New Mexico Coal

Coal Combustion Byproducts (CCB) Fact Sheet
February 2009

BHP Billiton, operates two coal mines in northwest New Mexico, the San Juan Mine and the Navajo Mine. Together they supply approximately 15 million tons of coal annually to two power plants - the San Juan Generating Station and the Four Corners Power Plant. Once coal is burned, coal combustion byproducts (CCBs), such as fly ash, flue gas desulfurization product (FSD), boiler slag, and bottom ash remain.

Recently, concerns over the proper management of CCBs have arisen, primarily as a result of the failure of an earthen dam used to store fly ash at the Tennessee Valley Authority (TVA) Kingston Fossil Plant.

Public Service of New Mexico (PNM), which operates the San Juan Generating Station, returns approximately 1.9 million tons of CCBs to the San Juan Mine for management by San Juan Coal Company. As of January 2008, CCBs generated by the Four Corners Power Plant are no longer managed by BHP Navajo Coal Company at the Navajo Mine, but instead are managed at the power plant.

Coal Combustion Byproducts The primary constituents of CCBs include silica, calcium oxide, magnesium oxide, iron oxide, and carbon. The residual material is alkaline and may be slightly saline. Although the combustion of coal tends to concentrate metals and other contaminants in the residue, CCBs have trace element concentrations similar to those found in the natural surrounding material.

San Juan Coal Company regularly collects and analyzes samples of CCBs to measure total metal concentrations in the material along with its potential to leach toxic constituents into ground water. The laboratory analyses, which includes arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver, indicates that CCBs managed at San Juan Mine do not approach levels established by the U.S. Environmental Protection Agency (EPA) for toxic hazardous waste.

On a national basis, approximately 40% of CCBs are recycled where such markets exist. CCBs are used in the manufacture of asphalt and concrete for roads. It is also used in building construction, such as wallboard and roofing materials, and in the manufacture of household products, including carpet and kitchen countertops.

EPA has reviewed the characteristics of CCBs and has determined that they "do not warrant" regulation as a hazardous waste.

Successful Reclamation over CCBs at the San Juan Mine

Recently Seeded and Mulched Cover over CCBs

Mining Overburden or Spoil to be Used in Reclamation (Often Confused with CCBs)

Proposed Initiatives

Congress directed the EPA to commission an independent study of the environmental impacts associated with managing CCBs at mine sites. The study, prepared by the National Academy of Sciences, was completed in 2006. It concluded that continued use of CCBs in mines as part of the reclamation process was appropriate if:

- The placement is properly planned and carried out to avoid significant adverse impacts, and
- The mine permitting process includes provisions for public involvement.

The U.S. Office of Surface Mining (OSM) and EPA issued notices in 2007 announcing their intention to develop nationwide programs to regulate CCBs. The OSM notice sought public comment on the need for permit requirements and performance standards to manage CCBs at active coal mining operations and abandoned mines being reclaimed. The EPA notice indicated that it intended to develop regulations to manage CCBs as nonhazardous waste when managed in landfills and surface impoundments not associated with mines under its Resource Conservation and Recovery Act (RCRA), Subtitle D authority.

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The Surrounding Environment The San Juan and Navajo mines are situated along the western flank of the San Juan Basin. Ground water in the vicinity of the mines within the Fruitland Formation and Pictured Cliffs Sandstone is scarce and generally poor. It does not meet New Mexico and Navajo Nation standards for drinking water or agricultural purposes, such as stock watering and irrigation. Ground water in the area generally contains high levels of sulfates and salts with total dissolved solids exceeding 10,000 parts per million.

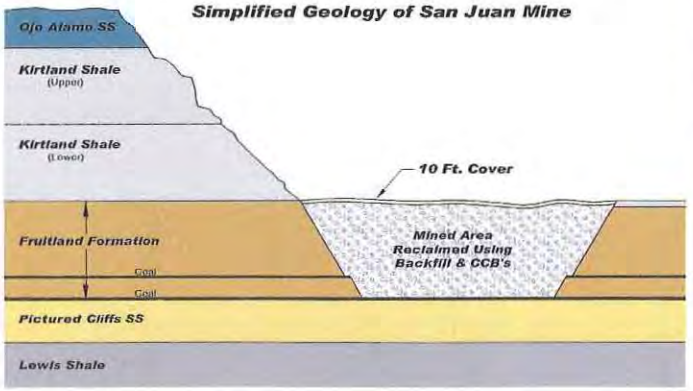
The annual precipitation rate in the area is between 6 and 8 inches with an annual evaporation rate between 50 to 60 inches. The arroyos and sand washes that cross the mines only flow during and after storm events.

Management at San Juan Mine CCBs generated by the San Juan Generating Station are transported back to the mine site for use in reclamation. Key advantages of this approach include:

- Avoiding the need to disturb additional land for CCB management, and
- Restoring the reclaimed mined land surface to its original contour.

Management of CCBs at the mine site is regulated by the State of New Mexico in the mine permit and reclamation plan issued under the federal Surface Mining Control and Reclamation Act (SMCRA) with OSM oversight. These requirements include:

- Placing CCBs in dry pits away from major drainages
- Covering the CCBs regularly with natural overburden to reduce potential air emissions
- Placing a final cover of approximately 10 feet of backfill material to provide a natural water barrier
- Grading the area to the approximate original contour and reclaiming it with native plant species, and
- Monitoring surface water, ground water, and vegetation.



Grey Natural Overburden or Spoil (Often Confused with CCBs)

Grey CCBs

New Mexico Coal effectively manages coal combustion byproducts at the mine site with minimal impact on the surrounding environment.

New Mexico Coal Management Practices Our approach to managing CCBs meets National Academy of Sciences recommendations in the following ways:

- Samples of CCBs are initially and periodically analyzed to determine CCB characteristics and constituents
- A background investigation of the site has been completed to determine that it is suited for managing CCBs in the reclaimed pit
- A surface and ground water monitoring program exists designed to predict the impact of managing CCBs on the surrounding environment and
- Site specific practices have been developed and implemented to minimize the likelihood of adverse environmental impacts.