San Juan Citizens Alliance

A voice for environmental, social, and economic justice in the San Juan Basin of southwest Colorado and northwest New Mexico

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March 2, 2007

John Tinger
Environmental Protection Agency
Region IX (WTR-5)
75 Hawthorne Street
San Francisco, CA 94105

Re: National Pollutant Discharge Elimination System (NPDES) permit NN0028193 for the BHP Billiton Navajo Coal Company Navajo Mine

Dear Mr. Tinger:

San Juan Citizens Alliance (SJCA), Diné Citizens Against Ruining our Environment (Diné Care) and Clean Air Task Force (CATF) respectfully submit the following comments to the Environmental Protection Agency (EPA) concerning the proposed reissue of National Pollutant Discharge Elimination System (NPDES) permit NN0028193 under Section 402 of the Clean Water Act (CWA) for the BHP Billiton (BHP) Navajo Coal Company Navajo Mine.

SJCA is a non-profit organization, with over 500 members in the Four Corners region, actively involved in energy development oversight; advocating for cleaner air quality and better stewardship of our natural systems; promoting reduced energy consumption, energy efficiency and renewable energy; and working for improvements to community health. SJCA has offices in Cortez and Durango, Colorado and in Farmington, New Mexico.

Diné Care is a membership organization by and for, the Diné, the People. Diné Care is located at 10A Town Plaza, Suite 138, Durango, Colorado 81301.

CATF is a nonprofit organization dedicated to restoring clean air and healthy environments through scientific research, public education and legal advocacy. CATF is located at 77 Summer Street, 8th floor, Boston, Massachusetts, 02110.

SJCA, Diné Care and CATF are extremely concerned that NPDES permit NN0028193 fails to address the legacy of industrial wastes from life-cycle processes at Navajo Mine that are reaching the San Juan River through ephemeral washes.

We request that the EPA add, at a minimum, water quality based effluent limits for the NPDES permit NN0028193 for Total Dissolved Solids (TDS), sulfate, boron, selenium, arsenic, lead and cadmium to those limits currently proposed in this permit.

Historic reporting shows that TDS, sulfate, boron and selenium are increasing to a statistically significant degree in the Chaco River from points upstream of the Navajo Mine to points downstream to levels causing harm and exceeding water quality standards for at least one toxic trace element, as well as primary and secondary drinking water standards and health advisories for sulfate, TDS and boron. Please see *A Preliminary Evaluation of the Potential for Surface Water Quality Impacts From Fly Ash Disposal at the Navajo Mine, New Mexico* D. A. Zimmerman, P.E., SETA, May 20, 2005, page 23, "Results of Surface Water Quality Analysis, Table 2. Average selenium levels in the Chaco surface waters have increased from 0.0038 mg/L upstream of the mine to 0.0131 mg/L downstream of the mine, exceeding the chronic aquatic water quality standard established under the Clean Water Act of 0.005 mg/L" (see National Recommended Water Quality Criteria for Priority Toxic Pollutants, EPA Office of Water, 2006). Average boron levels have increased from 0.219 mg/L upstream of the mine to 2.57 mg/L downstream of the mine. This exceeds the Removal Action Level for boron established by EPA under the Superfund Program of 0.9 mg/L as well as Ten Day and Longerterm Health Advisories for children of 0.9 mg/L and the Lifetime Health Advisory for adults of 0.6 mg/L (see Drinking Water Regulations and Health Advisories, EPA Office of Water, October 1996). Average sulfate levels have increased from 305 mg/L upstream of the mine to 1118 mg/L downstream of the mine, exceeding the proposed primary DWS of 500 mg/L and secondary DWS of 250 mg/L. Average TDS levels have increased from 881 mg/L upstream of the mine to 2644 mg/L downstream of the mine, exceeding the secondary DWS of 500 mg/L. Thus TDS levels, an indicator of total pollution in the water, are already above the public welfare drinking water standard upstream of the mine, suggesting clearly that this permit should set stringent TDS limits to keep from making a stressed environment more stressed.

Concentrations of sulfate, TDS and boron monitored by the Navajo Nation EPA in the surface waters of the Bitsui Wash downstream from the Bitsui ash pit in the northeast corner of the Navajo Mine are at harmful levels that are beyond background levels (see *A Preliminary Evaluation of the Potential for Surface Water Quality Impacts From Fly Ash Disposal at the Navajo Mine, New Mexico*, pages 9-15). Levels of these constituents in monitoring wells downgradient of ash in the Bitsui Ash Pit located upstream of this surface water monitoring point have risen clearly to harmful concentrations indicating the ash is the source of the degradation in the Wash. The one well that BHP is calling a background (upgradient) well in this part of the mine, KF-83, is actually downgradient to most of the northern half of Navajo Mine. Not surprisingly, KF-83 also has clearly increasing levels of sulfate and TDS, given that ash was dumped upgradient to this well.

Additional information from the monitoring programs in place at the Navajo Mine and neighboring San Juan Mine indicates there should also be water-quality based effluent limits for arsenic, cadmium and lead set under NPDES permit NN0028193. BHP Minerals uses arsenic in its Navajo Mine permit as a specific indicator parameter of ash contaminant migration, and thus this permit should establish limits for arsenic. High sulfate levels from the coal combustion wastes (CCW) might be keeping the solubility of arsenic low to date at monitoring points, but as sulfate levels wash from the geochemistry in and around ash deposits in the mine, the solubility for arsenic and other trace elements is likely to change. The permit should establish limits for cadmium and lead in any surface discharges given that these trace elements, in addition to selenium, are rising to harmful levels in the Shumway Arroyo alluvium as a result of fly ash dumped in significant quantities in close vicinity to the "background" Well D that is part of BHP's neighboring San Juan Mine operation. The same subbituminous coal that is the parent material of the CCW, which is the likely cause for this contamination, is being mined and burned at the Arizona Public Service (APS) Four Corners Power Plant and dumped in the Navajo Pits.

Given the low volumes of surface water at most monitoring points around this mine, the permit's limits for trace elements should be equivalent to the CWA's chronic water quality standards to protect the Use Designations in the Chaco River and San Juan River. If no such standards exist for the constituent, limits should be set at levels designed to prevent exceedances of drinking water standards, health advisories, removal action levels, agricultural standards or other standards that protect human health, aquatic life, livestock, crops, flora and fauna against chronic toxicity exposures.

There are also rises in mean pH by more than half a unit from upstream to downstream [from 7.68 to 8.21 standard units (s.u.)] in the Chaco River's surface waters. Even though EPA is proposing the 6-9 s.u. range as a pH limit, NPDES permit NN0028193 should add enhanced monitoring requirements and corrective action trigger levels below 9.0 s.u. to make sure that the rise in pH does not continue to the point of surpassing 9 s.u. before any actions are taken. If the mean pH over several samplings surpasses 8.5 s.u., the permit should require investigation and actions to prevent further increase as the consequences of a rise in average pH above 9 s.u. could cause substantial harm to life in or dependent on the Chaco River.

EPA should appreciate the fact that coal combustion waste is an "industrial solid waste" defined by 40 CFR § 258.2 that has nothing to do with coal mining. Even the US Office of Surface Mining recognizes this and has issued guidance urging mine operations to make sure that the meaning and spirit of other laws are complied with when they dump CCW into coal mines. See *Guidance On Disposal of Coal Combustion Byproducts in the Western United States When OSM Western Region is the Regulatory Authority*, (Office of Surface Mining, Western Region, Approved 2/6/01). The first page of that guidance states:

> Surface coal mines have been identified and used as disposal sites for CCBs. The Surface Mining Control and Reclamation Act (SMCRA) did not contemplate the disposal of solid wastes in a coal mine, other than wastes generated from coal mining operations.

Page 4 of this guidance states,

> Objective 2 - CCB disposal operations must conform to applicable State, Tribal, or local solid waste disposal laws and regulations, in addition to the SMCRA regulatory program.
>
> Strategy 2.1 - The permit application should describe the steps that have been taken to comply with applicable Federal, State and Tribal solid waste disposal laws and regulations.
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> Under 30 CFR § 780.18(b)(9), the permit application must contain a description of the steps to be taken to comply with the requirements of applicable air and water quality laws and regulations and health and safety standards.

In our judgment, this guidance is implying that the agency issuing a NPDES permit to a mine in which OSM has oversight control, and which is a major dump site for CCW, will want to ensure that the permit includes more than the most minimal requirements for limits on coal mines that are based solely on what mining operations produce and that have nothing to do with the operations of power plants or the post-combustion solid wastes they produce.

Indeed there is long established precedent at the state level in mining regulatory programs for establishing effluent characterization, monitoring and additional limits for constituents beyond the few technology-based limits found in the "Coal Mining Point Source Category BPT, BAT, BCT Limitations and New Source Performance Stands" (40 CFR § 434) when mines are transformed into being dumping grounds for CCW. For example, the Guidance Policy Memorandum for the West Virginia Office of Mining and Reclamation concerning "Disposal and Utilization of Coal Ash on Surface Mining Operations," dated January 3, 1994, states:

> <u>Permits, Revisions, and Modifications</u>
>
> The OMR may approve the utilization of coal ash in a beneficial use application as described in an application for a surface mining permit, an NPDES permit, and revisions or modifications to existing permits. . . . .
>
> Coal ash utilization as a beneficial use on surface mining operations will be evaluated by OMR in accordance with plans, design specifications, testing procedures, and monitoring requirements as set forth and submitted on the attached form (MR-36). The attached form will serve as an element to both the surface mining and NPDES permit application or application for a revision or modification of an existing permit.
>
> <u>Water Quality</u>
>
> Surface and ground water monitoring stations for the purpose of monitoring coal ash leachates shall be established at appropriate locations so as to satisfy the requirements of both the Surface Mining Act and the NPDES program. Likewise, the analysis of water samples shall include the same chemical parameters for both permits. In the event that discharge points are established at different locations than the designated monitoring stations, analysis of water at the discharge point will include the same chemical parameters as for the monitoring station.

Thus EPA should do more than reissue a bare-bones NPDES permit that lacks any water-quality based effluent limitations for the Navajo Mine, given that it is reportedly the largest CCW mine disposal site in the United States (U.S.) and substantive monitoring data indicates surface waters draining from this mine have become contaminated with well known CCW constituents, particularly when OSM has admitted that SMCRA's requirements were not designed to address CCW disposal in coal mines in the first place.

The EPA should require a competent characterization of the ash and scrubber sludge dumped in the Navajo Mine pits to set water quality based effluent limits for any other pollutants that may pose a harm to the surface waters receiving surface or underground drainages from the Navajo Mine. Given the large volume of coal combustion waste that has already been placed in the Navajo Mine, (approximately 60-70 million tons since the mine began operation), this characterization should include the installation of at least 20-25 pore water monitoring wells directly in the ash in the mine's pits to ascertain concentrations in the leachate being generated in these pits at different depths as well as the degree of water in the pits throughout a complete hydrologic cycle and, in particular, after precipitation events including storms and snow melts. These wells should sample leachate from at least one pit in each of Navajo Mine areas I, II, III and IV - in addition to the wells in the Bitsui Ash pit. The wells should be sampled at a minimum on a monthly basis for at least one year to gather sufficient data to establish a credible range of concentrations of constituents in the leachate that should be regulated or at least monitored in NPDES permit NN0028193. These limits should be in addition to the limits for selenium, TDS, sulfate, boron, arsenic, cadmium and lead.

This characterization of pore water could be augmented with ash leach tests given that the monitoring wells may be dry during many of the samplings, but the characterization process should NOT be based primarily on ash leach tests performed in the laboratory as such tests are notoriously poor predictors of what the waste will do in the surface or subterranean mine environment. This characterization and these added limits are necessary to make sure that the use designations stated on page 2 of the permit's October 2000 FACT SHEET are not violated, i.e., primary and secondary human contact, warm water habitat, ephemeral warm water habitat, and livestock and wildlife watering.

Due to changing solubilities for trace metals, driven by evolving concentrations of major ions and oxidation-reduction (redox) conditions, the attenuation of higher pHs to lower levels as ash leachate becomes diluted in the site environment, and the possibility for more stringent emission controls at the Four Corners Power Plant, EPA needs to establish an expanded list of parameters to be monitored in this permit that includes all the trace elements found in the CCW being generated by the Four Corners Power Plant. This list should be based on a bulk analysis of each component of this waste (the scrubber sludge, fly ash, bottom ash and boiler slag) which analyzes for the existence of all of the 17 trace metals commonly found in CCW (see EPA Report to Congress on Wastes From the Combustion of Fossil Fuels, March 1999) in addition to major and minor constituents. We formally request that the EPA implement as part of this permit a program of at least bimonthly bulk analysis and monitoring within ash pore waters (six times a year) for an expanded suite of parameters. These steps should be continued throughout the five year permit period to establish additional permit limits when the data suggests they are necessary to protect the use designations of surface waters potentially effected by this the permit. This monitoring should include parameters measuring radioactivity and carbon content in leachate from the CCW in-situ (from pore-water

monitoring in ash deposits). Groundwater monitoring results also must be regularly examined and reported with the NPDES Discharge Monitoring Reports.

These measures should be explicitly mandated in NPDES permit NN0028193 to give it's Reopener provisions meaning so that rising levels of any constituent can be noted and additional permits limits established when necessary to protect receiving waters. To date, water quality in the Chaco River, Bitsui Wash and other waters have been degraded to harmful levels by the Navajo Mine despite the long-term existence of this NPDES permit and the mine's monitoring program without the first step being taken by the mine operator or regulators to upgrade the permit, let alone address the degradation.

The EPA needs to expand the NPDES permit to monitor discharges at all washes exiting Navajo Mine, particularly those flowing at elevations below the mining activities. This equates to more monitoring points than just those currently for Outfalls 001 through 018. Monitoring should specifically include the Chinde and Bitsui washes. Valid upstream monitoring points should be established to more effectively monitor impacts resulting from the mining and ash disposal at Navajo Mine.

This needed monitoring program should explicitly require automatic sampling whenever precipitation events occur (i.e., if three storms occur in one month, the operator should sample three times in that month, once after each storm). Given that the mine permit is allowing ash to be left uncovered in pits, open to rampant contact with rain or snow for multiyear periods as standard practice, such sampling is necessary.

In summary, SJCA, Diné Care and CATF request that water quality-based effluent limits for selenium, boron, sulfate, TDS, arsenic, cadmium and lead be added to NPDES permit NN0028193. These limits should prevent the exceedance of chronic water quality standards or other standards designed to prevent the exposure of people and the environment to chronic toxicity in the surface waters draining the Navajo Mine. The permit should include a trigger level requiring actions to abate further rise if average pH exceeds 8.5 s.u. in waters exiting the Navajo Mine. Prior to issuing the permit, we request that EPA require a year of monthly monitoring in poor waters in the ash already placed in the mine and at all monitoring points beyond the ash to adequately characterize the ash, establish existing water quality and include necessary water-quality based limits on additional parameters. After NPDES permit NN0028193 is issued, it should require comprehensive bulk analysis and pore water monitoring for an expanded list of parameters on at least a bimonthly basis throughout the permit's term and examine the mine's groundwater monitoring results regularly to establish additional limits as they become necessary. We request that the permit require monitoring and enforcement of limits at all washes exiting Navajo Mine and wherever possible require monitoring at up stream points. We request that the permit require monitoring after all precipitation events.

EPA's proposed reissue of NPDES permit NN0028193 requires greater monitoring and analysis, more limits and subsequent enforcement to control pollutants discharged from Navajo Mine into waters of the U.S. The millions of tons of CCW dumped into Navajo Mine make this potential reissue of the NPDES permit anything but ordinary. Given the concerns over years of CCWs released into controlled outfalls discharging to Morgan Lake, Chaco River and the San Juan River, it is time that the EPA evaluate and address toxicity comprehensively in the NPDES permit to insure that public health and the environment are not being degraded by permitted Navajo Mine actions.

Sincerely,

s/Mike Eisenfeld

Mike Eisenfeld
New Mexico Staff Organizer
San Juan Citizens Alliance

s/Lori Goodman

Lori Goodman
Treasurer
Diné Care

s/Jeffrey Stant

Jeffrey Stant
PPW Project –Safe Disposal Campaign
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