noise or vibration impacts would occur from power plant operation.

#### Transmission Lines

No adverse noise or vibration impacts would occur from continued operation and maintenance of the transmission lines.

#### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*No.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*No.*
- Step 3: Are disproportionate adverse impacts major?  
*No. Noise impacts, while long-term and adverse, are minor and would not harm the health or environment of nearby residents.*

### **Hazardous and Solid Wastes**

#### Navajo Mine

As described in Section 4.15, Hazardous and Solid Wastes, any impact from an accidental release or spill of hazardous materials would be negligible to minor.

#### Four Corners Power Plant

APS has opted to use solid urea for operation of the SCR. The option of solid urea carries negligible risk during transport, and is the option that OSMRE recommended in the Draft EIS. Urea is a solid, so risks during transportation and storage are greatly reduced. An accidental release of the amount of ammonia generated from urea would have negligible impacts.

One of the potential impacts from the disposal of CCR is an accidental release of the ash disposal surface impoundments at the FCPP. Based on the rated condition of the dam and regulatory compliance requirements, the likelihood of a release is low and therefore the impacts would be minor. APS would comply with all regulatory requirements and complete preparation of an EAP and an Ash Impound Dam Inspection and Maintenance Program.

Off-site contamination from historical CCR placement could occur as a result of seepage in groundwater. In December 2014, EPA published the final rule classifying CCR as a Subtitle D solid waste under RCRA (see Section 4.15.1); this rule applies to tribal lands and the FCPP Lease Area. EPA sought to enhance the protectiveness of the proposed option by requiring certified demonstrations by an independent registered professional engineer to provide verification that the regulatory requirements were being adhered to. In addition, the option provided for state and public notification of the certifications, as well as required posting of certain information on a website maintained by the facility and in the operating record.

Navajo members will be able to access this website to obtain information on CCR disposal in the FCPP Lease Area.

Previous studies conducted by APS found two primary areas of groundwater seepage beneath the ash disposal areas, the “north seep” and “south seepage area”. However, in 1977, APS constructed an open ditch system to collect seepage water from the ash disposal facilities as part of the NPDES permits for the FCPP. In 1993 and 2011, extraction wells were installed. These systems are designed to prevent contamination of the Chaco River. In October 2011, APS constructed a north intercept trench excavated to the bottom of the shale formation. A review of groundwater level data and water quality data in three wells located downgradient of the trench show declines in all constituents and groundwater level. APS installed a second south intercept trench to remediate groundwater. With the operation of the intercept trenches, continued operation and expansion of the ash disposal ponds would have less potential to contaminate local groundwater and water quality in Chaco River. Therefore, off-site impacts from placement of CCR would be minor.

#### Transmission Lines

Any impact from an accidental release or spill related to the hazardous materials in use for the transmission lines would be negligible to minor.

#### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*Yes. The potential exists for impacts to Navajo Nation tribal trust lands in the event of a breach of the CCR impoundments at FCPP.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*Yes. Potential is greater for impacts to occur on Navajo Nation tribal trust lands than on nontribal lands.*
- Step 3: Are disproportionate adverse impacts major?  
*No. The impoundment is rated satisfactory.*

#### **Recreation**

##### Navajo Mine

Under Alternative A, potential impacts to the recreational experience by affecting scenic beauty, hunting and/or fishing opportunities, and noise levels at recreation areas throughout the ROI would be similar to the existing conditions, and potential impacts to regional recreational resources would be negligible. Potential impacts to recreation resulting from impacts to the visual experience due to changes in site topography and vegetation would also be minor.

Public access restrictions would be long-term (dispersed recreational opportunities would be restored following reclamation); however, opportunities for dispersed recreational opportunities would be available in adjacent publically accessible land areas. Alternative A would not alter long-term recreational uses and access within the ROI, and therefore, would not conflict with or be incompatible with recreation-related policies or objectives or the existing applicable management plans in the ROI.

##### Four Corners Power Plant

Implementation of Alternative A would not result in any impacts to access to recreation areas within the ROI. In addition, no adverse effects would occur to recreational opportunities and access associated with Morgan Lake, as these opportunities would remain the same as existing conditions.

### Transmission Lines

Alternative A would not alter the recreational experience (including scenic beauty, hunting, and hiking) in the ROI because the transmission lines already exist and Alternative A would not alter existing conditions. Therefore, no impacts to recreational resources associated with the transmission lines would occur.

### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*Yes. The potential exists for impacts to recreation by affecting the visual experience due to changes in site topography and vegetation.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*Yes. Potential impacts would be to recreational resources on Navajo Nation tribal trust lands and not on nontribal lands.*
- Step 3: Are disproportionate adverse impacts major?  
*No. Impacts to recreational resources would be considered minor.*

### **Health and Safety**

Because many of the potential health effects are related to air quality, the cumulative effects of air quality and other public health-related concerns are also discussed in the Air Quality subsection of Environmental Justice. This section includes worker health and safety.

### Navajo Mine

As described in Section 4.17, Health and Safety, impacts to worker safety from Alternative A and continued operation of the Navajo Mine SMCRA Permit Area and Pinabete SMCRA Permit Area would be negligible. No substantial adverse public health consequences from criteria air pollutants would occur for Alternative A. Public health impacts from the operation of the mine have been and would continue to be minimal.

### Four Corners Power Plant

Impacts to worker safety from Alternative A and the FCPP's continued operation would be negligible. Potential impacts to public health and safety from deposition of air emissions into soil and water would be minor. Comparison of soil samples to EPA Preliminary Remediation Goals for Residential Land Use, found that all concentrations of metals were below levels that would be cause for remediation.

### Transmission Lines

No impacts would occur to worker safety or public safety from the continued use of the transmission lines.

### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?  
*Yes. There are potential health effects associated with the Proposed Action.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?  
*Yes. Adverse effects would disproportionately affect minority and low-income populations on tribal trust lands.*

- Step 3: Are disproportionate adverse impacts major?

*No. All adverse impacts would be negligible to minor.*

## **Biological Resources**

### Navajo Mine

Under Alternative A, short-term impacts to habitat composition and wildlife would occur as a result of mining operations. Reclamation of mined areas would return the area to the original habitat type, although plant species and composition may be altered.

### Four Corners Power Plant

Ecological risks associated with future emissions from the FCPP are associated with deposition of metal emissions on nearby terrestrial and aquatic habitats. The evaluation concluded that no major risks to terrestrial plants (habitat), invertebrates, birds or mammals are expected.

Operation of FCPP would result in the ongoing generation of noise throughout the ROI for the life of the FCPP. No increases in noise associated with operation of the FCPP are expected as FCPP operations for the Proposed Action would not create an increase above the current condition. Infrequent animal collisions with vehicles, noise, and avian collisions or electrocution associated with the power infrastructure would be expected to occur at levels commensurate with current operational activity. These low, ongoing impacts would persist for the life of the FCPP.

Construction of the expanded DFADA is expected to permanently remove up to 1,052 acres of wildlife habitat. However, the availability and quantity of identical habitat near the proposed facilities would reduce the overall impacts to this wildlife. Overall, impacts would be long-term but minor.

### Transmission Lines

Renewal of the ROW leases would not remove or alter wildlife habitats within the transmission line ROWs. Vegetation Management within the ROWs is expected to result in the minor loss of woody debris and woody vegetation along the ROWs during tree trimming efforts that could result in direct impacts to nesting avian species within the ROW. The continued operation of electrical transmission towers and lines would increase the long-term potential for large bird or raptor collisions and electrocution from perching on or near tower conductors; however, continued implementation of the existing management plan would reduce potential impacts to minor levels.

### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative A?

*No. Potential adverse effects are not related to social, economic, or health concerns.*

- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?

*No. Impacts would occur both on Navajo Nation tribal trust lands and non-tribal lands.*

#### **4.11.6.2 Alternative B – Navajo Mine Extension Project Mine Plan**

##### **Air Quality**

Impacts from Navajo Mine Extension Project Mine Plan and the continued operation of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

##### **Earth Resources**

###### Navajo Mine

Impacts to topography, soil, geology, and mineral resources would be comparable to impacts discussed under Alternative A; however, under Alternative B, an additional 894.5 acres would be disturbed and an additional 7.4-mile primary road would be constructed as compared to Alternative A. Impacts associated with construction, maintenance, facilities removal, and reclamation would be considered negligible.

###### Four Corners Power Plant

Under Alternative B, impacts to topography and soils from DFADA construction would be comparable to Alternative A, and impacts to geologic features and mineral resources would be negligible. As such, impacts are considered moderate because topography would be permanently altered and soil resources lost due to wind and water erosion.

###### Transmission Lines

No impacts would occur to topography, soil, geology, mineral, or paleontological resources.

###### Environmental Justice Considerations

Similar to Alternative A, Alternative B would have major impacts to environmental justice. The impact to soil productivity would be considered major and permanent. While other agricultural lands might be used instead of this land, the overall permanent sustainability of Navajo agricultural production and food supply would be damaged.

##### **Cultural Resources**

As potential impacts are identified, OSMRE will consult with THPO and SHPO and mitigation measures will be identified. Since potential impacts will be mitigated, no impacts would occur (see Section 4.4, Cultural Resources, for additional information).

##### **Water Resources/Hydrology**

###### Navajo Mine

Impacts to groundwater quality and quantity during operation would be the same as described for Alternative A.

Permanent impacts to waters of the U.S. would be greater than described for Alternative A. Impacts to surface water quality and channel morphology would be the same as described for Alternative A.

###### Four Corners Power Plant

Under Alternative B, impacts to both surface water and groundwater would be as described for Alternative A.

###### Transmission Lines

Under Alternative B, impacts to both surface water and groundwater would be as described for Alternative A.

### Environmental Justice Considerations

Under Alternative B, impacts to environmental justice would be the same as under Alternative A; impacts would be disproportionate but minor. Impacts to surface water quality would be minor due to erosion control measure, impacts to stock ponds used for livestock sustenance would be minor, and impacts to peak water flows would be negligible.

### **Land Use and Transportation**

#### Navajo Mine

Under Alternative B, three dwellings from within the Pinabete SMCRA Permit Area would potentially have to be permanently relocated. Additionally, Alternative B would require the construction of more miles of primary and ancillary roads, transmission lines, and Burnham Road's realignment. Impacts during construction would be similar to Alternative A, but of a greater magnitude due to the additional road construction activity under Alternative B. Direct short-term to long-term beneficial impacts would be realized for Burnham Road's realignment, which would improve road surface conditions and safety compared to baseline conditions.

#### Four Corners Power Plant

Under Alternative B, the FCPP and all potential impacts would be the same as described under Alternative A.

#### Transmission Lines

Under Alternative B, the transmission line ROWs would be approved and they would continue to be operated and maintained as described under Alternative A.

### Environmental Justice Considerations

Under Alternative B, impacts to environmental justice would be the same as Alternative A. Impacts related to relocation and restricted access to grazing areas would be considered minor.

### **Socioeconomics**

Potential impacts to baseline conditions of population and demographics, economic background, indicators of social and economic well-being, and Navajo public services would be the same as described under Alternative A. Environmental justice impacts would be the same as well; no disproportionate adverse impacts would be related to socioeconomics (see Section 4.10, Socioeconomics, for more information).

### **Visual Resources**

#### Navajo Mine

Under Alternative B, impacts to visual resources would be the same as under Alternative A, except with regard to intensity because of the increased miles of roads and transmission lines and the alterations to Pinabete Arroyo.

#### Four Corners Power Plant

Impacts would be the same as described for Alternative A.

#### Transmission Lines

No impact would occur to any of the landscape character units or to the visual sensitivity in any of the distance zones.

### Environmental Justice Considerations

Impacts to environmental justice under Alternative B would be the same as under Alternative A. No major impacts would occur as highly adverse impacts to scenic integrity would decrease over time and other adverse impacts are considered moderate or low.

### **Noise and Vibration**

#### Navajo Mine

Under Alternative B, impacts to sensitive receptors would remain the same as described for Alternative A for the mining and reclamation activities. However, adverse noise impacts would occur from coal transportation activities, as noise from the transportation of coal along the designated haul road would result in long-term adverse impacts at a nearby residence (located approximately 500 feet from the nearest haul road of the Area IV South boundary) for the duration of mining activity in the nearby area.

#### Four Corners Power Plant

Noise-related impacts would be the same as described under Alternative A.

#### Transmission Lines

Noise-related impacts would be the same as described under Alternative A.

### Environmental Justice Considerations

Impacts to environmental justice would be the same under Alternative B as Alternative A. Impacts from noise and vibration would be disproportionate but minor.

### **Hazardous and Solid Wastes**

#### Navajo Mine

Under Alternative B, impacts from the on-site storage of hazardous materials and solid waste would be the same as described for Alternative A.

#### Four Corners Power Plant

Impacts for hazardous and solid wastes would be the same as Alternative A.

#### Transmission Lines

Impacts for hazardous and solid waste would be the same as Alternative A.

### Environmental Justice Considerations

Impacts to environmental justice would be the same for Alternative B as Alternative A.

### **Recreation**

#### Navajo Mine

Potential adverse impacts associated with mining operations and access restrictions would be comparable to Alternative A, though the alternate permit boundary would result in access restrictions in a slightly different location. The diversion of Pinabete Arroyo, under Alternative B, may indirectly impact dispersed recreation downstream by impacting wildlife along the arroyo. However, these impacts are expected to be negligible because Pinabete Arroyo is ephemeral and, as such, only intermittently supports wildlife and the associated hunting and fishing opportunities throughout the year.

### Four Corners Power Plant

Under Alternative B, the FCPP would operate as described under Alternative A, with the same recreation-related impacts described above.

### Transmission Lines

Under Alternative B, the transmission line ROWs would be approved, and they would continue to be operated and maintained as described under Alternative A, with the same potential recreation-related impacts as described above.

### Environmental Justice Considerations

Impacts from Alternative B would be similar to Alternative A; impacts to environmental justice would be disproportionate but minor.

### **Health and Safety**

Impacts to worker safety from Alternative B and the continued operation of the Navajo Mine, FCPP, and transmission lines would be the same as described for Alternative A.

### Environmental Justice Considerations

Impacts to environmental justice from Alternative B would be the same as described for Alternative A.

### **Biological Resources**

#### Navajo Mine

Impacts would be as described for Alternative A.

#### Four Corners Power Plant

Under Alternative B, the FCPP would operate as described under Alternative A, with the same biological resource-related impacts described above.

#### Transmission Lines

Under Alternative B, the transmission line ROWs would be approved, and they would continue to be operated and maintained as described under Alternative A, with the same potential biological resource-related impacts as described above.

#### Environmental Justice Considerations

Impacts from Alternative B would be similar to Alternative A; impacts to environmental justice would be disproportionate but not major.

### **4.11.6.3 Alternative C – Alternative Pinabete Mine Plan**

#### **Air Quality**

Impacts from the Alternative Pinabete Mine Plan and the continued operation of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

#### **Earth Resources**

##### Navajo Mine

Impacts to topography, soil, geology, and mineral resources would be comparable to Alternative A; however, under Alternative C, an additional 2,388.7 acres would be disturbed, and an additional 9.9 miles of primary roads would be constructed as compared to Alternative A.

### Four Corners Power Plant

Under Alternative C, impacts to landforms and topography from DFADA construction would be comparable to Alternative A. However, impacts to topography and soils would be considered moderate because topography and soils would be permanently altered.

### Transmission Lines

No impacts would occur to topography, soil, geology, mineral, or paleontological resources.

### Environmental Justice Considerations

Similar to Alternative A, Alternative C would have major impacts to environmental justice. The impact to soil productivity is considered major and permanent. While other agricultural lands might be used instead of this land, the overall permanent sustainability of Navajo agricultural production and food supply would be damaged.

### **Cultural Resources**

As potential impacts are identified, OSMRE will consult with THPO and SHPO and mitigation measures will be identified. Since potential impacts will be mitigated, no impacts would occur (see Section 4.4, Cultural Resources, for additional information).

### **Water Resources/Hydrology**

#### Navajo Mine

The disturbance footprint under Alternative C would be greater than Alternative A; however, groundwater impacts of quantity and quality during operation would be as described for Alternative A.

Permanent impacts to waters of the U.S. would be greater than described for Alternative A. Impacts to surface water quality, hydrology, and channel morphology would be as described for Alternative A.

#### Four Corners Power Plant

Impacts to both surface water and groundwater would be as described for Alternative A.

#### Transmission Lines

Under Alternative C, no impacts would occur to surface water resources or groundwater, as described for Alternative A.

#### Environmental Justice Considerations

Impacts to environmental justice from Alternative C would be the same as under Alternative A; impacts would be disproportionate but minor. Impacts to surface water quality would be minor due to erosion control measure, impacts to stock ponds used for livestock sustenance would be minor, and impacts to peak water flows would be negligible.

### **Land Use and Transportation**

#### Navajo Mine

Under Alternative C, three dwellings from within the Pinabete SMCRA Permit Area would have to be permanently relocated. Additionally, Alternative C would require the construction of more miles of primary and ancillary roads, transmission lines, and Burnham Road's realignment. Impacts during construction would be similar to Alternative A, but at a greater magnitude due to the additional road construction activity under Alternative C. Direct short-term to long-term beneficial impacts would be realized for

Burnham Road's realignment, which would improve road surface conditions and safety compared to baseline conditions.

#### Four Corners Power Plant

Under Alternative C, the BIA would approve the lease amendment for the FCPP and the FCPP would operate as described under Alternative A.

#### Transmission Lines

Under Alternative C, the transmission line ROWs would be approved and they would continue to be operated and maintained as described under Alternative A.

#### Environmental Justice Considerations

Impacts to environmental justice would be the same under Alternative C as Alternative A. Impacts related to relocation and restricted access to grazing areas would be considered minor.

### **Socioeconomics**

Potential impacts from Alternative C to baseline conditions of population and demographics, economic background, indicators of social and economic well-being, and Navajo public services would be the same as described under Alternative A. Environmental justice impacts would be the same as well; no disproportionate adverse impacts would be related to socioeconomics (see Section 4.10, Socioeconomics, for more information).

### **Visual Resources**

#### Navajo Mine

Under Alternative C, impacts to visual resources would be the same as under Alternative A, except with regard to intensity because of the increased amount of disturbance acreage for the mine, increased length of Burnham Road's realignment, and the increased miles of roads and transmission lines to be constructed.

#### Four Corners Power Plant

Impacts would be the same as described for Alternative A.

#### Transmission Lines

No impact would occur to any of the landscape character units or on the visual sensitivity in any of the distance zones.

#### Environmental Justice Considerations

Impacts to environmental justice under Alternative C would be the same as under Alternative A. No major impacts would occur as highly adverse impacts to scenic integrity would decrease over time and other adverse impacts are considered moderate or minor.

### **Noise and Vibration**

#### Navajo Mine

Under Alternative C, impacts to sensitive receptors would remain the same as described for Alternative A for the mining and reclamation activities.

#### Four Corners Power Plant

Noise-related impacts would be the same as described under Alternative A.

### Transmission Lines

Noise-related impacts would be the same as described under Alternative A.

### Environmental Justice Considerations

Impacts to environmental justice would be the same under Alternative C as Alternative A. Impacts from noise and vibration would be disproportionate but minor.

## **Hazardous and Solid Wastes**

### Navajo Mine

Impacts of Alternative C would be similar to impacts under Alternative A. Short-term impacts may be slightly higher due to potentially larger volumes of hazardous materials and waste generation during the construction of haul roads and ancillary roads.

### Four Corners Power Plant

Impacts for hazardous and solid waste would be the same as Alternative A.

### Transmission Lines

Impacts for hazardous and solid waste would be the same as Alternative A.

### Environmental Justice Considerations

Impacts to environmental justice would be the same for Alternative C as Alternative A.

## **Recreation**

### Navajo Mine

All impacts associated with Alternative C would be the same as described for Alternative B.

### Four Corners Power Plant

Under Alternative C, the FCPP would operate as described under Alternative A, with the same recreation-related impacts described above.

### Transmission Lines

Under Alternative C, the transmission line ROWs would be approved and would continue to be operated and maintained as described under Alternative A, with the same potential recreation-related impacts as described above.

### Environmental Justice Considerations

Impacts to environmental justice from Alternative C would be the same as described for Alternative B.

## **Health and Safety**

Impacts to worker safety from Alternative C and the continued operation of the Navajo Mine, FCPP, and transmission lines would be the same as described for Alternative A.

### Environmental Justice Considerations

Impacts to environmental justice from Alternative C would be the same as described for Alternative A.

## **Biological Resources**

### Navajo Mine

Impacts would be as described for Alternative A.

### Four Corners Power Plant

Under Alternative B, the FCPP would operate as described under Alternative A, with the same biological resource-related impacts described above.

### Transmission Lines

Under Alternative B, the transmission line ROWs would be approved, and they would continue to be operated and maintained as described under Alternative A, with the same potential biological resource-related impacts as described above.

### Environmental Justice Considerations

Impacts from Alternative B would be similar to Alternative A; impacts to environmental justice would be disproportionate but minor.

#### **4.11.6.4     *Alternative D – Alternative Ash Disposal Area Configuration***

### **Air Quality**

Impacts from the Pinabete SMCRA Permit Area and continued operations of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

### **Earth Resources**

#### Navajo Mine

Impacts to topography, soil, geology, and mineral resources would be the same as described for Alternative A.

#### Four Corners Power Plant

Under Alternative D, impacts to topography and soils from DFADA construction would be comparable to Alternative A though less because Alternative D has a 10 percent reduction in disturbance area. Impacts to geologic features and mineral resources would be negligible. As such, impacts are considered moderate because topography would be permanently altered and soil resources lost due to wind and water erosion.

#### Transmission Lines

No impacts would occur to topography, soil, geology, mineral, or paleontological resources.

#### Environmental Justice Considerations

Alternative D would have similar impacts as those identified under Alternative A. The impact to soil productivity would be considered major and permanent. While other agricultural lands might be used instead of this land, the overall permanent sustainability of Navajo agricultural production and food supply would be damaged.

### **Cultural Resources**

As potential impacts are identified, OSMRE will consult with THPO and SHPO, and mitigation measures will be identified. Since potential impacts will be mitigated, no impacts would occur (see Section 4.4, Cultural Resources, for additional information).

### **Water Resources/Hydrology**

Impacts from the Pinabete SMCRA Permit Area and continued operations of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

### **Land Use**

Impacts from the Pinabete SMCRA Permit Area and continued operations of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

### **Socioeconomics**

Potential impacts to baseline conditions of population and demographics, economic background, indicators of social and economic well-being, and Navajo public services would be the same as described under Alternative A. Environmental justice impacts would be the same as well; no disproportionate adverse impacts would be related to socioeconomics (see Section 4.10, Socioeconomics, for more information).

### **Visual Resources**

Impacts from the Pinabete SMCRA Permit Area and continued operations of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

### **Noise and Vibration**

Impacts from the Pinabete SMCRA Permit Area and continued operations of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

### **Hazardous and Solid Wastes**

Impacts from the Pinabete SMCRA Permit Area and continued operations of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

### **Recreation**

Impacts from the Pinabete SMCRA Permit Area and continued operations of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

### **Health and Safety**

Impacts from the Pinabete SMCRA Permit Area and continued operations of the Navajo Mine SMCRA Permit Area, FCPP, and transmission lines would be the same as described for Alternative A.

### **Biological Resources**

#### Navajo Mine

Impacts would be as described for Alternative A.

#### Four Corners Power Plant

Under Alternative D, the FCPP would operate as described under Alternative A, though the disturbance area for the DFADA would be approximately 10 percent less, with an associated reduction of impacts to the biological community. All other FCPP components of this alternative are the same as for the Proposed Action. Therefore, impacts would be the same as described for the Proposed Action.

#### Transmission Lines

Impacts would be as described for Alternative A.

### Environmental Justice Considerations

Impacts from Alternative D would be similar to Alternative A; impacts to environmental justice would be disproportionate but minor.

#### **4.11.6.5     *Alternative E – No Action Alternative***

### **Air Quality**

#### Navajo Mine

Under Alternative E, mobile emissions from the Navajo Mine would decrease beginning in 2015 and cease by 2021 upon the completion of reclamation activities.

#### Four Corners Power Plant

Under Alternative E, FCPP would continue to operate in 2014 and 2015 at which time, stationary source emissions would cease. Mobile source emissions would continue during the decommissioning of the power plant; however, these tasks are undefined and not quantified.

#### Transmission Lines

Under Alternative E, mobile source emissions from transmission line maintenance would continue through 2015, at such time when they no longer carry power from FCPP it is unknown if the lines would be dismantled; therefore, emissions from this activity are not quantified.

### Environmental Justice Considerations

Air impacts from Alternative E would be greatly reduced compared to those described for Alternative A; no environmental justice impacts are anticipated.

### **Earth Resources**

#### Navajo Mine

No impacts to topography, soil, geology, or mineral resources within Areas IV North and South are anticipated from mining operations or road construction. However, a slight permanent alteration in topographic relief would occur compared to pre-mining conditions, which would be considered a minor impact.

#### Four Corners Power Plant

No impacts to topography, soil, geology, or mineral resources are anticipated within the FCPP's area or from the dry fly ash ponds.

#### Transmission Lines

No impacts to topography, soil, geology, or mineral resources are anticipated within the current ROWs of the four transmission lines.

### Environmental Justice Considerations

No impacts from noise and vibration would occur to soil productivity from Alternative E; therefore, no environmental justice impacts would occur.

### **Cultural Resources**

#### Navajo Mine

The closure of the Navajo Mine would have no potential effect on cultural resources.

### Four Corners Power Plant

The decommissioning and dismantling of the FCPP could impact historic properties. As potential impacts are identified, OSMRE/BIA will consult with THPO and SHPO and mitigation measures will be identified. Since potential impacts will be mitigated, no impacts would occur (see Section 4.4, Cultural Resources, for additional information).

### Transmission Lines

If the transmission lines are left in place, there would be no impacts to cultural resources. If the transmission lines are dismantled, the ground disturbance activities could impact cultural resources. As potential impacts are identified, OSMRE/BIA will consult with THPO and SHPO and mitigation measures will be identified. Since potential impacts will be mitigated, no impacts would occur (see Section 4.4, Cultural Resources, for additional information).

## **Water Resources/Hydrology**

### Navajo Mine

During demolition activities associated with the Navajo Mine, short-term impacts to near-surface groundwater quality could occur. Impacts to subsurface hydrogeology would be beneficial, and reclamation of mined lands would potentially restore natural groundwater flow. Reclamation of mined lands would potentially restore natural groundwater flow, and surface water drainage and natural stormwater flow. Areas that had been previously mined or altered would be reclaimed in accordance with the Reclamation Plan; therefore, impacts to groundwater and surface water would be beneficial. In addition, reclamation of mined lands would potentially restore natural groundwater flow.

Short-term impacts to surface water quality could occur; however, implementation of all applicable plans would minimize impacts to nearby waters of the U.S. Impacts to both surface water hydrology and water quality would be beneficial. The amount of water available to other users would not change.

### Four Corners Power Plant

If APS decided to shut down and decommission the power plant, water quality in surface water bodies within the deposition area, particularly the San Juan River, would improve at least incrementally, since deposition from FCPP was only one of the sources of deposition into these water bodies. Impacts to groundwater would be as described for the Proposed Action.

### Transmission Lines

If APS decided to shut down and decommission the power plant, short-term impacts to surface water and groundwater quality during decommissioning could occur; however, by complying with all applicable plans and permits, impacts would be negligible.

### Environmental Justice Considerations

Impacts to water resources/hydrology would be either minimal or beneficial; no major impacts to environmental justice would occur under Alternative E.

## **Land Use and Transportation**

### Navajo Mine

Under Alternative E, the three affected dwellings in the Pinabete SMCRA Permit Area would not be relocated and grazing and CUAs would not change. Burnham Road would not be realigned; therefore, no additional noise, dust, and traffic would occur. However, the public benefits to transportation and safety would not be realized. Mine-related traffic would decrease as early as 2016 when Area III would no longer be mined.

### Four Corners Power Plant

Under Alternative E, the FCPP would be dismantled slowly, which would result in an increase in traffic and associated dust, noise, and traffic of heavy machinery. Following the power plant's dismantlement and any associated remediation activities, additional land may be available for grazing, although it is uncertain at this time.

### Transmission Lines

No environmental justice-related impacts would be associated with the transmission lines under Alternative E.

### Environmental Justice Considerations

No impacts to environmental justice would be associated with Alternative E.

## **Socioeconomics**

### Population and Demographics

Under Alternative E, the shutdown of the Navajo Mine and FCPP may result in a population decline, as net immigration to the area may slow causing a reduction in population growth rates.

### Economic Background

Unless and until other economic activities develop to replace the employment and income opportunities at the FCPP and the Navajo Mine, the ROI's economy would become weaker. Further, the environmental justice community of concern would be prevented from developing its tribal trust resources reserved to it under the Treaty of 1868.

### Indicators of Social and Economic Well-Being

Social and economic well-being would also be reduced because of the loss of jobs, which could also exacerbate health issues of Navajo Nation members.

The end of economic and fiscal contributions from the Navajo Mine and FCPP's operations could lead to reductions in education attainment, increased crime and recidivism, and a reduced ability to maintain or upgrade the housing stock. The ability of individuals to obtain healthcare would be negatively impacted as well.

### Navajo Public Services

Under Alternative E, no more tax revenues from the operations and production would be associated with the Navajo Mine and FCPP. This reduction in revenues would negatively impact the quality and quantity of the public services offered on the Navajo Nation.

### Environmental Justice Considerations

- Step 1: Are potential adverse social, economic, or health impacts associated with Alternative E?  
*Yes. Fewer employment opportunities for Navajo Nation members would exist. Social and economic well-being would be reduced leading to weaker overall social conditions. Taxes and royalties paid by the mine and power plant would cease likely leading to a reduction in the level of services provided to Navajo Nation members.*
- Step 2: Would potential adverse impacts disproportionately affect minority or low-income populations based on ROI population and participation in potentially affected activities?

*Yes. The loss of large fiscal contributions made by NTEC and APS to the Navajo Nation government and the associated reduction in public services would disproportionately impact tribe members.*

- Step 3: Are disproportionate adverse impacts major?

*Yes. The decline in revenues to the Navajo Nation government would be expected to exceed \$40.6 million.*

## **Visual Resources**

### Navajo Mine

Under Alternative E, visual quality would be beneficially impacted through the removal of structures related to the Navajo Mine and the reclamation of the land; both of which would improve the scenic quality and the integrity of the landscape.

### Four Corners Power Plant

Under Alternative E, visual quality would be beneficially impacted by the FCPP's shutdown and the removal of all of the related buildings and facilities, which would improve both the scenic quality and integrity of the landscape.

### Transmission Lines

Dismantling and removing the transmission lines would have a highly beneficial impact to the scenic integrity of the landscape character units they cross. Leaving the transmission lines in place would have no impact to the scenic integrity of the landscape units they cross.

### Environmental Justice Considerations

Under Alternative E, no adverse impacts to environmental justice would be associated with visual resources.

## **Noise and Vibration**

### Navajo Mine

Under Alternative E, noise impacts would continue through 2012 until reclamation activities are completed. Following completion of reclamation, no noise impacts would result.

### Four Corners Power Plant

Under Alternative E, upon plant closure no noise impacts would result. Noise impacts would result from the FCPP's dismantlement; however, these activities are undefined and therefore not quantified.

### Transmission Lines

No noise impacts would occur under Alternative E.

### Environmental Justice Concerns

No adverse impacts to environmental justice would be associated with noise and vibrations under Alternative E.

## **Hazardous and Solid Wastes**

### Navajo Mine

Short-term impacts would increase due to removal of ancillary buildings, facilities, and hazardous materials. After removal, impacts from hazardous materials would be reduced to no impact due to the lack of on-site storage of hazardous materials.

Potential impacts from historical placement of CCR would remain after Navajo Mine closure. Implementation of closure and post-closure management plans would decrease these potential impacts.

### Four Corners Power Plant

Impacts to hazardous waste and solid waste would be short-term and predominately associated with disposal of demolition materials. Permanent hazards would be associated with the management of existing ash disposal units; however, these permanent hazards would be reduced through the implementation of a closure plan.

### Transmission Lines

Any potential impacts for hazardous and solid waste would be associated with decommissioning and dismantling activities. These impacts would be expected to be minor to negligible and short term.

### Environmental Justice Considerations

Impacts to environmental justice from hazardous wastes associated with Alternative E would not be major.

## **Recreation**

Under Alternative E, mining would cease at the expiration of the SMCRA permit, the Navajo Mine would close, and the previously mined areas would be reclaimed.

### Navajo Mine

The post-reclamation land use under Alternative E would be comparable to the post-reclamation land use under the Proposed Action, although it would occur sooner under Alternative E. No access restrictions would inhibit dispersed recreation within the ROI, and indirect impacts to scenic beauty from designated recreation areas would not occur.

### Four Corners Power Plant

Shut down and decommissioning of the power plant would be a beneficial impact by improving the scenic beauty in the ROI. However, the potential elimination of water to Morgan Lake would have a major, permanent impact to recreational resources in the ROI.

### Transmission Lines

If transmission lines were left in place, the recreational setting would not change from the existing condition. If the transmission lines were dismantled, moderate beneficial impacts would occur from improving the scenic beauty in the ROI. Currently, no decommissioning plan exists.

### Environmental Justice Considerations

No adverse impacts to environmental justice would be associated with recreation under Alternative E.

## **Health and Safety**

### Navajo Mine

Mining activities that require health and safety programs would no longer be performed after closing the mine, thereby contributing a negligible improvement of long-term public health and safety.

### Four Corners Power Plant

If APS decided to shut down and decommission the power plant, short-term impacts to worker safety and public health during decommissioning would be the same as the Proposed Action. The potential long-term impact would be beneficial because operational activities that could contribute to worker safety or public health issues would not occur.

### Transmission Lines

No impact would occur to worker safety or public health under Alternative E.

### Environmental Justice Considerations

No adverse impacts to environmental justice would be associated with health and safety under Alternative E.

## **Biological Resources**

### Navajo Mine

Under Alternative E, existing mining areas would be reclaimed and no additional impacts to wildlife, habitat, or vegetation would occur.

### Four Corners Power Plant

Under Alternative E, no impacts to wildlife, habitat, and vegetation would occur.

### Transmission Lines

Impacts to wildlife would occur as described in Alternative A, until transmission lines are dismantled.

### Environmental Justice Considerations

No adverse impacts to environmental justice would be associated with biological resources under Alternative E.

#### **4.11.6.6 Summary of Environmental Justice Considerations Relative to Baseline Conditions**

Table 4.11-2 summarizes the impacts to environmental justice that would arise from various resource areas analyzed in association with the action alternatives and the No Action Alternative. Impacts to environmental justice are essentially the same for each action alternative. Major adverse impacts to environmental justice were identified in relation to Hazardous and Solid Wastes under Alternative A and in relation to Socioeconomics under Alternative E.

#### **4.11.7 Environmental Justice Mitigation Measures**

The Proposed Action, including the continuing operations of Navajo Mine, FCPP, and the transmission lines, would not result in major adverse impacts that would disproportionately affect low-income or minority populations. Therefore, no additional mitigation beyond that already recommended for identified adverse impacts in specific resource areas is recommended.

**Table 4.11-2 Summary of Environmental Justice Impacts**

<b>Resource Area</b>	<b>No Action</b>	<b>Action Alternatives Alternative A</b>	<b>Action Alternatives Alternative B</b>	<b>Action Alternatives Alternative C</b>	<b>Action Alternatives Alternative D</b>
Air Quality	Minor impacts	Minor impacts	Minor impacts	Minor impacts	Minor impacts
Earth Resources	No Impact	Disproportionate impacts related to reduced soil productivity, which would be improved as a result of reclamation – not major	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A
Cultural Resources	No Impact	No Impact	No Impact	No Impact	No Impact
Water Resources/Hydrology	Minor impacts	Minor impacts to surface water quality and stock ponds	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A
Land Use	No impacts	Minor impacts due to relocation, increases in traffic, and restricted grazing areas	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A
Socioeconomics	Adverse, Major	No disproportionate impact	No disproportionate impact	No disproportionate impact	No disproportionate impact
Visual Resources	No adverse impacts	Major adverse impacts to scenic integrity that would be reduced to minor following reclamation	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A
Noise and Vibration	No adverse impacts	Long-term and minor adverse impact, but no harm to health or environment of nearby residents	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A
Hazardous and Solid Wastes	Minor impacts	Minor potential impacts on tribal land	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative A
Recreation	No adverse impacts	Minor impacts	Similar impacts as identified under Alternative A	Similar impacts as identified under Alternative B	Similar impacts as identified under Alternative A

<b>Resource Area</b>	<b>No Action</b>	<b>Action Alternatives Alternative A</b>	<b>Action Alternatives Alternative B</b>	<b>Action Alternatives Alternative C</b>	<b>Action Alternatives Alternative D</b>
Health and Safety	No adverse impacts	Minor impacts	Minor impacts	Minor impacts	Minor impacts
Biological Resources	No adverse impacts	Minor impacts	Minor impacts	Minor impacts	Minor impacts

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