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SECTION 50 BONDING

50.1 Bond Scheme

The determination of the reclamation bond is an estimate of the maximum foreseeable reclamation cost that the Regulatory Authority would incur in the event of bond forfeiture by ~~BHP Navajo Coal~~Navajo Transitional Energy Company (~~BNCC~~NTEC) during the permit term ending in 2021. Areas bonded under this Pinabete Mine Plan permit area (permit area) bond include those areas which will be disturbed in the process of recovering coal from the permit area and those areas required to construct facilities or infrastructure that support the production activities. The reclamation costs detailed in this section and the reclamation procedures detailed in Part 5 (Reclamation Plan) apply only for determining the bond amount at year 2021 and are not necessarily meant to represent current or future operational practices. Direct costs are calculated in Worksheets 2 through 15 and are totaled in Worksheet 16 in Appendix 50.A. Indirect costs are applied as percentages of the direct cost in Worksheet 16 to determine a total bond cost.

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50.1.1 Maximum Reclamation Liability during the Permit Term

During the permit term ending 2021, the reclamation liabilities will be greatest at the end of the five-year term. ~~BNCC~~NTEC will progress pit development throughout the permit term while not yet disturbing sufficient acreage to facilitate significant reclamation activities, the cumulative disturbance will reach the maximum late in the permit term. Throughout the five-year term, strip progression results in an increase in disturbed land, increased pit depths, and slight increases in pit lengths.

The amount of mining (stripping) disturbance to occur during the permit term is related to strip progression and timing, which is presented on Exhibit 50.1-1. The bond scenario presented here does not necessarily match the strip progression timing shown in the permit term disturbance exhibits. This is due to the remaining uncertainty regarding actual start dates for the mining (stripping) operations, which are ultimately a function of the timing of the coal requirements from the customer. In order to address this uncertainty and ensure that ~~BNCC~~NTEC will be sufficiently bonded over the first permit term, the maximum likely amount of mining (stripping) disturbance has been considered for the bond scenario. In other words, this is a conservative bond scenario and ~~BNCC~~NTEC is unlikely to disturb more than the acreage indicated in the bond scenario. The regraded area of disturbance (bond final surface configuration) is also shown on Exhibit 50.1-2.

50.2 Extended-Liability Bond Areas

~~BNCC~~NTEC does not have any extended liability bond areas associated with the permit area; therefore, this section is not applicable.

50.3 Bonding of Facilities Used in Common

Facilities and infrastructure (e.g., powerlines, ancillary roads, etc.) within the permit area in Area 4 North which are currently considered in ~~BNCC~~NTEC Navajo Mine's bond amount (Office of Surface Mining Reclamation and Enforcement (OSM) Permit No. NM-0003F) (BNCC 2009) will be separated from the Navajo Mine bond and incorporated into the Pinabete Mine Plan permit area bond by minor revision after the approval of this permit application package.

50.4 Reclamation Cost Estimate

50.4.1 Reclamation Costs

Reclamation costs are calculated as shown in Appendix 50.A, Worksheets 1 through 16. The methods and format used in this calculation are consistent with the guidance contained in the OSM *Handbook for Calculation of Reclamation Bond Amounts* (OSM 2000). A summary of the reclamation bond amount is presented in Table 50.4-1.

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Reclamation liabilities attributable to the Pinabete Mine Plan during the first permit term (2016 to 2021) will occur in Area 4 North (pit development in Area 4 South will occur after the first permit term). It is assumed that the final bond pit will progress as shown in Exhibit 50.1-1 and will be stripped to the lowest economically recoverable coal seam. Reclamation activities will consist of the following:

1) Facility demolition and removal,
2) Earthmoving – primary and secondary regrade, topdressing, mitigation,
3) Revegetation, and
4) Miscellaneous

50.4.1.1 Facility Demolition and Removal

Facility demolition and removal of all existing permit structures on the mine site includes electric power lines; explosive stores; coal facilities; water control ponds; transportation facilities; and miscellaneous structures. A majority of these facilities are included with the Navajo Mine Area 4 North Bond update which is located in the Navajo Mine Permit Application Package (OSM permit No. NM-0003F, Appendix 12-B) (BNCC 2009). New facilities associated with the Pinabete Mine Plan permit area that are constructed during the first permit term are two sedimentation ponds (Pond 415 and Pond 416). Removal of these ponds is included in earthmoving costs. As a result, there are no facility demolition and removal costs.

50.4.1.2 Earthmoving

A post-mining "snapshot" of the mine area was projected for year 2021, as shown in the bond post-mining configuration (PMC) map, Exhibit 50.1-1.

The bond final surface configuration (BSC) selected for the initial permit term is to return the disturbed area as close as possible to the pre-mining topography. To achieve BSC (Exhibit 50.1-2), PMC topography in these areas was altered to create reclaimed surfaces falling as close as practical to the pre-mining topography. The BSC surfaces maintain 6.5 horizontal:1 vertical (6.5h:1v) maximum final interior slopes, 4h:1v maximum outslopes, balance cut and fill volumes, and ensure positive drainage.

The next design step was to subtract a computerized grid of the PMC from the BSC. The result is a cut-fill contours map (Exhibit 50.4-1) with the cut areas shown as red contours, and the fill areas shown as green contours. The cut and fill areas are then subdivided into polygons and the cut and fills are balanced by taking extra cut to polygons that require fill. The result is the cut-fill blocks map (Exhibit 50.4-2).

The CAD software gives the volume and centroid of each block. The centroids are used to calculate haulage distances and grades, except in the case of deep pits and ramps where haulage is assumed to be to the crest where the material can be pushed over the edge. The haulage profiles and grades are weight averaged by volume to give an average distance and grade for each equipment type.

All bond earthmoving activities are tabulated in Worksheet 3 as follows:

Worksheet 5	Dozers
Worksheet 8	Loaders
Worksheet 9	Trucks
Worksheet 11	Scrapers
Worksheet 12	Graders
Worksheet 15	Drilling and Blasting of Highwalls

Quantities from these worksheets are used as input to Worksheets 5 through 12, where equipment hours are calculated. Worksheet 13 uses these hours to calculate earthmoving costs. The earthmoving costs are totaled in Worksheet 16, Item 2. In addition to regrade activities, earthmoving includes spoil mitigation, topdressing placement, and concrete disposal.

Once regrading and/or facilities removal activities have been completed in an area, required suitable root zone mitigation and/or topdressing material is placed on these areas (Exhibit 50.4-3).

Suitable spoil and regolith/topdressing material (either stockpiled or in situ) are used to complete the 4-feet suitable root zone material requirements on spoil surfaces. Stockpiled and/or in-situ regolith/topdressing material is used to complete the topdressing material depth requirement on all reclaimed surfaces. Refer to Section 36 (Post-Reclamation Soil) for additional information regarding root zone material and topdressing replacement requirements.

50.4.1.2.1 Equipment Selection

Large earthmoving equipment was selected assuming that a competent, qualified contractor will be doing the reclamation work using their own equipment.

50.4.1.2.2 Equipment Productivity and Costs

Reclamation activities will take place with a 15-shift-per-week schedule. Equipment ownership and operating costs are tabulated in Appendix Table 50-A-23 (Appendix 50.A) taken from *Cost Reference Guide for Construction Equipment* (CRG-PRIMEDIA Equipment Watch 2011). Equipment operator wage rates are listed in Appendix Table 50-A-24 (Appendix 50.A) and were taken from the ACME Inc. Navajo Mine reclamation contract in force for 2011.

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For haul routes greater than 600 feet, scrapers are more economical than dozers. For haul routes greater than 3,000 feet, dump trucks are more economical than scrapers. Dozers are assumed to work alone with no support equipment other than a lowboy for transport. Truck and scraper fleets both require load and dump dozers, and half-time water truck and grader for haul road maintenance. All fleets are assigned light plants for night work. Fuel and lube trucks are included in the fuel costs (Appendix Table 50-A-23 in Appendix 50.A).

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Productivities for each particular activity are calculated in Worksheets 5 through 12 (Appendix 50.A), using the material properties and haulage profile pertaining to the task.

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50.4.1.3 Revegetation

After regrading, the bonded areas will be graded with graders and then these areas and facilities areas will be topdressed as noted in previously. After topdressing, revegetation activities will commence. This involves seeding, crimping, mulching, and irrigation as described in Section 37 (Post-Reclamation Vegetation). Costs are noted in Appendix 50.A, Worksheet 14.

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50.4.1.4 Miscellaneous

No miscellaneous costs were required for the initial permit term bond scenario.

50.4.3 Indirect Reclamation Costs

Mobilization and demobilization costs are assumed to be 1% of the direct costs, since the reclamation project would be very large. Contingencies are 5% of the direct costs; the engineering redesign fee, the contractor profit and overhead, and the reclamation fee are set at 1.8%, 15.0%, and 3.9% of direct costs respectively, per agreement with OSM staff.

50.4.2 Total Performance Bond Cost

The total performance bond cost is the sum of the direct and indirect costs and is shown in Worksheet 16, Appendix 50.A.

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Personnel

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

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~~Kent Applegate~~	Company (disclosed agent)
~~Matt Owens~~	Farmington, NM
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