4.15 Hazardous and Solid Wastes

This section discusses the use, storage, disposal, and transportation of hazardous materials and hazardous wastes associated with the proposed Project. It also discusses the construction of new DFADAs at the FCPP. The section describes the procedures and programs in place, which when implemented properly ensure that hazardous materials and hazardous wastes are safely handled. Also included are emergency response procedures and levels of preparedness for each facility in the event of a spill or release. Accidental releases of materials and wastes are also discussed in this section including the capability to respond to an accidental release. The ROI for this section is the footprint of the Navajo Mine SMCRA Permit Area and the Pinabete SMCRA Permit Area, the FCPP including a 7.5-mile radius, and the transmission lines plus a 1/2-mile perimeter boundary.

This section also includes a discussion of CCRs, which currently are regulated as solid waste under the Final Rule published by EPA on December 19, 2014 (40 CFR Parts 257 and 261). Since the disposal of CCR has been a feature of the operations of the FCPP and Navajo Mine, a detailed description of the issues is included in a distinct subsection (Section 4.15.1.2), which provides a background for understanding subsequent discussions of CCR.

4.15.1 Regulatory Compliance Framework

4.15.1.1 Federal Regulations

Solid Waste Disposal Act/Resource Conservation and Recovery Act (42 USC §6901 et seq)

RCRA is a Federal program established to regulate solid and hazardous waste management. RCRA amends earlier legislation (the Solid Waste Disposal Act of 1965), but the amendments were so comprehensive that the act is commonly called RCRA rather than the Solid Waste Disposal Act. RCRA defines solid and hazardous waste; authorizes EPA to set standards applicable to the owners and operators of hazardous waste treatment, storage and disposal facilities; for hazardous waste generators and transporters, establishes a permit program for hazardous waste treatment, storage, and disposal facilities; and authorizes EPA to set criteria for disposal facilities that accept municipal solid waste and other solid waste. RCRA was last reauthorized by the Hazardous and Solid Waste Amendments of 1984. The amendments set deadlines for permit issuance, prohibited the land disposal of many types of hazardous waste without prior treatment or a demonstration that land disposal will not result in hazardous waste migration,, and established a new program regulating underground storage tanks. 40 CFR Part 260 contains the regulations promulgated by the EPA to implement the requirements of RCRA as described above. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

Asbestos Hazard Emergency Response Act (15 USC Part 52) and Clean Air Act (42 USC § 7401 et seq)

The Asbestos Hazard Emergency Response Act provides a classification system for asbestos-containing materials and specifies training requirements for workers in contact with asbestos. The CAA establishes requirements for removal of asbestos-containing materials.

Toxic Substances Control Act (15 USC §2601-2692)

This act includes requirements for the storage, use, cleanup, and disposal of PCB-containing materials.

Spill Prevention, Control, and Countermeasure Rule (40 CFR Part 112)

The SPCC rule includes requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC Plans. The SPCC rule is part of the Oil Pollution Prevention regulation, which also includes the Facility Response Plan rule. Large enough quantities of oil are stored at the Navajo Mine and FCPP that both facilities have a SPCC Plan.

Risk Management Program

Under the authority of CAA Section 112(r), the Chemical Accident Prevention Provisions require facilities that produce, handle, process, distribute, or store certain chemicals to develop a Risk Management Program, prepare a Risk Management Plan, and submit the plan to EPA. Applicable facilities were initially required to comply with the rule in 1999, and the rule has been amended on several occasions since then, most recently in 2004. One of the listed chemicals covered under the Risk Management Program, liquid ammonia, was considered for use at the FCPP as part of the proposed SCR system, but was not ultimately selected.

Emergency Planning and Community Right-to-Know Act (42 USC § 11001 et seq)

The Emergency Planning and Community Right-to-Know Act (EPCRA) establishes requirements for Federal, state, and local governments, Indian tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The EPCRA provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. Under EPCRA and 40 CFR Parts 350-372, tribes can establish tribal emergency response commissions, which are responsible for coordinating certain emergency response activities and can appoint tribal emergency planning committees.

Local emergency planning requirements, Section 302, require any facility that has any of the chemicals listed on the extremely hazardous substances list at 40 CFR Part 355 at or above its threshold planning quantity must notify the Tribal Emergency Response Commission within 60 days after they first receive a shipment or produce the substance on site.

Emergency notification requirements, Section 304, require facilities to notify the Tribal Emergency Response Commission if there is a release into the environment of a hazardous substance that is equal to or exceeds the minimum reportable quantity set in the regulations. This requirement covers the 355 extremely hazardous substances, as well as the more than 700 hazardous substances subject to the emergency notification requirements under Comprehensive Environmental Response, Compensation, and Liability Act Section 103(a)(40 CFR § 302.4).

Hazardous chemical storage reporting requirements, Section 311, require facilities that have chemicals held above certain threshold quantities to send a list of these chemicals to the Tribal Emergency Response Commission. APS uses and stores chemicals on-site at the FCPP in threshold quantities that trigger EPCRA reporting. No chemicals are stored or used at the Navajo Mine or for maintenance and operation of the subject the transmission lines in threshold quantities that trigger reporting.

Toxic chemical release inventory, Section 313, requires EPA and the states to collect data annually on releases and transfers of certain toxic chemicals from industrial facilities and to make the data available to the public in the TRI. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment. The TRI is a publicly accessible EPA database containing information on the disposal and other releases of over 650 toxic chemicals from more than 20,000 industrial facilities in the United States. TRI was established in 1986 by Section 313 of the EPCRA and later expanded by the Pollution Prevention Act of 1990. Facilities are required to submit data that meets TRI reporting criteria annually. One of the reporting categories is *on-site disposal to land*.

A facility must report the volume of toxic chemicals as defined by EPA that has been disposed of via land disposal at their facility in any given year. The information is available online on the TRI website.

EPA has finalized a rule that provides tribal governments with more opportunities to fully participate in the TRI Program. This final rule primarily revisits EPA's July 26, 1990, action (55 Federal Register 30632), which required facilities located on tribal lands to report to the appropriate tribal government official (as designated by the tribe) and EPA, instead of to the state and EPA.

Under this rule, facilities meeting TRI reporting requirements and located on tribal lands are required to submit TRI reports to EPA and the appropriate tribe, rather than to the state in which the facility is geographically located. The final rule also clarifies that a tribal chairperson or equivalent elected official has equivalent opportunities to a state governor to petition EPA to request (1) that individual facilities located on their lands be added to TRI, and (2) that a particular chemical(s) be added to or deleted from the TRI chemical list. EPA determines whether to add a facility or add/delete a chemical to the TRI Program.

EPA's action is part of its ongoing efforts to increase tribal participation in the TRI Program and improve access to information on toxic chemical releases that affect the local communities on tribal lands. Through this final rule, EPA provides tribal governments with the right to directly receive release reporting information from facilities located on tribal lands and also explicitly clarifies the rights of tribal leaders to take an active role in the TRI Program through petitions to modify the toxic chemical list or requests to add a facility within their lands to TRI (EPA 2012j).

U.S. Department of Justice, Bureau of Alcohol, Tobacco, and Firearms, and Explosives Regulations (27 CFR, Part 55 Subpart K)

These regulations include storage requirements to ensure the safe storage of explosives and the prevention of accidental explosions.

4.15.1.2 Coal Combustion Residuals

The EPA published the Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014. The final rule regulates CCR as a RCRA Subtitle D solid waste. FCPP is required to comply with EPA's Final Rule, which provides specific deadlines for compliance. EPA issued minimum national criteria, including requirements for composite liners, groundwater monitoring, structural stability requirements, corrective action, and closure/post-closure care. The final rule addresses the risks from structural failures of CCR surface impoundments, groundwater contamination from the improper management of CCR in landfills and surface impoundments, and fugitive dust emissions. The rule includes location restrictions and requirements for liner design criteria; impoundment structural integrity; operating criteria regarding air, run-on, run-off, hydrologic and hydraulic capacity, surface impoundments, and inspections; groundwater monitoring and corrective action; closure and post-closure requirements; and record keeping, notifications, and posting on publicly accessible internet sites.

The rule has also been designed to provide electric utilities and independent power producers generating CCR with a practical approach for implementation of the requirements and has established implementation timelines that take into account, among other things, other upcoming regulatory actions affecting electric utilities and site specific practical realities. In order to ease implementation of the regulatory requirements for CCR units with state programs, EPA is also providing the opportunity for states to secure approval of its CCR program through the State Solid Waste Management Program.

When coal is burned as a fuel source, the solid by-products of the process are different types of ash collectively known as CCR, coal combustion residue, or in the mining industry, they are collectively known as coal combustion by-product (CCBs). This EIS consistently refers to them as CCRs. The types of CCRs that are generated at the FCPP are fly ash, bottom ash, and FGD materials (predominantly calcium sulfate compounds):

- Fly ash is a product of burning finely ground coal in a boiler to produce electricity. Fly ash is removed from the exhaust gases primarily by electrostatic precipitators or baghouses and secondarily by wet scrubber systems.
- Bottom ash is composed of agglomerated coal ash particles that are too large to be carried in the flue gas. Bottom ash is formed in pulverized coal furnaces and is collected by impinging on the furnace walls or falling through open grates to an ash hopper at the bottom of the furnace.
- FGD material is produced through a process used to reduce sulfur dioxide emissions from the exhaust gas system of a coal-fired boiler. The physical nature of these materials varies from a wet sludge to a dry powdered material, depending on the process.

In addition, prior to burning, coal contains various metals and other contaminants. When coal is burned, these elements are concentrated in the ash that remains.

CCR can be either wet or dry. The wet material can either be generated wet, such as FGD, or generated dry and water is then added to the dry material to transport or “sluice” the material through pipes to a surface impoundment or “pond.” In dry systems, CCR is transported in its dry form to landfills for disposal.

CCR can either be disposed of as waste, or it may be used in some capacity commonly referred to as beneficial use. The EPA encourages beneficial use of CCR rather than disposal. Examples of beneficial use are as a component in concrete, cement, gypsum wallboard, or as structural or embankment fill. Depending on market conditions and other cost factors, approximately 20 percent of the CCR from the FCPP is transported off-site as a beneficial use while the remaining CCR is disposed of in the on-site dry ash landfills (Ash Ponds 1 and 2 have been out of service since 1976 and Ash Ponds 3 and 6 are inactive). Prior to 2008, some of the CCR generated at the FCPP was transferred to and used at the Navajo Mine SMCRA Permit Area for mine backfill.

The two primary concerns related to disposal of CCR have to do with how it is stored after disposal. The first issue is the storage of wet CCR in ponds or impoundments. The wet coal ash is contained by earthen dams, and a breach or failure of the impoundment dam could result in a release of the wet CCR, which has environmental and public safety implications downstream of the release. An earthen dam contains the CCR impoundment at the FCPP and is regulated by the New Mexico Office of the State Engineer, Dam Safety Bureau.

The second concern is related to the metals and other compounds found in CCR. These metals are potentially toxic and have the potential to leach into the groundwater. Two factors increase this leaching risk from disposal units: the use of wet surface impoundments instead of dry landfills, and unlined disposal units have a higher risk of leaching than do disposal units with composite liners to prevent leaking and leaching.

Regulatory History of Coal Combustion Residue

By far the largest waste stream currently generated and disposed of at the FCPP and in the past within the Navajo Mine SMCRA Permit Area is CCR. To appreciate the issues surrounding CCR disposal at the FCPP and in the past at the Navajo Mine, it is worthwhile to go through a brief overview of the long and sometimes complex history behind the current and proposed future regulations for disposal of CCRs.

The disposal of CCR has been controversial for many years, beginning as early as 1978 when the EPA first proposed hazardous waste management regulations. At that time, the EPA excluded the regulation of CCR from its final hazardous waste regulations until data regarding the materials’ potential hazard to

human health or the environment could be analyzed; this is known as the Bevill Exclusion. After performing a study on the potential for CCR to cause adverse effects to human health and the environment, the EPA published the required regulatory determinations, one in 1993 and one in 2000 (EPA 1993; EPA 2000) and both times continued to exempt CCR from being regulated as a hazardous waste. However, in the 2000 determination (EPA 2000), EPA stated that national regulations under Subtitle D were needed for CCR disposal in landfills and surface impoundments because of new data about the potential risks to human health and the environment (EPA 2010a) and because of EPA's concerns about the adequacy of state regulatory programs (DOE and EPA 2006).

In 2008, in response to an ash dike rupture at a coal ash impoundment at the Tennessee Valley Authority's facility in Kingston, Tennessee, the EPA reexamined its previous determination that CCR should not be regulated as a hazardous waste. The EPA cited findings and analyses from a revised risk assessment and an updated documentation of damages from CCR management practices and ultimately proposed to list the material as a hazardous waste (EPA 2009a). The final draft proposal, published on June 21, 2010 (EPA 2010b), proposed two regulatory options for consideration. Under the first option, EPA would draw on its existing authority to list a waste as hazardous and regulate it. The second option would keep the Subtitle C exclusion in place, but would establish national criteria applicable to landfills and surface impoundments under RCRA's Subtitle D nonhazardous solid waste requirements (EPA 2010b).

In October 2012, the EPA announced that the final rule would be delayed due to new data and the subsequent need to complete revisions of toxicity characteristics and toxicity characteristic leaching procedures (EPA Test Method 1311 – Toxicity Characteristic Leaching Procedure). The EPA considered a new series of tests that would replace existing leaching testing; the new methods are known as the Leaching Environmental Assessment Framework (Kosson 2011).

On December 19, 2014, the EPA issued the Final Rule on Hazardous and Solid Waste Management Systems; Disposal of Coal Combustion Residuals from Electric Utilities. The rule regulates the disposal of CCR as solid waste under Subtitle D of RCRA, not as a hazardous waste under Subtitle C of RCRA. The rule applies to existing and new CCR landfills and existing and new CCR surface impoundments and all lateral expansions. The rule includes location restrictions, design and operating criteria, groundwater monitoring and corrective action, closure requirements and post-closure care, and recordkeeping, notification, and internet posting requirements. The rule requires any existing unlined CCR surface impoundment that is contaminating groundwater above a regulated constituent's groundwater protection standard to stop receiving CCR and either retrofit or close, except in limited circumstances. It also requires the closure of any CCR landfill or CCR surface impoundment that cannot meet the applicable performance criteria for location restrictions or structural integrity. Finally, those CCR surface impoundments that do not receive CCR after the effective date of the rule, but still contain water and CCR will be subject to all applicable regulatory requirements, unless the owner or operator of the facility dewaters and installs a final cover system on these inactive units no later than 3 years from publication of the rule. EPA deferred its final decision on the Bevill Regulatory Determination because of regulatory and technical uncertainties that cannot be resolved at this time.

The rule becomes effective 6 months after the publication date, and establishes timeframes for certain technical criteria based on the amount of time determined to be necessary to implement the requirements (e.g., installing the groundwater monitoring wells and establishing the groundwater monitoring program), extending to 42 months in some cases. In establishing these timeframes, EPA accounted for other Agency rulemakings that are anticipated to also affect the owners or operators of CCR units, including the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (78 Federal Register 34432; proposed rule issued June 7, 2013) and the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (79 Federal Register 34830; proposed rule issued June 18, 2014). Specifically, EPA developed implementation timeframes that would ensure that owners or operators of CCR units would not be required to make decisions about those CCR units without first understanding the implications that such decisions would have for meeting the

requirements of all applicable EPA rules. Thus, under the final timeframes in this rule, any such decision will not have to be made by the owner or operator of a CCR unit until well after the Effluent Limitations Guidelines rule is final and the regulatory requirements are well understood. EPA's approach is consistent with Executive Order 13563, Improving Regulation and Regulatory Review, issued on January 18, 2011, which emphasizes that some ''sectors and industries face a significant number of regulatory requirements, some of which may be redundant, inconsistent, or overlapping,'' and it directs agencies to promote ''coordination, simplification, and harmonization.'' EPA's goal is to ensure that the two rules work together to effectively address the discharge of pollutants from steam electric generating facilities and the human health and environmental risks associated with the disposal of CCRs, without creating avoidable or unnecessary burdens.

The rule is designed to be self-implementing, meaning that the requirements were such that facilities could comply with the regulatory requirements without the need to interact with a regulatory authority. The rule would apply on tribal lands. 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.

The earliest date that a CCR surface impoundment may be triggered into a retrofit or closure decision is approximately February 2017 (the exact date would be 24 months following publication of this final rule), which would apply to a CCR surface impoundment that fails to achieve minimum safety factors for the CCR unit. This is due to the fact that the owner or operator must complete the initial safety factor assessment within 18 months of the publication of this rule plus an additional 6 months to initiate closure of the CCR unit if the minimum factors or safety are not achieved. The Effluent Limitations Guidelines rule is scheduled to be finalized in September 2015 and its effective date is 60 days following its publication. Thus, there is ample time for the owners and operators of CCR units to understand the requirements of both regulations and to make the appropriate business decisions.

Owing to the timeframe for implementing the CCR rule, as well as the agency's intent to harmonize compliance between the CCR and Effluent Limitations Guidelines rules, it is speculative at this point to specify the changes that APS may make to their ash storage facilities. For each resource category for which protective measures are proposed, the EIS includes a description of the requirements and their applicability to that resource category.

Mine Disposal of Coal Combustion Residue

As with the disposal of CCR in surface impoundments and landfills, placement of CCR in mines (called CCB by the mining industry) has been somewhat controversial. Although SMCRA requirements are not specific to the unique nature of CCRs, the placement of CCR is covered under SMCRA requirements. Recently, efforts have addressed this and other discrepancies, and EPA and OSMRE have held meetings to collect and analyze technical and regulatory information related to mine filling of CCR. The National Academy of Sciences issued a report on the placement of CCRs in coal mines (National Research Council 2006). The National Research Council recommends that OSMRE take the lead in developing standards under SMCRA. EPA is working with OSMRE as they amend the SMCRA regulations to better address mine filling in active coal mines. Specific study of the placement of CCR in Navajo Mine has not identified adverse impacts, and is summarized in Section 4.5.2.1.

Regulation of Coal Combustion Residue at the FCPP

CCR is regulated under RCRA Subtitle D, which establishes a framework for Federal, state, and local government cooperation in controlling the management of nonhazardous solid waste. The Federal role in this arrangement is to establish the overall regulatory direction, by providing minimum nationwide standards for protecting human health and the environment, and for providing technical assistance to

states for planning and developing their own environmentally sound waste management practices. The actual planning and direct implementation of solid waste, however, remains a state and local function, meaning the EPA has a minor role in the planning and direct implementation of solid waste programs under RCRA Subtitle D. RCRA requires EPA to establish guidelines for state solid waste plans and criteria for the operation of solid waste landfills but does not specifically establish a Federal solid waste permit program in the absence of a state program.

CCR at FCPP will be managed as a solid waste according to the December 19, 2014 EPA Final Rule on Disposal of Coal Combustion Residuals from Electric Utilities. As stated above, EPA developed implementation timeframes that would ensure that owners or operators of CCR units would not be required to make decisions about CCR units without first understanding the implications that such decisions have for meeting the requirements of all applicable EPA rules. FCPP will develop the specific approach to CCR management according to prescribed timelines, addressing such regulatory issues as the risks from structural failures of CCR surface impoundments; groundwater contamination from the improper management of CCR in landfills and surface impoundments; fugitive dust emissions; location restrictions; requirements for liner design criteria; impoundment structural integrity; operating criteria regarding air, run-on, run-off, hydrologic and hydraulic capacity, surface impoundments, and inspections; groundwater monitoring and corrective action; closure and post closure requirements; and record keeping and public notifications.

The FCPP will comply with requirements of EPA's Final CCR Rule, including requirements for waste characterization, groundwater monitoring, leachate collection systems, agency inspections, and closure requirements specific to the ash disposal sites. APS does voluntarily monitor groundwater throughout the DFADAs, and has not identified adverse impacts (Section 4.5.4.1). Through the Title V Air Permit, APS is required to and does have a Dust Control Management Plan, which includes the ash disposal sites. New Mexico State Dam Safety regulates the dam for the ash impoundment, which they periodically inspect.

Regulation of Coal Combustion Residue at Navajo Mine

Historic placement of CCR at the Navajo Mine SMCRA Permit Area from Units 4 and 5 (between 1971 and 2008) was permitted under the Navajo Mine SMRCA permit and regulated by OSMRE and was implemented subject to specific performance standards. Disposal of CCR from FCPP ceased in 2008 and there is currently no CCR placement at the Navajo Mine SMCRA Permit, nor is there any planned CCR placement in these areas. Specific studies of the nature of CCR at the Navajo Mine have not identified adverse impacts, and are summarized in Section 4.5.2.1.

4.15.2 Affected Environment Pre-2014

4.15.2.1 Navajo Mine

Hazardous Materials

The types and quantities of hazardous materials stored on the Navajo Mine SMCRA Permit Area are minor, and they are below the levels that require reporting under the EPCRA Section 313 (BNCC 2012h).

Programs are in place at the Navajo Mine that address hazardous materials storage locations, emergency response procedures, employee training requirements, fire safety, first-aid/emergency medical procedures, and hazardous materials release containment control procedures (BNCC 2011d, 2012h; OSMRE 2012a).

The purpose of these programs is to ensure proper management of these materials and to specify how personnel would respond to any unplanned release of hazardous materials to the air, soil, or surface water. This response includes notifying the proper authorities of the release, controlling and cleaning up the release, and reclaiming the environment as required. A table with a list of plans that address

hazardous materials handling and the health and safety aspects of hazardous materials and waste is included in Section 4.17, Human Health and Safety.

NTEC has a SPCC Plan for Navajo Mine. The objectives of the SPCC Plan are to prevent the discharge of oil products and to perform safe, efficient, and timely response in the event of a spill or leak. The SPCC Plan covers all facilities that could reasonably be expected to discharge oil into, or upon, navigable waters. The majority of oil used at the Navajo Mine is stored at the Navajo North Industrial Complex and the Area III Industrial Facility. Petroleum storage tanks larger than 55 gallons have concrete secondary containment structures that are designed to handle 110 percent of the storage volume plus the precipitation volume of a 25-year/24-hour storm event occurring within the containment structure. Secondary containment is not provided for mobile refueling vehicles in areas where NTEC staff are present, and the maximum amount of time before a discharge would be detected is less than 24 hours. NTEC staff monitors and inspects the oil tanks, piping, and appurtenances and associated secondary containment structures. If the secondary containment structures need to be drained, the contents are transferred to used oils storage tanks or temporary storage containers for proper handling and disposal (BNCC 2012i).

Waste Material

The types of wastes NTEC produces can generally be categorized into three different waste types: hazardous waste (including universal waste), special waste, and recyclable materials/nonhazardous waste. All wastes and materials are inventoried and managed according to their types, regulatory requirements, and disposal. The only treatment that takes place on site is the bioremediation of petroleum-contaminated soils (BNCC 2012i).

NTEC operates a waste storage facility at the Area III Industrial Complex for the temporary storage of wastes before they are transported off-site. Nonhazardous wastes are stored in dumpsters at designated areas around the mine site and transported by a third-party contractor to San Juan County Regional Landfill or other permitted solid waste landfill for disposal. Hazardous and universal wastes (e.g., aerosols, antifreeze, paint and related materials, and batteries) and special wastes (e.g., absorbents, rubber hoses, used oil filters, and railroad ties) are accumulated, managed, and disposed of in accordance with applicable EPA and U.S. Department of Transportation regulations (BNCC 2012i).

Explosives and Ammonium Nitrate and Fuel Oil Storage

Explosives and ANFO are stored in specially designed facilities within the Navajo Mine SMCRA Permit Area. Explosives (e.g., primers, blasting cords, delays, boosters) are stored in a facility built in accordance with U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms, and Explosives regulations (27 CFR Subpart K). A typical ANFO facility has ammonium nitrate silos, diesel fuel storage tanks, and silos for emulsion blasting products. Both the explosive and ANFO storage facilities are designed with proper drainage and sedimentation control to minimize surface runoff from leaving the facility and entering the waterways (BNCC 2012h).

Historic Coal Combustion Residue Disposal

The Navajo Mine SMRCA Permit provided performance standards for placement of CCRs, which were used as partial mine backfill between 1971 and 2008. The performance standards required physically characterizing the ash, covering the ash with 3 meters of spoil, prohibiting ash placement beneath large drainages, and performing required reclamation on the affected areas, including installing erosion control measures and returning the land to the pre-mine topographic relief. The precautionary measures were designed to prevent the ash from being exposed on the ground and to prevent plant roots and surface water from directly coming into contact with the buried ash. Due to the arid environment of northwestern New Mexico and the absence of any significant groundwater, CCR placement was in dry pits and ramps.

Surface cover above the mine backfill areas was designed with positive drainage away from the CCR placement locations and to avoid any puddling, sheet flow, or other collection of water above or adjacent

to these areas. This design specification has kept most of the permanent program and interim mine backfill areas unsaturated, which can be verified from the monitoring well data. In addition, all post-mining drainages that intersected a mine backfill area were modified to flow across the mine backfill area at approximately right angles to the long axis of the disposal site to minimize potential infiltration of surface waters into the ash. This design specification limits the amount of contact time that running water has with the surface over ash-deposit reclaimed areas.

NTEC monitors a suite of groundwater wells in a historic, pre-SMRCA CCR placement area (Bitsui and Watson pits) that has become water-saturated due to NAPI activity adjacent to the area. It is important to note that placement of CCRs in this area occurred not only prior to SMCRA but prior to NAPI activities. The influence of NAPI activity in the area has raised groundwater tables and increased surface water movement contributing to the saturation level of the buried CCRs. Groundwater monitoring data of all the mine backfill areas are discussed in Section 4.5.2.1.

Prior to SMCRA, groundwater sampling and analysis was not required; therefore, there are no data available for the historical mine backfill areas. As part of EPA's TRI Program, BNCC was required to self-report releases to land (NTEC will be required to self-report releases in the future). The TRI is a publicly-accessible EPA database containing information on the disposal and other releases of over 650 toxic chemicals from more than 20,000 industrial facilities in the United States. Table 4.15-1 includes the TRI Chemicals as defined by EPA reported by BNCC as on-site land disposal releases. Based on the report, a mass balance calculation was used by BNCC to derive the volumes listed in the table.

Table 4.15-1 Navajo Mine On-site Land Disposal Releases of Toxic Release Inventory Chemicals excluding Dioxin and Dioxin-like Compounds (Measured in Pounds)

Compound	2008	2007	2006	2005	2004	2003	2002
Arsenic	NR	NR	NR	NR	NR	8,500	7,100
Barium	9,197	937,940	1,012,638	1,078,881	975,787	1,300,000	1,100,000
Beryllium	NR	10,006	10,791	11,478	10,340	14,000	12,000
Chromium	NR	43,240	45,792	47,874	44,936	57,000	49,000
Cobalt	NR	12,312	13,237	13,728	12,877	18,000	15,000
Copper	NR	82,861	89,481	95,102	79,771	108,000	89,000
Lead	670	70,337	75,811	80,667	73,560	100,000	83,000
Manganese	NR	142,311	153,095	162,054	152,551	206,000	170,000
Mercury	NR	257	265	309	315	490	410
Nickel	NR	36,791	38,216	39,630	37,627	45,000	40,000
Selenium	NR	7,953	8,820	11,757	10,553	15,000	12,000
Vanadium	NR	123,697	133,601	142,214	135,142	180,000	150,000
Zinc	NR	59,332	63,859	68,161	61,143	84,000	69,000
Thallium	NR	5,835	10,189	10,428	9,344	12,000	9,500
Totals	**9,867**	**1,532,872**	**1,655,795**	**1,762,283**	**1,603,946**	**2,147,990**	**1,806,010**

Source: USEPA 2012a.

Note:

NR = Not Reported

4.15.2.2 FCPP

The discussion of the FCPP use and storage of hazardous materials includes data with all of the five units operating. APS shut down Units 1 through 3 on December 30, 2013 in compliance with the EPA FIP that specifies BART for the power plant. As such, the volumes of hazardous materials for the cumulative total for 25 years of future operations would decrease, as the continued operations of FCPP was reduced to only Units 4 and 5.

Hazardous Materials

Programs are in place at the FCPP that address hazardous materials storage locations, emergency response procedures, employee training requirements, fire safety, first-aid/emergency medical procedures, and hazardous materials release containment control procedures (APS 2012d).

For chemical spills and emergencies, the FCPP response procedures are outlined in the Station Fire/Emergency Contingency Plan (APS 2012d). Small spills are fully managed by FCPP employees. If spills are larger or have significant risk, the FCPP would contract with cleanup vendors for spill cleanup. As described in the Station Fire/Emergency Contingency Plan, the on-shift fire crew chief in charge of the incident would determine whether additional offsite support is required. Oil spill contingency and cleanup procedures are outlined in a site-specific SPCC Plan. Procedures for proper handling of hazardous materials and wastes are detailed in Section 4.17, Health and Safety.

Table 4.15-2 is a list of the hazardous materials stored at the FCPP. Although many of the materials are stored in a central warehouse, others are staged at various locations throughout the FCPP in smaller quantities for use.

Table 4.15-2 FCPP Hazardous Materials Inventory

Chemical	Container Types	Max Quantity On Site (pounds)
Abrasives-Ferric Oxide/Silica Amorphous Hydrated and Coal Slag	Silos, steel drums and bags	10,000 to 99,999
Acrylate CoPolymer, AS 7320	Aboveground tank and tote bin	10,000 to 99,999
Aliphatic and Paraffinic Hydrocarbon Solvent	Bag, silo, tank wagon	10,000 to 99,999
Aluminum Oxide	Tank inside building, steel drum	10,000 to 99,999
Anion Exchange Resin DOW 550A	Tank inside building, fiber drum	10,000 to 99,999
Aqua Ammonia	Aboveground tank, tank inside building, plastic or metallic drum	10,000 to 99,999
Asbestos	Bag, other	10,000 to 49,999
Calcium Hydroxide	Aboveground tank, tank inside building, tank wagon	10,000 to 49,999
Calcium Hypochlorite	Plastic or metallic drum	10,000 to 99,999
Calcium Oxide	Silo, tank wagon	10,000 to 49,999
Calcium Silicate, Mineral Wool (fiberglass)	Bag, box, other	1,000,000 to 9,999,999
Cation Exchange Resin DOW 650C	Tank inside building, fiber drum	1,000,000 to 9,999,999
Cement-Based Concrete	Bag	10,000 to 99,999
Coal and Coal Dust	Silo, other	10,000,000 to 99,999,999
Coal Bottom Ash	Silo, other	1 billion+
Coal Fly Ash and Cenospheres	Silo, tank wagon, other	1 billion+

Chemical	Container Types	Max Quantity On Site (pounds)
De-Icer Compound	Bag, other	100,000 to 999,999
Di-Ammonia and Tetra-Ammonium EDTA	Bag, tank wagon	10,000 to 99,999
Dielectric Oil	Steel drum, other	1,000,000 to 9,999,999
Diesel Fuel No. 1 and 2	Aboveground tank, tank wagon, can	100,000 to 999,999
DMC 550 Road Stabilizer and Dust Suppressant	Tote bin	100,000 to 999,999
Emulsified Sulphur 70%	Aboveground tank, tank wagon	10,000 to 99,999
Gasoline (Note: an EHS)	Aboveground tank, can	10,000 to 99,999
Gear Oil	Tote bin, plastic bottle or jug	10,000 to 99,999
High Temp Lubricant Almasol 1250	Can	10,000 to 99,999
Hydrazine Solution 35% (Note: an EHS)	Tank inside building, tote bin	10,000 to 99,999
Hydrochloric Acid	Tank wagon, tote bin, metallic or plastic drum	10,000 to 99,999
Hydrogen Compressed	Aboveground tank, tank wagon, other	1,000 to 9,999
Isoparafinic Petroleum Distillate Flocculent	Tote bin	10,000 to 99,999
Sulfuric Acid 25%	Aboveground tank, tank inside building, plastic or metallic drum	10,000 to 99,999
Linear Alkyl Sulfonate (Dustreat DC6109)	Aboveground tank	10,000 to 99,999
Liquid Cationic Polymer (AS-222)	Aboveground tank, tank inside building, tank wagon	10,000 to 99,999
Lubrication Grease (Dynalite L-LEP-No. 2)	Cans	10,000 to 99,999
Magnesium Oxide	Silo, tank wagon	100,000 to 999,999
Organophosphoric Acid Corrosion Inhibitor	Tote bins, plastic drums	10,000 to 99,999
Propane	Aboveground tank	1,000 to 9,999
Refractory Cements	Bags	10,000 to 99,999
Silica Sand, Crystalline Silica	Aboveground tank, bags	10,000 to 99,999
Sodium Hydroxide	Aboveground tank, tank inside building, plastic or metallic drum	100,000 to 999,999
Sulfur Hexafluoride	Cylinder, other	10,000 to 99,999
Sulfuric Acid – 93% (Note: an EHS)	Aboveground tanks, plastic drums	100,000 to 999,999
SURTAC 2000 Lubrication Oil	Tanks, tote bins, tank wagon	10,000 to 99,999
Turbine Lubrication Oil	Aboveground tank, tank inside building, tote bin	100,000 to 999,999

Source: APS 2012d.

Hazardous Waste

To ensure proper storage and disposal of hazardous waste, the FCPP maintains a Hazardous Waste Management Plan (APS 2012d). The plan includes the specific requirements associated with identification, storage, and disposal of hazardous wastes. Under normal operating conditions, the FCPP is a Conditionally Exempt Small Quantity Generator because it generates less than 220 pounds of non-acute hazardous waste per month and has an on-site accumulation of less than 2,200 pounds of non-acute hazardous waste at any time.

Hazardous waste at the FCPP is stored in a centralized location prior to off-site disposal. In addition to the Hazardous Waste Staging Area, hazardous waste is staged at satellite locations near points of waste generation. Waste containers at the satellite locations are placed on the pavement or concrete, or inside buildings to minimize the risk if spilled. Documented inspections of both the staging area and the satellite areas are performed weekly (APS 2012d). Table 4.15-3 identifies the FCPP hazardous/nonhazardous waste inventory, excluding CCR.

Table 4.15-3 FCPP Hazardous/Nonhazardous Waste Inventory

Waste Name	Quantity Generated (Annual)	Disposal Method/Location	Transportation
RCRA Nonhazardous Waste (not including CCR)	705 tons	Subtitle D Landfill/Waste Management	Waste Management Transporter
Hazardous Waste (Hydrazine Bead Blast, Silver Plating, Paints/Coatings)	2.5 tons	RCRA Permitted Incinerator/Landfill/Clean Harbors	Transporter with EPA ID
Used Oil	44,000 gallons	Recycle	Transporter with EPA ID
Construction Debris	Varies	Landfilled/DFADA (historically in the Gridded Disposal Area)	Landfilled on site
Universal Waste (lamps, batteries, mercury containing equipment)	550 pounds	Recycle/Veolia	Transporter with EPA ID
Electronic Components	11 tons	Recycle/Veolia	Transporter with EPA ID
Friable Asbestos	31 tons	Subtitle D Landfill/Painted Desert Landfill, Holbrook, Arizona. Note: Until approximately 1998, asbestos was landfilled on site in the Gridded Disposal Area	Truck
PCB Ballasts	10 pounds	PCB Permitted Landfill/Veolia	Transporter with EPA ID
Petroleum-Contaminated Soil	Variable	Permitted Land Farm/Enviro Tech	Truck

Source: APS 2012d.

Ongoing Investigations

During a 2011 field investigation conducted at the FCPP for Southern California Edison Company, soil and groundwater impacted by diesel fuel was discovered in the vicinity of the Garage Fueling Area. The 2011 investigation reported that soil samples collected near the current fueling area "contained concentrations of TPH ranging from 230 mg/kg to 6,400 mg/kg", and that the groundwater grab sample "contained 170 mg/l of TPH". The investigation concluded that it is likely that a release of diesel fuel and oil to the subsurface has occurred in the vicinity of the active Garage Fueling Area. As a result of the investigation, a Monitor Well Installation, Soil and Groundwater Sampling Plan was developed for this area. The investigation is ongoing (Mongollon Environmental Services LLC 2013). Subsequently, a limited Phase II Environmental Site Assessment of the garage fueling area was conducted in December 2013 to identify VOCs to soil and groundwater. Analytical results in groundwater monitoring results indicate detections of benzene and trichloroethylene exceeding the maximum contaminant level of 5 micrograms per liter (µg/L) in the samples collected from one of the monitoring wells (FCPP-GF-3). Vinyl chloride and 1,1-DCE were detected in excess of maximum contaminant levels of 2 and 7 µg/L, respectively, in the samples collected in FCPP-GF-2. All other analytes were either detected below the respective maximum contaminant levels, where established, or below the lower reading limit. These data indicate the petroleum levels are not continuing to be released into soils or groundwater.

APS has committed to fully characterize the impacts at the site in the groundwater, identify the source of the impacts, evaluate remedial measures and, if appropriate, initiate remediation. The objective of any proposed remedial action is to reduce contaminant concentrations in the soil to levels below appropriate risk-based cleanup criteria and to remove source material that may potentially impact or further impact the groundwater, to the extent technically feasible. To achieve the objective, the site will be remediated in a manner that ensures concentrations remaining in the soil and groundwater are protective of human health and the environment and will reclaim, the site, to the extent necessary, to support existing and proposed future uses (APS 2014).

Inactive Ash Impound Areas

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

In the late 1970s, Evaporation Ponds 1 through 4 were constructed on top of Ash Ponds 1 and 2. The Evaporation Ponds were constructed with a single liner of 20-mil HDPE and a 1-foot layer of earth and gravel fill placed over the liner on the sides of the ponds. The evaporation ponds were used for storage of seepage intercept water, runoff, and other industrial water from the FCPP. A phase-out of the evaporation ponds began in 2001. As of October 2011, the evaporation ponds are no longer in use, and have been reclaimed.

Ash Pond 3 is currently inactive and was used as an impoundment for the fly ash and FGD solids from Units 1, 2 and 3. The Lined Decant Water Pond (LDWP) was built over Ash Pond 3 and is lined with two layers of HDPE geosynthetic liner. It is intended to collect and retain liquid decanted from the Lined Ash Impoundment (LAI). Ash Pond 4 was constructed adjacent to Ash Pond 3, and Ash Pond 5 was constructed adjacent to Ash Pond 4. Both Ponds 4 and 5 were used as impoundments for the fly ash and FGD solids from Units 1, 2, and 3 but are currently inactive.

Ash Pond 6 is located on the northwestern side of the DFADA and was used to impound the fly ash and FGD solids from Units 1, 2, and 3, but is currently inactive. Ash Pond 6 was designed in 1984 and constructed shortly thereafter. The North Embankment of Ash Pond 6 is adjacent and parallel to the

northern lease boundary of the site. Ash Pond 6 is constructed with a clay core embankment that has been keyed into the unweathered shale bedrock.

Gridded Disposal Area

The Gridded Disposal Area is currently inactive. It was used for disposal of asbestos-containing materials up until 1998. It also received coal dust and ash from FCPP cleanup activities, lime grit, and construction and other industrial debris until 2010. In 1984, a portion of the Gridded Disposal Area was used to land farm oil/solvent-contaminated soil as a method of remediation.

Active Ash Disposal Areas

The LAI and LDWP are the only active CCR impoundments (ponds) on site. The DFADA is an active, lined landfill facility that was constructed in 2007 and is used for disposal of dry fly ash from Units 4 and 5 as well as small amounts of construction debris.

In the future, Units 4 and 5 FGD waste will be dewatered and placed in the DFADA. DFADA Site 1 is tallest on the West Berm, approximately 110 feet above natural grade. DFADA Site 2 utilizes a composite liner system. DFADA Sites 1 and 2 are projected to reach capacity by 2016. Therefore, additional DFADA sites will be needed in the future to accommodate dry fly ash/FGD disposal through 2041.

Details of the current wet ash disposal system including all of the system components are included in Table 4.15-4.

The ash disposal areas are operated in accordance with an Operations and Maintenance Manual that has been reviewed by the New Mexico Office of the State Engineer. Daily inspection rounds are performed of the entire ash pond facilities by operations staff to observe the general condition of structures and embankments. Identified deficiencies are documented and repaired. Maintenance of the two impoundments is performed by APS staff under the guidance of APS managers and engineers. Instrument readings are reported twice annually to the New Mexico Office of the State Engineer. Inspections are made every 6 months by APS engineers and on an irregular annual to multi-year schedule by New Mexico Office of the State Engineer personnel (GEI Consultants 2009).

Due to the absence of regulatory oversight for CCR disposal prior to EPA's Final CCR Rule in December 2014, no sampling or testing data are available for either the active or inactive DFADAs. As part of EPA's TRI Program, APS is required to self-report releases to land disposal. Table 4.15-5 includes the TRI chemicals reported by APS as on-site land disposal releases. Based on the report, APS used a mass balance calculation to derive the volumes listed in the table.

Dam Safety

As part of the EPA's ongoing effort to assess the management of CCR, they performed a dam safety assessment of the coal impounds at coal-fired power plants throughout the U.S. As part of that effort, on May 19 and 20, 2009, a site assessment of the dam safety of FCPP's LAI embankment dam and LDWP was performed.

Table 4.15-4 Wet Ash Disposal System Components

Name	Description	Year in Service	Wastes Disposed
Lined Ash Impoundment (LAI)	The LAI is constructed on top of the old ash impoundments #3 and #4. The LAI's dikes are constructed of compacted clay material, in accordance with dam construction specifications approved by the New Mexico Office of the State Engineer, Dam Safety Bureau. The dikes are built on top of the clay dikes used for old ash impoundments #3 and #4. The LAI is constructed with a 60-mil HDPE liner that lines the entire impoundment area, including the dikes.	Commissioned in 2003 (in-service). Expanded in 2007	(1) Fly ash; (2) bottom ash; (3) boiler slag; (4) flue gas emission control residuals; and (5) other, boiler acid cleaning waste, treated sewage, chemical metal cleaning wastes, air pre-heater wash, co-disposal waste, turbine foam cleaning waste, and stack flue gas residuals.
Lined Decant Water Impoundment (LDWP)	The Lined Water Impoundment is constructed on top of the old ash impoundment #3. The Lined Water Impoundment's dikes are constructed of compacted clay material in accordance with dam construction specifications approved by the New Mexico Office of the State Engineer, Dam Safety Bureau. The dikes are built on top of the clay dikes used for old ash impoundment #3. The Lined Water Impoundment is constructed with two 60-mil HDPE liner layers that line the entire impoundment area, including the dikes. The second HDPE liner barrier also includes a leak detection system. The Lined Water Impoundment contains no solid ash material and is not an ash management unit.	Commissioned in 2003 (in-service)	Flue gas emission control residuals and other – blow dust/dirt.
Upper Retention Sump	The Upper Retention Sump is a below-grade compacted soil cement basin that is part of the generating Units 4 and 5 sulfur dioxide scrubber system. It is used for temporary surge capacity of coal combustion products and FGD materials from the normal waste disposal processes of the scrubbers. The material in the basin is returned to the generating Units 4 and 5 thickener equipment and then sent to the LAI.	Commissioned in 1984 (in-service)	Flue gas emission control residuals and other – scrubber area washdown, dirt, and coal dust.
Low-Volume Wastewater System Decant Cells	The Low-Volume Wastewater System Decant Cells are below grade cells constructed with engineered fill (bottom ash placed on top of clay material). Each of the three cells contains floor drains (French type drains) to decant water from the solids contained in the FCPP's low-volume wastewater system. The decant cells help remove solids from the low-volume wastewater, prior to the water entering the Low-Volume Wastewater Pond.	Commissioned in 2004 (in-service)	Fly ash, bottom ash, flue gas emission control residuals and other – boiler blowdown, back pass boiler washdown, metal cleaning waste, coal dust, dirt, de minimus lubricants, demineralizer regeneration waters, stormwater, corrosion and flocculent chemicals, and potable water flushings.
Low-Volume Wastewater Pond	The Low-Volume Wastewater Pond is a below-grade water treatment pond. The pond allows solids in the water to settle, for later dredging (prior to the water flowing back into the FCPP's cooling lake).	Commissioned in 1979 (in-service)	Fly ash, bottom ash, flue gas emission control residuals and other – boiler blowdown, back pass boiler washdown, metal cleaning waste, coal dust, dirt, de minimus lubricants, demineralizer regeneration waters, stormwater, corrosion and flocculent chemicals, and potable water flushings.

Table 4.15-5 FCPP On-site Land Disposal Releases of Toxic Release Inventory Chemicals excluding Dioxin and Dioxin-like Compounds (Measured in Pounds)

Compound	2011	2010	2009	2008	2007	2006
Barium	2,074,802	2,104,979	2,367,918	2,048,044	1,115,508	965,700
Beryllium	22,050	22,361	25,149	21,791	11,800	10,060
Chromium	151,509	105,108	93,192	82,842	47,000	71,580
Cobalt	26,223	26,589	29,861	25,855	14,000	12,072
Copper	182,390	184,870	207,839	180,212	98,000	84,500
Lead	155,776	157,803	177,680	154,973	84,000	72,083
Manganese	341,920	323,025	350,156	306,124	168,212	150,940
Mercury	851	850	993	462	203	219
Nickel	72,827	65,185	66,775	60,167	25,000	27,190
Selenium	19,770	20,111	22,600	19,196	111,600	10,056
Vanadium	273,728	277,508	311,986	269,907	146,783	130,750
Zinc	130,611	132,459	148,841	128,572	69,935	60,360
Thallium	NR	NR	NR	NR	NR	8,662
Totals	**3,452,457**	**3,420,848**	**3,802,990**	**3,298,145**	**1,792,041**	**1,595,510**

Source: EPA 2012k.

Note:

NR - signifies nothing reported for this facility.

The assessment was completed by contractors who are specialists in the area of dam integrity. The report for the assessment reflects the professional judgment of the engineering firm, and is signed and stamped by a professional engineer. The report is based on a visual assessment of the site, interviews with site personnel, and the review of geotechnical reports and studies related to the design, construction, and operation of the impoundments. The engineering firm also reviewed past state/Federal inspections of the impoundments. As part of the assessment, the contractors were asked to rate the impoundments as "satisfactory," "fair," "poor," or "unsatisfactory," terms commonly used in the field of dam safety. The site assessment for the FCPP impoundments determined they were satisfactory, which states, "No existing or potential management unit safety deficiencies are recognized. Acceptable performance is expected under all applicable loading conditions (static, hydrologic, seismic) in accordance with the applicable criteria. Minor maintenance items may be required" (GEI Consultants 2009). Suggested maintenance activities included: restoration of the uneven dam crest on the west embankment of the LDWP impoundment to full height with compact fill, and removal of tamarisk trees from the downstream toe of the west embankment of the LDWP. It was also suggested that structural analysis be performed of the HDPE decant drop inlet structure to varying water depth and the influence of multiple penetrations of the manhole sides. All suggested maintenance activities were completed by APS in 2009.

Also, as part of the assessment the dam was given a hazard potential classification. The hazard potential classification is a rating for a dam based on the potential consequences of failure. The rating is based on the potential for loss of life, damage to property, and environmental damage that may occur in the event of dam failure. The hazard potential classification is not a reflection of the dam's condition, but of the downstream resources only. The FCPP was classified as Significant Hazard Potential in the report. Dams assigned the significant hazard potential classification are those dams where failure or misoperation

would result in no probable loss of human life but could cause economic loss, environmental damage, disruption of lifeline facilities, or affect other concerns (GEI Consultants 2009).

The New Mexico Office of the State Engineer performs inspections of the dams at the FCPP. These inspections have not resulting in any notices of violation or substantial areas for repair, retrofit, or replacement.

Emergency Action Plan for Active Impoundments

An Emergency Action Plan (EAP) for the LAI and the LDWP was prepared that addresses emergency procedures in the unlikely event of a dam failure (APS 2011). The EAP prepared for the LAI and LDWP is a formal document that identifies potential emergency conditions that could develop at the LAI and LDWP, provides a plan for communication of the conditions, and specifies preplanned actions to be followed to minimize property damage and loss of life. The EAP also provides procedures and information to assist FCPP in issuing early warning information of the emergency situation to responsible emergency management authorities.

Overall, the EAP's purpose is threefold:

- Safeguard the lives and reduce property damage of the citizens living within the LAI and LDWP potential flood or inundation area.
- Provide effective plans for surveillance of the LAI and LDWP, prompt notification to local emergency management agencies, and citizen warning and evacuation response, when required.
- Assign emergency actions to be taken by the dam operator/owner, public officials, emergency personnel, and outline responsibilities of each party involved in the emergency management process in the event of a potential or imminent failure of the LAI and LDWP.

4.15.2.3 Transmission Lines

Most of the materials used for operation and maintenance of the APS transmission lines are petroleum-based products. The storage, handling, and spill response procedures for these materials are covered in the APS SPCC Plan Tier III Multi-Facility Substations. Limited amounts of other low-toxicity hazardous materials also may be used for operation and maintenance of the transmission lines. Proper storage, handling, and spill response procedures for these materials are included in APS's hazardous materials management program.

With regard to the PNM transmission lines, proper storage and handling, including spill cleanup of petroleum-based products, are covered in the SPCC Plan for PNM. Crews performing work in the switchyards may carry materials of trade quantities of nonoil-based hazardous material. Breakers in the switchyards contain sulfur hexafluoride gas, and approximately 100 pounds of sulfur hexafluoride gas are kept on site for maintenance of the breakers. Other than sulfur hexafluoride gas, no bulk storage of hazardous materials that are not oil-based occurs in the switchyards. PNM transmission maintenance crews carry limited amounts of hazardous materials. Examples include fuel, paints, solvents, and power-actuated connections. Activities such as pole treatment using fumigants are carried out by contractors. PNM crews carry fire extinguishers and shovels and work in accordance with agency fire restrictions during drought conditions. All unused or waste materials generated by the PNM transmission crews are returned to the PNM Albuquerque Service Center.

4.15.3 Changes to Hazardous and Solid Wastes 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).

The use of SCR requires a catalyst, and spent catalyst would constitute a new waste stream for FCPP. A contract would be set up with the catalyst supplier to handle the spent catalyst.

In addition, SCR requires the use of ammonia. Ammonia would be transported by truck from the nearest large metropolitan area that has the capability to manufacture the required form of ammonia. APS has selected to use solid urea owing to a significant reduction in transport risk compared to the use of liquid forms of ammonia.

The use of SCR also requires a dry sorbent injection system, using hydrated lime as the sorbent to minimize H_2SO_4, emission increases. Hydrated lime would be received by truck and pneumatically conveyed to a storage silo equipment with a baghouse and vent. Power plant operations currently use lime, but the use of dry sorbent injection is expected to require increased truck traffic.

In addition, operation of the SCR would involve the transport and use of hydrated lime. Volumes of storage for extremely hazardous substances listed in Table 4.15-2 would not increase as a result of the transportation or use of ammonia and lime at the FCPP. The potential environmental consequences of using solid urea and lime are addressed in the following section.

4.15.4 Environmental Consequences

The followings steps were used to assess the impacts associated with handling, storage, and disposal of hazardous materials and solid wastes:

- The chemicals listed in Table 4.15-1 and the amounts stored on-site were reviewed to determine the need for and appropriateness of their use.
- The chemicals stored on-site in small amounts or whose physical state is such that probability is low that a spill would migrate off-site and have a major impact on the public or the environment were removed from further assessment.
- The measures to prevent spills were evaluated for effectiveness. Preventative measures include engineering controls such as secondary containment and administrative controls such as worker training and safety management programs.
- The measures to respond to accidents were reviewed. These measures include engineering controls such as spill cleanup and spill containment equipment and administrative controls such as training and written emergency response plans.
- For chemicals or solid wastes that have the potential to migrate off-site and affect the public, an analysis of the theoretical impacts on the public or the environment of a worst-case spill was performed.

This impact assessment considers the severity of potential direct and indirect impacts as well as the geographic extent, and duration of potential impacts. Duration of impacts is described as short-term and long-term. For the power plant and transmission lines, short-term impacts are those that would occur immediately following approval of the lease renewal plus a reasonable period afterwards (i.e., a total of about 5 years). Long-term impacts are those that would persist beyond or occur after the 5-year period and beyond closure of the FCPP. Long-term impacts may include impacts from historical activities that may have remained unaddressed. For the Pinabete SMCRA Permit Area and continued operation in the Navajo Mine Permit Area, short-term impacts are those that would occur during construction and includes those that would occur from the time when mining begins in a unit through reclamation when vegetation

has been re-established. Long-term impacts are those that would persist for the duration of the mining permit and permanent impacts are those that would remain beyond or occur after reclamation.

The criteria for defining significance under NEPA (CFR 1508.27) includes the degree to which a release of a hazardous material or waste would affect public health or safety and the environment, the degree to which a release of a hazardous material or waste would be highly controversial, and the degree to which the possible impacts of a release of a hazardous material or waste is highly uncertain or involves unique or unknown risks. The magnitude of impacts for the purposes of this section are defined as major, moderate, minor, and negligible as outlined in Table 4.15-6.

Table 4.15-6 Magnitude of Impacts

Magnitude	Release Has Impacts on Public Health and Safety or the Environment	Effect of Release Is Controversial	Effect of Release Is Uncertain and/or Involves Unknown Risks
Major	Spill or release of a hazardous material as defined by the EPA in 40 CFR Part 302 that migrates off-site with major impacts on public receptors and/or the environment	Spill or release of a hazardous material as defined by the EPA in 40 CFR Part 302 that migrates off-site with major impacts on public receptors and/or the environment	Spill or release of material whose risks are unknown or uncertain at the time of the release that migrates off site and cause major impacts on public receptors and/or the environment
Moderate	Spill or release of a hazardous material as defined by the EPA in 40 CFR Part 302 that migrates off-site with minimum impacts on public receptors and/or the environment	Spill or release of a hazardous material as defined by the EPA in 40 CFR Part 302 that migrates off-site with minimum impacts on public receptors and/or the environment	Spill or release of material whose risks to the public or environment are not well known or documented that migrates off-site and cause minor impacts on public receptors and/or the environment
Minor	Spill or release of a hazardous material which is not a substance defined by the EPA in 40 CFR Part 302 that does not migrate off-site	Spill or release of moderate a hazardous material which is not a substance defined by the EPA in 40 CFR Part 302 that does not migrate off-site	Spill or release of material whose risks to the public or environment are not well known or documented that does not migrate off-site
Negligible	Small to medium (<50 pounds) spill or release of low hazardous material which is not a substance defined by the EPA in 40 CFR Part 302 that does not migrate off-site	Small (<50 pounds) spill or release of hazardous material which is not a substance defined by the EPA in 40 CFR Part 302 that does not migrate off-site	Small (<50 pounds) spills or releases of commonly known hazardous materials with well documented risks which is not a substance defined by the EPA in 40 CFR Part 302 and that does not migrate off-site

4.15.4.1 Alternative A – Proposed Action

Navajo Mine

The proposed Pinabete SMCRA Permit Area includes 5,569 acres and would be composed of portions of the current Navajo Mine SMCRA Permit Area and additional unpermitted areas of the Navajo Mine Lease Area. The Pinabete SMCRA Permit Area would be mined in the same manner as described for the current Navajo Mine operations. No new hazardous materials would be brought on-site or new wastes generated under the Proposed Action. Existing hazardous materials and waste storage areas for the Navajo Mine SMCRA Permit Area are adequately sized to handle any relatively small increase of hazardous materials or wastes associated with the Pinabete SMCRA Permit Area (BNCC 2012h). None of the hazardous materials currently in use at the Navajo Mine SMCRA Permit Area called out in

Section 4.15.1 are stored in threshold quantities that trigger EPCRA reporting. The trigger threshold volume that requires EPCRA reporting varies by chemical, and some chemicals do not require reporting under the provision regardless of the volume in which they are stored onsite. The increases of chemical volumes for the proposed Pinabete SMCRA Permit Area would not trigger EPCRA reporting. Therefore, any impact from an accidental release or spill of these materials would be negligible to minor. These potential impacts would occur throughout the Project life. Hazardous and universal wastes (e.g., aerosols, antifreeze, paint and related materials, and batteries) and special wastes (e.g., absorbents, rubber hoses, used oil filters, and railroad ties) would continue to be accumulated, managed, and disposed of in accordance with applicable EPA and Department of Transportation regulations (BNCC 2012i). The hazardous materials and waste storage, handling, transportation, and disposal management programs for the existing Navajo Mine are listed in Section 4.15.1 and meet regulatory requirements for these activities therefore these programs along with the engineering controls identified in the programs are adequate for mitigating any potential hazardous materials releases or spills.

The environmental consequences of the past placement of CCR in the Navajo Mine SMCRA Permit Area is addressed fully, including groundwater monitoring, in Section 4.5.2.1, Water Resources and Hydrology. The conclusion from that Section is that the potential impacts of placement of CCRs at the Navajo Mine were minor.

Four Corners Power Plant

APS would continue to operate with only Units 4 and 5 in operation for the duration of the lease agreement, with the addition of SCR equipment. APS would install “hot side/high dust” SCRs between the boiler economizer and secondary air pre-heater on Units 4 and 5 in compliance with BART requirements.

Ammonia is a key component to the SCR’s successful operation. The ammonia reacts with nitrogen oxides over catalyst surfaces to form nitrogen and water. Ammonia would be supplied to the FCPP by a reagent processing plant, which has yet to be identified. The assumption for the purpose of this analysis is that the ammonia would be transported by truck from the nearest large metropolitan area that has the capability to manufacture the required form of ammonia. Each SCR would have two reactors, and each reactor would contain three layers of catalyst and a cavity for a future catalyst layer. After the first 3 years, the top degraded layer would be replaced with the next lower layer. The catalyst would either be honeycomb, plate, or corrugated type, and possibly composed of a titania-vanadia base metal. A contract would be established with the catalyst supplier to handle the spent catalyst. APS would use a contractor to install the SCR.

Other than the installation of SCR, Units 4 and 5 would continue operating as described previously. The size of the leased acreage or footprint of the FCPP facilities would not change. Units 1, 2, and 3 were shut down December 30, 2013; no impacts were associated with the shutdown of Units 1, 2, and 3. As described in Section 2.4.2.2, portions of these structures could be demolished or disposed prior to 2041 Impacts on hazardous waste and solid waste would be short-term and predominately associated with disposal of demolition materials. Other than minor equipment upgrades, no changes or modifications are anticipated for the three FCPP switchyards, Moenkopi switchyard, 12-kV Moenkopi line, or Moenkopi access road during the lease term.

Ammonia Reagent Off-Site and Transportation Consequence Analysis

Ammonia, in the form of solid urea, would be transported to the FCPP and stored on site to be used to control oxide emissions through selective catalytic reduction. The number and size of tanks, footprint area, and an estimate of the number of truck shipments per year are shown in Table 4.15-7. In order to minimize H_2SO_4, emission increases, APS proposes to install a dry sorbent injection system, using hydrated lime as the sorbent; the number of truck shipments of dry lime per year are also shown in Table 4.15-7. All construction would occur within the existing plant site in areas of previous disturbance.

Table 4.15-7 Ammonia Reagent Details

Option	Number of Tanks*	Footprint Area (square feet)	Product Amount per Year (tons)	Number of Shipment Trucks per Year
56.7% Dry Urea Pellets	3 rows of 6 (18 total)	67,000 (tanks, unloading, pumping, and hydrolyzing equipment)	17,534	874 (17 per week)
Dry lime		Storage silo, 14-foot diameter, 80-foot height	10,800	900 (17 per week)

Note:

[1]Tanks would be horizontal 10-foot diameter X 40-foot length, 20,000-gallon (useable volume).

Urea and lime are solids and so risks during transportation and storage are greatly reduced compared to liquid transportation and storage, particularly of liquid ammonia. Ammonia is generated on-site from urea by a hydrolysis reaction that yields a vapor phase mixture of ammonia, carbon dioxide, and steam. At any given time, the on-site storage of ammonia generated from urea would be less than 50 pounds. An accidental release of this amount of ammonia would have negligible to minimum impacts. No regulatory requirement exists for the storage and transportation of urea or lime. The use of urea would result in the manufacture of ammonia, which would require reporting under TSCA and TRI. A release scenario for the urea option was not modeled since it is a solid and would not migrate as the liquids would. In addition, urea is not a hazardous material covered under the Risk Management Program (RMP) requirement, and the associated risks would be minor.

Surface Impoundment Dam

As described in Section 4.15.1, a site assessment of the dam safety of FCPP's LAI embankment dam and LDWP was performed, and as part of the assessment, the dam was given a hazard potential classification, which is a rating for a dam based on the potential consequences of failure. The hazard potential classification is not a reflection of the dam's condition. The FCPP was given a hazard potential classification of significant hazard potential in the report. Dams assigned the significant hazard potential classification are those dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, or disruption of lifeline facilities, or can result in other concerns.

In addition to the hazard potential classification, the contractors were asked to rate the condition of the impoundments as "satisfactory," "fair," "poor," or "unsatisfactory," terms commonly used in the field of dam safety. The site assessment for the FCPP rated all of the ash impoundments as satisfactory, which states, "no existing or potential management unit safety deficiencies are recognized. Acceptable performance is expected under all applicable loading conditions (static, hydrologic, seismic) in accordance with the applicable criteria. Minor maintenance items may be required" (GEI Consultants 2009). Minor maintenance items were identified and APS followed up with a written response and action plan, indicating the suggested items would be addressed and completed prior to the end of 2009 (APS 2009). The following recommendations have been implemented and are being met:

- The recommendation to continue monitoring seepage at the downstream toe of the south embankment (Pond #4 toe) for any changes in seepage quantity and flow rate or evidence that the flow is carrying soil/ash particles from the embankment is being met. A seepage collection toe drain was installed in this area. Flow from the toe drain is negligible.
- The recommendation to expand the monitoring program to include additional monitoring of potential seepage under the dam at the northwest corner of the LAI, where the LAI embankment was not tied-in to the underlying Pond 3-4 embankment to provide continuity of seepage control, and where a potential seepage pathway exists if the HDPE lining fails is being met.

- The recommendation to install additional piezometers to address this potential seepage pathway and expand documentation in APS dam safety inspections to note any evidence of seepage near the downstream toe of the dam in this area has been met. APS installed three piezometers in the recommended area. Levels in these piezometers are recorded quarterly.
- The recommendation to repair or replace the two settlement plates that do not appear to be providing useful information and that may have been damaged during construction or maintenance activities was met.
- Attempts were made to reinitiate the vibrating wire settlement plates but were unsuccessful, so settlement rods were installed as a replacement. Four settlement rods (mechanical) were installed to replace the malfunctioning vibrating wire settlement plates.

Based on this assessment of the dam, impacts from the potential accidental release would be minor because the dam meets design standards. APS would comply with all regulatory requirements and complete preparation of an EAP and an Ash Impound Dam Inspection and Maintenance Program. Under continued operation of the FCPP, the existing EAP for the LAI and LDWP must be finalized and approved by the State of New Mexico Office of State Engineer, Dam Safety Bureau. Modifications to the ash impoundments or any new ash impoundments would require a revision of the EAP and the Bureau's review and approval by the Office of State Engineer, the New Mexico Department of Homeland Security and Emergency Management. In addition, a Dam Inspection and Maintenance Program must be developed for the existing and any new ash impoundments at the FCPP in coordination with or approved by State of New Mexico Office of State Engineer, Dam Safety Bureau. Further, any new disposal units (landfills or surface impoundments) would require siting above the natural water table and could not be located in wetlands, within 200 feet of a fault zone, or in a seismic impact zone. Any new disposal units could not be located in an unstable area (e.g., a location susceptible to natural or human-induced events or forces capable of impairing the integrity of the unit). Compliance with the developed plans and all regulatory requirements would address the potential for an accidental release.

Coal Combustion Residue Management

FGD waste generated from Units 4 and 5 would continue to be placed in in the Lined Ash Impoundment until it is full or closed. Ash and bottom ash would continue to be placed in DFADA Sites 1 and 2 until these sites reach capacity. APS would construct five additional DFADAs to accommodate future disposal of all fly ash, bottom ash, and FGD waste generated through the duration of the lease term. The total area of new DFADAs would be approximately 385 acres in surface area and approximately 120 feet high. Estimated annual storage volumes would be 1,118 acre-feet per year. Each site is anticipated to be in operation for 5 years. In addition to the five new sites, a surge pond (lined impoundment) would be constructed to capture generated FGD waste and historic ash impoundment seepage intercept water. All soil for impoundments and berms surrounding the impoundment would be borrowed from areas inside the existing APS lease area.

Section 4.5, Water Resources and Hydrology, evaluates groundwater monitoring data collected by APS from 1987 to 2012 in the current DFADA. Owing to the geology of the area, all of the groundwater samples, including those representing background conditions, have elevated levels of TDS, chlorides, sulfate, arsenic, cadmium, nitrate, selenium, thallium, and boron. The wells within the DFADA, and the wells outside the area of influence of the DFADA, all have these elevated levels. Owing to the similarity in groundwater concentrations, if there is any ongoing release from the unlined ash disposal ponds 1 and 2, or the later ponds, the effect cannot be readily discerned from the natural background concentrations. Both new and existing disposal units would be subject to groundwater monitoring requirements. If certain hazardous constituents (including arsenic, cadmium, or selenium) are detected at a level exceeding groundwater protection standards, as listed in Section 3, the FCPP would have 90 days to assess corrective measures and select a remedy that would protect human health and the environment.

Closure and Post-closure Requirements

EPA's Final Rule for Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electrical Utilities (December 19, 2014) specifies closure and post-closure requirements applicable to the FCPP or the DFADA. The Final Rule provides operators time to develop site-specific closure and post-closure management plans for areas where CCRs have been disposed or where they will be disposed.

Transmission Lines

Existing transmission lines directly associated with the FCPP require ROW renewals within the period of time this NEPA review is being conducted. These transmission lines, owned and operated by APS or PNM, are considered connected actions to the continued operation of the mine and power plant. No new transmission lines would be developed as a component of the Proposed Action. The potential environmental impacts from the continued operations of the transmission lines are analyzed in this section. Operations and maintenance of the transmission lines would remain as described in Section 2. No new towers or access roads would be constructed as part of the Proposed Action, and no changes to the existing ROWs would occur. No new hazardous materials would be used, and no new solid or hazardous waste would be generated. The hazardous materials currently in use by APS and PNM for the transmission lines are predominately petroleum-based and managed under a SPCC program. Other materials are of medium to low toxicity and of medium to low volume. Because of the volume and toxicity levels of these materials, any impact from an accidental release or spill of these materials would be local and negligible to minor. The hazardous materials and waste storage, handling, transportation, and disposal management programs for the existing transmission lines are listed in Section 4.15.1, and these programs along with the engineering controls identified in the programs are adequate for management of any potential off-site release or spills.

4.15.4.2 Alternative B – Navajo Mine Extension Project

Navajo Mine

Under Alternative B, OSMRE would approve an alternative mine plan for the Navajo Mine Lease Area to only include mining within Area IV South. Under this alternative, NTEC would seek a 5,412-acre SMCRA permit and proposed mining disturbance in approximately 4,998 acres. Mining would commence with the construction of a new boxcut near the western lease boundary and progress eastward in north/south-orientated striplines. The mining block would be divided into a North Pit and a South Pit. NTEC would operate two draglines, one in each stripline. After the coal was exposed by the stripping operation, it would either be drilled and blasted or ripped by dozers before mining. Once the coal was broken up, it would be mined by front-end loafers and haul trucks. Coal would be transported to a field coal stockpile on the western permit boundary prior to being transported 8.4 miles to Lowe Stockpile in Area III via primary haul roads.

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

Potential impacts from historical mine placement of CCRs (practice ended in 2008) would remain after Navajo Mine closure. NTEC would develop a closure and post-closure management plan for areas where CCRs have been placed, as described in Alternative A.

Four Corners Power Plant

Under Alternative B, the BIA would approve the lease amendment for the FCPP, which would operate as described under the Proposed Action. No changes are proposed for the FCPP under this alternative; therefore, impacts for hazardous and solid waste would be the same as for the Proposed Action.

Transmission Lines

Under Alternative B, the transmission line ROWs would be approved, and they would continue to be operated and maintained as described under the Proposed Action. No changes are proposed for either the APS- or the PNM-owned transmission lines; therefore, impacts for hazardous and solid waste would be the same as for the Proposed Action.

4.15.4.3 Alternative C – Alternative Pinabete Mine Plan

Navajo Mine

Under Alternative C, OSMRE would disapprove the Pinabete SMCRA Permit application, and NTEC would seek approval from OSMRE for a new 10,094-acre SMCRA Permit Area and proposed mining disturbance in approximately 6,492 acres within the Navajo Mine Lease Area. Mining would be located in both Area IV North and Area IV South, as described for the Proposed Action. Mining activities in Area IV North would continue existing striplines to the south. The Area IV South pit would be located southwest of Pinabete Arroyo and would require a new boxcut to develop the pit. Once the boxcuts were complete, only two draglines would be needed, one in each pit.

Coal from the Area IV North pit would be hauled directly to Lowe Stockpile in Area III for a distance of 3.7 miles. A field coal stockpile would be located in Area IV South, and coal from the Area IV South pit would be hauled to this stockpile prior to being hauled the 8.4 miles to Lowe Stockpile. Burnham Road would be realigned as described under the Proposed Action; however, the length of area that would be relocated would be 6.2 miles. In addition, approximately 15.1 miles of primary haul roads and 14.8 miles of ancillary roads would be constructed. Additionally, NTEC would construct approximately 16.8 miles of power lines, extending the existing transmission lines from the Navajo Mine Permit Area to the new permit area.

Under Alternative C, OSMRE would renew the existing Navajo Mine SMCRA Permit. For both the Navajo Mine SMCRA Permit Area and the Alternative Pinabete SMCRA Permit Area, operations and reclamation would be conducted as described under the Proposed Action. Impacts of Alternative C would be similar to impacts under the Proposed Action. Short-term impacts may be slightly higher than the Proposed Action due to road construction activities. An additional 29.9 miles of haul roads and ancillary roads would be constructed under Alternative C that would not be constructed under the Proposed Action. Larger volumes of hazardous materials and waste would be generated during construction of the additional roads. Increased impacts would be a direct result of construction activities and would not continue once roads are constructed and operational. These wastes would be managed as described for Alternative A and in accordance with applicable EPA and Department of Transportation regulations. Potential impacts from historical mine placement of CCRs (practice ended in 2008) would remain after Navajo Mine closure. NTEC would develop a closure and post-closure management plan for areas where CCRs have been placed, as described in Alternative A.

Four Corners Power Plant

Under Alternative C, the BIA would approve the lease amendment for the FCPP, which would operate as described under the Proposed Action. No changes are proposed to the FCPP under Alternative C; therefore, impacts for hazardous and solid waste would be the same as for the Proposed Action.

Transmission Lines

Under Alternative C, the transmission line ROWs would be approved and they would continue to be operated and maintained as described under the Proposed Action. No changes are proposed for either the APS- or PNM-owned transmission lines; therefore, impacts for hazardous and solid waste would be the same as for the Proposed Action.

4.15.4.4 Alternative D – Alternative Ash Disposal Area Configuration

Navajo Mine

Under this alternative, OSMRE would approve the Pinabete SMCRA Permit application and renew the Navajo Mine SMCRA Permit. The Navajo Mine would operate as described under the Proposed Action. Impacts would be the same as described for the Proposed Action

Four Corners Power Plant

Under this alternative, the area of disturbance required for the DFADAs would be 350 acres instead of 385 acres. The 10 percent reduction in surface area of the DFADAs would result in the same impacts as described for the Proposed Action. All other FCPP components of this alternative are the same as for the Proposed Action. Therefore, impacts would the same as described for the Proposed Action.

Transmission Lines

Under Alternative D, the transmission line ROWs would be approved, and they would continue to be operated and maintained as described under the Proposed Action. No changes are proposed for either the APS- or the PNM-owned transmission lines; therefore, impacts for hazardous and solid waste would be the same as for the Proposed Action.

4.15.4.5 Alternative E – No Action Alternative

Navajo Mine

Under the No Action Alternative, the Navajo Mine would close. The Pinabete SMCRA Permit Area (Areas IV North and South) would not be mined. Burnham Road would not be realigned. Mining in the Navajo Mine SMCRA Permit Area (Areas III and IV North) would cease when the ROD is issued in 2015. All ancillary buildings and facilities (e.g., communication lines, railroad) would be removed, and the land would be reclaimed according to OSMRE guidelines in the approved reclamation plan. Under the No Action Alternative, 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.

Four Corners Power Plant

Under the No Action Alternative, APS would shut down Units 4 through 5 in 2016 when the current lease expires. The FCPP would be decommissioned and held for future use. In addition to the five units, all three switchyards may also be decommissioned, but could also remain in service. Several potential future uses of the site are possible. It could continue as an energy generation site with several potential technology scenarios. The infrastructure could also be demolished and the site redeveloped for industrial, commercial, or residential uses. It is entirely speculative at this time to predict the likely alternative future uses for the site. APS has not yet prepared a decommissioning plan. Any decisions regarding the future uses must be with the concurrence of the Navajo Nation. Currently, the site is held undivided by all of the owners; future uses may therefore require subdivision of the property. Any such uses would be subject to environmental review at either the tribal or Federal level, including potentially under NEPA, at the time they are developed and proposed. Impacts on hazardous waste and solid waste would be short-term and predominately associated with disposal of demolition materials.

Management of existing ash disposal units would continue beyond the closure of the mine; in accordance with regulatory requirements, APS would prepare a closure plan for these units to be approved by EPA Region 9, OSMRE, and in cooperation with the NNEPA.

Transmission Lines

Under the No Action Alternative, the ROWs for the four subject transmission lines would not be approved. Since the subject lines primarily transmit power from the FCPP, under the No Action Alternative, the power source for the transmission lines would be removed. The lines would either be decommissioned and dismantled, or left in place. As with the FCPP, decommissioning and dismantling activities would need to be coordinated with the Navajo Nation and the BLM such that the area meets the specific needs of the planned reuse. Compliance with all environmental laws and regulations would occur throughout the demolition process. Any potential impacts for hazardous and solid waste would be associated with decommissioning and dismantling activities. Because these activities would occur in compliance with all environmental laws and regulations, these impacts would be expected to be negligible to minimal and short-term.

4.15.5 Hazardous and Solid Wastes Mitigation Measures

The Project Applicants have proposed measures that would be implemented to reduce or eliminate some of the environmental impacts of the Proposed Action. These measures include specific mitigating measures for certain environmental impacts, standard operating procedures that reduce or avoid environmental impacts, and BMPs for specific activities. These are described in Section 3.2.6.15. These measures are part of their application materials and are enforceable through permit or lease conditions. In addition, the Project Applicants must comply with additional protective regulatory requirements including laws, ordinances, regulations, and standards that are enforceable by the responsible agency over that activity. These are described in the Regulatory Compliance Framework Section for each resource category. Where the environmental analysis in this EIS recommends additional protective measures, over and above the applicant proposed measures and regulatory compliance, they are listed below as specific mitigation measures.

The Proposed Action, including the continuing operations of Navajo Mine, FCPP, and the transmission lines, would not result in major adverse impacts related to hazardous and solid waste management. Therefore, no additional mitigation is recommended.

EPA's Final Rule on CCR management addresses risks of structural failures of CCR surface impoundments, groundwater contamination from the improper management of CCR in landfills and surface impoundments, and fugitive dust emissions. The rule includes location restrictions and requirements for liner design criteria; impoundment structural integrity; operating criteria regarding air, run-on, run-off, hydrologic and hydraulic capacity, surface impoundments, and inspections; groundwater monitoring and corrective action; closure and post-closure requirements; and record keeping, notifications, and posting on publicly accessible internet sites. The rule has been designed to provide a practical approach for implementation of the requirements and has established implementation timelines that take into account, among other things, other upcoming regulatory actions affecting electric utilities and site specific practical realities.