SECTION 17

GEOLOGIC INFORMATION

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LIST OF REVISIONS DURING PERMIT TERM

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SECTION 17 GEOLOGIC INFORMATION

The Pinabete Mine Plan permit area (permit area) and adjacent areas are located on the west flank of the San Juan Structural Basin, within the Navajo Section of the Colorado Plateau in northwestern New Mexico. The Colorado Plateau, or Colorado Plateaus Province, is a physiographic region of the Intermontane Plateaus, roughly centered on the Four Corners region of the southwestern United States. The Colorado Plateau covers an area of approximately 130,000 square miles (sq mi) within western Colorado, northwestern New Mexico, southeastern Utah, and northern Arizona (Leighty 2001). Within the Colorado Plateau, the San Juan Basin covers about 7,500 sq mi across the Colorado/New Mexico border and measures approximately 100 miles long in the north-south direction and 90 miles wide. The land surface elevations within the basin range from 5,100 feet on the western side to over 8,000 feet in the northern side. This basin is an asymmetric, structural basin with a northeast-trending axis parallel to the Hogback Monocline in northwestern New Mexico. It is bounded to the north by the San Juan Uplift and to the south by the Zuni Uplift and the Chaco Slope. The western rim is formed by the Defiance Uplift and Four Corners Platform and the eastern rim is formed by the Brazos Uplift and the Nacimiento Uplift. The Continental Divide trends north to south along the east side of the San Juan Basin.

The stratigraphic section in the permit area reflects the Late Cretaceous transition of shallow marine depositional environment to a terrestrial fluvial depositional environment. The four rock sequences encompassing this depositional environment change are (in descending order): Kirtland Shale, Fruitland Formation, Pictured Cliffs Sandstone (PCS), and Lewis Shale. Mining activities will occur in the Kirtland Shale and Fruitland Formation. The Fruitland Formation contains the mineable coal-bearing units.

17.1 Geologic Description

The geologic units to be mined or potentially influenced by mining include the Kirtland Shale, Fruitland Formation, and PCS. The geologic strata in the permit area outcrop along the western edge and dip approximately 2° to the east or northeast toward the center of the San Juan Basin. The surface topography in the area is described in Section 13 (Topography). The area is generally arid, rolling terrain with some incised arroyos. A generalized geologic column of the rock sequence planned to be mined is provided as Figure 17.1-1.

The Kirtland Shale is the uppermost consolidated geologic layer within or adjacent to the permit area. It conformably overlies the Fruitland Formation. The Kirtland Shale is divided into two units, the upper shale member, which includes Farmington Sandstone, and the lower shale member. Sediments in the Kirtland Shale were deposited in an upland floodplain environment where aggrading stream channels were separated by narrow, parallel floodplains. The upper shale member is composed of a series of interbedded sandstone lenses and claystone shales. The shale beds in the upper shale member of the Kirtland Shale are much more colorful than those in the lower shale member and are purple, green, white, and gray. The lower shale

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member is composed of gray claystone shales that contain a few thin interbeds of siltstone and sandstone. No coal beds exist in the Kirtland Shale (Fasset and Hinds 1971). A detailed discussion of ground water quantity, quality, and transport within the Kirtland Shale is provided in Section 18 (Water Resources). Several deposits of Quaternary alluvial and eolian sands occur within the permit area. These are important sources of topdressing material for reclamation and are discussed in Section 14 (Soil).

The Fruitland Formation, which conformably overlies the PCS, contains sediments deposited in fluvial delta-plain and adjoining back beach-bar depositional environments (Flores and Erpenbeck 1981). The lithologies of the rock units encountered in the Fruitland Formation include fine- to medium-grained sandstones, siltstones, sandy and silty claystones, carbonaceous claystones, bentonitic claystones, and coal. Although the rock-unit bedding is generally parallel, the units are not continuous throughout the permit area.

There are eight primary coal seams and eight corresponding overburden/interburden horizons defined by the geologic model within the permit area. Each interburden layer is referred to using the name of the coal seam directly below the interburden layer. Coal seams are numbered from deepest to shallowest. For example, the deepest coal seam to be mined is the No. 2 coal seam (S2) and the interburden above it and below the No. 3 coal seam (S3) is referred to as No. 2 interburden (I2). In situations where the coal seam splits, the coal seam number is followed by alphabetic designation (e.g., S2A and S2B). Interburden layers between splits in the No. 2 coal seam are referred to as I2A and I2B. Further, if interburden layers are composed of horizons of differing rock strata (e.g., sandstone and shale) the interburden number will be followed by numeric designation (e.g., I2-1 or I2A-1). For example, if the bottom horizon in I2 is primarily sandstone and the upper primarily shale, then the bottom horizon within this interburden would be labeled I2-1 and the next horizon above would be I2-2. An exhibit showing the Pinabete permit boundary and cross-section locations is presented as Exhibit 17.1-1. Cross-sections of the geologic model are provided in Exhibit 17.1-2, Exhibit 17.1-3, Exhibit 17.1-4, and Exhibit 17.1-5. The crop lines, strike, and dip of the coals seams within the Pinabete Permit area is provided in Exhibit 17.1-6.

The production operations will remove units from the surface down to and including No. 2 coal seam. Coal seams below the No. 2 coal seam will not be extracted and the underlying PCS will not be mined. Some of the coal seams and interburdens within and adjacent to the permit area are under perched, saturated conditions due to recharge zones at the outcrops. However, the water is not of sufficient quantity to be of sustainable use or pose a challenge during mining or reclamation operations. A detailed discussion of groundwater quantity, quality, and transport within the Fruitland Formation is provided in Section 18 (Water Resources).

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The PCS conformably overlies and forms overlapping layers with the Lewis Shale. This formation consists of both delta-front and barrier-beach sediments and marks the change to a littoral (near-shore) depositional environment (Flores and Erpenbeck 1981). The upper two-thirds of the PCS consists of a generally coarsening upward sequence of light gray, fine- to medium-grained sandstone while the lower one-third of the formation consists of interbedded shale and sandstone. The upper 60 feet of this sandstone is consistently massive, light gray to light brown, fine to medium grained with predominately rounded quartz grains, and has a salt-and-pepper appearance. The total thickness of the PCS is approximately 110 feet in the permit area. The PCS is the lowest potential water-bearing unit within and adjacent to the permit area that could be impacted by mining but it will not be mined. A detailed discussion of groundwater quantity, quality, and transport within the PCS is provided in Section 18 (Water Resources).

The Lewis Shale contains the last purely marine shales deposited in the Upper Cretaceous epeiric seaway. It consists of gray to black shale with some interbeds of sandy limestone, brown sandstone, and bentonite. The Lewis Shale is located below the PCS and will not be mined; however, it is included in the groundwater model discussed in Section 18 (Water Resources).

Geologic hazards within the mining area are limited to those created during the mining process, namely exposed highwalls and spoil piles. Hazards encountered during mining are managed in accordance with Mine Safety and Health Administration (MSHA) regulations. There is no history of landslide or mudslide potential within or adjacent to the permit area. No major faults cut the permit area, although minor low-angle compaction faults and slumps with up to 10 feet of displacement are not uncommon. The Colorado Plateau is considered tectonically stable. The U.S. Geological Survey National Seismic Hazard Map indicates the permit area is within a low-hazard zone for ground shaking, with a 2% chance of experiencing a seismic event that would cause ground shaking at a level of 4% to 8% of acceleration of gravity in the next 50 years (Petersen et.al. 2008). Of the nearly 1,800 seismic events with epicenters recorded in New Mexico between 1962 and 1995 approximately 10 occurred within 100 miles of the permit area (Sanford et.al. 2002). In 1976 and 1977 two deep earthquakes with moment magnitudes of 4.6 and 4.2, respectively, occurred around Crownpoint, New Mexico, approximately 75 miles south of the permit area (Wong et.al. 1984). The epicenter of these was about 26 miles below the surface at a tectonic transition zone between the Basin and Range-Rio Grande Rift and Colorado Plateau stress provinces.

17.2 Overburden Characteristics

The characteristics of in-situ overburden from eight drill holes have been evaluated. These holes were drilled as part of drilling programs conducted in 1987, 1998, and 2007 (Exhibit 17.2-1). The 1987 drilling program consisted of coring and sampling five drill holes (487-01 through 487-05) in Area 4 North; four of these drill holes (487-01 through 487-04) are located in permit area. The 1998 drilling program included coring and sampling one hole in the permit area and nine holes south of the permit area. The 2007 drilling

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program included coring three holes in the permit area and 13 holes south of the permit area. The core inventory logs for the 1987, 1998, and 2007 holes cored in the permit area are included in Appendix 17.A, Appendix 17.B, and Appendix 17.C, respectively. Samples from the overburden/interburden material at defined intervals were analyzed for the physical/chemical properties outlined in Table 17.2-1. Results from the 1987, 1998, and 2007 overburden/interburden analyses are provided in Table 17.2-2, Table 17.2-3, Table 17.2-4, Table 17.2-5, Table 17.2-6, Table 17.2-7, Table 17.2-8, and Table 17.2-9.

Data collected in the 1987 drilling program were used in the initial Area 4 North overburden characterization found in the Navajo Transitional Energy Company (~~BNCC~~ NTEC) Navajo Mine Surface Mining Control and Reclamation Act (SMCRA) permit application package (Office of Surface Mining Reclamation and Enforcement [OSM] Permit No. NM-0003F) (BNCC 2009). Each geologic stratum encountered in core was sampled for analysis per OSM instruction, i.e. major strata were sampled in five foot increments. For the 1987 drilling program, ~~BNCC~~NTEC did not attempt to create a statistical model to predict the overburden/interburden characteristics.

Data collected in the 1998 drilling program were used in the development of the first statistical analysis of interburden and overburden sampling in the permit area. This report was prepared by J.W. Kern, PhD, of Western EcoSystems Technology, Inc. and is included as Appendix 17.D. The objectives of this report included identifying which overburden/interburden layers contain high proportions of material unsuitable for root-zone material, and estimating the volume of root-zone material available for reclamation. Kern's report focused on an area within the southwest corner of the Pinabete permit area extending south of the permit boundary to the southwest bank of the Pinabete Arroyo.

The 2007 drilling program expanded drilling into all of the Pinabete permit area and south of the Pinabete permit area. These data, along with the 1998 and 1987 data, were used to develop a statistical analysis of the overburden/interburden sampling within the Pinabete permit area. This report was prepared by ~~BNCC~~NTEC and is included as Appendix 17.E. The objectives of the statistical analysis were to estimate the total volume of root-zone suitable material in the overburden and interburden layers most likely to be used for reclamation, characterize the in-situ overburden and interburden layers, and characterize mixed material (spoil) suitability. When characterizing the suitability of in-situ overburden and interburden layers and modeled spoil material, two potential criteria limits were used: OSM Southwestern U.S. criteria limits (OSM 1999) and ~~BNCC~~NTEC Navajo Mine site-specific criteria limits (BNCC 2009). These root-zone suitability criteria, provided in Table 17.2-10, were selected because of the location of the Pinabete permit area in proximity to ~~BNCC~~NTEC Navajo Mine.

The recoverable suitable root-zone material will come from overburden strata above the first seam to be mined. Suitable root-zone thickness for each drill hole was determined by comparing the weighted average

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of analytical results to both OSM and Navajo Mine criteria. The results of suitable thickness calculations are summarized in Appendix 17.E.

Characterization of the in-situ interburden above each coal seam suggests that, in some locations, the rock strata associated with the interburden above the No. 6 coal seam (I6) in the Pinabete permit area has soluble selenium concentrations that exceed OSM suitability criteria, but are below Navajo Mine suitability criteria. In-situ acid-base potential (ABP) characterization suggests a net alkaline environment for the majority of interburden layers across the permit area. The characterization suggests that in some drill hole locations, the rock strata associated with interburden above the No. 2 coal seam (I2) has pyritic sulfur ABPs that are outside criteria limits. This layer is thin and makes up less than 6% of the total thickness of interburden to be excavated during mining (Appendix 17.E). Characterization of the in-situ interburden above each coal seam suggests that, in general, the rock strata present in I6, I4, I3, and I2 across the Pinabete permit area possess saturation percent, sodium adsorption ratio (in I4, I3, and I2 only), and pH values that are outside criteria limits established by OSM and Navajo Mine for root-zone suitability.

Spoil material quality was modeled by computing the weighted mean for each analyte within each drill hole (Appendix 17.E). These data are used to characterize spoil at each drill hole location and estimate spoil variability within permit area. The results of these computations are included in Appendix 17.E. Modeled spoil quality indicates criteria limits exceedances for saturation percent, pH, and sodium adsorption ratio (SAR) only. ABP values are greater than the root-zone suitability criteria, suggesting the modeled spoils represent alkaline or neutralizing rock strata. The Navajo Mine saturation percent suitability criterion is exceeded in five of the eight drill holes in the Pinabete permit area from 11.1% to 40.3%. SAR suitability criteria are exceeded in six of the eight drill holes in the permit area by up to 19.4, but the average SAR value is below both OSM and Navajo Mine suitability criteria. The Navajo Mine pH suitability criteria is exceeded in two of the eight drill holes in the Pinabete permit area by 0.1 standard units (s.u.).

In conclusion, there is no widespread occurrence of potentially acid- and toxic- forming materials (PATFM) within the Pinabete permit area. ABP characterization suggests a net alkaline environment for the majority of interburden layers across the permit area. One in-situ interburden layer, I2, possesses APB values that are outside criteria limits. This layer is thin compared to the total thickness of interburden to be excavated during mining, constituting less than 6% of the in-situ interburden thickness at each drill hole location. Characterization of the in-situ interburden also suggests that the rock strata present in I6, I4, I3, and I2 in the permit area possess values for saturation percent, SAR (I4, I3, and I2 only), and pH that are outside criteria limits established by OSM and Navajo Mine for root-zone suitability. These characteristics are common to alkaline subsurface environments where weathering has not altered the rock strata.

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When analyzed as a composite to model mine spoil conditions, the influence of the I6, I4, I3, and I2 layer characteristics is attenuated and the overall values for physical and chemical analytes for the spoil, with the exception of pH, saturation percent, and SAR, are within suitability limits and PATFM is not a concern. Despite containing these thin layers of low pyritic sulfur ABP interburden, all modeled spoil columns have net alkaline values (Appendix 17.E). In addition, there is substantially more material present in the overburden of the uppermost coal seam to be mined to provide 4 feet of suitable root-zone. The average in-situ suitable overburden thickness over the permit area, based on drill hole information, is 30.8 feet. This thickness is greater than the required regulatory thickness. Assuming the entire disturbance area required 4 feet of suitable material, these results suggest the amount of material available in the Pinabete permit area exceeds potential requirements by 7.7 times.

17.3 Coal Characteristics

The areal extent of the Fruitland Formation coal seams varies across the permit area due to strata dip and localized pinch outs, as shown by the cross-sections in Exhibit 17.1-2, Exhibit 17.1-3, Exhibit 17.1-4, and Exhibit 17.1-5. Some of these seams split locally from "parent" seams to form "child" seams. Defined croplines are not typically expressed at the topographic surface due to deep weathering and burn areas. The general characteristics and extent of the coal are discussed in the following section.

The No. 2 coal seam is the lowest seam to be mined and lies above the PCS. In some areas, the coal seam is in contact with the PCS and in others is separated from the PCS by interburden. The cropline is located on the west side of the permit area, outside of the coal lease. The seam has two splits, No. 2A and No. 2B, with No. 2A being the lower of the two. In Area 4 South, these seams have additional splits locally, named Nos. 2A2, 2A1, 2B2, and 2B1. No significant rock partings occur in this seam.

The No. 3 coal seam lies above the No. 2 seams and is separated by the interburden above the No. 2 coal seam (I2). The cropline is located on the west side of the permit area, outside of the coal lease. This seam has two splits, No. 3A and No. 3B, with No. 3A being the lower of the two. No significant rock partings occur in this seam.

The No. 4 coal seam lies above the No. 3 seam and is separated by the interburden above the No. 3 coal seam (I3). The cropline is located on the west side of the permit area, outside of the coal lease. In Area 5 this seam splits locally into No. 4A and No. 4B, with No. 4A being the lower of the two. No significant rock partings occur in this seam.

The No. 6 coal seam lies above the No. 4 coal seam, separated by the No. 4 coal seam interburden (I4). The cropline is located on the west side of the permit area, outside of the coal lease. The No. 6 coal seam

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splits locally into No. 6A and No. 6B, with the No. 6A being the lower of the two. No significant rock partings occur in this seam.

The No. 7 coal seam lies above the No. 6 coal seam, separated by the No. 6 coal seam interburden (I6). Croplines can be seen along bluffs and in valley floors throughout the permit area. The seams are absent or more weathered in the western portion of the permit area in Area 4 South. The No. 7 coal seam splits locally into No. 7A and No. 7B, with No. 7A being the lower of the two. No significant rock partings occur in this seam.

The No. 8 coal seam lies above the No. 7 coal seam, separated by the No. 7 interburden (I7). Croplines can be seen along bluffs and in valley floors throughout the permit area. In Area 4 South, the outcrops can be seen within Pinabete Arroyo. The seams are absent or more weathered in the western portion of the permit area in Area 4 South. This seam has two splits, No. 8A and No. 8B, with No. 8A being the lower of the two. In Area 4 South, these seams have additional splits locally, named Nos. 8A2, 8A1, 8B2, and 8B1. No. 8B coal seam splits into 8B2 and 8B1 in only localized areas within Area 4 South but does not split in Area 5. No significant rock partings occur in this seam.

Coal seams and splits, described above, were sampled and analyzed for total sulfur and pyritic sulfur content. The average total sulfur percent and average pyritic sulfur percent of each seam are summarized in Table 17.3-1. Average thickness of each seam is summarized in Table 17.3-2 and detailed in Appendix 17.A, Appendix 17.B, and Appendix 17.C. Average total sulfur values range from 0.53% to 1.27%, with No. 2A and No. 7 coal seams showing the highest values. Weighted average total sulfur, as a function of average seam thickness, for all seams is 0.76%. Average pyritic sulfur values range from 0.10% to 0.71%, with No. 2A and No. 7 coal seams showing the highest values. Weighted average pyritic sulfur, as a function of average seam thickness, for all seams is 0.28%. Pyritic sulfur is the main contributor to acid-forming materials through oxidation processes and makes up a small percentage of both the coal seams and the overburden/interburden materials. As stated in Section 17.2, the overburden/interburden rock strata have a large positive ABP that can neutralize any acidic groundwater that may be generated by the unmined coal faces in the highwall and any waste coal that may be placed in the backfill, as described in Section 21 (Waste Disposal Structure and Facilities). In addition, baseline groundwater from coal seams is described in Section 18 (Water Resources) and does not indicate the presence of any PATFM. Therefore, the coal seams do not contain PATFM.

17.4 Paleontological Resources

Paleontological resources are defined as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crusts, that are of paleontological interest and that provide information about the history of life on earth. This definition includes most vertebrate fossil remains, fossil track ways, trace fossils, and

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rare or unusual invertebrate and plant fossils. However, this definition does not recognize that paleontological resources differ with regard to how much information the resources provide to science. While all paleontological resources may be of scientific interest, not all of these resources have the same potential to yield significant information relevant to understanding geology and the history of life on earth.

The San Juan Basin contains sedimentary rocks that range in age from Cambrian to Holocene (560 million years ago to less than 10,000 year ago). Fossil-bearing geologic units in the permit area are Late Cretaceous Fruitland sedimentary rock (100 to 65 million years old) and Holecene age alluvial deposits (less the 10,000 years old). Late Cretaceous sedimentary rocks outcrop across most of the Navajo Mine lease area, while more recent Holocene alluvial deposits are found within the arroyo and wash channels (BIA 2007).

During the Cretaceous period, northwestern New Mexico was on the western margin of a large intercontinental seaway that split the North American continent into two land masses. A series of sea-level cycles during this period moved the western shoreline between what is now eastern Arizona and western New Mexico. The depositional context of the sediments during this period consists of shoreline and near-shore environments of the interior seaway (BIA 2007). The complex geologic history of the San Juan Basin has resulted in the deposition of a rich paleontological record. Fossils include vertebrates (e.g., dinosaurs, ancient mammals, birds, amphibians, lizards, turtles, crocodiles, and fish), invertebrates (e.g., baculites, ammonites, crustaceans, bivalves, and gastropods), plants (e.g., leaf impressions, palm fronds, conifers, and petrified wood), burrows, casts, and preserved animal tracks (Lucas et.al. 1981, Lucas et.al. 2006, and Wolberg 1997).

Numerous previous paleontological resource investigations have been conducted on the lands within and adjacent to the Navajo Mine lease area (Holmes 1877, Bauer 1916, Bauer 1921, Gilmore 1916, Knowlton 1916, Stanton, 1916, Marshall and Breed (1975), Hunt and Lucas, 1992, and Wolberg, 1997). In 2013 and 2014 Wolberg and PaleoWest refreshed the previous surveys for the lands within the Pinabete Permit area and a portion of Area 4 North (PaleoWest 2014).

In the fall of 2013, the Pinabete Permit area was inventoried for the presence of potential paleontological resources. The inventory involved an initial reconnaissance survey followed by a systematic and intensive pedestrian survey of the areas with the highest probability of containing fossils. Identified fossil localities were recorded using a global positioning system (GPS) and a description of the of the type and preservation status of the material present. Similar to the location of cultural resources and threatened and endangered flora and fauna, locations of paleontological resources are considered to be confidential and are not available for public review. The location of the paleontological resources is provided in the confidential Appendix 17.F.

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The 2013 inventory identified 369 paleontological resources or localities. Of these localities 186 were recorded as solely containing a petrified wood component. Twenty localities were identified as requiring additional evaluation. On November 26, 2013, December 16, 2013, and January 4, 2014, paleontologist from PaleoWest revisited the 20 potentially significant localities. During these field visits each of the localities was reviewed to determine the condition, integrity, and context of each resource. Additionally, a literature review was conducted to determine the rarity of the resource. PaleoWest used the additional data they collected to assess the significance of the paleontological resource, or locality, using the PRMP significance criteria (Appendix 17.F).

Based on the additional evaluation and PRMP significance criteria, 10 localities were determined to contain significant paleontological resources (Appendix 17.F). Of these 10 significant localities, three are located within the area of proposed surface disturbance. PaleoWest recommended that these there sites be mitigated prior to any surface disturbance. The remaining seven significant localities are outside of the proposed surface disturbance area but within the permit area. These localities will be monitored and potentially mitigated if disturbed by future surface disturbance. The remaining 10 non-significant localities did not meet the PRMP significance criteria and do not have the potential to contribute data to science beyond what has been documented. The data potential of these localities has been exhausted and therefore no further work is recommended.

17.5 Geologic Information Collection and Analysis

Geologic information is collected as part of ~~BNCC~~NTEC's drilling programs. The goals of the drilling programs are to enhance understanding of the coal geology for geologic modeling, collect samples for coal quality evaluation, and collect samples for overburden/interburden characterization. ~~BNCC~~NTEC maintains a 3-dimensional geologic model in Vulcan software. This model is the source of cross-sections presented in this section.

Mo-Te Drilling completed five drill holes for the 1987 drilling program in Area 4 North and 10 holes for the 1998 drilling program in Area 4 South. Each hole was logged and continuous core samples were collected (Appendix 17.A and Appendix 17.B). The core log information from the 1987 and 1998 drilling programs within the permit area are provided in Appendix 17.A and Appendix 17.B, respectively. ACZ Laboratories, Inc. conducted the coal quality and overburden analysis for the 1987 drilling program. Wyoming Analytical Laboratories, Inc. conducted the coal quality and overburden analysis for the 1998 drilling program. The results from overburden analyses are provided in Table 17.2-1, Table 17.2-2, Table 17.2-3, Table 17.2-4, Table 17.2-5, Table 17.2-6, Table 17.2-7, Table 17.2-8, Table 17.2-9, and Table 17.2-10. Stewart Brothers Drilling drilled the 16 holes for the 2007 drilling program in Area 4 South and Area 5. Continuous coring was utilized for sample collection. Core log information for these data within the

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permit area is provided in Appendix 17.B and Appendix 17.C. SGS Labs conducted the coal quality analysis, and Green Analytical Laboratory performed the overburden analysis. Results from the overburden analyses are contained in Table 17.2-7, Table 17.2-8, and Table 17.2-9. The location of drill holes is shown on Exhibit 17.1-1 and Exhibit 17.2-1.

Subsequent drilling programs will be initiated through the life of the operation. Data collected through these drilling programs will be used to enhance understanding of the geologic model. Additional sampling and testing will also take place for further overburden characterization as mining activities advance toward the south. As applicable, this section of the permit will be updated with the additional information. Future drilling programs will focus on Area 4 North, as it will be the area to be mined first. Towards the end of the life of mining in Area 4 North, ~~BNCC~~NTEC will focus drilling programs on Area 4 South. These additional drilling programs are discussed further in Section 22 (Support Facilities).

Personnel

Persons or organizations responsible for data collection, analysis, and preparation of this permit application package section:

~~Kent Applegate~~	BHP Billiton Mine Management
~~Ron Van Valkenburg~~	Company (disclosed agent)
~~Matt Owens~~	Farmington, NM
~~BHP Navajo Coal~~Navajo Transitional Energy Company	
	Mo-Te Drilling, Farmington, NM
	ACZ Laboratories, Inc~~.~~., Steamboat Springs, CO
	Wyoming Analytical Laboratories, Inc~~., ~~., Laramie, WY
	Stewart Brothers Drilling~~,~~, Milan, NM
	SGS Labs~~,~~, Denver, CO
	Green Analytical Laboratory~~,~~,

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Durango, CO

PaleoWest Archaeology,
Farmington, NM

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